UNIVERSITY OF CALIFORNIA, SAN DIEGO SCRIPPS INSTITUTION OF OCEANOGRAPHY

data report

PHYSICAL, CHEMICAL AND BIOLOGICAL DATA

CalCOFI Cruise 9003
4 – 19 March 1990

CalCOFI Cruise 9004
17 April – 2 May 1990

SIO Reference 91-4
27 February 1991

UNIVERSITY OF CALIFORNIA, SAN DIEGO

SCRIPPS INSTITUTION OF OCEANOGRAPHY

LA JOLLA, CALIFORNIA 92093

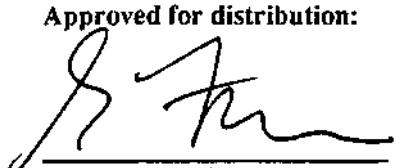
PHYSICAL, CHEMICAL AND BIOLOGICAL DATA

CalCOFI CRUISE 9003
4-19 March 1990

CalCOFI Cruise 9004
17 April - 2 May 1990

SIO Reference 91-4
27 February 1991

Approved for distribution:



Edward A. Frieman, Director

CONTENTS

Introduction 3

Literature Cited 7

Tables of Duplicate Analyses Results 8

CalCOFI Cruise 9003

List of Figures 16

Personnel 27

Tabulated Hydrographic Cast Data 28

Tabulated Primary Productivity Cast Data 53

Tabulated Secchi Disk Observations 56

Tabulated Macrozooplankton Data 57

CalCOFI Cruise 9004

List of Figures 58

Personnel 69

Tabulated Hydrographic Cast Data 70

Tabulated Primary Productivity Data 92

Tabulated Secchi Disk Observations 95

Tabulated Macrozooplankton Data 96

INTRODUCTION

The data in this report were collected during Cruises 9003* and 9004 of the California Cooperative Oceanic Fisheries Investigations (CalCOFI) program aboard the NOAA ship 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 the University of California's 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 9003 and 9004 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.

Included in this report are observations from hydrographic casts, Secchi disk lowerings, primary productivity casts and macrozooplankton net tows. Duplicate samples were collected on several stations and analyzed, either by separate analysts or at different times, in order to assess the field reproducibility of the shipboard measurements; those results are also included.

In addition to the usual horizontal maps of characteristics at the surface and at 200 m, vertical sections of various properties measured on CalCOFI line 90 appear in this report.

STANDARD PROCEDURES

Field Analytical Reproducibility Tests

Seawater analyses are performed at sea by people having a variety of skills and experience. Included are experienced technicians as well as first-cruise volunteers. New technicians and volunteers usually receive practice samples and 10-20 replicate oxygen samples to analyze at the beginning of a cruise, in order to familiarize them with the equipment and to assess their analytical precision, before permitting them to analyze real samples. An experienced technician can routinely achieve a precision of 0.1% on 10 surface seawater oxygen replicates (each flask has a different volume, so the analyst cannot titrate to an "expected" value). However, that precision is not likely to be achieved on routine samples given adverse sea conditions and a sampling rate of 100 or more samples per day, which are not likely to be run quite as carefully as are the replicate check samples. Some indications of the routine field precision may be seen from examination of station data that have several (5 to 8) samples in deep mixed layers which often occur on the outer stations. However, those data do not cover the full range of observations; they are likely to be low in nutrients and chlorophyll and near saturation in oxygen.

A more realistic evaluation of field analytical reproducibility was obtained on the 1990 CalCOFI cruises by collecting about 100 duplicate samples from all depths from several stations and by having different individuals, when feasible, analyze the samples at different times. The complete results are shown in Tables 1-8.

Hydrographic Cast Data

The hydrographic casts usually consisted of 20 three-liter plastic (PVC) bottles lowered to a maximum sampling depth of 525 meters, bottom depth permitting. Temperature, salinity, oxygen and nutrients were determined at sea for all depths sampled. Chlorophyll-a and phaeopigments were usually determined at sea from the top 14 depths. A special near-bottom cast was done in the Santa Barbara Basin on each cruise.

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.

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

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-78. 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. Duplicate salinity analyses (Table 1), performed by different analysts, typically agree within 0.002 PSU.

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). Duplicate oxygen samples, (Table 2) analyzed by different analysts, typically agreed within 0.02 mtyl.

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). Typical agreement between duplicate nutrient analyses was 0.5 for silicate, 0.01 for phosphate, 0.1 for nitrate and 0.01 for nitrite even for samples held overnight in a refrigerator and run the next day (Tables 3-6). Precision was degraded by a factor of ten when samples were frozen and then analyzed ashore.

Chlorophyll-a and phaeopigments were measured with a fluorometric technique (Yentsch and Menzel, 1963; Holm-Hansen *et al.,* 1965) from subsamples filtered onto GF/F filters which have a specified minimum retention size of 0.7jim. Prior to CalCOFI cruise 8907, GF/C filters with a nominal minimum retention size of 1.2|um were used. Comparisons between the two sizes of filters indicate that the finer filter retains about 15% more pigment at chlorophyll-a concentrations of less than 0.5 mg/m , but with no obvious bias between the two at higher concentrations (Venrick and Hayward, 1984). Other field experiments showed losses by the 1.2um filter on the order of 4 to 9% (Venrick *et al.,* 1987). The pigments were extracted with a cold extraction technique in 90% acetone (Venrick and Hayward, 1984) and the fluoresence determined before and after acidification with a fluorometer. Results from duplicate chlorophyll and phaeopigment analyses, performed by different analysts, are shown in Tables 7 and 8.

The observed data have been evaluated using the methodology described by Klein (1973). This involves consideration of their variation as functions of density or depth and their relations to each other, and comparisons with adjacent observations.

Primary Production

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). Six depths, corresponding to predetermined levels of light penetration, were sampled with 5-liter Niskin bottles. Where the productivity casts occurred at nonstandard CalCOFI sampling locations, additional hydrographic bottles were added to extend the observations to 200 m. Temperature, salinity, oxygen, nutrients, chlorophyll-a and phaeopigments were determined for all depths sampled. Triplicate samples (two light and one dark control) were collected from each productivity sample depth into 250-ml polycarbonate incubation bottles which were then innoculated with approximately lOjiCi of C as NaHCO,. These were incubated from LAN until civil twilight in seawater-cooled incubators with neutral-density screens which simulate the *in situ* light levels. At the end of the incubation, the samples were filtered onto HA millipore filters and placed in scintillation vials. One-half ml of 10% HC1 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.

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 at.* (1972).

TABULATED DATA

Field Analytical Reproducibility Tests

Results from duplicate salinity, oxygen, silicate, phosphate, nitrate, nitrite, chlorophyll-a and phaeopigment analyses are shown in Tables 1 to 8, respectively. The origin of the samples is indicated by the cruise, station, depth and cast time in PST, and the local times of each analysis. Except for salinity, the results from both sets of analyses are listed to one extra decimal place beyond that normally reported, and the difference (1st-2nd) is listed so that the units place represents the least reported decimal place. For example, oxygen is normally reported to the nearest 0.01 ml/l, so the tabulated difference is multiplied by 100 so that one may easily see differences in last significant figure. As a summary statistic, we give the mean of the differences between replicate determinations (D = replicate 1 - replicate 2) and its standard deviation. Analytical bias is indicated by the degree to which D differs from zero. Precision is indicated by the standard deviation. The reproducibility of chlorophyll and phaeophytin is a function of the mean concentration. For these we give this function for |D| and its standard deviation as determined from two regression analyses, both significant at $p < .0005$.

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.

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 Production

In addition to the normal hydrographic data, the tabulated data include: the light level at which the samples were incubated, 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, the dark uptake, chlorophyll-a and phaeopigments. The uptake values shown are the total for the incubation period. Also shown are the times of local apparent noon (LAN), civil twilight, and the vertically integrated value of the mean uptake from the surface to the deepest sample, assuming that the shallowest measured value extends to the surface and that the 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.

Secchi Disk Observations

Secchi disk observations were made on most daylight stations. The times are given in local PST (+8) time. Weather codes, cloud observations, and Forel water color are also presented.

Macrozooplankton Data

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

FOOTNOTES

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

ISL: After depth values indicates interpolated or extrapolated standard level.

P: After depth values indicates the bottle posttripped.

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

LITERATURE CITED

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

Atlas, E. L., J. C. Callaway, R. D. Tomlinson, L. I. Gordon, L. Barstow, and P. K. Park, 1971. *A Practical Manual for Use of the Technicon AutoAnalyzer in Sea Water Nutrient Analysis;* Revised. Oregon State University Technical Report 215, Reference No. 71-22.

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

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

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

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

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

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

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

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

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

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

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

Venrick, E. L., S. L. Cummings, and C. A. Kemper, 1987. Picoplankton and the resulting bias in chlorophyll by traditional glass-fiber filters. *Deep-Sea Res., 12:* 1951-1956.

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

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

TABLE 1. Results of Dupliicate Salinity Analyses

CalCOFI Cruise 9004

STA. 87 90
1400 PST 26 APR 1990

	Depth	Analyst		Diff
	m	1	2	X10
1	1	33.380	33.379	1
2	16	33.380	33.380	0
3	31	33.381	33.379	2
4	40	33.378	33.379	–1
5	50	33.344	33.344	0
6	59	33.236	33.237	–1
7	74	33.224	33.223	1
8	88	33.207	33.206	1
9	103	33.236	33.235	1
10	117	33.426	33.425	1
11	137	33.609	33.609	0
12	157	33.664	33.663	1
13	182	33.858	33.857	1
14	218	33.985	33.984	1
15	251	34.040	34.038	2
16	291	34.067	34.064	3
17	347	34.077	34.075	2
18	411	34.270	34.268	2
19	480	34.292	34.289	3
20	561	34.247	34.244	3

1st.Analyst Run 1250 PST 27 APR
2nd Analyst Run 1900 PST 27 APR

STA. 83 90
0302 PST 27 APR 1990

	Depth	Analyst		Diff
	m	1	2	X10
1	2	33.429	33.428	1
2	17	33.430	33.428	2
3	32	33.428	33.428	0
4	42	33.429	33.428	1
5	53	33.428	33.429	–1
6	62	33.410	33.410	0
7	77	33.387	33.387	0
8	91	33.218	33.217	1
9	107	33.253	33.253	0
10	121	33.310	33.309	1
11	140	33.512	33.512	0
12	162	33.678	33.677	1
13	187	33.878	33.878	0
14	222	33.985	33.984	1
15	259	34.009	34.010	–1
16	300	34.007	34.006	1
17	357	34.061	34.059	2
18	424	34.089	34.085	4
19	498	34.162	34.160	2
20	581	34.273	34.273	0

1st Analyst Run 1345 PST 27 APR
2nd Analyst Run 2010 PST 27 APR

STA. 83 80
0929 PST 27 APR 1990

	Depth	Analyst		Diff
	m	1	2	X10
1	1	33.422	33.422	0
2	17	33.421	33.421	0
3	30	33.421	33.422	–1
4	41	33.421	33.422	–1
5	50	33.421	33.421	0
6	61	33.393	33.392	1
7	75	33.439	33.439	0
8	89	33.413	33.413	0
9	104	33.509	33.509	0
10	119	33.651	33.653	–2
11	137	33.734	33.734	0
12	158	33.930	33.932	–2
13	185	34.014	34.015	–1
14	218	34.069	34.077	–8
15	255	34.018	34.019	–1
16	295	34.018*	34.029	(–11)
17	350	34.027*	34.065	(–38)
18	415	34.118	34.119	–1
19	486	34.214	34.215	–1
20	568	34.288	34.289	–1

1st Analyst Run 1240 PST 28 APR
2nd Analyst Run 2130 PST 27 APR

*Sampling Error, 16th and 17th samples iseem to have been collected from 15th and 16th depths

STA. 83 70
1651 PST 27 APR 1990

	Depth	Analyst		Diff
	m	1	2	X10
1	0	33.383	33.382	1
2	15	33383	33.383	0
3	31	33.383	33.382	1
4	41	33.382	33.380	2
5	51	33.390	33.389	1
6	62	33.323	33.324	–1
7	76	33.291	33.288	3
8	90	33.313	33.311	2
9	105	33.366	33.363	3
10	120	33.476	33.472	4
11	140	33.619	33.616	3
12	159	33.752	33.750	2
13	183	33.899	33.896	3
14	218	33.979	33.975	4
15	250	34.005	34.002	3
16	292	34.013	34.010	3
17	345	34.054	34.051	3
18	408	34.112	34.110	2
19	478	34.179	34.176	3
20	558	34.211	34.209	2

1st.Analyst Run 1330 PST 28 APR
2nd Analyst Run 0940 PST 28 APR

STA. 83 60
2242 PST 27 APR 1990

	Depth	Analyst		Diff
	m	1	2	X10
1	0	33.374	33.375	–1
2	16	33.430	33.431	–1
3	30	33.490	33.490	0
4	41	33.492	33.494	–2
5	50	33.520	33.522	–2
6	59	33.546	33.548	–2
7	75	33.698	33.699	–1
8	89	33.688	33.690	–2
9	104	33.788	33.789	–1
10	118	33.843	33.845	–2
11	138	33.902	33.904	–2
12	158	33.965	33.966	–1
13	183	34.074	34.075	–1
14	215	34.111	34.111	0
15	250	34.135	34.136	–1
16	290	34.175	34.176	–1
17	343	34.217	34.214	3
18	406	34.137	34.136	1
19	423	34.226	34.226	0
20	552	34.251	34.252	–1

1st Analyst Run 1420 PST 28 APR
2nd Analyst Run 1100 PST 28 APR

All, $N = 100$

$\overline{Diff} = 0.0$

$\sigma = 4.4 \times 10^{-3}$

Omitting sample draw errors,

$N = 98$

$\overline{Diff}\ 0.5 \times 10^{-3}$

$\sigma\ 1.8 \times 10^{-3}$

TABLE 2. Results of Duplicate Oxygen Analyses

CalCOFI Cruise 9003

STA. 87 45

1644 PST 12 MAR 1990

	Depth	Analyst		Diff
	m	1	2	X10
1	1	5.788	5.887	-9.9
2	11	5.894	5.894	0
3	21	5.902	5.884	1.8
4	31	5.853	5.848	0.5
5	40	4.599	4.603	-0.4
6	50	4.182	4.177	0.5
7	60	3.554	3.537	1.7
8	75	3.149	3.154	-0.5
9	88	3.009	2.991	1.8
10	108	2.592	2.585	0.7
11	129	2.563	2.561	0.2
12	153	2.344	2.338	0.6
13	182	2.011	2.002	0.9
14	215	1.592	1.566	2.6
15	250	1.398	1.385	1.3
16	289	1.205	1.196	0.9
17	344	0.815	0.806	0.9
18	406	0.484	0.472	1.2
19	475	0.345	0.346	-0.1
20	556	0.262	0.266	-0.4

1st Analyst Run 2000 PST 12 MAR
2nd Analyst Run 0930 PST 13 MAR

STA. 87 55

0026 PST 13 MAR 1990

	Depth	Analyst		Diff
	m	1	2	X10
	1	6.086	6.065	2.1
	11	6.078	6.074	0.4
	21	6.071	6.071	0
	29	6.081	6.070	1.1
	40	6.089	6.073	1.6
	49	6.049	6.038	1.1
	58	5.970	5.960	1.0
	72	5.201	5.189	1.2
	86	3.916	3.896	2.0
	106	3.150	3.135	1.5
	126	2.894	2.877	1.7
	148	2.710	2.712	-0.2
	177	2.317	2.320	-0.3
	211	2.119	2.110	0.9
	243	1.872	1.869	0.3
	281	1.377	1.381	-0.4
	336	1.068	1.058	1.0
	399	0.674	0.661	1.3
	468	0.458	0.454	0.4
	550	0.324	0.312	1.2

1st Analyst Run 1530 PST 13 MAR
2nd Analyst Run 1030 PST 13 MAR

STA. 87 90

0026 PST 14 MAR 1990

	Depth	Analyst		Diff
	m	1	2	X10
	1	6.000	5.989	1.1
	16	6.001	5.996	0.5
	31	6.019	5.993	2.6
	.41	5.999	6.004	-0.5
	51	6.014	6.002	1.2
	61	5.994	6.006	-1.2
	75	6.009	6.003	0.6
	89	6.038	6.009	2.9
	105	5.802	5.813	-1.1
	120	5.562	5.531	3.1
	139	5.014	5.001	1.3
	159	4.167	4.146	2.1
	185	3.501	3.497	0.4
	219	3.530	3.510	2.0
	252	3.142	3.126	1.6
	292	2.711	2.709	0.2
	346	2.040	2.047	-0.7
	410	1.387	1.384	0.3
	479	0.801	0.798	0.3
	558	0.402	0.398	0.4

1st Analyst Run 2230 PST 14 MAR
2nd Analyst Run 1220 PST 14 MAR

STA. 83 80

0254 PST 15 MAR 1990

	Depth	Analyst		Diff
	m	1	2	X10
1	1	5.944	5.943	0.1
2	22	5.976	5.939	3.7
3	41	5.971	5.955	1.6
4	59	5.972	5.949	2.3
5	73	6.040	6.046	-0.6
6	82	6.128	6.131	-0.3
7	93	6.126	6.155	-2.9
8	101	6.157	6.145	1.2
9	112	6.109	6.092	1.7
10	126	6.012	6.025	-1.3
11	145	5.695	5.703	-0.8
12	166	4.906	4.903	0.3
13	190	4.117	4.096	2.1
14	213	3.469	3.474	-0.5
15	247	3.028	3.008	2.0
16	287	2.554	2.550	0.4
17	342	2.050	2.052	-0.2
18	405	1.395	1.372	2.3
19	474	0.743	0.759	-1.6
20	555	0.363	0.375	-1.2

1st,Analyst Run 1345 PST 15 MAR
2nd Analyst Run 1115 PST 15 MAR

STA. 83 55

2026 PST 15 MAR 1990

	Depth	Analyst		Diff
	m	1	2	X10
	0	6.080	6.110	-3.0
	10	6.095	6.097	-0.2
	20	6.052	6.035	1.7
	30	5.994	5.989	0.5
	40	5.889	5.918	-2.9
	50	5.742	5.741	0.1
	60	5.894	5.862	3.2
	70	5.811	5.809	0.2
	83	5.098	5.087	1.1
	98	4.295	4.278	1.7
	119	3.327	3.323	0.4
	144	2.946	2.933	1.3
	174	2.805	2.789	1.6
	203	2.524	2.511	1.3
	232	2.200	2.196	0.4
	272	1.750	1.752	-0.2
	327	1.231	1.228	0.3
	384	0.771	0.765	0.6
	449	0.590	0.570	2.0
	518	0.432	0.417	1.5

1st Analyst Run 2300 PST 15 MAR
2nd Analyst Run 1230 PST 16 MAR

$N = 100$

$\overline{Diff} = 0.6 \times 10^{-2}$

$\sigma = 1.6 \times 10^{-2}$

$CV = 0.4\%$

TABLE 3. Results of Duplicate Silicate Analyses

CalCOFI Cruise 9003

STA. 83 100

1414 PST 14 MAR 1990

	Depth	Run		Diff
	m	1	2	X10
1	3	2.67	2.87	-2.0
2	24	2.65	2.74	-0.9
3	43	2.52	2.61	-0.9
4	63	2.50	2.60	-1.0
5	76	2.49	2.58	-0.9
6	86	3.14	3.34	-2.0
7	96	6.68	6.65	0.3
8	106	8.22	8.30	-0.8
9	116	10.53	10.50	0.3
10	129	13.94	14.04	-1.0
11	150	20.24	20.12	1.2
12	169	27.18	26.87	3.1
13	194	30.02	29.96	0.6
14	218	33.52	33.49	0.3
15	252	39.22	39.24	-0.2
16	292	47.67	47.44	2.3
17	346	57.42	56.63	-2.1
18	410	70.80	70.25	5.5
19	479	80.73	80.55	1.8
20	559	91.20	91.85	-6.5

1st Run 1600 PST 14 MAR
2nd Run 1800 PST 14 MAR

STA. 83 90

2037 PST 14 MAR 1990

	Depth	Run		Diff
	m	1	2	X10
1	1	3.66	3.18	4.8
2	16	3.48	3.05	4.3
3	32	3.42	3.13	2.9
4	41	3.36	3.00	3.6
5	51	3.30	2.97	3.3
6	61	3.24	2.84	4.0
7	71	3.18	2.82	3.6
8	80	3.12	2.90	2.2
9	96	3.07	2.77	3.0
10	109	3.35	3.28	0.7
11	125	5.42	5.29	1.3
12	149	9.60	9.56	0.4
13	175	17.11	16.62	4.9
14	204	23.78	23.58	2.0
15	231	31.85	31.51	3.4
16	272	38.88	38.59	2.9
17	325	50.58	50.29	2.9
18	382	64.19	64.27	-0.8
19	447	73.84	73.19	6.5
20	516	84.47	84.07	4.0

1st Run 1130 PST 15 MAR
2nd Run 1320 PST 15 MAR

STA. 83 60

1622 PST 15 MAR 1990

	Depth	Run		Diff
	m	1	2	X10
1	1	4.36	4.89	-5.3
2	17	4.36	4.96	-6.0
3	31	4.47	5.36	-8.9
4	41	4.70	5.53	-8.3
5	50	5.70	6.60	-9.0
6	60	6.48	6.88	-4.0
7	70	6.82	7.27	-4.5
8	80	10.27	10.78	-5.1
9	93	15.49	15.61	-1.2
10	108	20.82	21.10	-2.8
11	123	24.36	24.47	-1.1
12	147	28.02	28.38	-3.6
13	171	33.00	33.16	-1.6
14	201	37.42	37.60	-1.8
15	230	43.05	43.91	-8.6
16	271	51.45	53.28	-18.3
17	324	60.62	61.09	-4.7
18	383	68.00	68.66	-6.6
19	448	76.81	77.75	-9.4
20	519	82.42	83.31	-8.9

1st Run 1930 PST 15 MAR
2nd Run 1220 PST 16 MA Fi

STA. 82 47[r]

1402 PST 16 MAR 1990

	Depth	Run		Diff
	m	1	2	X10
1	0	18.07	18.34	-2.7
2	10	17.75	17.79	-0.4
3	19	19.40	19.33	0.7
4	29	20.06	19.98	0.8
5	44	27.37	27.66	-2.9
6	59	30.54	30.73	-1.9
7	74	32.73	32.81	-0.8
8	88	33.95	33.69	2.6
9	103	35.60	35.33	2.7
10	118	36.16	36.20	-0.4
11	142	38.13	37.73	0.4
12	172	41.75	41.79	-0.4
13	201	45.25	46.17	-9.2
14	239	48.87	48.35	5.2
15	289	53.36	53.72	-3.6
16	338	59.38	59.30	0.8
17	386	69.22	68.94	2.8
18	426	77.43	76.93	5.0
19	465	89.13	88.86	2.7
20	495	99.42	99.26	1.6
21	515	107.10	105.93	11.7
22	535	113.13	111.94	11.9
23	556	124.09	122.55	15.4
24	571	127.40	127.02	3.8

1st Run 1930 PST 16 MAR
2nd Run 2130 PST 16 MAR

$N = 84$

$\overline{Diff} = -0.2 \times 10^{-1}$

$\sigma = 5.0 \times 10^{-1}$

$CV = 1.4\%$

TABLE 4. Results of Duplicate Phosphate Analyses

CalCOFI Cruise 9003

STA. 83 100
1414 PST 14 MAR 1990

	Depth	Run		Diff
	m	1	2	X10
1	3	0.392	0.383	0.9
2	24	0.392	0.388	0.4
3	43	0.387	0.388	-0.1
4	63	0.387	0.388	-0.1
5	76	0.387	0.388	-0.1
6	86	0.480	0.480	0
7	96	0.844	0.836	0.8
8	106	0.973	0.966	0.7
9	116	1.116	1.109	0.7
10	129	1.305	1.294	1.1
11	150	1.604	1.603	0.1
12	169	1.844	1.843	0.1
13	194	1.862	1.861	0.1
14	218	1.955	1.954	0.1
15	252	2.084	2.088	-0.4
16	292	2.263	2.265	-0.2
17	346	2.544	2.545	-0.1
18	410	2.862	2.863	-0.1
19	479	3.060	3.057	0.3
20	559	3.217	3.223	-0.6

1st Run 1600 PST 14 MAR 90
2nd Run 1800 PST 14 MAR 90

STA. 83 90
2037 PST 14 MAR 1990

	Depth	Run		Diff
	m	1	2	X10
1	1	0.383	0.383	0.2
2	16	0.388	0.381	0.7
3	32	0.393	0.381	1.2
4	41	0.378	0.376	0.2
5	51	0.383	0.371	1.2
6	61	0.383	0.375	0.8
7	71	0.383	0.375	0.8
8	80	0.383	0.375	0.8
9	96	0.397	0.380	1.7
10	109	0.443	0.435	0.8
11	125	0.669	0.665	0.4
12	149	0.979	0.967	1.2
13	175	1.395	1.375	2.0
14	204	1.685	1.666	1.9
15	231	1.948	1.931	1.7
16	272	2.092	2.075	1.7
17	325	2.378	2.361	1.7
18	382	2.743	2.722	2.1
19	447	2.956	2.927	2.9
20	516	3.140	3.118	2.2

1st Run 1130 PST 15 MAR
2nd Run 1320 PST 15 MAR

STA. 83 60
1622 PST 15 MAR 1990

	Depth	Run		Diff
	m	1	2	X10
1	1	0.521	0.517	0.4
2	17	0.525	0.521	0.4
3	31	0.571	0.572	-0.1
4	41	0.612	0.595	1.7
5	50	0.741	0.724	1.7
6	60	0.796	0.798	-0.2
7	70	0.833	0.841	-0.8
8	80	1.086	1.075	1.1
9	93	1.357	1.352	0.5
10	108	1.632	1.614	1.8
11	123	1.756	1.757	-0.1
12	147	1.848	1.840	0.8
13	171	1.948	1.950	-0.2
14	201	2.076	2.066	1.0
15	230	2.274	2.268	0.6
16	271	2.502	2.508	-0.6
17	324	2.768	2.752	1.6
18	383	2.979	2.982	-03
19	448	3.111	3.120	-0.9
20	519	3.189	3.194	-0.5

1st Run 1930 PST 15 MAR
2nd Run 1220 PST 16 MAR

STA. 82 47
1402 PST 16 MAR 1990

	Depth	Run		Diff
	m	1	2	X10
1	0	1.394	1.398	-0.4
2	10	1.381	1.389	-0.8
3	19	1.514	1.518	-0.4
4	29	1.546	1.554	-0.8
5	44	1.959	1.959	0
6	59	2.088	2.087	-0.1
7	74	2.143	2.155	-1.2
8	88	2.184	2.188	-0.4
9	103	2.221	2.224	-0.3
10	118	2.272	2.279	-0.7
11	142	2.327	2.324	0.3
12	172	2.442	2.443	-0.1
13	201	2.535	2.540	-0.5
14	239	2.598	2.595	0.3
15	289	2.713	2.715	0.2
16	338	2.856	2.851	0.5
17	386	3.039	3.039	0
18	426	3.182	3.185	-0.3
19	465	3.375	3.373	0.2
20	495	3.531	3.537	-0.6
21	515	3.674	3.634	4.0
22	535	3.862	3.830	3.2
23	556	4.353	4.289	6.4
24	571	4.546	4.517	2.9

1st Run 1930 PST 16 MAR
2nd Run 2130 PST 16 MAR

$N = 84$

$\overline{Diff} = 0.6 \times 10^{-2}$

$\sigma = 1.2 \times 10^{-2}$

$CV = 0.7\%$

TABLE 5. Results of Duplicate Nitrate Analyses

CalCOFI Cruise 9003

STA. 83 100

1414 PST 14 MAR 1990

	Depth m	Run 1	Run 2	Diff X10
1	3	0.05	0.00	0.5
2	24	0.00	-0.01	0.1
3	43	0.00	-0.01	0.1
4	63	0.01	-0.01	0.2
5	76	0.01	-0.01	0.2
6	86	0.84	0.81	0.3
7	96	6.77	6.73	0.4
8	106	9.25	9.20	0.5
9	116	11.77	11.72	0.5
10	129	15.03	15.01	0.2
11	150	20.18	20.15	0.3
12	169	24.16	24.17	-0.1
13	194	25.02	24.97	0.5
14	218	26.27	26.21	0.6
15	252	28.18	28.21	-0.3
16	292	30.75	30.72	0.3
17	346	34.29	34.40	-1.1
18	410	38.32	38.26	0.6
19	479	40.43	40.67	-2.4
20	559	42.29	42.16	1.3

1st Run 1600 PST 14 MAR 90
2nd Run 1800 PST 14 MAR 90

STA. 83 90

2037 PST 14 MAR 1990

	Depth m	Run 1	Run 2	Diff X10
1	1	0.00	0.09	-0.9
2	16	0.01	0.05	-0.4
3	32	0.01	0.04	-0.3
4	41	0.02	0.05	-0.3
5	51	0.02	0.05	-0.3
6	61	0.03	0.04	-0.1
7	71	0.03	0.05	-0.2
8	80	0.04	0.04	0
9	96	0.04	0.04	0
10	109	0.59	0.64	-0.5
11	125	4.32	4.32	0
12	149	9.88	9.93	-0.5
13	175	17.01	17.06	-0.5
14	204	21.96	21.91	0.5
15	231	26.05	26.15	-1.0
16	272	28.30	28.35	-0.5
17	325	32.12	32.17	-0.5
18	382	36.47	36.58	-1.1
19	447	38.97	39.03	-0.6
20	516	41.13	41.14	-0.1

1st Run 1130 PST 15 MAR
2nd Run 1320 PST 15 MAR

STA.:83 60

1622 PST 15 MAR 1990

	Depth m	Run 1	Run 2	Diff X10
1	1	1.48	1.49	-0.1
2	17	1.65	1.57	0.8
3	31	2.36	2.37	-0.1
4	41	3.02	3.14	-1.2
5	50	5.18	5.24	-0.6
6	60	6.31	6.37	-0.6
7	70	6.90	6.97	-0.7
8	80	11.17	11.25	-0.8
9	93	15.63	15.76	-1.3
10	108	19.97	20.04	-0.7
11	123	22.50	22.58	-0.8
12	147	24.10	24.23	-1.3
13	171	25.95	26.02	-0.7
14	201	27.53	27.46	0.7
15	230	29.90	29.81	0.9
16	271	33.02	33.03	-0.1
17	324	35.55	35.66	-1.1
18	383	37.22	37.29	-0.7
19	448	39.32	39.32	0
20	519	40.44	40.50	-0.6

1st Run 1930 PST 15 MAR
2nd Run 1220 PST 16 MAR

STA. 82 47

1402 PST 16 MAR 1990

	Depth m	Run 1	Run 2	Diff X10
1	0	14.97	14.95	0.2
2	10	14.66	14.64	0.2
3	19	16.69	16.66	0.3
4	29	17.43	17.35	0.8
5	44	24.16	24.06	1.0
6	59	25.95	25.86	0.9
7	74	26.82	26.78	0.4
8	88	27.27	27.07	2.0
9	103	27.51	27.37	1.4
10	118	28.23	28.09	1.4
11	142	28.99	28.90	0.9
12	172	30.20	30.11	0.9
13	201	31.21	31.02	1.9
14	239	32.07	31.82	2.5
15	289	33.18	32.98	2.0
16	338	34.14	33.99	1.5
17	386	34.75	34.60	1.5
18	426	34.09	34.00	0.9
19	465	32.52	32.33	1.9
20	495	28.75	28.61	1.4
21	515	25.44	25.42	0.2
22	535	22.11	22.01	1.0
23	556	15.73	15.64	0.9
24	571	13.78	13.69	0.9

1st Run 1930 PST 16 MAR
2nd Run 2130 PST 16 MAR

$N = 84$

$\overline{Diff} = 0.2 \times 10^{-1}$

$\sigma = 0.9$

CV 0.5%

TABLE 6. Results of Duplicate Nitrite Analyses

CalCOFI Cruise 9003

STA. 83 100
1414 PST 14 MAR 1990

	Depth	Run		Diff
	m	1	2	X10
1	3	0.000	0.004	-0.4
2	24	0.006	0.007	-0.1
3	43	0.004	0.007	-0.3
4	63	0.004	0.006	-0.2
5	76	0.004	0.006	-0.2
6	86	0.103	0.103	0
7	96	0.056	0.058	-0.2
8	106	0.032	0.034	-0.2
9	116	0.015	0.015	0
10	129	0.009	0.011	-0.2
11	150	0.007	0.006	0.1
12	169	0.007	0.006	0.1
13	194	0.004	0.004	0
14	218	0.002	0.004	-0.2
15	252	0.002	0.002	0
16	292	0.002	0.002	0
17	346	0.002	0.002	0
18	410	0.002	0.002	0
19	479	0.000	0.000	0
20	559	0.000	0.000	0

1st Run 1600 PST 14 MAR 90
2nd Run 1800 PST 14 MAR 90

STA. 83 90
2037 PST 14 MAR 1990

	Depth	Run		Diff
	m	1	2	X10
1	1	0.000	0.006	-0.6
2	16	0.000	0.004	-0.4
3	32	0.000	0.006	-0.6
4	41	0.000	0.002	-0.2
5	51	0.002	0.002	0
6	61	0.002	0.004	-0.2
7	71	0.000	0.004	-0.4
8	80	0.002	0.007	-0.5
9	96	0.002	0.007	-0.5
10	109	0.090	0.090	0
11	125	0.032	0.032	0
12	149	0.011	0.011	0
13	175	0.006	0.007	-0.1
14	204	0.004	0.006	-0.2
15	231	0.002	0.006	-0.4
16	272	0.002	0.006	-0.4
17	325	0.004	0.007	-0.3
18	382	0.002	0.004	-0.2
19	447	0.002	0.006	-0.4
20	516	0.004	0.006	-0.2

1st Run 1130 PST 15 MAR
2nd Run 1320 PST 15 MAR

STA. 83 60
1622 PST 15 MAR 1990

	Depth	Run		Diff
	m	1	2	X10
1	1	0.082	0.075	0.7
2	17	0.099	0.092	0.7
3	31	0.121	0.120	0.1
4	41	0.136	0.127	0.9
5	50	0.129	0.123	0.6
6	60	0.071	0.067	0.4
7	70	0.065	0.058	0.7
8	80	0.043	0.032	1.1
9	93	0.045	0.036	0.9
10	108	0.045	0.034	1.1
11	123	0.030	0.021	0.9
12	147	0.022	0.009	1.3
13	171	0.015	0.007	0.8
14	201	0.021	0.011	1.0
15	230	0.009	0.007	0.2
16	271	0.006	0.006	0
17	324	0.002	0.002	0
18	383	0.004	0.004	0
19	448	0.000	0.006	-0.6
20	519	0.002	0.006	-0.4

1st Run 1930 PST 15 MAR
2nd Run 1220 PST 16 MAR

STA. 82 47
1402 PST 16 MAR 1990

	Depth	Run		Diff
	m	1	2	X10
1	0	0.307	0.301	0.6
2	10	0.316	0.312	0.4
3	19	0.260	0.256	0.4
4	29	0.260	0.254	0.6
5	44	0.069	0.069	0
6	59	0.065	0.064	0.1
7	74	0.045	0.037	0.8
8	88	0.047	0.050	-0.3
9	103	0.097	0.099	-0.2
10	118	0.032	0.034	-0.2
11	142	0.024	0.024	0
12	172	0.022	0.021	0.1
13	201	0.015	0.013	0.2
14	239	0.011	0.013	-0.2
15	289	0.011	0.015	-0.4
16	338	0.009	0.015	-0.6
17	386	0.004	0.013	-0.9
18	426	0.004	0.013	-0.9
19	465	0.004	0.011	-0.7
20	495	0.002	0.013	-1.1
21	515	0.004	0.013	-0.9
22	535	0.041	0.041	0
23	556	0.036	0.037	-0.1
24	571	0.009	0.019	-1.0

1st Run 1930 PST 16 MAR
2nd Run 2130 PST 16 MAR

$N = 84$

$\overline{Diff} = 0.0 \times 10^{-2}$

$\sigma = 0.5 \times 10^{-2}$

TABLE 7. Results of Duplicate Chlorophyll-a Analyses

CalCOFI Cruise 9007

STA. 87 35
1835 PST 31 JUL 1990

	Depth	Analyst 1	Analyst 2	Diff X10
	m			
1	1	0.297	0.285	1.2
2	11	0.339	0.318	2.1
3	22	1.643	1.530	11.3
4	32	1.033	0.974	5.9
5	42	0.762	0.755	0.7
6	52	0.431	0.381	5.0
7	62	0.467	0.435	3.2
8	72	0.345	0.333	1.2
9	86	0.174	0.176	-0.2
10	102	0.115	0.104	1.1
11	122	0.035	0.030	0.5
12	148	0.012	0.010	0.2
13	178	0.007	0.006	0.1
14	209	0.004	0.003	0.1

Analyst 1 Run 0800 PST 2 AUG 90
Analyst 2 Run 1400 PST 2 AUG 90

STA.!53 110
0404 PST 3 AUG 1990

	Depth	Analyst 1	Analyst 2	Diff X10
	m			
1	1	0.079	0.071	0.8
11	11	0.080	0.073	0.7
21	21	0.104	0.098	0.6
32	32	0.109	0.109	0
42	42	0.142	0.136	0.6
52	52	0.167	0.168	-0.1
62	62	0.237	0.228	0.9
72	72	0.274	0.247	2.7
86	86	0.320	0.291	2.9
101	101	0.314	0.299	1.5
122	122	0.205	0.184	2.1
147	147	0.100	0.087	1.3
178	178	0.021	0.018	0.3
208	208	0.003	0.003	0

Analyst 1 Run 0810 PST 4 AUG
Analyst 2 Run 2200 PST 4 AUG

STA. 83 55
1519PST4AUG199C»

	Depth	Analyst 1	Analyst 2	Diff X10
	m			
0	0	0.672	0.643	2.9
10	10	0.801	0.729	7.2
20	20	0.835	0.782	5.3
30	30	1.013	1.007	0.6
40	40	0.768	0.742	2.6
50	50	0.220	0.211	0.9
60	60	0.136	0.119	1.7
70	70	0.030	0.035	-0.5
84	84	0.019	0.019	0
100	100	0.019	0.021	-0.2
120	120	0.016	0.016	0
145	145	0.015	0.010	0.5
176	176	0.006	0.006	0
206	206	0.006	0.006	0

Analyst 1 Run 0830 PST 6 AUG
Analyst 2 Run 2145 PST 6 AUG

STA. 82 47
1105 PST 5 AUG 1990

	Depth	Analyst 1	Analyst 2	Diff X10
	m			
1	0	1.093	1.073	2.0
2	10	2.344	2.512	-16.8
3	26	0.689	0.702	-1.3
4	40	0.253	0.253	0.0
5	54	0.209	0.216	-0.7
6	69	0.241	0.178	6.3
7	84	0.095	0.111	-1.6
8	98	0.070	0.076	-0.6
9	117	0.034	0.028	0.6
10	138	0.018	0.017	0.1
11	169	0.012	0.012	0
12	199	0.017	0.026	-0.9
13	238	0.011	0.015	-0.4
14	288	0.013	0.014	-0.1

Analyst 1 Run 2250 PST 6 AUG
Analyst 2 Run 0830 PST 7 AUG

STA. 80 70
0610 PST 6 AUG 1990

	Depth	Analyst 1	Analyst 2	Diff X10
	m			
1	1	0.232	0.224	0.8
11	11	0.260	0.264	-0.4
22	22	2.007	2.428	-42.1
32	32	0.479	0.465	1.4
42	42	0.293	0.268	2.5
52	52	0.304	0.272	3.2
62	62	0.203	0.247	-4.4
72	72	0.124	0.112	1.2
87	87	0.026	0.030	-0.4
102	102	0.029	0.022	0.7
122	122	0.008	0.014	-0.6
148	148	0.005	0.008	-03
180	180	0.002	0.003	-0.1
209	209	0.003	0.003	0

Analyst 1 Run 0830 PST 7 AUG
Analyst 2 Run 1605 PST 7 AUG

STA. 77 90
0952 PST 7 AUG 1990

	Depth	Analyst 1	Analyst 2	Diff X10
	m			
1	1	0.105	0.090	1.5
11	11	0.110	0.095	1.5
22	22	0.117	0.103	1.4
32	32	0.164	0.140	2.4
42	42	0.169	0.158	1.1
52	52	0.197	0.181	1.6
62	62	0.230	0.220	1.0
73	73	0.270	0.260	1.0
87	87	0.304	0.314	-1.0
102	102	0.247	0.234	1.3
123	123	0.137	0.138	-0.1
148	148	0.092	0.085	0.7
179	179	0.011	0.009	0.2
211	211	0.003	0.003	0

1st Run 1840 PST 8 AUG
2nd Run 1915 PST 8 AUG

STA 77 51
1528 PST 8 AUG 1990

	Depth	Analyst 1	Analyst 2	Diff X10
	m			
1	0	1.259	1.093	16.6
2	10	8.942	8.081	86.1
3	21	1.232	1.159	7.3
4	31	0.742	0.828	-8.6
5	41	0.556	0.537	1.9
6	51	0.471	0.479	-0.8
7	62	0.324	0.264	6.0
8	72	0.220	0.197	2.3
9	86	0.197	0.170	2.7
10	101	0.103	0.106	-0.3
11	122	0.061	0.049	1.2
12	142	0.042	0.040	0.2
13	167	0.031	0.028	0.3
14	193	0.025	0.035	-1.0

1st Run 1320 PST 9 AUG
2nd Run 1345 PST 9 AUG

$N = 98$

$|D| = -.006 + .100\,\bar{x}$

$\sigma = .096$

TABLE 8. Results of Duplicate Phaeopigment Analyses

CalCOFI Cruise 9007

STA. 87 35
1835 PST 31 JUL 1990

	Depth	Analyst		Diff
	m	1	2	X10
1	1	0.071	0.058	1.3
2	11	0.073	0.066	0.7
3	22	0.469	0.468	0.1
4	32	0.402	0.388	1.4
5	42	0.510	0.533	-2.3
6	52	0.424	0.418	0.6
7	62	0.376	0.381	-0.5
8	72	0.371	0.340	3.1
9	86	0.262	0.224	3.8
10	102	0.234	0.234	0
11	122	0.119	0.117	0.2
12	148	0.071	0.076	-0.5
13	178	0.064	0.065	-0.1
14	209	0.063	0.068	-0.5

Analyst 1 Run 0800 PST 2 AUG 90
Analyst 2 Run 1400 PST 2 AUG 90

STA. 83 110
0404 PST 3 AUG 199C)

	Depth	Analyst		Diff
	m	1	2	X10
1	1	0.023	0.018	0.5
2	11	0.025	0.019	0.6
3	21	0.028	0.023	0.5
4	32	0.037	0.027	1.0
5	42	0.041	0.040	0.1
6	52	0.056	0.051	0.5
7	62	0.083	0.068	1.5
8	72	0.102	0.093	0.9
9	86	0.236	0.250	-1.4
10	101	0.274	0.280	-0.6
11	122	0.207	0.200	0.7
12	147	0.141	0.150	-0.9
13	178	0.053	0.063	-1.0
14	208	0.028	0.025	0.3

Analyst 1 Run 0811 PST 4 AUG
Analyst 2 Run 2200 PST 4 AUG

STA. 83 55
1519 PST 4 AUG 1990

	Depth	Analyst		Diff
	m	1	2	X10
1	0	0.176	0.179	-0.3
2	10	0.201	0.185	1.6
3	20	0.380	0.360	2.0
4	30	0.552	0.551	0.1
5	40	0.544	0.555	-1.1
6	50	0.283	0.353	-7.0
7	60	0.263	0.204	5.9
8	70	0.120	0.126	-0.6
9	84	0.088	0.098	-1.0
10	100	0.114	0.106	0.8
11	120	0.116	0.089	2.7
12	145	0.099	0.098	0.1
13	176	0.092	0.082	1.0
14	206	0.073	0.082	-0.9

Analyst 1 Run 0830 PST 6 AUG
Analyst 2 Run 2145 PST 6 AUG

STA. 82 47
1105 PST 5 AUG 1990

	Depth	Analyst		Diff
	m	1	2	X10
1	0	0.212	0.207	0.5
2	10	0.593	0.632	-3.9
3	26	0.469	0.448	2.1
4	40	0.306	0.308	-0.2
5	54	0.342	0.331	1.1
6	69	0.362	0.294	6.8
7	84	0.209	0.230	-2.1
8	98	0.159	0.159	0
9	117	0.135	0.123	1.2
10	138	0.089	0.101	-1.2
11	169	0.073	0.084	-1.1
12	199	0.120	0.116	0.4
13	238	0.121	0.127	-0.6
14	288	0.117	0.116	0.1

Analyst 1 Run 2250 PST 6 AUG
Analyst 2 Run 0830 PST 7 AUG

STA. 80 70
0610 PST 6 AUG 1990

	Depth	Analyst		Diff
	m	1	2	X10
1	1	0.072	0.070	0.2
2	11	0.086	0.092	-0.6
3	22	0.407	0.381	2.6
4	32	0.356	0.339	1.7
5	42	0.256	0.363	-10.7
6	52	0.382	0.287	9.5
7	62	0.204	0.173	3.1
8	72	0.125	0.133	-0.8
9	87	0.091	0.115	-2.4
10	102	0.071	0.098	-2.7
11	122	0.091	0.095	-0.4
12	148	0.092	0.105	-1.3
13	180	0.054	0.068	-1.4
14	209	0.062	0.050	1.2

Analyst 1 Run 0830 PST 7 AUG
Analyst 2 Run 1605 PST 7 AUG

STA. 77 90
0952 PST 7 AUG 1990

	Depth	Analyst		Diff
	m	1	2	X10
1	1	0.019	0.017	0.2
2	11	0.019	0.019	0
3	22	0.018	0.025	-0.7
4	32	0.033	0.032	0.1
5	42	0.043	0.041	0.2
6	52	0.060	0.058	0.2
7	62	0.102	0.092	1.0
8	73	0.127	0.122	0.5
9	87	0.258	0.243	1.5
10	102	0.225	0.229	-0.4
11	123	0.190	0.183	0.7
12	148	0.131	0.129	0.2
13	179	0.025	0.026	-0.1
14	211	0.020	0.019	0.1

lstRunl840PST8AUG
2nd Run 1915 PST 8 AUG

STA 77 51
1528 PST 8 AUG 1990

	Depth	Analyst		Diff
	m	1	2	X10
1	0	0.185	0.171	1.4
2	10	0.924	0.725	19.9
3	21	0.497	0.463	3.4
4	31	0.498	0.648	-15.0
5	41	0.536	0.466	7.0
6	51	0.433	0.502	-6.9
7	62	0.343	0.293	5.0
8	72	0.270	0.216	5.4
9	86	0.267	0.284	-1.7
10	101	0.192	0.161	3.1
11	122	0.147	0.147	0
12	142	0.134	0.131	0.3
13	167	0.169	0.139	3.0
14	193	0.172	0.161	1.1

1st Run 1320 PST 9 AUG
2nd Run 1345 PST 9 AUG

$N = 98$

$|D| = -.003 + .113\,\bar{x}$

$\sigma = .060$

FIGURES

Cruise 9003

1. CalCOFI Cruise 9003, 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) phosphate; F) nitrate; G) chlorophyll-a; H) oxygen saturation; I) oxygen; J) nitrite; and K) phaeopigments.

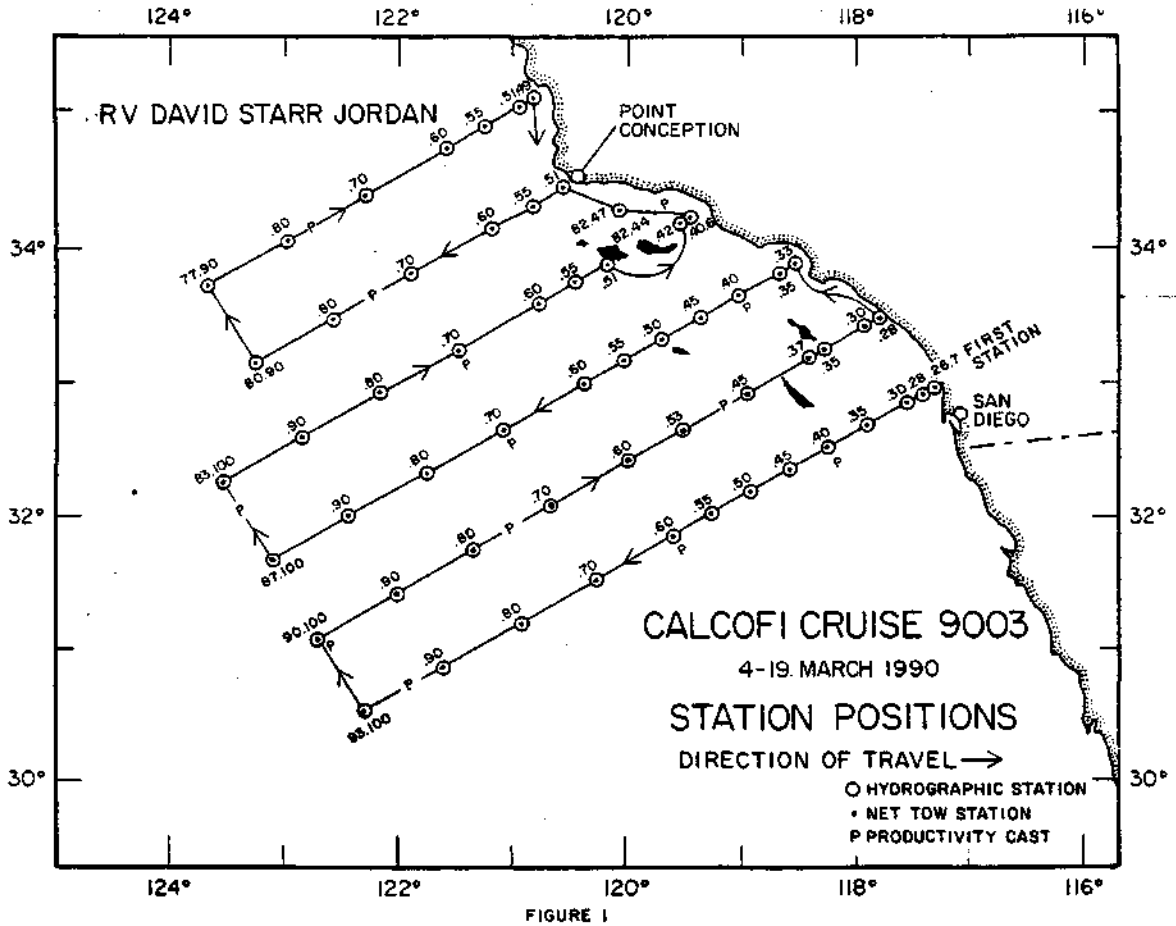


FIGURE 1

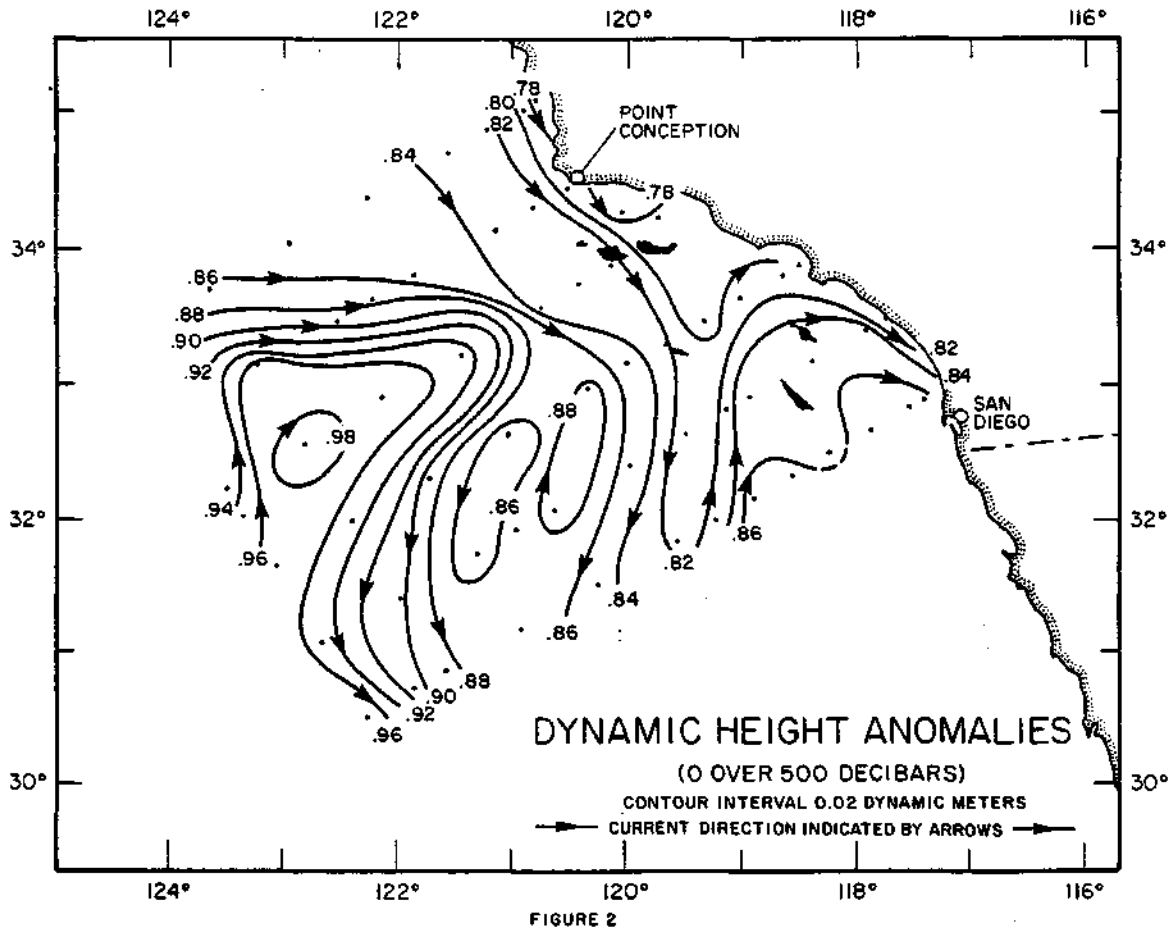


FIGURE 2

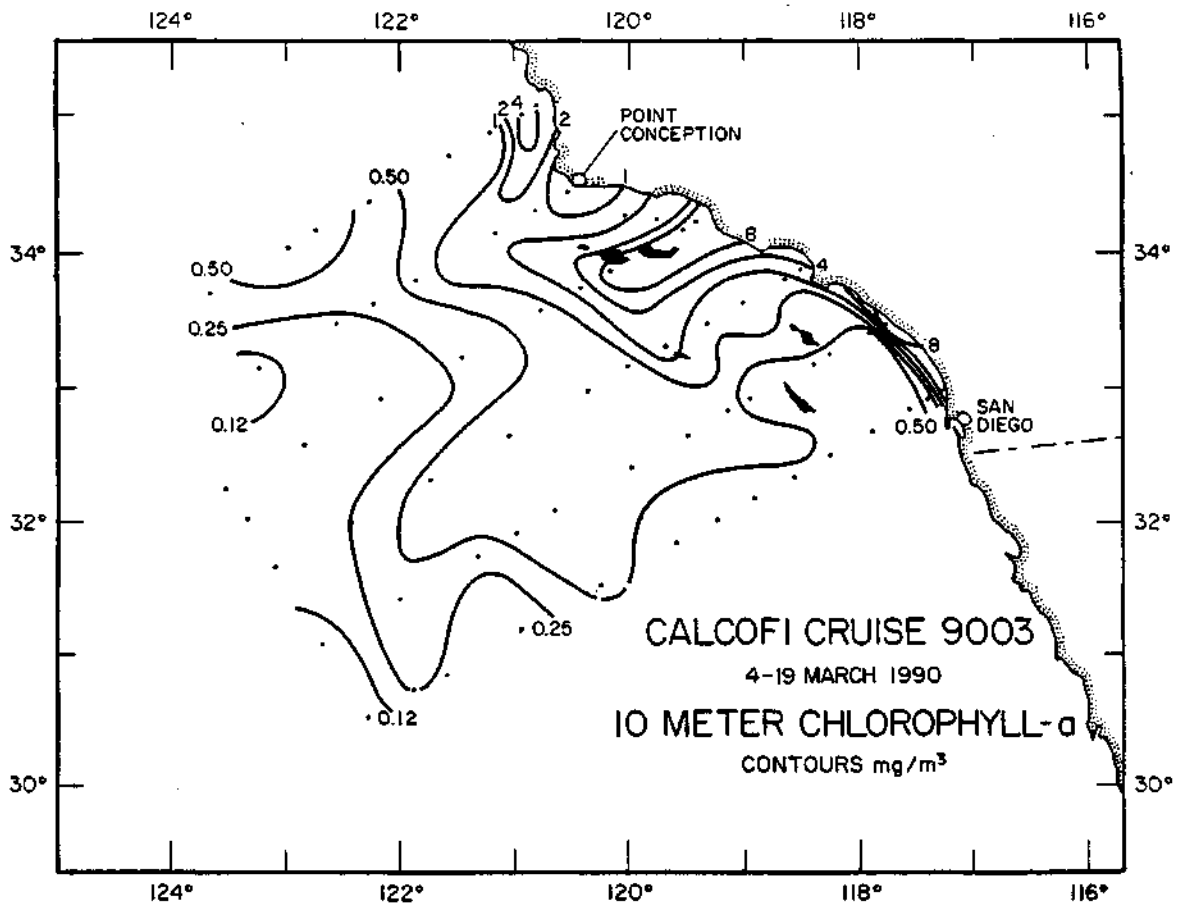


FIGURE 3A

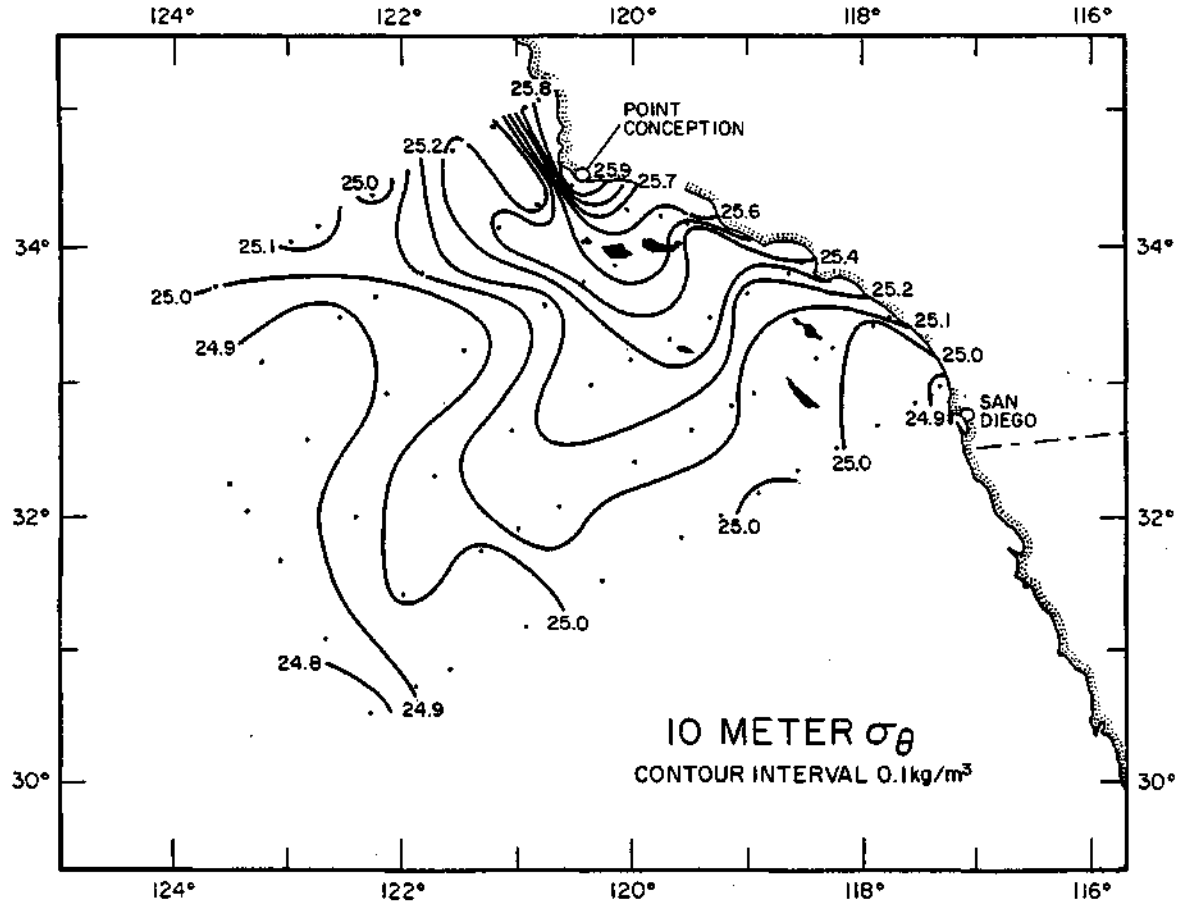


FIGURE 3B

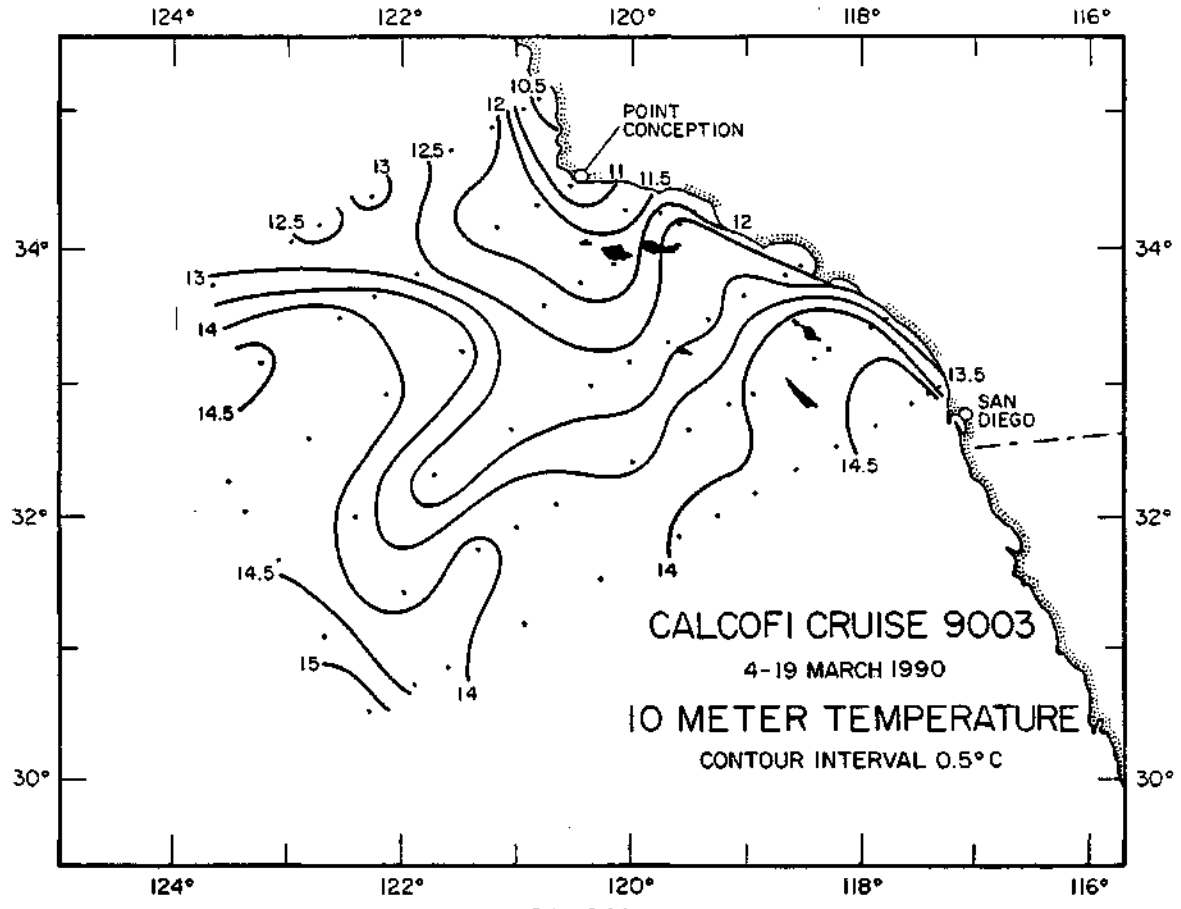


FIGURE 3C

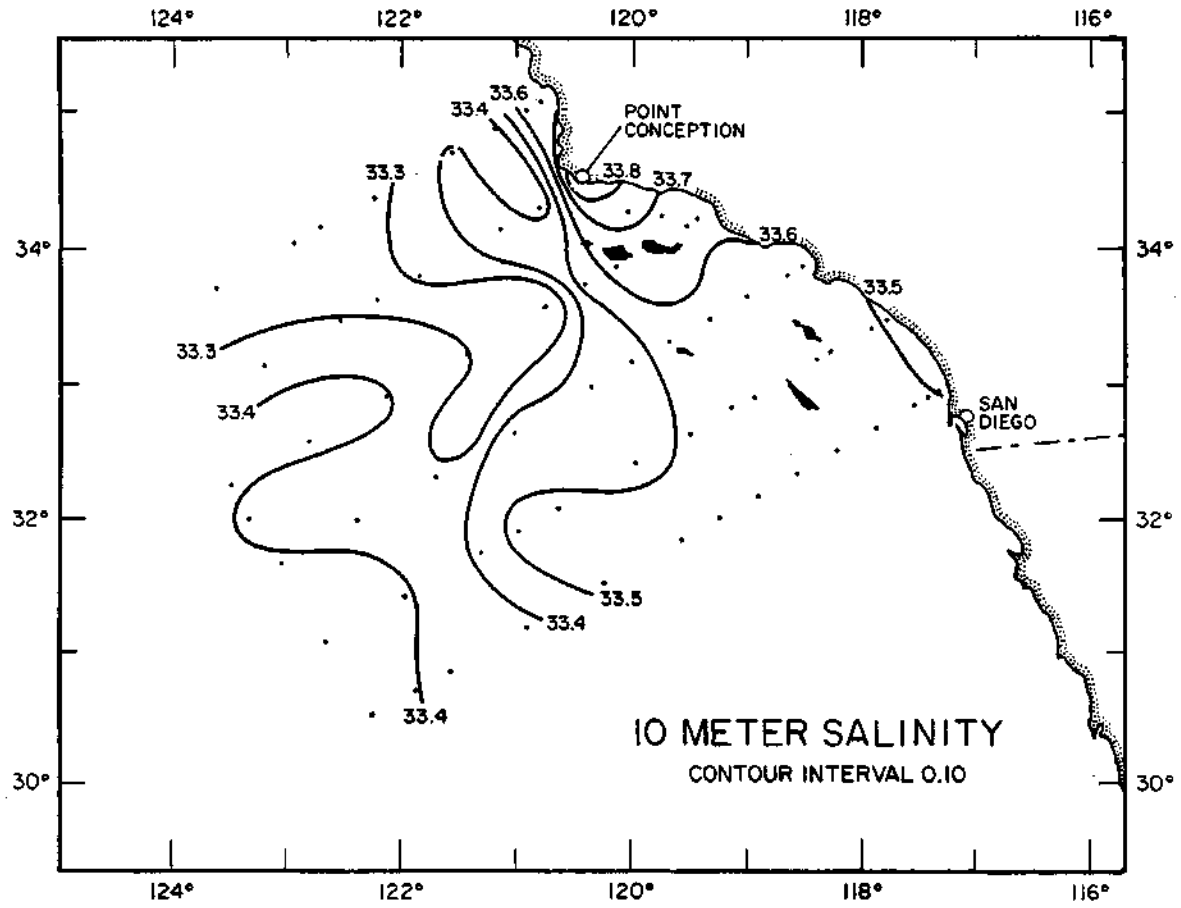


FIGURE 3D

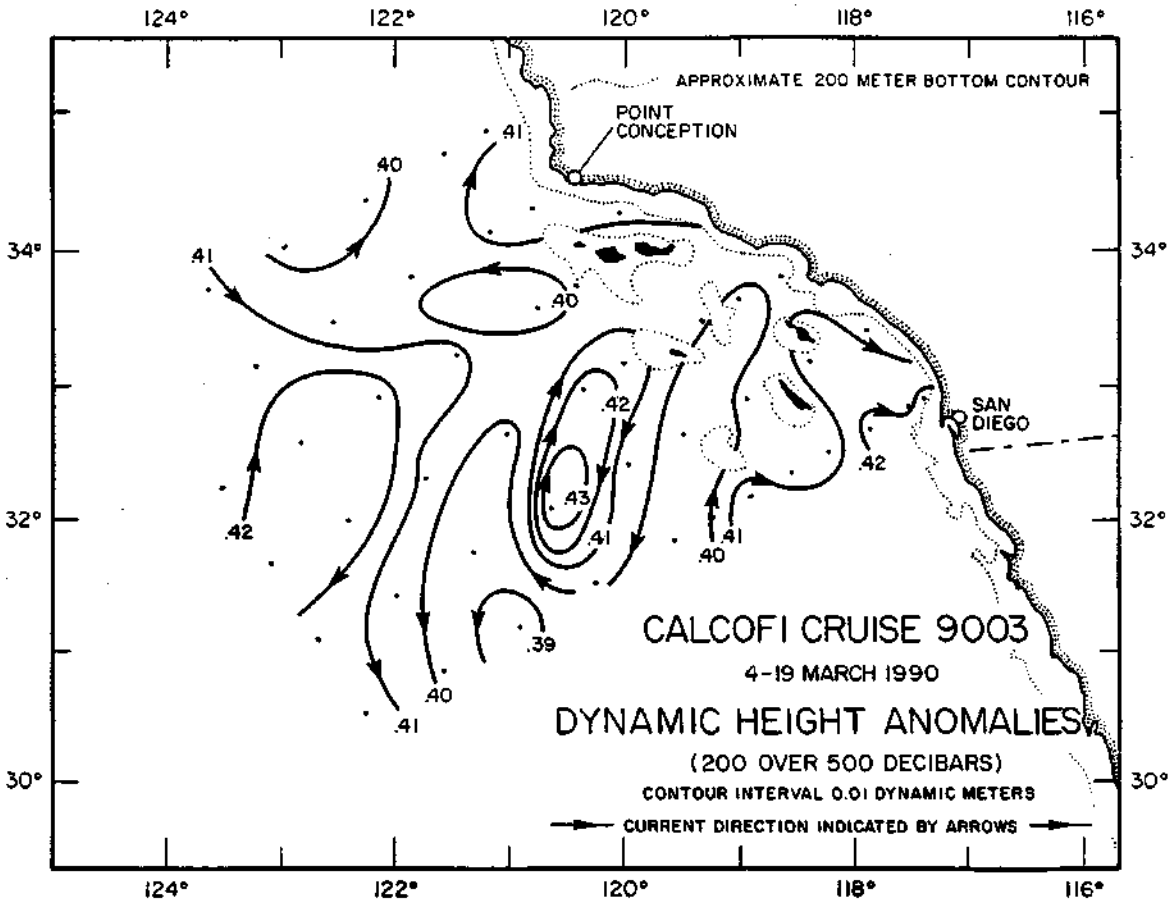


FIGURE 4A

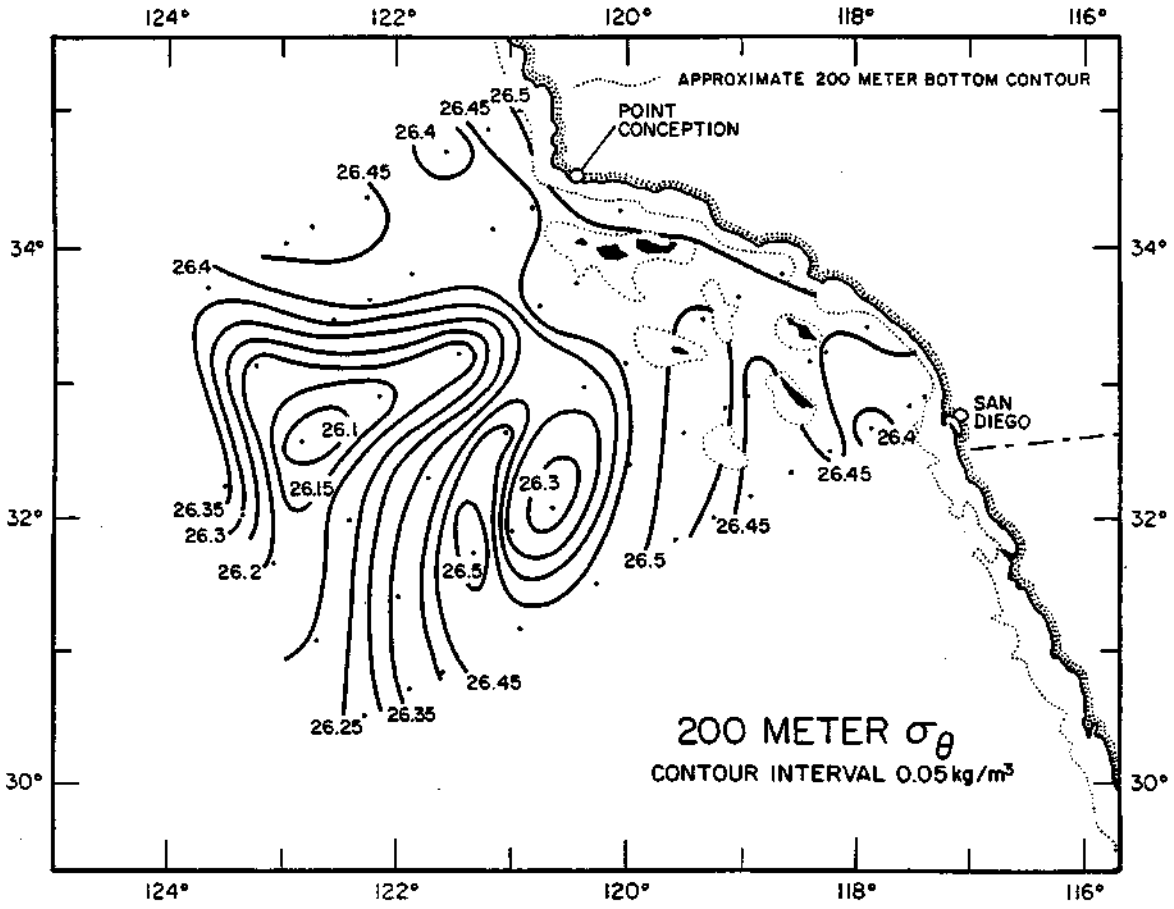


FIGURE 4B

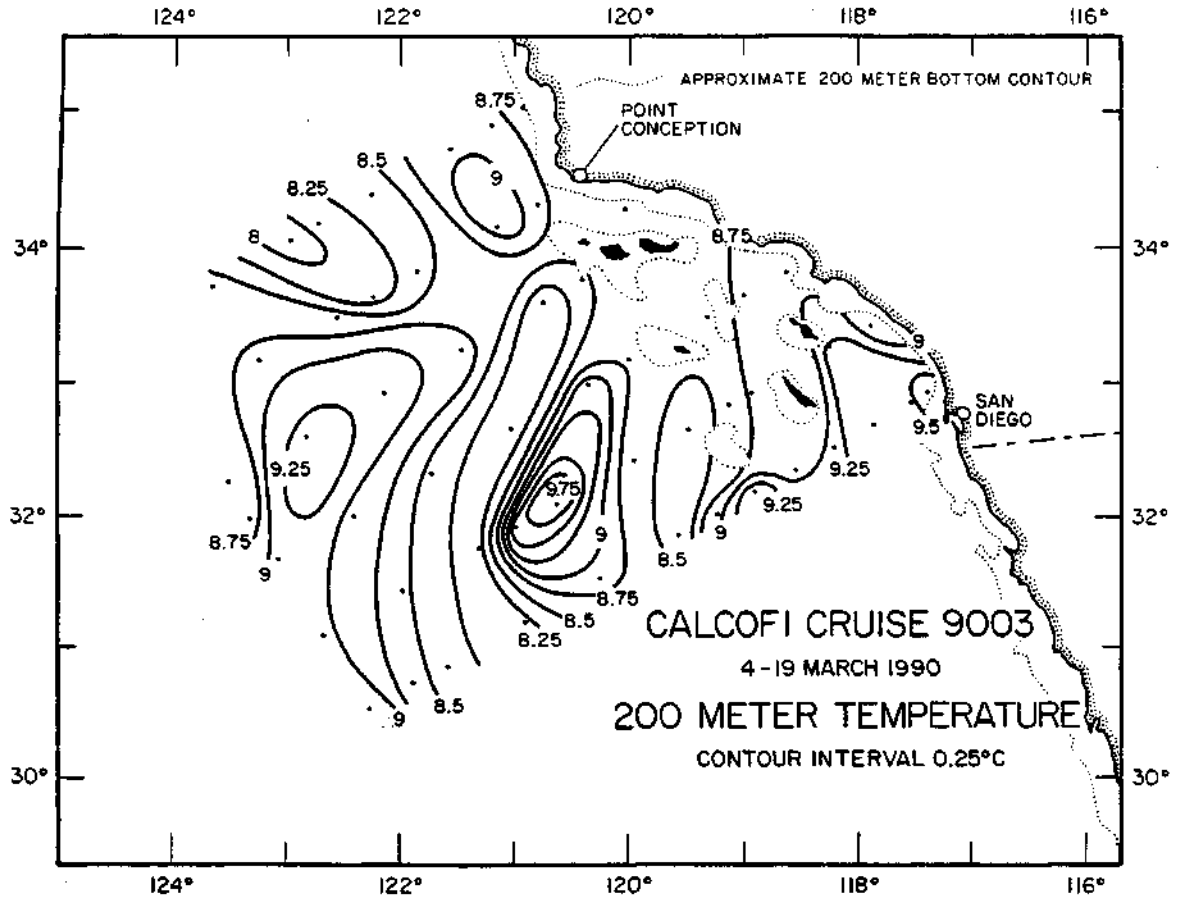


FIGURE 4C

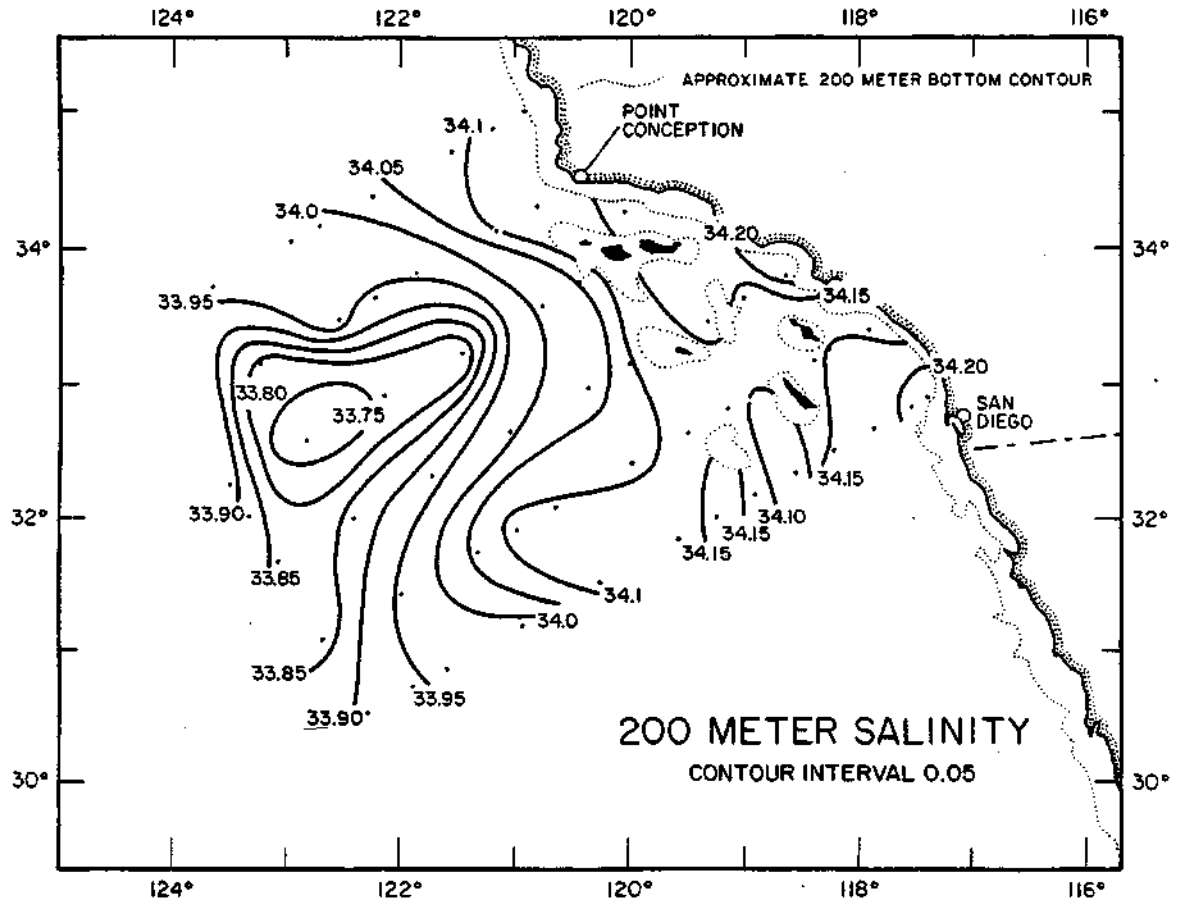


FIGURE 4D

CALCOFI CRUISE 9003

8-11 MARCH 1990

POTENTIAL DENSITY (σ_θ) ALONG CALCOFI LINE 90

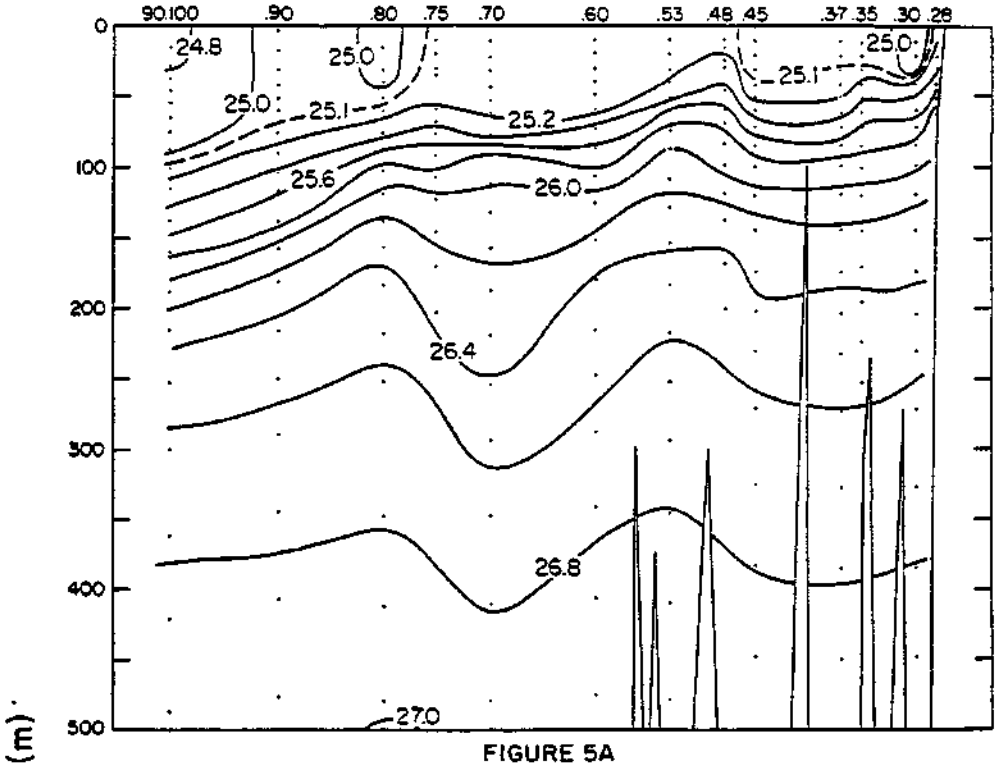


FIGURE 5A

TEMPERATURE (°C) ALONG CALCOFI LINE 90

DEPTH (m)

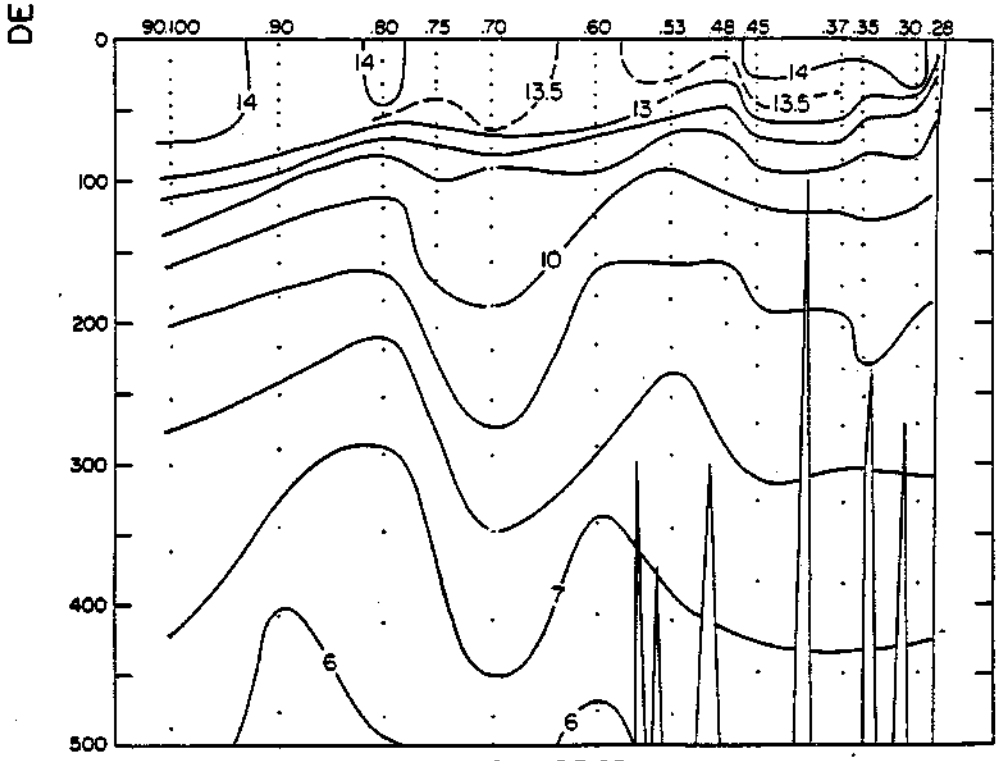


FIGURE 5B

CALCOFI CRUISE 9003

8-11 MARCH 1990

SALINITY ALONG CALCOFI LINE 90

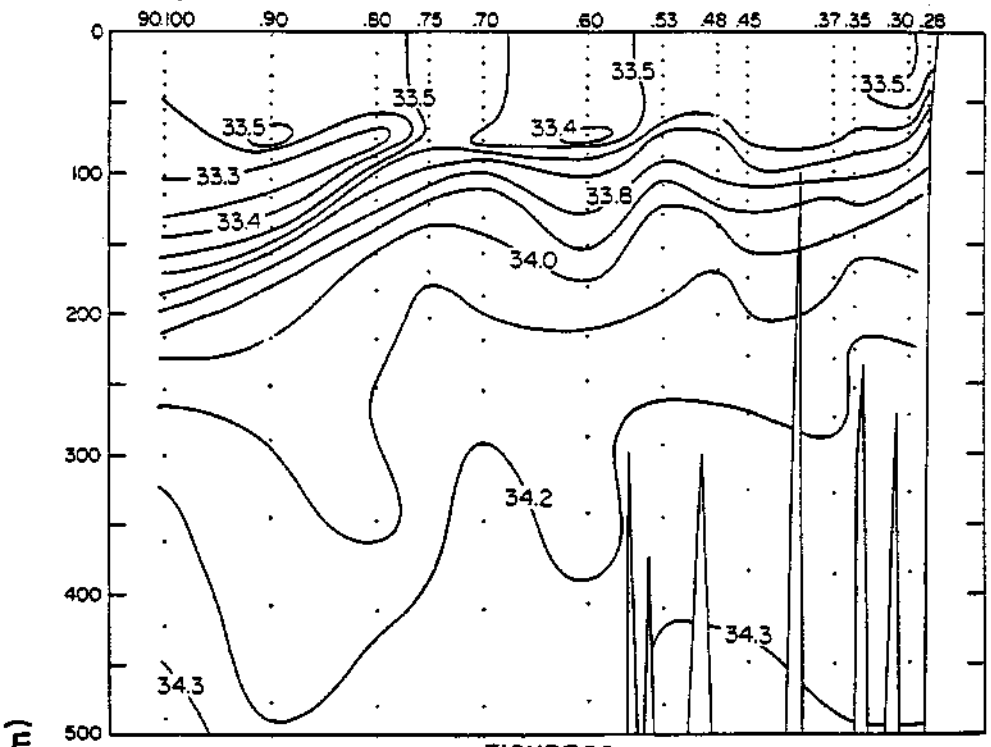


FIGURE 5C

SILICATE (μM/l) ALONG CALCOFI LINE 90

DEPTH (m)

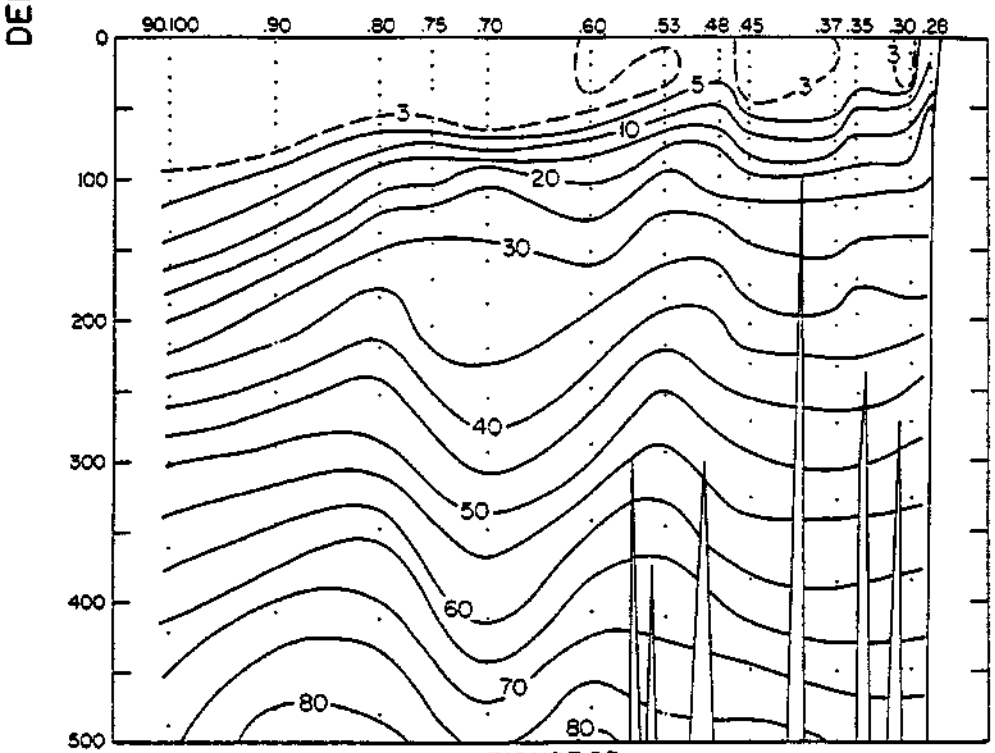


FIGURE 5D

CALCOFI CRUISE 9003

8-11 MARCH 1990

PHOSPHATE (μM/l) ALONG CALCOFI LINE 90

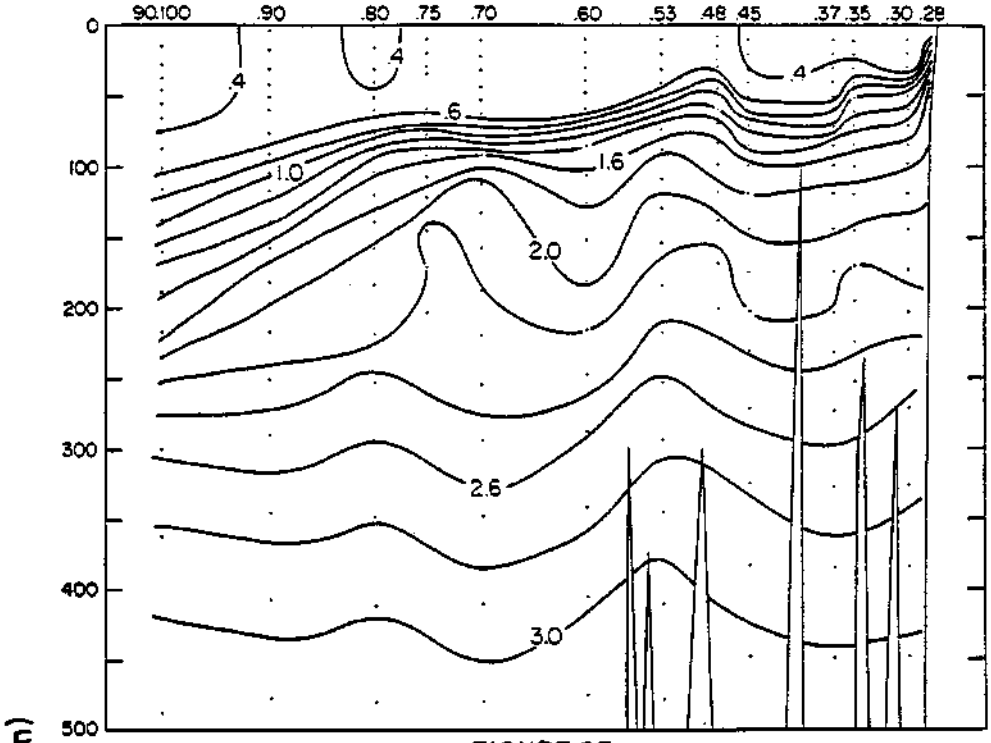


FIGURE 5E

NITRATE (μM/l) ALONG CALCOFI LINE 90

DEPTH (m)

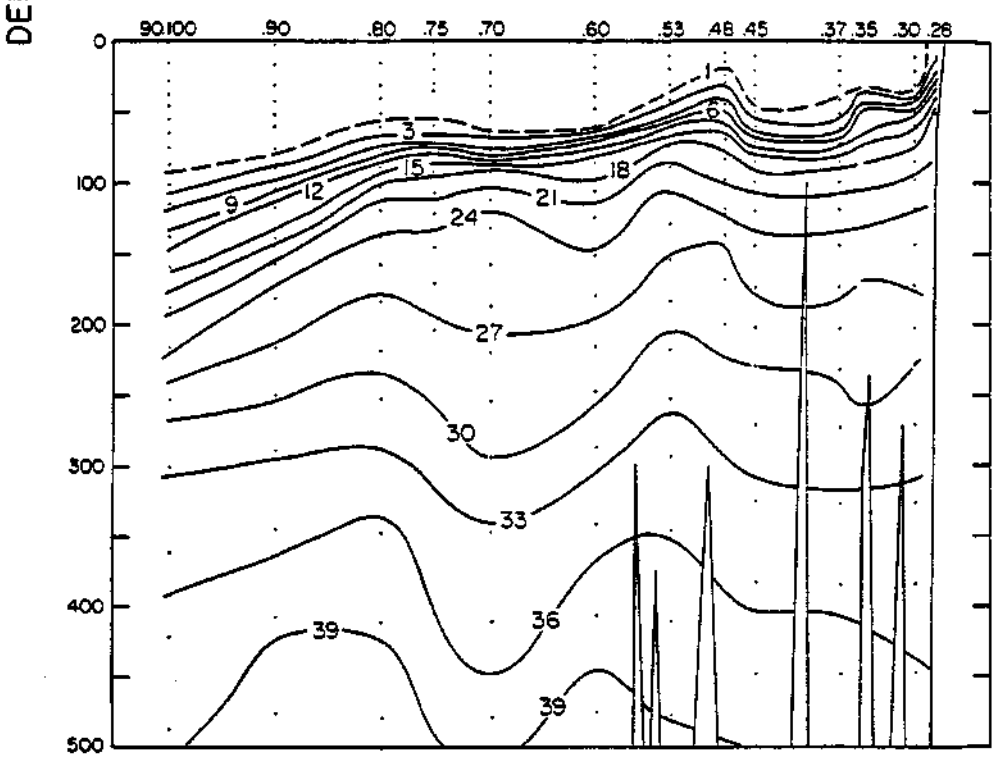


FIGURE 5F

CALCOFI CRUISE 9003

8-11 MARCH 1990

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

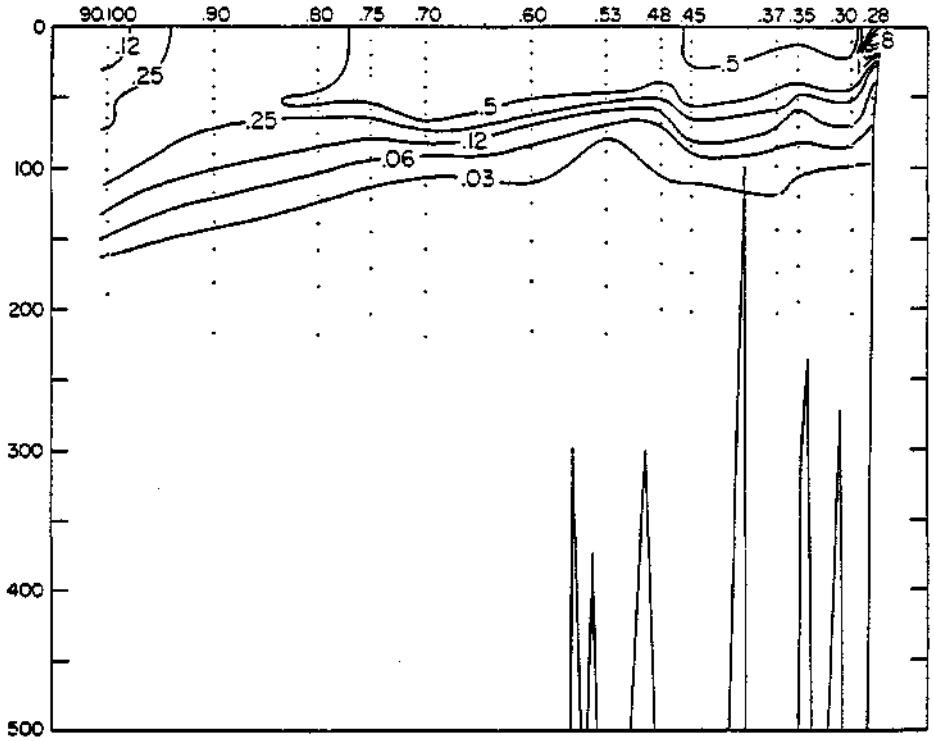


FIGURE 5G

OXYGEN SATURATION (%) ALONG CALCOFI LINE 90

DEPTH (m)

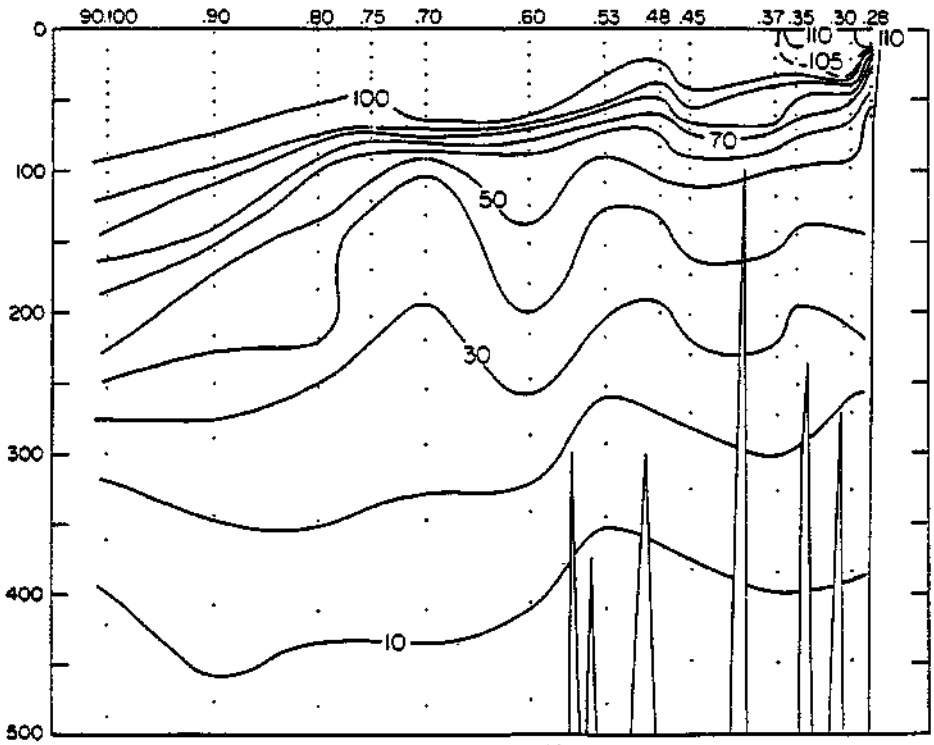


FIGURE 5H

CALCOFI CRUISE 9003

8-11 MARCH 1990

OXYGEN (ml/l) ALONG CALCOFI LINE 90

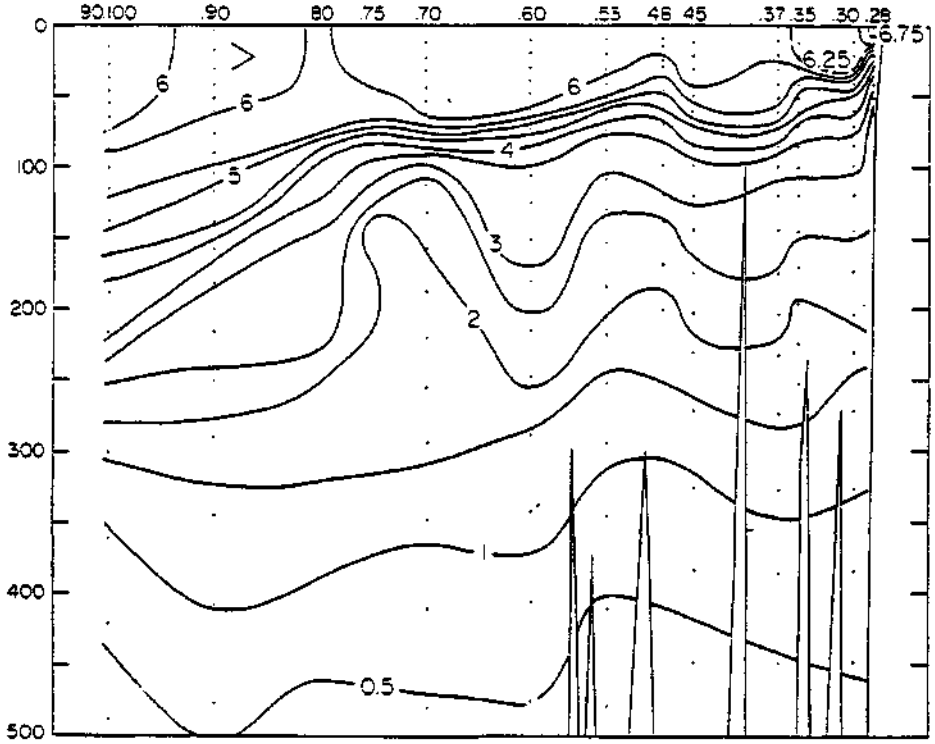


FIGURE 5 I

NITRITE (μM/l) ALONG CALCOFI LINE 90

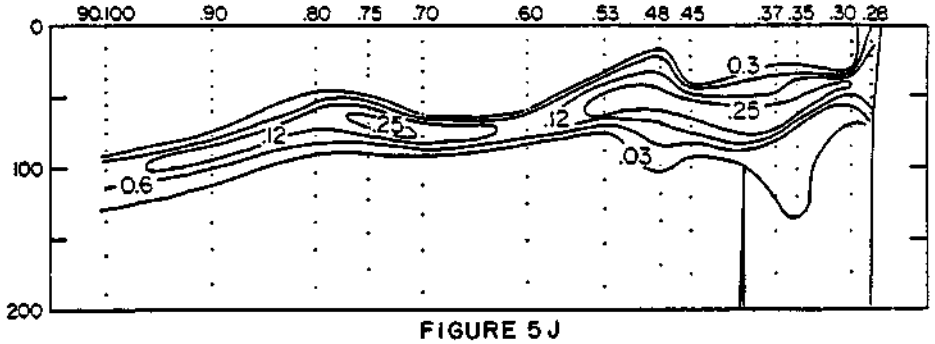


FIGURE 5 J

PHAEOPIGMENTS (μg/l) ALONG CALCOFI LINE 90

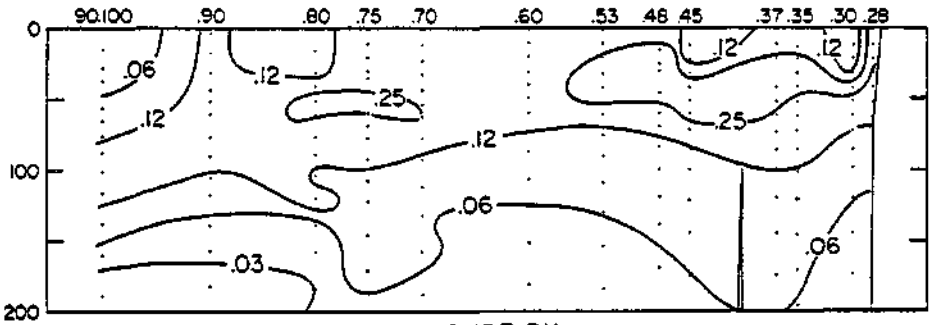


FIGURE 5K

PERSONNEL

CalCOFI Cruise 9003

SHIP'S CAPTAIN

Thomas L. Meyers, RV *David Starr Jordan*

PERSONNEL PARTICIPATING IN THE COLLECTION OF DATA

		Participation (Leg)
Dotson, Ronald C. (in charge)	Fishery Biologist, NMFS	I,II
Abramenkoff, Dimitry N.	Fishery Biologist, NMFS	I, II
Beaupre, Marie-Claude	Staff Research Associate, SIO	I, II
Cynar, Skip J.	Graduate Student, SIO	I, II
Elphick, Chris	Student, UCI	I
Griffith, David A.	Fishery Biologist, NMFS	I, II
Gripp, Sherry L.	Staff Research Associate, SIO	I, II
Gruber, Dennis W.	Marine Technician, SIO	I, II
Lowell, William R.	Staff Research Associate, SIO	I, II
Masten, Douglas M.	Marine Technician, SIO	I, II
Miller, Susan M.	Fishery Technician, NMFS	I, II
Mullin, Michael M	Professor, Director of MLRG, SIO	I, II
Renger, Edward H.	Staff Research Associate, SIO	I, II

Leg I: San Diego to Dana Point, CA, 4 - 11 March 1990

Leg II: Dana Point to Port San Luis, CA, 12 March - 19 March 1990

RV DAVID STARR JORDAN CALCOFI CRUISE 9003 STATION 77 49

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	HAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
35 5.3 N	120 46.6 W	19/03/90	1636 UTC	66 M	020	04 KT	300 03 05	4	1021.0 MB	10.7 C	10.4 C	8/8	ST

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 D.BAR
	0	ISL	10.59	10.59	33.662	25.807	218.1	0.000	5.08	80.8	17.0	1.28	13.7	0.17	3.47	1.08	0
1	1		10.59	10.59	33.662	25.807	218.1	0.002	5.08	80.8	17.0	1.28	13.7	0.17	3.47	1.08	1
	10	ISL	10.48	10.48	33.678	25.838	215.3	0.022	4.73	75.0	18.4	1.38	15.1	0.16	3.06	0.99	10
1	11		10.46	10.46	33.680	25.843	214.8	0.024	4.68	74.2	18.6	1.39	15.3	0.16	3.00	0.98	11
	20	ISL	10.44	10.44	33.682	25.849	214.5	0.043	4.66	73.8	18.8	1.40	15.5	0.17	2.87	0.88	20
1	21		10.44	10.44	33.682	25.849	214.5	0.045	4.66	73.8	18.8	1.40	15.5	0.17	2.86	0.88	21
	30	ISL	10.34	10.34	33.703	25.882	211.5	0.064	4.47	70.7	20.0	1.46	16.4	0.16	2.58	1.03	30
1	31		10.33	10.33	33.707	25.887	211.1	0.067	4.44	70.2	20.2	1.47	16.6	0.16	2.54	1.04	31
1	41		10.18	10.18	33.767	25.960	204.4	0.087	4.11	64.8	23.4	1.62	18.8	0.14	2.11	0.88	41
	50	ISL	10.09	10.08	33.792	25.995	201.2	0.106	4.01	63.1	24.5	1.68	19.6	0.13	2.02	0.71	50
1	52		10.07	10.06	33.797	26.002	200.6	0.110	3.99	62.8	24.8	1.69	19.8	0.13	2.00	0.67	52

RV DAVID STARR JORDAN / CALCOFI CRUISE 9003 STATION 77 51

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
35 1.3 N	120 55.1 W	19/03/90	1353 UTC	256 M	010	10 KT			1019.0 MB	12.2 C	11.5 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 D.BAR
	0	ISL	10.71	10.71	33.640	25.768	221.7	0.000	5.38	85.7	13.8	1.12	11.3	0.14	4.46	0.91	0
1	3		10.71	10.71	33.640	25.768	221.8	0.007	5.38	85.7	13.8	1.12	11.3	0.14	4.46	0.91	3
	10	ISL	10.70	10.70	33.642	25.772	221.6	0.022	5.34	85.1	13.9	1.13	11.5	0.15	4.54	0.93	10
1	12		10.70	10.70	33.643	25.773	221.5	0.027	5.33	84.9	13.9	1.14	11.6	0.15	4.56	0.93	12
	20	ISL	10.70	10.70	33.646	25.775	221.5	0.044	5.30	84.4	14.0	1.16	11.7	0.15	4.45	1.01	20
1	22		10.70	10.70	33.647	25.776	221.5	0.049	5.29	84.3	14.1	1.16	11.7	0.15	4.41	1.02	22
	30	ISL	10.67	10.67	33.652	25.785	220.8	0.066	5.23	83.3	14.8	1.18	12.1	0.15	4.28	0.94	30
1	33		10.66	10.66	33.654	25.789	220.5	0.073	5.21	82.9	15.1	1.19	12.3	0.15	4.20	0.90	33
1	43		10.63	10.62	33.662	25.801	219.6	0.095	5.16	82.1	15.3	1.22	12.7	0.15	3.58	0.95	43
	50	ISL	10.25	10.24	33.699	25.895	210.8	0.110	4.26	67.2	19.7	1.50	17.2	0.13	1.74	0.81	50
1	52		10.13	10.12	33.715	25.928	207.7	0.114	3.96	62.3	21.2	1.59	18.6	0.12	1.20	0.75	52
1	63		9.97	9.96	33.832	26.047	196.6	0.137	2.98	46.8	25.9	1.86	22.7	0.05	0.20	0.45	63
1	72		9.92	9.91	33.868	26.083	193.3	0.154	2.79	43.8	27.1	1.92	23.4	0.03	0.11	0.55	72
	75	ISL	9.91	9.90	33.876	26.091	192.6	0.160	2.73	42.8	27.5	1.94	23.6	0.03	0.09	0.52	75
1	87		9.87	9.86	33.910	26.125	189.7	0.183	2.58	40.4	28.7	1.98	24.4	0.03	0.05	0.34	87
	100	ISL	9.59	9.58	33.921	26.180	184.7	0.207	2.62	40.8	29.7	2.00	25.1	0.02	0.04	0.33	101
1	105		9.46	9.45	33.925	26.204	182.5	0.216	2.65	41.1	30.1	2.01	25.3	0.02	0.04	0.33	106
	125	ISL	9.07	9.06	33.968	26.301	173.6	0.252	2.63	40.5	32.3	2.06	26.3	0.03	0.02	0.22	126
1	126		9.05	9.04	33.971	26.307	173.1	0.254	2.63	40.5	32.5	2.06	26.4	0.03	0.02	0.22	127
1	146		8.91	8.89	34.049	26.391	165.5	0.288	2.19	33.6	37.5	2.24	27.9	0.05	0.02	0.30	147
	150	ISL	8.90	8.88	34.056	26.397	164.9	0.294	2.14	32.8	38.2	2.26	28.0	0.06	0.02	0.30	151
1	174		8.79	8.77	34.079	26.433	162.0	0.333	1.93	29.5	41.6	2.34	28.7	0.09	0.03	0.29	175
	200	ISL	8.51	8.49	34.116	26.506	155.5	0.375	1.78	27.1	44.0	2.41	29.9	0.07	0.01	0.24	201
1	206		8.44	8.42	34.125	26.524	153.9	0.384	1.74	26.4	44.5	2.43	30.2	0.07	0.01	0.23	207

RV DAVID STARR JORDAN CALCOFI CRUISE 9003 STATION 77 55

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
34 53.1 N	121 11.9 W	19/03/90	0947 UTC	557 M	310	16 KT			1019.0 MB	12.8 C	11.6 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 D.BAR
	0	ISL	12.15	12.15	33.353	25.282	267.9	0.000	6.37	104.5	4.3	0.52	1.3	0.09	0.64	0.26	0
1	1		12.15	12.15	33.353	25.282	267.9	0.003	6.37	104.5	4.3	0.52	1.3	0.09	0.64	0.26	1
	10	ISL	12.13	12.13	33.351	25.285	267.9	0.027	6.37	104.5	4.2	0.52	1.3	0.09	0.65	0.25	10
1	12		12.13	12.13	33.351	25.285	268.0	0.032	6.37	104.5	4.2	0.52	1.3	0.09	0.65	0.25	12
	20	ISL	12.16	12.16	33.350	25.279	268.8	0.054	6.38	104.7	4.0	0.51	1.3	0.09	0.64	0.25	20
1	21		12.16	12.16	33.350	25.279	268.8	0.056	6.38	104.7	4.0	0.51	1.3	0.09	0.64	0.25	21
	30	ISL	12.15	12.15	33.350	25.281	268.8	0.080	6.39	104.8	4.1	0.52	1.3	0.09	0.63	0.23	30
1	31		12.15	12.15	33.350	25.281	268.8	0.083	6.39	104.8	4.1	0.52	1.3	0.09	0.63	0.23	31
1	40		12.08	12.07	33.356	25.299	267.4	0.107	6.34	103.9	4.2	0.53	' 1.4	0.10	0.65	0.29	40
1	50		11.87	11.86	33.380	25.357	262.0	0.134	6.21	101.3	4.4	0.58	1.9	0.13	0.49	0.36	50
1	60		11.29	11.28	33.469	25.533	245.5	0.159	5.27	84.9	10.6	1.00	8.6	0.39	0.12	0.31	60
1	70		10.67	10.66	33.581	25.731	226.9	0.183	4.29	68.3	16.6	1.39	15.7	0.09	0.08	0.26	70
	75	ISL	10.60	10.59	33.609	25.765	223.7	0.194	4.10	65.2	17.7	1.45	16.3	0.09	0.07	0.25	75
1	82		10.51	10.50	33.627	25.795	221.0	0.210	3.98	63.1	18.6	1.49	17.2	0.08	0.06	0.24	82
1	97		9.43	9.42	33.625	25.975	204.1	0.241	3.78	58.5	22.2	1.66	20.8	0.04	0.03	0.24	98
	100	ISL	9.45	9.44	33.680	26.015'	200.4	0.248	3.61	56.0	23.5	1.71	21.6	0.04	0.03	0.24	101
1	116		9.53	9.52	33.926	26.194	183.7	0.278	2.71	42.1	29.6	1.98	24.8	0.04	0.03	0.20	117
	125	ISL	9.51	9.50	33.960	26.224	181.0	0.295	2.65	41.2	30.1	2.00	25.1	0.04	0.03	0.17	126
1	139		9.43	9.41	33.965	26.241	179.7	0.320	2.56	39.7	31.0	2.04	25.5	0.03	0.02	0.14	140
	150	ISL	9.32	9.30	34.005	26.291	175.2	0.339	2.39	37.0	32.8	2.11	26.3	0.04	0.02	0.14	151
1	168		9.10	9.08	34.071	26.378	167.2	0.370	2.10	32.4	36.1	2.24	27.7	0.05	0.02	0.15	169
1	195		8.82	8.80	34.115	26.457	160.2	0.414	1.87	28.7	39.7	2.34	29.0	0.01	0.01	0.14	196
	200	ISL	8.77	8.75	34.122	26.471	159.0	0.422	1.84	28.2	40.3	2.35	29.2	0.01			201
1	223		8.51	8.49	34.142	26.527	154.0	0.458	1.77	26.9	42.8	2.40	30.1	0.01			224
	250	ISL	8.09	8.06	34.121	26.574	149.8	0.499	1.92	28.9	44.7	2.40	30.6	0.01			252
1	261		7.92	7.89	34.111	26.592	148.2	0.516	1.98	29.7	45.6	2.40	30.8	0.01			263
	300	ISL	7.51	7.48	34.131	26.667	141.5	0.572	1.67	24.8	51.2	2.54	32.7	0.01			302
1	313		7.38	7.35	34.139	26.692	139.3	0.591	1.53	22.7	53.5	2.60	33.4	0.01			315
1	367		6.66	6.63	34.119	26.776	131.7	0.664	1.29	18.8	63.4	2.77	36.0	0.01			369
	400	ISL	6.51	6.47	34.148	26.819	128.0	0.707	1.04	15.1	67.6	2.87	37.1	0.01			403
1	430		6.45	6.41	34.183	26.854	125.0	0.745	0.81	11.8	70.7	2.95	37.8	0.01			433
1	497		6.16	6.12	34.244	26.941	117.6	0.826	0.52	7.5	77.2	3.08	39.1	0.01			501
	500	ISL	6.15	6.11	34.246	26.944	117.3	0.829									504

RV DAVID STARR JORDAN CALCOFI CRUISE 9003 STATION 77 60

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
34 A3.3 N	121 33.0 W	19/03/90	0523 UTC	949 M	300	17 KT			1019.9 MB	12.5 C	11.6 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 D.BAR
	0	ISL	12.22	12.22	33.402	25.307	265.5	0.000	6.38	104.9	3.9	0.50	1.2	0.09	0.80	0.31	0
1	1		12.22	12.22	33.402	25.307	265.6	0.003	6.38	104.9	3.9	0.50	1.2	0.09	0.80	0.31	1
	10	ISL	12.18	12.18	33.401	25.314	265.1	0.027	6.41	105.3	3.8	0.51	1.2	0.09	0.82	0.33	10
1	11		12.18	12.18	33.401	25.314	265.1	0.029	6.41	105.3	3.8	0.51	1.2	0.09	0.82	0.33	11
	20	ISL	12.17	12.17	33.399	25.315	265.3	0.053	6.41	105.2	3.7	0.50	1.2	0.09	0.78	0.29	20
1	22		12.17	12.17	33.399	25.315	265.4	0.058	6.41	105.2	3.7	0.50	1.2	0.09	0.78	0.29	22
	30	ISL	12.06	12.06	33.394	25.332	263.9	0.080	6.38	104.5	3.9	0.53	1.4	0.11	0.85	0.36	30
1	31		12.04	12.04	33.394	25.336	263.6	0.082	6.37	104.3	3.9	0.53	1.4	0.11	0.85	0.37	31
1	40		11.90	11.89	33.416	25.379	259.7	0.106	6.26	102.2	4.2	0.58	1.7	0.14	0.56	0.39	40
1	50		11.87	11.86	33.420	25.388	259.1	0.132	6.18	100.8	4.3	0.60	2.1	0.16	0.43	0.39	50
1	60		11.69	11.68	33.431	25.430	255.3	0.157	5.89	95.7	6.3	0.73	4.0	0.25	0.31	0.42	60
1	74		10.69	10.68	33.556	25.708	229.1	0.191	4.48	71.3	15.8	1.34	14.8	0.23	0.09	0.32	74
	75	ISL	10.66	10.65	33.564	25.719	228.0	0.194	4.42	70.3	16.2	1.36	15.2	0.22	0.09	0.31	75
1	89		10.41	10.40	33.660	25.838	217.1	0.225	3.84	60.8	20.3	1.56	18.5	0.04	0.06	0.24	89
	100	ISL	10.18	10.17	33.720	25.924	209.1	0.248	3.49	55.0	22.6	1.68	20.5	0.03	0.05	0.21	101
1	109		10.00	9.99	33.765	25.990	203.0	0.267	3.25	51.0	24.2	1.76	21.9	0.02	0.04	0.20	II0
	125	ISL	9.75	9.74	33.853	26.101	192.8	0.298	2.89	45.1	27.4	1.89	23.9	0.02	0.03	0.18	126
	150	ISL	9.46	9.44	33.972	26.242	179.8	0.345	2.47	38.4	31.9	2.06	26.1	0.03	0.02	0.16	151
1	152		9.44	9.42	33.980	26.252	179.0	0.349	2.44	37.9	32.2	2.07	26.2	0.03	0.02	0.16	153
1	181		9.26	9.24	34.052	26.338	171.4	0.399	2.13	32.9	35.7	2.20	27.6	0.03	0.01	0.14	182
	200	ISL	8.98	8.96	34.073	26.399	165.8	0.431	2.14	32.9	37.6	2.24	28.3	0.02	0.01	0.13	201
1	214		8.74	8.72	3 4.080	26.443	161.9	0.454	2.14	32.7	38.9	2.25	28.7	0.01	0.01	0.12	215
1	249		8.15	8.12	34.083	26.535	153.5	0.510	2.21	33.3	42.5	2.30	30.1	0.02			251
	250	ISL	8.14	8.11	34.086	26.539	153.1	0.511	2.19	33.0	42.7	2.31	30.2	0.02			252
1	287		7.93	7.90	34.195	26.656	142.6	0.566	1.31	19.7	51.1	2.64	32.9	0.01			289
	300	ISL	7.77	7.74	34.196	26.681	140.4	0.584	1.28	19.2	53.1	2.68	33.5	0.01			302
1	342		7.19	7.16	34.168	26.742	135.0	0.642	1.20	17.7	58.6	2.75	35.2	0.01			344
	400	ISL	6.67	6.63	34.203	26.841	126.1	0.718	0.81	11.8	67.7	2.94	37.6	0.0-0			403
1	405		6.64	6.60	34.207	26.848	125.5	0.724	0.77	11.2	68.5	2.96	37.8	0.00			408
1	472		6.29	6.25	34.249	26.928	118.6	0.806	0.54	7.8	76.6	3.08	39.1	0.00			47 5
	500	ISL	6.15	6.11	34.267	26.960	115.8	0.839	0.47	6.8	79.2	3.12	39.7	0.00			504
1	554		5.89	5.84	34.302	27.021	110.5	0.900	0.33	4.7	84.2	3.20	40.9	0.00			558

RV DAVID STARR JORDAN CALCOFI CRUISE 9003 STATION 77 70

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE ""
34 23.3 N	122 14.8 W	18/03/90	23 18 UTC	4010 M	320	14 KT	330 03 04	4	1019.9 MB	12.7 C	12.6 C	8/8	ST

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 D.BAR
	0	ISL	13.32	13.32	33.264	24.985	296.2	0.000	6.19	104.0	3.5	0.39	0.1	0.00	0.29	0.05	0
1	1		13.32	13.32	33.264	24.985	296.2	0.003	6.19	104.0	3.5	0.39	0.1	0.00	0.29	0.05	1
	10	ISL	13.29	13.29	33.264	24.991	295.9	0.030	6.19	104.0	3.4	0.39	0.1	0.00	0.29	0.05	10
1	11		13.29	13.29	33.264	24.991	295.9	0.033	6.19	104.0	3.4	0.39	0.1	0.00	0.29	0.05	11
	20	ISL	12.96	12.96	33.256	25.051	290.4	0.059	6.25	104.2	3.6	0.41	0.1	0.01	0.45	0.11	20
1	21		12.92	12.92	33.256	25.059	289.7	0.062	6.26	104.3	3.6	0.41	0.1	0.01	0.48	0.12	21
	30	ISL	12.64	12.64	33.303	25.150	281.2	0.088	6.35	105.2	3.9	0.42	0.3	.0.02	0.73	0.20	30
1	31		12.61	12.61	33.310	25.162	280.2	0.090	6.36	105.3	3.9	0.42	0.3	0.02	0.76	0.21	31
1	41		12.28	12.27	33.376	25.276	269.5	0.118	6.35	104.5	4.1	0.44	0.7	0.04	0.89	0.39	41
	50	ISL	12.02	12.01	33.375	25.325	265.1	0.142	6.20	101.4	4.5	0.54	2.0	0.12	0.55	0.32	50
1	51		12.00	11.99	33.373	25.327	264.9	0.145	6.18	101.1	4.6	0.55	2.2	0.13	0.50	0.31	51
1	61		11.83	11.82	33.393	25.375	260.6	0.171	6.00	97.8	5.2	0.65	3.6	0.20	0.28	0.22	61
1	71		10.87	10.86	33.266	25.450	253.5	0.197	5.43	86.6	8.8	0.96	9.1	0.08	0.17	0.13	71
	75	ISL	10.54	10.53	33.272	25.513	247.7	0.207	5.21	82.5	10.4	1.08	11.1	0.05	0.13	0.11	75
1	83		10.01	10.00	33.330	25.648	234.8	0.226	4.81	75.3	13.4	1.28	14.5	0.02	0.08	0.08	83
1	99		9.54	9.53	33.472	25.837	217.2	0.262	4.27	66.2	18.1	1.51	18.5	0.02	0.03	0.06	100
	100	ISL	9.54	9.53	33.486	25.848	216.2	0.264	4.23	65.6	18.4	1.52	18.7	0.02	0.03	0.06	101
1	118		9.46	9.45	33.706	26.034	198.9	0.302	3.54	54.9	23.3	1.71	22.0	0.02	0.02	0.07	119
	125	ISL	9.44	9.43	33.767	26.085	194.2	0.315	3.36	52.1	24.7	1.77	22.9	0.02	0.02	0.08	126
1	143		9.36	9.34	33.880	26.186	184.9	0.349	3.03	46.9	27.8	1.90	24.6	0.02	0.02	0.09	144
	150	ISL	9.32	9.30	33.911	26.217	182.2	0.362	2.91	45.0	28.8	1.94	25.1	0.02	0.02	0.09	151
1	172		9.09	9.07	33.982	26.310	173.8	0.401	2.65	40.8	31.8	2.04	26.5	0.02	0.01	0.10	173
	200	ISL	8.48	8.46	34.040	26.451	160.7	0.448	2.60	39.5	36.6	2.12	28.0	0.01	0.01	0.07	201
1	201		8.46	8.44	34.042	26.456	160.2	0.450	2.60	39.5	36.8	2.12	28.1	0.01	0.01	0.07	202
1	228		8.09	8.07	34.107	26.563	150.4	0.492	2.11	31.8	43.4	2.33	30.4	0.01			**229**
	250	ISL	7.90	7.87	34.136	26.614	145.9	0.524	1.82	27.3	47.3	2.47	31.7	0.01			**252**
1	267		7.73	7.70	34.139	26.641	143.5	0.549	1.69	25.3	50.0	2.54	32.5	0.01			**269**
	300	ISL	6.98	6.95	34.076	26.698	138.2	0.595	1.85	27.2	55.4	2.55	33.8	0.00			**302**
1	322		6.48	6.45	34.032	26.730	135.2	0.626	1.98	28.7	59.0	2.55	34.7	0.00			**324**
1	379		6.06	6.03	34.060	26.807	128.4	0.701	1.44	20.7	68.2	2.76	37.5	0.00			**381**
	400	ISL	5.92	5.89	34.078	26.839	125.6	0.727	1.25	17.9	71.7	2.84	38.4	0.00			**403**
1	443		5.66	5.62	34.119	26.903	119.8	0.780	0.90	12.8	78.7	2.99	40.1	0.00			**446**
	500	ISL	5.37	5.33	34.162	26.973	113.6	0.847	0.62	8.8	86.3	3.10	41.5	0.00			**504**
1	513		5.30	5.26	34.172	26.989	112.2	0.861	0.56	7.9	88.0	3.13	41.8	0.00			**517**

RV DAVID STARR JORDAN CALCOFI CRUISE 9003 STATION 77 80

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
34 3.3 N	122 56.5 W	18/03/90	1544 UTC	4103 M	320	10 KT	310 03 04	4	1020.5 MB	11.7 C	11.7 C	8/8	ST

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 D.BAR
	0	ISL	12.83	12.83	33.283	25.097	285.5	0.000	6.28	104.5	4.4	0.42	0.1	0.01	0.58	0.14	0
1	1		12.83	12.83	33.283	25.097	285.5	0.003	6.28	104.5	4.4	0.42	0.1	0.01	0.58	0.14	1
	10	ISL	12.75	12.75	33.284	25.114	284.2	0.028	6.32	105.0	4.4	0.42	0.1	0.01	0.60	0.15	10
1	11		12.73	12.73	33.284	25.118	283.8	0.031	6.33	105.1	4.4	0.42	0.1	0.01	0.61	0.15	11
	20	ISL	12.52	12.52	33.287	25.161	280.0	0.057	6.36	105.1	4.4	0.44	0.3	0.03	0.69	0.18	20
2	21		12.50	12.50	33.288	25.166	279.6	0.060	6.36	105.1	4.4	0.44	0.3	0.03	0.70	0.19	21
1	30		12.36	12.36	33.293	25.197	276.8	0.085	6.30	103.8	4.4	0.46	0.6	0.07	0.84	0.28	30
1	40		12.30	12.29	33.296	25.211	275.7	0.112	6.25	102.8	4.4	0.48	0.8	0.11	0.76	0.27	40
1	50		12.00	11.99	33.330	25.294	268.0	0.139	6.06	99.1	5.2	0.61	2.6	0.35	0.42	0.26	50
1	60		11.83	11.82	33.337	25.331	264.7	0.166	5.95	96.9	5.7	0.68	3.6	0.34	0.27	0.21	60
1	70		11.50	11.49	33.355	25.406	257.8	0.192	5.77	93.3	6.7	0.77	5.5	0.31	0.16	0.17	70
	75	ISL	11.06	11.05	33.349	25.481	250.7	0.205	5.39	86.4	9.1	0.95	8.7	0.21	0.13	0.14	75
1	84		10.26	10.25	33.355	25.626	237.1	0.227	4.65	73.2	14.0	1.31	14.7	0.03	0.09	0.10	84
1	99		9.82	9.81	33.469	25.789	221.8	0.261	4.18	65.2	17.6	1.52	18.3	0.01	0.05	0.08	100
	100	ISL	9.78	9.77	33.480	25.804	220.4	0.263	4.14	64.6	18.0	1.54	18.6	0.01	0.05	0.08	101
1	118		9.10	9.09	33.685	26.075	194.9	0.301	3.50	53.8	25.3	1.82	23.6	0.01	0.01	0.04	119
	125	ISL	8.93	8.92	33.735	26.141	188.7	0.314	3.37	51.6	27.1	1.88	24.6	0.01	0.01	0.04	126
1	143		8.59	8.58	33.825	26.265	177.3	0.347	3.18	48.4	30.6	1.95	26.0	0.01	0.01	0.03	144
	150	ISL	8.47	8.45	33.852	26.304	173.6	0.359	3.15	47.8	31.7	1.97	26.3	0.01	0.01	0.03	151
1	172		8.16	8.14	33.919	26.404	164.5	0.397	3.05	46.0	34.6	2.01	27.1	0.01	0.00	0.03	173
	200	ISL	7.97	7.95	33.980	26.480	157.7	0.442	2.70	40.5	38.6	2.14	29.0	0.01	0.01	0.04	201
1	202		7.96	7.94	33.984	26.485	157.3	0.445	2.67	40.1	38.9	2.15	29.1	0.01	0.01 A	0.04 A	203
1	231		7.67	7.65	34.046	26.576	149.0	0.489	2.27	33.9	44.9	2.32	31.0	0.00			232
	250	ISL	7.51	7.49	34.052	26.604	146.6	0.517	2.13	31.7	47.5	2.38	31.8	0.00			252
1	271		7.32	7.29	34.047	26.627	144.6	0.548	2.01	29.7	50.2	2.44	32.6	0.00			273
	300	ISL	6.98	6.95	34.051	26.678	140.1	0.589	1.83	26.9	55.1	2.55	34.0	0.00			302
1	324		6.69	6.66	34.057	26.722	136.1	0.622	1.66	24.2	59.6	2.64	35.3	0.00			326
1	383		6.09	6.06	34.093	26.829	126.4	0.700	1.12	16.1	71.3	2.88	38.2	0.00			386
	400	ISL	6.10	6.06	34.123	26.852	124.5	0.721	0.97	14.0	73.2	2.93	38.6	0.00			403
1	448		6.11	6.07	34.202	26.913	119.4	0.780	0.60	8.6	77.5	3.06	39.3	0.00			451
	500	ISL	5.82	5.78	34.247	26.986	113.0	0.840	0.42	6.0	83.9	3.15	40.4	0.00			503
1	516		5.73	5.69	34.261	27.008	111.0	0.858	0.36	5.1	85.9	3.18	40.7	0.00			520

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

RV DAVID STARR JORDAN CALCOFI CRUISE 9003 STATION 77 90

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
33 43.2 N	123 38.0 W	18/03/90	0941 UTC	3824 M	290	09 KT			1021.0 MB	15.0 C	14.3 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	PO4 UM/L	NO3 UM/L	NO2 UM/L	CHL-A UG/L	PHAEO UG/L	PRESS D.BAR
	0	ISL	13.59	13.59	33.237	24.910	303.4	0.000	6.15	103.9	4.2	0.41	0.0	0.00	0.23	0.04	0
1	1		13.59	13.59	33.237	24.910	303.4	0.003	6.15	103.9	4.2	0.41	0.0	0.00	0.23	0.04	1
	10	ISL	13.05	13.05	33.215	25.001	294.9	0.030	6.30	105.2	4.4	0.42	0.0	0.01	0.45	0.08	10
1	15		12.64	12.64	33.200	25.070	288.5	0.045	6.41	106.2	4.5	0.43	0.0	0.01	0.62	0.13	15
	20	ISL	12.41	12.41	33.189	25.106	285.2	0.059	6.40	105.5	4.6	0.44	0.2	0.02	0.75	0.20	20
1	30		12.13	12.13	33.180	25.153	281.0	0.087	6.39	104.7	4.8	0.46	0.6	0.05	0.92	0.33	30
1	40		12.08	12.07	33.197	25.175	279.1	0.115	6.31	103.3	5.1	0.49	1.0	0.07	0.85	0.36	40
1	50		11.77	11.76	33.218	25.250	272.2	0.143	6.01	97.7	6.1	0.64	3.3	0.28	0.44	0.23	50
1	61		11.37	11.36	33.273	25.366	261.4	0.172	5.76	92.9	7.9	0.81	6.2	0.20	0.18	0.15	61
1	71		10.68	10.67	33.238	25.462	252.4	0.198	-5.40	85.8	10.1	0.99	9.8	0.04	0.12	0.12	71
	75	ISL	10.41	10.40	33.245	25.514	247.5	0.208	5.23	82.6	11.4	1.09	11.4	0.03	0.10	0.XI	75
1	80		10.12	10.11	33.269	25.582	241.1	0.220	5.00	78.5	13.1	1.22	13.3	0.02	0.08	0.10	80
1	95		9.72	9.71	33.442	25.784	222.2	0.255	4.32	67.3	17.9	1.50	18.0	0.01	0.03	0.09	95
	100	ISL	9.74	9.73	33.512	25.836	217.4	0.266	4.07	63.4	19.2	1.56	19.1	0.01	0.02	0.08	101
1	109		9.79	9.78	33.618	25.910	210.5	0.285	3.70	57.8	21.2	1.64	20.7	0.01	0.02	0.06	110
1	124		9.45	9.44	33.663	26.002	202.1	0.316	3.54	54.9	23.7	1.76	22.3	0.01	0.01	0.06	125
	125	ISL	9.45	9.44	33.671	26.008	201.5	0.318	3.52	'54.6	23.9	1.77	22.4	0.01	0.01	0.06	126
1	149		9.35	9.33	33.840	26.157	187.9	0.365	2.99	46.3	28.2	1.92	24.6	0.01	0.01	0.07	150
	150	ISL	9.34	9.32	33.844	26.161	187.5	0.367	2.98	46.1	28.3	1.92	24.7	0.01	0.01	0.07	151
1	174		9.10	9.08	33.920	26.260	178.5	0.410	2.75	42.4	31.2	2.01	26.2	0.01	0.01	0.05	175
	200	ISL	8.70	8.68	33.956	26.351	170.2	0.456	2.64	40.3	33.9	2.09	27.6	0.01	0.00	0.04	201
1	204		8.63	8.61	33.961	26.366	168.9	0.463	2.63	40.1	34.3	2.10	27.8	0.01	0.00	0.04	205
1	233		8.17	8.15	34.028	26.489	157.5	0.510	2.50	37.7	38.9	2.19	29.0	0.01			234
	250	ISL	7.99	7.96	34.051	26.534	153.5	0.536	2.36	35.5	41.4	2.26	29.8	0.01			251
1	272		7.81	7.78	34.073	26.578	149.6	0.570	2.13	31.9	44.7	2.35	30.9	0.01			274
	300	ISL	7.67	7.64	34.111	26.629	145.3	0.611	1.79	26.7	49.0	2.48	32.2	0.01			302
1	327		7.50	7.47	34.138	26.675	141.3	0.650	1.50	22.3	53.3	2.60	33.4	0.00			329
1	386		6.66	6.62	34.127	26.782	131.4	0.730	1.23	17.9	63.5	2.79	36.3	0.00			389
	400	ISL	6.48	6.44	34.127	26.806	129.2	0.748	1.15	16.7	66.3	2.83	37.0	0.00			403
1	450		5.94	5.90	34.144	26.889	121.5	0.811	0.83	11.9	76.3	2.98	39.4	0.00			453
	500	ISL	5.68	5.64	34.210	26.974	113.9	0.870	0.51	7.3	84.1	3.12	40.7	0.00			503
1	518		5.59	5.55	34.234	27.004	111.2	0.890	0.40	5.7	86.9	3.17	41.2	0.00			522

RV DAVID STARR JORDAN CALCOFI CRUISE 9003 STATION 80 51

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT TYPE
34 27.0 N	120 31.A W	17/03/90	0256 UTC	77 M	310	12 KT			1020.0 MB	12.8 C	11.6 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 D.BAR
	0	ISL	10.83	10.83	33.819	25.887	210.4	0.000	3.90	62.4	24.2	1.67	18.7	0.28	0.79	0.33	0
1	1		10.83	10.83	33.819	25.887	210.5	0.002	3.90	62.4	24.2	1.67	18.7	0.28	0.79	0.33	1
	10	ISL	10.70	10.70	33.826	25.915	2p8.0	0.021	3.61	57.6	24.7	1.71	19.4	0.26	0.74	0.29	10
1	11		10.68	10.68	33.827	25.920	207.6	0.023	3.57	56.9	24.8	1.72	19.5	0.26	0.73	0.28	11
	20	ISL	10.52	10.52	33.847	25.963	203.6	0.042	3.36	53.4	26.0	1.78	20.4	0.26	0.58	0.28	20
1	21		10.50	10.50	33.849	25.968	203.2	0.044	3.34	53.1	26.1	1.79	20.5	0.26	0.57	0.28	21
	30	ISL	10.45	10.45	33.855	25.982	202.1	0.062	3.30	52.4	26.4	1.80	20.7	0.27	0.58	0.29	30
1	31		10.44	10.44	33.856	25.984	201.9	0.064	3.30	52.3	26.4	1.80	20.7	0.27	0.58	0.29	31
1	41		10.24	10.24	33.885	26.042	196.6	0.084	3.05	48.2	28.0	1.87	22.0	0.27	0.38	0.32	41
	50	ISL	10.09	10.08	33.886	26.068	194.3	0.101	2.95	46.4	28.8	1.91	22.5	0.26	0.35	0.34	50
1	52		10.06	10.05	33.886	26.073	193.9	0.105	2.93	46.1	29.0	1.92	22.6	0.26	0.34	0.35	52

RV DAVID STARR JORDAN CALCOFI CRUISE 9003 STATION 80 55

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT TYPE
34 19.0 N	120 48.1 W	17/03/90	0554 UTC	781 M	2 80	08 KT			1020.1 MB	12.5 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 D.BAR
1	0		12.28	12.28	33.335	25.244	271.6	0.000	6.35	104.5	5.4	0.56	2.3	0.10	0.98	0.28	0
	10	ISL	12.00	12.00	33.330	25.293	267.1	0.027	6.36	104.0	5.4	0.56	2.1	0.10	1.14	0.38	10
1	11		11.97	11.97	33.329	25.298	266.7	0.030	6.36	103.9	5.4	0.56	2.1	0.10	1.16	0.39	11
	20	ISL	11.93	11.93	33.337	25.312	265.6	0.054	6.37	104.0	5.5	0.56	2.3	0.11	1.44	0.53	20
1	21		11.93	11.93	33.337	25.312	265.6	0.056	6.37	104.0	5.5	0.56	2.3	0.11	1.48	0.54	21
1	30		11.91	11.91	33.354	25.329	264.2	0.080	6.29	102.7	5.1	0.53	2.3	0.10	1.81	0.57	30
1	41		11.89	11.88	33.430	25.392	258.5	0.109	6.18	100.9	5.0	0.55	2.4	0.14	1.32	0.52	41
1	50		11.81	11.80	33.567	25.514	247.1	0.132	5.70	93.0	6.2	0.74	4.4	0.22	0.45	0.59	50
1	61		11.01	11.00	33.673	25.742	225.6	0.158	4.24	68.0	15.7	1.32	13.9	0.36	0.18	0.53	61
1	70		10.32	10.31	33.807	25.968	204.3	0.177	3.13	49.5	24.2	1.76	21.0	0.04	0.08	0.41	70
	75	ISL	10.27	10.26	33.814	25.982	203.1	0.187	3.10	49.0	24.6	1.78	21.3	0.04	0.07	0.41	75
1	85		10.17	10.16	33.829	26.011	200.6	0.207	3.03	47.8	25.3	1.81	21.8	0.05	0.06	0.40	85
1	99		9.87	9.86	33.907	26.123	190.2	0.235	2.70	42.3	28.6	1.95	23.9	0.03	0.06	0.29	100
	100	ISL	9.85	9.84	33.912	26.130	189.5	0.237	2.68	42.0	28.8	1.96	24.0	0.03	0.06	0.29	101
1	120		9.52	9.51	34.004	26.257	177.8	0.273	2.35	36.6	32.4	2.11	26.1	0.02	0.06	0.23	121
	125	ISL	9.46	9.45	34.021	26.280	175.7	0.282	2.28	35.4	33.1	2.14	26.4	0.02	0.06	0.22	126
1	145		9.28	9.26	34.069	26.347	169.7	0.317	2.09	32.4	35.5	2.22	27.4	0.02	0.04	0.19	146
	150	ISL	9.25	9.23	34.075	26.357	168.9	0.325	2.08	32.2	35.8	2.23	27.5	0.02	0.04	0.19	151
1	174		9.10	9.08	34.094	26.396	165.6	0.365	2.06	31.8	37.0	2.27	27.9	0.01	0.04	0.18	175
	200	ISL	8.93	8.91	34.122	26.445	161.4	0.408	1.94	29.8	38.9	2.32	28.7	0.01	0.08	0.15	201
1	204		8.90	8.88	34.127	26.454	160.7	0.414	1.92	29.5	39.2	2.33	28.8	0.01	0.09	0.14	205
1	233		8.69	8.67	34.157	26.511	155.8	0.460	1.78	27.2	41.8	2.41	29.8	0.01			234
	250	ISL	8.55	8.52	34.174	26.546	152.7	0.486	1.65	25.1	43.8	2.47	30.4	0.01			252
1	273		8.35	8.32	34.194	26.593	148.6	0.521	1.47	22.3	46.7	2.55	31.3	0.01			275
	300	ISL	8.14	8.11	34.211	26.638	144.7	0.561	1.29	19.5	50.0	2.63	32.2	0.00			302
1	325		7.95	7.92	34.221	26.675	141.6	0.596	1.16	17.4	52.8	2.70	32.9	0.00			327
1	383		7.56	7.52	34.231	26.740	136.1	0.677	0.96	14.3	57.8	2.81	34.4	0.01			386
	400	ISL	7.41	7.37	34.236	26.765	133.9	0.700	0.88	13.1	60.0	2.85	35.0	0.01			403
1	447		6.96	6.92	34.250	26.839	127.2	0.761	0.67	9.8	67.0	2.97	36.6	0.00			450
	500	ISL	6.38	6.33	34.256	26.922	119.6	0.827	0.53	7.7	75.3	3.08	38.5	0.01			504
1	514		6.23	6.18	34.258	26.943	117.7	0.843	0.49	7.1	77.5	3.11	39.0	0.01			518

RV DAVID STARR JORDAN CALCOFI CRUISE 9003 STATION 80 60

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT TYPE
34 9.0 N	121 8.9 W	17/03/90	0923 UTC	2275 M	310	11 KT			1019.5 MB	12.5 C	11.9 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 D.BAR
	0	ISL	11.92	11.92	33.440	25.393	257.3	0.000	6.36	103.9	7.2	0.66	4.1	0.14	1.29	0.41	0
1	1		11.92	11.92	33.440	25.393	257.4	0.003	6.36	103.9	7.2	0.66	4.1	0.14	1.29	0.41	1
	10	ISL	11.80	11.80	33.436	25.413	255.7	0.026	6.37	103.8	7.0	0.66	3.8	0.14	1.67	0.63	10
1	16		11.69	11.69	33.438	25.435	253.8	0.041	6.37	103.5	6.8	0.65	3.6	0.14	2.13	0.84	16
	20	ISL	11.66	11.66	33.446	25.447	252.8	0.051	6.32	102.7	6.5	0.65	3.7	0.15	2.36	0.93	20
1	30		11.58	11.58	33.478	25.487	249.2	0.076	6.19	100.4	5.9	0.64	4.2	0.16	3.33	1.12	30
1	39		11.48	11.48	33.520	25.538	244.6	0.098	6.20	100.4	6.1	0.69	4.5	0.16	5.01	1.22	39
1	49		11.31	11.30	33.569	25.607	238.2	0.123	5.99	96.6	7.4	0.77	6.3	0.19	5.35	1.20	49
	50	ISL	11.30	11.29	33.572	25.611	237.8	0.125	5.97	96.3	7.5	0.78	6.4	0.19	5.33	1.22	50
1	60		11.19	11.18	33.595	25.649	234.4	0.149	5.81	93.5	8.6	0.88	7.5	0.21	5.11	1.40	60
1	70		11.05	11.04	33.624	25.697	230.1	0.172	5.55	89.1	10.0	1.02	9.0	0.22	4.22	1.23	70
	75	ISL	11.03	11.02	33.641	25.714	228.6	0.183	5.50	88.2	10.3	1.03	9.2	0.21	3.29	1.31	75
1	78		11.00	10.99	33.650	25.727	227.5	0.190	5.44	87.2	10.6	1.04	9.4	0.21	2.75	1.36	78
1	93		10.40	10.39	33.659	25.839	217.1	0.223	4.32	68.4	17.1	1.40	15.7	0.12	2.34	1.20	93
	100	ISL	10.22	10.21	33.719	25.917	209.8	0.238	3.74	59.0	20.6	1.58	18.6	0.10	1.33	0.97	101
1	108		10.08	10.07	33.796	26.001	202.0	0.255	3.20	50.3	24.0	1.76	21.3	0.08	0.21	0.71	109
1	123		9.90	9.89	33.872	26.091	193.7	0.285	2.94	46.1	26.4	1.86	22.9	0.04	0.11	0.50	124
	125	ISL	9.87	9.86	33.882	26.104	192.6	0.288	2.91	45.6	26.7	1.87	23.1	0.04	0.10	0.48	126
1	147		9.58	9.56	33.971	26.222	181.8	0.330	2.61	40.6	30.1	2.02	24.8	0.03	0.06	0.35	148
	150	ISL	9.55	9.53	33.980	26.234	180.7	0.335	2.58	40.2	30.5	2.03	25.0	0.03	0.06	0.35	151
1	172		9.37	9.35	34.035	26.307	174.2	0.374	2.34	36.3	33.2	2.12	26.4	0.02	0.07	0.38	173
1	200		9.06	9.04	34.108	26.414	164.5	0.421	1.99	30.7	37.7	2.28	28.2	0.01	0.04	0.26	201
1	230		8.76	8.74	34.156	26.499	156.9	0.470	1.72	26.3	42.1	2.43	29.7	0.01			231
	250	ISL	8.52	8.49	34.186	26.560	151.3	0.500	1.54	23.4	44.8	2.51	30.7	0.01			252
1	269		8.29	8.26	34.208	26.613	146.6	0.529	1.39	21.1	47.2	2.58	31.6	0.01			271
	300	ISL	8.04	8.01	34.218	26.658	142.7	0.574	1.23	18.5	50.9	2.66	32.5	0.01			302
1	324		7.88	7.85	34.219	26.683	140.7	0.608	1.13	17.0	53.6	2.71	33.0	0.01			326
1	383		7.46	7.42	34.252	26.771	133.2	0.688	0.83	12.3	60.1	2.86	34.8	0.01			3 86
	400	ISL	7.22	7.18	34.252	26.805	130.0	0.711	0.76	11.2	63.1	2.91	35.6	0.01			403
1	449		6.53	6.49	34.253	26.899	121.2	0.772	0.58	8.4	71.9	3.04	38.0	0.01			452
	500	ISL	6.20	6.16	34.283	26.966	115.2	0.833	0.41	5.9	77.9	3.14	39.3	0.01			504
1	518		6.08	6.03	34.294	26.991	113.1	0.853	0.35	5.0	80.0	3.17	39.8	0.01			522

RV DAVID STARR JORDAN CALCOFI CRUISE 9003 STATION 80 70

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	HAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
33 49.0 N	121 50.6 W	17/03/90	1515 UTC	3677 M	300	13 KT	310 02 03	2	1020.1 MB	11.8 C	11.4 C	8/8	ST

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 D.BAR
	0 ISL	12.61	12.61	33.293	25.148	280.7	0.000	6.25	103.5	3.8	0.46	0.5	0.05	0.60	0.22	0
1	1	12.61	12.61	33.293	25.148	280.7	0.003	6.25	103.5	3.8	0.46	0.5	0.05	0.60	0.22	1
	10 ISL	12.51	12.51	33.310	25.180	277.9	0.028	6.30	104.1	3.9	0.47	0.9	0.06	0.94	0.33	10
1	11	12.50	12.50	33.313	25.185	277.5	0.031	6.31	104.3	3.9	0.47	0.9	0.06	0.99	0.35	11
	20 ISL	12.44	12.44	33.323	25.204	275.9	0.056	6.32	104.3	3.8	0.48	1.0	0.08	1.28	0.45	20
1	21	12.43	12.43	33.327	25.209	275.4	0.058	6.32	104.3	3.8	0.48	1.0	0.08	1.33	0.47	21
	30 ISL	12.07	12.07	33.388	25.325	264.5	0.083	6.37	104.4	4.4	0.54	1.9	0.13	2.13	0.77	30
1	31	12.03	12.03	33.395	25.338	263.4	0.085	6.38	104.4	4.5	0.55	2.0	0.14	2.22	0.81	31
1	40	11.90	11.89	33.427	25.388	258.9	0.109	6.38	104.2	5.1	0.60	2.7	0.17	2.49	1.03	40
1	50	11.81	11.80	33.432	25.409	257.1	0.135	6.22	101.4	5.9	0.65	3.3	0.19	2.03	0.91	50
1	60	11.61	11.60	33.418	25.435	254.9	0.160	6.11	99.1	6.6	0.70	4.1	0.21	1.36	0.83	60
1	71	11.62	11.61	33.422	25.437	255.0	0.188	6.12	99.3	6.8	0.71	4.2	0.21	1.38	0.76	71
	75 ISL	11.63	11.62	33.430	25.441	254.7	0.198	6.10	99.0	6.9	0.72	4.3	0.22	1.37	0.77	75
1	85	11.64	11.63	33.464	25.466	252.5	0.224	6.06	98.4	7.0	0.73	4.4	0.23	1.36	0.76	85
1	98	11.08	11.07	33.406	25.523	247.3	0.256	5.46	87.6	8.0	0.93	8.2	0.12	0.73	0.63	98
	100 ISL	11.01	11.00	33.429	25.553	244.5	0.261	5.27	84.4	9.1	1.00	9.3	0.11	0.65	0.60	101
1	118	10.32	10.31	33.685	25.874	214.3	0.303	3.67	58.0	19.9	1.60	18.9	0.08	0.10	0.34	119
	125 ISL	9.91	9.90	33.713	25.965	205.7	0.317	3.62	56.7	22.1	1.71	20.7	0.06	0.08	0.25	126
1	143	8.96	8.94	33.744	26.144	188.9	0.353	3.49	53.5	25.8	1.85	23.3	0.02	0.04	0.08	144
	150 ISL	8.90	8.88	33.794	26.192	184.4	0.366	3.33	51.0	27.5	1.91	24.3	0.02	0.03	0.08	151
1	173	8.69	8.67	33.901	26.309	173.7	0.407	2.89	44.1	32.0	2.03	26.7	0.01	0.01	0.06	174
	200 ISL	8.39	8.37	33.969	26.409	164.6	0.453	3.01	45.6	33.5	1.99	26.5	0.00	0.01	0.06	201
1	202	8.37	8.35	33.972	26.414	164.1	0.456	3.03	45.9	33.6	1.99	26.5	0.00	0.01	0.06	203
1	229	8.01	7.99	34.003	26.493	157.0	0.499	2.93	44.0	37.0	2.07	27.7	0.00			230
	250 ISL	7.71	7.69	34.019	26.550	151.9	0.532	2.72	40.6	41.0	2.17	29.2	0.00			251
1	268	7.43	7.40	34.029	26.598	147.5	0.559	2.49	36.9	45.2	2.28	30.6	0.00			270
	300 ISL	6.84	6.81	34.039	26.688	139.1	0.605	2.05	30.0	54.1	2.49	33.4	0.00			302
1	322	6.47	6.44	34.044	26.741	134.2	0.635	1.77	25.7	59.9	2.62	35.2	0.00			324
1	380	6.01	5.98	34.053	26.807	128.3	0.711	1.44	20.7	67.9	2.79	37.4	0.00			382
	400 ISL	5.85	5.82	34.063	26.835	125.8	0.736	1.30	18.6	71.2	2.85	38.2	0.00			403
1	444	5.54	5.50	34.095	26.899	120.1	0.790	0.99	14.1	78.6	2.98	39.9	0.00			447
	500 ISL	5.31	5.27	34.153	26.973	113.6	0.856	0.67	9.5	86.4	3.10	41.0	0.00			503
1	514	5.25	5.21	34.168	26.992	111.9	0.871	0.59	8.3	88.3	3.13	41.3	0.00			518

RV DAVID STARR JORDAN CALCOFI CRUISE 9003 STATION 80 80

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
33 29.1 N	122 32.0 W	17/03/90	2143 UTC	3824 M	320	11 KT	330 03 04	1	1020.5 MB	16.1 C	13.9 C	3/8	ST

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 D.BAR
	0 ISL	14.22	14.22	33.340	24.859	308.2	0.000	5.99	102.6	3.2	0.37	0.0	0.00	0.15	0.04	0
1	1	14.22	14.22	33.340	24.859	308.2	0.003	5.99	102.6	3.2	0.37	0.0	0.00	0.15	0.04	1
	10 ISL	14.09	14.09	33.338	24.885	306.0	0.031	5.99	102.3	3.2	0.37	0.0	0.00	0.15	0.04	10
1	11	14.07	14.07	33.338	24.889	305.6	0.034	5.99	102.3	3.2	0.37	0.0	0.00	0.15	0.04	11
	20 ISL	14.04	14.04	33.345	24.901	304.7	0.061	5.98	102.1	3.1	0.38	0.0	0.00	0.18	0.05	20
1	21	14.04	14.04	33.345	24.901	304.8	0.064	5.98	102.0	3.1	0.38	0.0	0.00	0.18	0.05	21
	30 ISL	14.03	14.03	33.349	24.907	304.5	0.092	5.98	102.0	3.1	0.37	0.0	0.00	0.21	0,07	30
1	31	14.03	14.03	33.349	24.907	304.5	0.095	5.98	102.0	3.1	0.37	0.0	0.00	0.22	0.07	31
1	41	13.94	13.93	33.337	24.917	303.9	0.125	5.98	101.8	3.1	0.39	0.0	0.01	0.30	0.11	41
1	50	12.83	12.82	33.212	25.043	292.0	0.152	6.12	101.8	3.5	0.46	0.5	0.06	0.44	0.20	50
1	60	12.46	12.45	33.176	25.087	288.0	0.181	6.25	103.1	3.5	0.46	0.4	0.04	0.52	0.20	60
1	70	12.04	12.03	33.163	25.157	281.5	0.209	5.91	96.6	4.3	0.60	2.7	0.16	0.35	0.20	70
	75 ISL	11.67	11.66	33.128	25.199	277.6	0.223	5.84	94.7	4.6	0.64	3.4	0.13	0.32	0.20	75
1	84	10.99	10.98	33.076	25.282	269.9	0.248	5.75	91.8	5.5	0.73	4.9	0.05	0.28	0,19	84
1	99	10.33	10.32	33.127	25.436	255.4	0.287	5.43	85.5	8.5	0.99	9.4	0.03	0.15	0.13	99
	100 ISL	10.29	10.28	33.137	25.451	254.0	0.290	5.40	85.0	8.8	1.01	9.7	0.03	0.14	0.13	100
1	119	9.66	9.65	33.370	25.738	227.0	0.336	4.72	73.4	14.9	1.33	15.6	0.01	0.04	0.05	120
	125 ISL	9.49	9.48	33.439	25.820	219.3	0.349	4.53	70.2	16.6	1.41	17.0	0.01	0.03	0.05	126
1	143	9.11	9.09	33.629	26.030	199.7	0.387	3.94	60.6	21.5	1.61	20.6	0.00	0.01	0.03	144
	150 ISL	9.09	9.07	33.703	26.091	194.0	0.401	3.65	56.1	23.8	1.71	22.2	0.00	0.01	0.03	151
1	172	9.01	8.99	33.875	26.239	180.4	0.442	2.89	44.4	30.1	1.98	26.1	0.00	0.01	0.05	173
	200 ISL	8.73	8.71	33.971	26.359	169.6	0.491	2.84	43.4	32.3	2.01	26.6	0.00	0.01	0.05	201
1	203	8.69	8.67	33.975	26.368	168.7	0.496	2.83	43.2	32.4	2.01	26.6	0.00	0.01	0.05	204
1	232	8.05	8.03	33.995	26.481	158.3	0.543	2.71	40.8	37.8	2.13	28.6	0.00			233
	250 ISL	7.66	7.64	33.996	26,539	152.9	0.571	2.78	41.5	41.1	2.15	29.1	0.00			251
1	271	7.26	7.23	33.996	26.596	147.6	0.603	2.83	41.8	44.9	2.18	29.7	0.00			273
	300 ISL	6.92	6.89	34.013	26.656	142.1	0.645	2.49	36.5	50.4	2.33	31.7	0.00			302
1	326	6.69	6.66	34.034	26.704	137.9	0.681	2.04	29.7	55.8	2.51	33.8	0.00			328
1	. 384	6.08	6.05	34.093	26.830	126.3	0.758	1.17	16.8	69.6	2.87	38.1	0.00			386
	400 ISL	5.97	5.94	34.112	26.859	123.7	0.778	1.00	14.3	72.5	2.93	38.8	0.00			403
1	448	5.71	5.67	34.170	26.938	116.7	0.836	0.65	9.3	79.5	3.07	40.3	0.00			451
	500 ISL	5.54	5.50	34.221	26.999	111.4	0.895	0.47	6.7	85.2	3,15	41.0	0.00			503
1	517	5.49	5.45	34.238	27.019	109.7	0.914	0.41	5.8	87.0	3.18	41.2	0.00			521

RV DAVID STARR JORDAN CALCOFI CRUISE 9003 STATION 80 90

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
33 9.0 N	123 13.2 W	18/03/90	0352 UTC	4190 M	300	08 KT			1020.2 MB	15.1 C	14.5 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 D.BAR
	0	ISL	14.75	14.75	33.397	24.791	314.7	0.000	5.94	102.9	2.9	0.36	0.0	0.00	0.11	0.03	0
1	1		14.75	14.75	33.397	24.791	314.7	0.003	5.94	102.9	2.9	0.36	0.0	0.00	0.11	0.03	1
	10	ISL	14.51	14.51	33.378	.24.828	311.4	0.031	5.95	102.5	2.9	0.37	0.0	0.00	0.11	0.03	10
1	15		14.34	14.34	33.365	24.854	309.1	0.047	5.96	102.4	2.9	0.37	0.0	0.00	0.11	0.03	15
	20	ISL	14.33	14.33	33.363	24.855	309.2	0.062	5.96	102.3	2.9	0.37	0.0	0.00	0.11	0.03	20
	30	ISL	14.30	14.30	33.359	24.858	309.1	0.093	5.95	102.1	2.8	0.37	0.0	0.00	0.13	0.04	30
1	31		14.30	14.30	33.359	24.858	309.2	0.096	5.95	102.1	2.8	0.37	0.0	0.00	0.13	0.04	31
1	39		14.26	14.25	33.358	24.866	308.7	0.121	5.95	102.0	2.8	0.36	0.0	0.00	0.15	0.05	39
1	49		14.19	14.18	33.343	24.869	308.6	0.152	5.99	102.5	2.8	0.37	0.0	0.00	0.18	0.06	49
	50	ISL	14.19	14.18	33.343	24.869	308.7	0.155	5.99	102.5	2.8	0.37	0.0	0.00	0.18	0.06	50
1	60		14.16	14.15	33.343	24.876	308.3	0.186	5.97	102.1	2.8	0.37	0.0	0.00	0.23	0.08	60
1	69		13.31	13.30	33.252	24.980	298.6	0.213	6.07	102.0	3.0	0.42	0.2	0.03	0.43	0.16	69
	75	ISL	13.08	13.07	33.228	25.007	296.1	0.231	6.12	102.3	3.1	0.43	0.3	0.03	0.44	0.17	75
1	78		13.02	13.01	33.223	25.015	295.4	0.240	6.14	102.5	3.1	0.43	0.3	0.03	0.45	0.17	78
1	94		12.88	12.87	33.214	25.036	293.8	0.287	6.18	102.9	3.2	0.45	0.4	0.04	0.48	0.18	94
	100	ISL	12.63	12.62	33.198	25.073	290.5	0.305	6.20	102.6	3.4	0.47	0.5	0.06	0.46	0.19	100
1	109		12.25	12.24	33.177	25.129	285.2	0.330	6.23	102.3	3.8	0.50	0.8	0.08	0.42	0.21	110
1	123		12.06	12.04	33.177	25.166	2 82.1	0.370	6.26	102.4	4.0	0.51	1.1	0.09	0.35	0.20	124
	125	ISL	11.96	11.94	33.169	25.178	280.9	0.376	6.23	101.7	4.1	0.53	1.4	0.09	0.33	0.20	126
1	148		10.57	10.55	33.182	25.439	256.3	0.438	5.48	86.8	8.1	0.94	8.4	0.11	0.15	0.13	149
	150	ISL	10.46	10.44	33.212	25.481	252.3	0.443	5.35	84.5	9.1	1.00	9.5	0.10	0.14	0.12	151
1	171		9.46	9.44	33.571	25.929	209.9	0.491	3.99	61.8	20.3	1.62	20.3	0.02	0.02	0.04	172
	200	ISL	8.86	8.84	33.780	26.189	185.7	0.549	3.47	53.1	26.7	1.80	23.7	0.00	0.01	0.02	201
1	202		8.83	8.81	33.788	26.199	184.7	0.552	3.47	53.1	27.0	1.81	23.9	0.00	0.01	0.02	203
1	230		8.24	8.22	33.948	26.416	164.5	0.601	3.22	48.6	33.3	1.93	26.1	0.00			23 1
	250	ISL	7.85	7.83	33.984	26.502	156.5	0.633	3.30	49.4	36.5	1.96	26.6	0.00			251
1	269		7.50	7.47	33.989	26.556	151.4	0.662	3.35	49.8	39.6	1.99	27.1	0.00			27 1
	300	ISL	7.00	6.97	33.999	26.634	144.2	0.708	2.87	42.1	46.9	2.20	30.1	0.00			302
1	323		6.70	6.67	34.005	26.680	140.1	0.741	2.39	34.9	52.8	2.39	32.6	0.00			325
1	382		6.20	6.17	34.062	26.791	130.1	0.821	1.46	21.0	66.7	2.75	37.0	0.00			384
	400	ISL	6.06	6.03	34.076	26.820	127.5	0.844	1.28	18.4	69.7	2.82	37.9	0.00			402
1	447		5.72	5.68	34.109	26.888	121.3	0.902	0.94	13.4	76.7	2.97	39.6	0.00			450
	500	ISL	5.35	5.31	34.143	26.960	114.8	0.965	0.71	10.0	84.9	3.08	40.9	0.00			503
1	516		5.24	5.20	34.154	26.982	112.8	0.983	0.64	9.0	87.4	3.11	41.3	0.00			519

RV DAVID STARR JORDAN CALCOFI CRUISE 9003 STATION 82 47

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
34 16.5 N	120 1.5 W	16/03/90	2202 UTC	574 M	190	08 KT	290 01 06	1	1020.1 MB	16.7 C	13.8 C	6/8	SC

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 D.BAR
1	0	A	12.12	12.12	33.723	25.575	240.0	0.000	4.83	79.4	18.1	1.39	15.0	0.31	1.56	0.25	0
1	10		11.48	11.48	33.720	25.693	229.1	0.023	4.71	76.4	17.8	1.38	14.7	0.32	1.84	0.39	10
1	19		11.04	11.04	33.735	25.784	220.6	0.044	4.17	67.0	19.4	1.51	16.7	0.26	1.22	0.39	19
	20	ISL	11.05	11.05	33.736	25.783	220.8	0.046	4.15	66.7	19.4	1.51	16.7	0.26	1.18	0.38	20
1	29		11.11	11.11	33.744	25.779	221.4	0.066	3.98	64.0	20.1	1.55	17.4	0.26	0.86	0.33	29
	30	ISL	11.04	11.04	33.753	25.798	219.5	0.068	3.89	62.5	20.5	1.58	17.8	0.25	0.80	0.33	30
1	44		9.93	9.92	33.904	26.109	190.2	0.097	2.58	40.5	27.4	1.96	24.2	0.07	0.09	0.35	44
	50	ISL	9.74	9.73	33.941	26.170	184.6	0.108	2.48	38.8	28.9	2.03	25.3	0.07	0.08	0.36	50
1	59		9.61	9.60	33.978	26.221	180.0	0.124	2.33	36.3	30.5	2.09	26.0	0.07	0.07	0.38	59
1	74		9.45	9.44	34.023	26.282	174.4	0.151	2.17	33.7	32.7	2.14	26.8	0.04	0.05	0.37	74
	75	ISL	9.44	9.43	34.025	26.285	174.2	0.153	2.16	33.5	32.8	2.14	26.8	0.04	0.05	0.37	75
1	88		9.38	9.37	34.042	26.309	172.2	0.175	2.11	32.7	33.9	2.18	27.3	0.05	0.10	0.37	89
	100	ISL	9.27	9.26	34.051	26.334	170.1	0.196	2.09	32.3	35.3	2.21	27.5	0.09	0.05	0.33	101
1	103		9.24	9.23	34.054	26.341	169.4	0.201	2.08	32.2	35.6	2.22	27.5	0.10	0.03	0.32	104
1	118		9.19	9.18	34.086	26.374	166.6	0.226	1.93	29.8	36.2	2.27	28.2	0.03	0.02	0.25	119
	125	ISL	9.16	9.15	34.094	26.386	165.6	0.238	1.89	29.2	36.6	2.28	28.4	0.03	0.02	0.23	126
1	142		9.06	9.04	34.110	26.414	163.2	0.266	1.80	27.7	38.1	2.32	29.0	0.02	0.02	0.21	143
	150	ISL	9.00	8.98	34.119	26.431	161.8	0.279	1.74	26.8	39.0	2.35	29.3	0.02	0.02	0.20	151
1	172		8.81	8.79	34.144	26.481	157.4	0.314	1.55	23.8	41.7	2.44	30.2	0.02	0.03	0.19	173
	200	ISL	8.60	8.58	34.162	26.528	153.4	0.357	1.36	20.7	45.2	2.54	31.2	0.02	0.01	0.14	201
1	201		8.59	8.57	34.163	26.531	153.2	0.359	1.35	20.6	45.3	2.54	31.2	0.02	0.01	0.14	202
1	239		8.35	8.33	34.172	26.575	149.6	0.416	1.25	19.0	48.9	2.60	32.1	0.01	0.03	0.14	241
	250	ISL	8.28	8.25	34.175	26.588	148.6	0.433	1.21	18.3	49.8	2.62	32.4	0.01			252
1	289		8.04	8.01	34.187	26.634	144.8	0.490	1.06	16.0	53.4	2.71	33.2	0.01			291
	300	ISL	7.97	7.94	34.190	26.647	143.8	0.506	1.01	15.2	54.5	2.74	33.4	0.01			302
1	338		7.72	7.69	34.200	26.692	140.0	0.560	0.82	12.3	59.4	2.86	34.1	0.01			340
1	386		7.29	7.25	34.218	26.768	133.3	0.625	0.53	7.8	69.2	3.04	34.8	0.00			3 89
	400	ISL	7.19	7.15	34.222	26.785	131.8	0.644	0.47	6.9	71.8	3.09	34.7	0.00			403
1	426		7.01	6.97	34.229	26.816	129.2	0.678	0.36	5.3	77.4	3.18	34.1	0.00			429
1	465		6.68	6.64	34.243	26.872	124.2	0.727	0.14	2.0	89.1	3.38	32.5	0.00			468
1	495		6.55	6.50	34.246	26.892	122.6	0.764	0.06	0.9	99.4	3.53	28.7	0.00			499
	500	ISL	6.54	6.49	34.246	26.893	122.5	0.770	0.05	0.7	101.4	3.56	27.9	0.00			504
1	515		6.50	6.45	34.247	26.899	122.1	0.789	0.04	0.6	107.1	3.67	25.4	0.00			519
1	535		6.46	6.41	34.247	26.905	121.9	0.813	0.03	0.4	113.1	3.86	22.1	0.04			539
1	556		6.41	6.36	34.247	26.912	121.5	0.839	0.02	0.3	124.1	4.35	15.7	0.03			560
1	571		6.40	6.35	34.246	26.912	121.6	0.857	0.04	0.6	127.4	4.55	13.8	0.01			575

A) SANTA BARBARA BASIN STATION.

RV DAVID STARR JORDAN CALCOFI CRUISE 9003 STATION 83 60

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
33 34.7 N	120 45.3 W	16/03/90	0022 UTC	1492 M	330	14 KT	3 40 05 06	1	1016.9 MB	14.7 C	13.1 C	3/8	CS

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 D.BAR
	0	ISL	12.47	12.47	33.242	25.135	281.9	0.000	6.19	102.2	4.4	0.52	1.5	0.08	0.64	0.16	0
1	1		12.47	12.47	33.242	25.135	281.9	0.003	6.19	102.2	4.4	0.52	1.5	0.08	0.64	0.16	1
	10	ISL	12.39	12.39	33.244	25.152	280.5	0.028	6.18	101.8	4.4	0.52	1.6	0.09	0.68	0.17	10
1	17		12.27	12.27	33.245	25.176	278.4	0.048	6.18	101.6	4.4	0.52	1.7	0.10	0.72	0.18	17
	20	ISL	12.22	12.22	33.245	25.186	277.6	0.056	6.17	101.3	4.4	0.53	1.8	0.10	0.73	0.19	20
	30	ISL	12.01	12.01	33.240	25.222	274.4	0.084	6.12	100.0	4.5	0.57	2.3	0.12	0.77	0.22	30
1	31		11.99	11.99	33.239	25.225	274.1	0.086	6.11	99.8	4.5	0.57	2.4	0.12	0.77	0.22	31
1	41		11.75	11.74	33.224	25.258	271.2	0.114	6.03	98.0	4.7	0.61	3.0	0.14	0.86	0.25	41
1	50		11.21	11.20	33.176	25.319	265.6	0.138	5.81	93.3	5.7	0.74	5.2	0.13	0.49	0.19	50
1	60		10.87	10.86	33.178	25.382	259.8	0.164	5.71	91.0	6.5	0.80	6.3	0.07	0.60	0.19	60
1	70		10.75	10.74	33.192	25.414	257.0	0.190	5.64	89.7	6.8	0.83	6.9	0.06	0.66	0.27	70
	75	ISL	10.47	10.46	33.218	25.483	250.5	0.203	5.45	86.2	8.3	0.95	8.9	0.05	0.46	0.22	75
1	80		10.17	10.16	33.261	25.568	242.5	0.215	5.21	81.8	10.3	1.09	11.2	0.04	0.24	0.15	80
1	93		9.95	9.94	33.452	25.754	225.1	0.245	4.49	70.3	15.5	1.36	15.6	0.05	0.08	0.11	93
	100	ISL	9.92	9.91	33.557	25.841	216.9	0.261	4.11	64.3	18.1	1.50	17.8	0.05	0.07	0.14	101
1	108		9.85	9.84	33.659	25.932	208.4	0.278	3.75	58.6	20.8	1.63	20.0	0.05	0.05	0.17	109
1	123		9.34	9.33	33.745	26.084	194.3	0.308	3.47	53.7	24.4	1.76	22.5	0.03	0.03	0.16	124
	125	ISL	9.30	9.29	33.758	26.100	192.7	0.312	3.45	53.3	24.7	1.77	22.7	0.03	0.03	0.16	126
1	147		8.95	8.93	33.894	26.263	177.7	0.353	3.27	50.2	28.0	1.85	24.1	0.02	0.02	0.16	148
	150	ISL	8.89	8.87	33.908	26.283	175.8	0.358	3.25	49.8	28.6	1.86	24.3	0.02	0.02	0.15	151
1	171		8.49	8.47	33.983	26.404	164.6	0.394	3.12	47.4	33.0	1.95	25.9	0.01	0.02	0.12	172
	200	ISL	8.22	8.20	34.029	26.482	157.7	0.440	2.85	43.1	37.3	2.08	27.4	0.02	0.02	0.18	201
1	201		8.21	8.19	34.030	26.484	157.5	0.442	2.84	42.9	37.4	2.08	27.5	0.02	0.02	0.18	202
1	230		7.85	7.83	34.071	26.570	149.7	0.486	2.38	35.7	43.1	2.27	29.9	0.01			231
	250	ISL	7.54	7.52	34.082	26.624	144.8	0.516	2.12	31.5	47.2	2.39	31.5	0.01			251
1	271		7.25	7.22	34.092	26.673	140.3	0.546	1.87	27.6	51.5	2.50	33.0	0.01			273
	300	ISL	7.04	7.01	34.123	26.726	135.6	0.586	1.51	22.2	56.7	2.65	34.6	0.00			302
1	324		6.94	6.91	34.154	26.765	132.3	0.618	1.22	17.9	60.6	2.77	35.6	0.00			326
1	383		6.78	6.74	34.248	26.861	124.0	0.694	0.65	9.5	68.0	2.98	37.2	0.00			3 86
	400	ISL	6.64	6.60	34.259	26.889	121.5	0.714	0.57	8.3	70.4	3.02	37.8	0.00			403
1	448		6.24	6.20	34.275	26.954	115.7	0.771	0.45	6.5	76.8	3.11	39.3	0.00			451
	500	ISL	6.02	5.98	34.300	27.003	111.6	0.830	0.35	5.0	80.9	3.17	40.1	0.00			503
1	519		5.94	5.89	34.310	27.021	110.1	0.852	0.31	4.4	82.4	3.19	40.4	0.00			523

RV DAVID STARR JORDAN CALCOFI CRUISE 9003 STATION 83 70

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
33 14.4 N	121 26.6 W	15/03/90	1719 UTC	3639 M	330	22 KT	330 06 06	1	1019.8 MB	14.8 C	13.6 C	2/8	SC

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 D.BAR
	0	ISL	13.73	13.73	33.324	24.948	299.7	0.000	6.03	102.2	2.8	0.39	0.0	0.00	0.27	0.09	0
1	1		13.73	13.73	33.324	24.948	299.7	0.003	6.03	102.2	2.8	0.39	0.0	0.00	0.27	0.09	1
	10	ISL	13.71	13.71	33.325	24.954	299.5	0.030	6.03	102.2	2.7	0.38	0.0	0.00	0.26	0.08	10
1	15		13.69	13.69	33.325	24.958	299.2	0.045	6.03	102.2	2.7	0.38	0.0	0.00	0.26	0.08	15
	20	ISL	13.69	13.69	33.325	24.958	299.3	0.060	6.03	102.2	2.7	0.38	0.0	0.00	0.26	0.08	20
	30	ISL	13.69	13.69	33.325	24.958	299.6	0.090	6.03	102.1	2.7	0.38	0.0	0.00	0.27	0.08	30
1	31		13.69	13.69	33.325	24.958	299.6	0.093	6.03	102.2	2.7	0.38	0.0	0.00	0.27	0.08	31
1	40		13.68	13.67	33.325	24.961	299.6	0.120	6.04	102.3	2.7	0.38	0.0	0.00	0.26	0.08	40
1	50		13.67	13.66	33.325	24.963	299.7	0.150	6.02	101.9	2.7	0.38	0.0	0.00	0.27	0.09	50
1	60		13.69	13.68	33.325	24.959	300.3	0.180	6.03	102.1	2.7	0.38	0.0	0.00	0.27	0.09	60
1	74		13.64	13.63	33.315	24.962	300.4	0.222	6.04	102.2	2.7	0.38	0.0	0.00	0.28	0.09	74
	75	ISL	13.63	13.62	33.314	24.963	300.3	0.225	6.04	102.2	2.7	0.38	0.0	0.00	0.28	0.09	75
1	88		13.47	13.46	33.292	24.979	299.2	0.264	6.03	101.6	2.7	0.40	0.0	0.01	0.31	0.13	88
	100	ISL	13.34	13.33	33.284	24.999	297.6	0.300	6.01	101.0	2.9	0.42	0.3	0.02	0.30	0.17	100
1	104		13.29	13.28	33.281	25.007	296.9	0.311	6.00	100.8	3.0	0.43	0.4	0.03	0.30	0.18	104
1	118		11.21	11.20	33.113	25.272	271.6	0.351	5.74	92.1	5.3	0.74	5.1	0.07	0.14	0.13	119
	125	ISL	10.67	10.66	33.107	25.363	263.0	0.370	5.63	89.3	6.3	0.84	6.8	0.05	0.10	0.11	126
1	139		10.09	10.07	33.166	25.508	249.4	0.406	5.40	84.6	8.5	0.99	9.8	0.01	0.06	0.07	140
	150	ISL	9.76	9.74	33.243	25.623	238.6	0.433	5.20	80.9	10.7	1.11	12.0	0.01	0.04	0.05	151
1	158		9.59	9.57	33.314	25.707	230.8	0.451	5.02	77.9	12.6	1.20	13.7	0.01	0.03	0.04	159
1	182		9.26	9.24	33.587	25.974	205.8	0.504	4.11	63.4	20.0	1.57	19.9	0.01	0.01	0.02	183
	200	ISL	8.87	8.85	33.755	26.167	187.7	0.539	3.71	56.8	24.8	1.73	22.8	0.00	0.00	0.02	201
1	217		8.49	8.47	33.877	26.322	173.2	0.570	3.46	52.5	28.8	1.84	24.7	0.00	0.00	0.02	218
	250	ISL	7.99	7.96	33.986	26.483	158.3	0.625	3.03	45.5	35.7	2.03	27.5	0.00			251
1	251		7.98	7.95	33.988	26.486	158.1	0.626	3.02	45.4	35.9	2.04	27.6	0.00			252
1	290		7.33	7.30	34.020	26.605	147.1	0.686	2.59	38.3	44.6	2.26	30.6	0.00			292
	300	ISL	7.17	7.14	34.029	26.635	144.4	0.700	2.41	35.5	47.4	2.33	31.6	0.00			302
1	344		6.57	6.54	34.070	26.748	133.8	0.762	1.64	23.9	58.9	2.65	35.5	0.00			346
	400	ISL	6.14	6.10	34.114	26.839	125.7	0.834	1.09	15.7	67.7	2.87	38.2	0.00			403
1	409		6.09	6.05	34.120	26.851	124.7	0.845	1.03	14.8	68.8	2.90	38.5	0.00			412
1	478		5.67	5.63	34.175	26.947	116.1	0.929	0.63	9.0	78.7	3.09	40.5	0.00			481
	500	ISL	5.60	5.56	34.202	26.977	113.5	0.954	* 0.55	7.8	81.1	3.13	40.9	0.00			503
1	558		5.42	5.37	34.273	27.055	106.7	1.018	0.33	4.7	87.5	3.22	41.8	0.00			562

RV DAVID STARR JORDAN CALCOFI CRUISE 9003 STATION 83 80

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	HAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT TYPE
32 5A.7 N	122 7.8 W	15/03/90	1054 UTC	4060 M	330	26 KT			1021.9 MB	13.4 C	12.5 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 D.BAR
	0	ISL	14.26	14.26	33.417	24.910	303.3	0.000	5.94	101.9	3.2	0.38	0.0	0.00	0.19	0.07	0
1	1		14.26	14.26	33.417	24.910	303.3	0.003	5.94	101.9	3.2	0.38	0.0	0.00	0.19	0.07	1
	10	ISL	14.25	14.25	33.417	24.913	303.4	0.030	5.96	102.2	3.2	0.38	0.0	0.00	0.19	0.07	10
	20	ISL	14.24	14.24	33.417	24.915	303.4	0.061	5.98	102.5	3.1	0.38	0.0	0.00	0.20	0.07	20
1	22		14.24	14.24	33.417	24.915	303.5	0.067	5.98	102.5	3.1	0.38	0.0	0.00	0.20	0.07	22
	30	ISL	14.24	14.24	33.416	24.915	303.7	0.091	5.98	102.5	3.1	0.38	0.0	0.00	0.20	0.07	30
1	41		14.25	14.24	33.414	24.911	304.4	0.124	5.97	102.4	3.1	' 0.38	0.0	0.00	0.21	0.07	41
	50	ISL	14.11	14.10	33.386	24.919	303.9	0.152	5.97	102.0	3.1	0.40	0.0	0.00	0.26	0.09	50
1	59		13.90	13.89	33.356	24.940	302.2	0.179	5.97	101.6	3.2	0.41	0.1	0.01	0.31	0.11	59
1	73		13.44	13.43	33.337	25.019	294.9	0.221	6.04	101.8	3.3	0.41	0.2	0.02	0.33	0.13	73
	75	ISL	13.36	13.35	33.329	25.030	294.0	0.227	6.06	101.9	3.3	0.41	0.2	0.02	0.36	0.14	75
1	82		13.12	13.11	33.304	25.058	291.4	0.247	6.13	102.6	3.3	0.43	0.1	0.01	0.44	0.17	82
1	93		13.01	13.00	33.298	25.076	290.1	0.279	6.13	102.4	3.2	0.42	0.1	0.01	0.43	0.19	93
	100	ISL	12.82	12.81	33.298	25.113	2 86.6	0.299	6.16	102.4	3.6	0.45	0.4	0.03	0.34	0.16	100
1	101		12.79	12.78	33.298	25.119	286.1	0.302	6.16	102.4	3.7	0.45	0.5	0.03	0.32	0.16	101
1	112		12.61	12.60	33.304	25.159	2 82.6	0.334	6.11	101.2	4.1	0.50	1.0	0.07	0.22	0.14	113
	125	ISL	12.26	12.24	33.319	25.238	275.3	0.370	6.02	98.9	4.6	0.58	2.2	0.15	0.15	0.13	126
1	126		12.23	12.21	33.319	25.244	274.8	0.373	6.01	98.7	4.6	0.59	2.3	0.15	0.15	0.13	127
1	145		11.49	11.47	33.265	25.340	265.9	0.424	5.70	92.1	6.2	0.75	5.3	0.10	0.13	0.13	146
	150	ISL	11.16	11.14	33.294	25.422	258.1	0.437	5.53	88.8	7.5	0.84	7.0	0.08	0.11	0.11	151
1	166		10.12	10.10	33.443	25.720	229.9	0.476	4.91	77.1	12.6	1.14	12.8	0.01	0.04	0.05	167
1	190		9.48	9.46	33.665	26.000	203.6	0.528	4.12	63.9	20.0	1.50	19.0	0.00	0.01	0.02	191
	200	ISL	9.15	9.13	33.757	26.125	191.9	0.548	3.81	58.7	23.7	1.65	21.3	0.00	0.01	0.02	201
1	213		8.74	8.72	33.863	26.273	178.0	0.572	3.47	53.0	28.3	1.81	23.9	0.00	0.01	0.01	214
1	247		8.25	8.22	33.984	26.443	162.2	0.630	3.03	45.8	35.2	2.02	26.9	0.00			248
	250	ISL	8.22	8.19	33.991	26.453	161.3	0.635	2.99	45.2	35.7	2.04	27.1	0.00			251
1	287		7.80	7.77	34.046	26.558	151.7	0.693	2.55	38.2	42.4	2.23	29.5	0.00			289
	300	ISL	7.58	7.55	34.048	26.592	148.7	0.712	2.43	36.2	45.2	2.29	30.4	0.00			302
1	342		6.88	6.85	34.044	26.687	139.9	0.773	2.05	30.0	54.3	2.49	33.3	0.00			344
	400	ISL	6.32	6.28	34.080	26.790	130.6	0.851	1.44	20.8	65.1	2.76	36.7	0.00			402
1	405		6.28	6.24	34.084	26.798	129.8	0.858	1.39	20.1	66.0	2.78	37.0	0.00			408
1	474		5.78	5.74	34.154	26.917	119.0	0.943	0.74	10.6	78.6	3.05	40.1	0.00			477
	500	ISL	5.71	5.67	34.187	26.952	116.0	0.974	0.62	8.8	81.3	3.10	40.5	0.00			503
1	555		5.56	5.51	34.256	27.025	109.7	1.036	0.36	5.1	87.1	3.21	41.4	0.00			559

RV DAVID STARR JORDAN CALCOFI CRUISE 9003 STATION 83 90

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT TYPE
32 34.6 N	122 48.7 W	15/03/90	0437 UTC	3824 M	350	16 KT			1023.4 MB	14.1 C	12.4 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 D.BAR
	0	ISL	14.45	14.45	33.410	24.B65	307.6	0.000	5.91	101.8	3.7	0.38	0.0	0.00	0.18	0.05	0
1	1		14.45	14.45	33.410	24.865	307.6	0.003	5.91	101.8	3.7	0.38	0.0	0.00	0.18	0.05	1
	10	ISL	14.43	14.43	33.409	24.869	307.5	0.031	5.90	101.5	3.6	0.39	0.0	0.00	0.18	0.06	10
1	16		14.42	14.42	33.409	24.871	307.5	0.049	5.90	101.5	3.5	0.39	0.0	0.00	0.18	0.06	16
	20	ISL	14.42	14.42	33.409	24.871	307.6	0.062	5.90	101.5	3.5	0.39	0.0	0.00	0.18	0.06	20
	30	ISL	14.43	14.43	33.409	24.869	308.1	0.092	5.91	101.7	3.4	0.39	0.0	0.00	0.18	0.06	30
1	32		14.43	14.43	33.409	24.869	308.1	0.098	5.91	101.7	3.4	0.39	0.0	0.00	0.18	0.06	32
1	41		14.43	14.42	33.409	24.870	308.4	0.126	5.91	101.7	3.4	0.38	0.0	0.00	0.18	0.06	41
	50	ISL	14.41	14.40	33.409	24.874	308.2	0.154	5.91	101.7	3.3	0.38	0.0	0.00	0.18	0.06	50
1	51		14.41	14.40	33.409	24.874	308.2	0.157	5.91	101.7	3.3	0.38	0.0	0.00	0.18	0.06	51
1	61		14.40	14.39	33.408	24.876	308.4	0.188	5.90	101.5	3.2	0.38	0.0	0.00	0.21	0.07	61
1	71		14.39	"14.38	33.407	24.877	308.5	0.219	5.89	101.3	3.2	0.38	0.0	0.00	0.21	0.06	71
	75	ISL	14.38	14.37	33.406	24.879	308.5	0.231	5.89	101.2	3.2	0.38	0.0	0.00	0.21	0.07	75
1	80		14.37	14.36	33.406	24.881	308.4	0.246	5.89	101.2	3.1	0.38	0.0	0.00	0.22	0.08	80
1	96		14.37	14.36	33.405	24.881	308.9	0.296	5.88	101.0	3.1	0.40	0.0	0.00	0.22	0.08	96
	100	ISL	14.23	14.22	33.388	24.897	307.4	0.308	5.87	100.6	3.2	0.40	0.2	0.03	0.23	0.10	100
1	109		13.68	13.66	33.333	24.969	300.8	0.336	5.85	99.1	3.3	0.44	0.6	0.09	0.24	0.14	109
1	125		11.77	11.75	33.225	25.257	273.4	0.381	5.63	91.5	5.4	0.67	4.3	0.03	0.18	0.16	126
1	149		10.98	10.96	33.403	25.539	246.9	0.444	5.05	80.8	9.6	0.98	9.9	0.01	0.06	0.06	150
	150	ISL	10.94	10.92	33.410	25.552	245.8	0.446	5.02	80.3	9.9	1.00	10.2	0.01	0.06	0.06	151
1	175		9.97	9.95	33.583	25.854	217.3	0.504	4.26	66.7	17.1	1.40	17.0	0.01	0.02	0.03	176
	200	ISL	9.36	9.34	33.731	26.071	197.1	0.556	3.72	57.6	22.9	1.66	21.4	0.00	0.00	0.02	201
1	204		9.27	9.25	33.753	26.103	194.1	0.564	3.65	56.4	23.8	1.69	22.0	0.00	0.00	0.02	205
1	231		8.53	8.51	33.914	26.345	171.3	0.613	3.12	47.4	31.9	1.95	26.0	0.00			232
	250	ISL	8.19	8.16	33.968	26.439	162.6	0.645	2.98	45.0	35.4	2.03	27.3	0.00			251
1	272		7.88	7.85	33.997	26.508	156.3	0.680	2.89	43.3	38.9	2.09	28.3	0.00			273
	300	ISL	7.46	7.43	34.021	26.588	149.0	0.723	2.61	38.7	44.8	2.23	30.2	0.00			302
1	325		7.10	7.07	34.033	26.648	143.5	0.759	2.29	33.7	50.6	2.38	32.1	0.00			327
1	382		6.41	6.38	34.079	26.777	131.6	0.838	1.45	21.0	64.2	2.74	36.5	0.00			384
	400	ISL	6.27	6.23	34.091	26.805	129.1	0.861	1.28	18.5	67.1	2.81	37.4	0.00			402
1	447		5.98	5.94	34.125	26.869	123.4	0.920	0.93	13.3	73.5	2.96	39.0	0.00			450
	500	ISL	5.66	5.62	34.182	26.954	115.8	0.984	0.61	8.7	81.9	3.10	40.6	0.00			503
1	516		5.56	5.52	34.200	26.980	113.4	1.002	0.51	7.2	84.5	3.14	41.1	0.00			519

RV DAVID STARR JORDAN CALCOFI CRUISE 9003 STATION 83 100

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
32 14.6 N	123 29.5 W	14/03/90	2214 UTC	3824 M	200	15 KT	100 04 05	1	1025.9 MB	15.6 C	12.9 C	1/8	CS

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 D.BAR
	0 ISL	14.37	14.37	33.40	24.874	306.8	0.000	5.97	102.6	2.7	0.39	0.1	0.00	0.21	0.07	0
1	3	14.37	14.37	33.40	24.874	306.8	0.009	5.97	102.6	2.7	0.39	0.1	0.00	0.21	0.07	3
	10 ISL	14.35	14.35	33.40	24.881	306.4	0.031	5.98	102.7	2.7	0.39	0.1	0.00	0.21	0.07	10
	20 ISL	14.32	14.32	33.41	24.891	305.7	0.061	5.99	102.8	2.7	0.39	0.0	0.00	0.22	0.08	20
1	24	14.30	14.30	33.41	24.897	305.2	0.073	5.99	102.8	2.7	0.39	0.0	0.00	0.23	0.08	24
	30 ISL	14.29	14.29	33.41	24.900	305.2	0.092	5.99	102.8	2.6	0.39	0.0	0.00	0.24	0.09	30
1	43	14.27	14.26	33.41	24.904	305.1	0.131	5.98	102.6	2.5	0.39	0.0	0.00	0.27	0.10	43
	50 ISL	14.27	14.26	33.42	24.908	304.9	0.153	5.97	102.4	2.5	0.39	0.0	0.00	0.28	0.10	' 50
1	63	14.27	14.26	33.42	24.912	304.9	0.192	5.95	102.1	2.5	0.39	0.0	0.00	0.29	0.09	63
	75 ISL	14.27	14.26	33.41	24.906	305.9	0.229	5.96	102.2	2.5	0.39	0.0	0.00	0.28	0.10	75
1	76	14.27	14.26	33.41	24.905	306.0	0.232	5.96	102.2	2.5	0.39	0.0	0.00	0.28	0.10	76
1	86	13.25	13.24	33.26	24.998	297.2	0.262	5.95	99.8	3.1	0.48	0.8	0.10	0.25	0.14	86
1	96	11.16	11.15	33.15	25.309	267.6	0.291	5.56	89.2	6.7	0.84	6.8	0.06	0.17	0.13	96
	100 ISL	11.05	11.04	33.19	25.363	262.5	0.301	5.45	87.2	7.4	0.91	8.0	0.05	0.16	0.13	100
1	106	10.89	10.88	33.23	25.419	257.3	0.317	5.29	84.4	8.2	0.97	9.2	0.03	0.15	0.13	106
1	116	10.53	10.52	33.34	25.568	243.3	0.342	4.98	78.9	10.5	1.11	11.8	0.02	0.10	0.10	117
	125 ISL	10.20	10.19	33.40	25.669	233.8	0.363	4.78	75.2	12.8	1.24	14.0	0.01	0.07	0.08	126
1	129	10.07	10.06	33.42	25.709	230.1	0.373	4.69	73.6	13.9	1.30	15.0	0.01	0.06	0.07	130
1	150	9.77	9.75	33.64	25.932	209.3	0.419	3.88	60.5	20.2	1.61	20.2	0.01	0.04	0.05	151
1	169	8.97	8.95	33.81	26.194	184.6	0.456	3.39	52.0	27.2	1.85	24.2	0.01	0.00	0.02	170
1	194	8.62	8.60	33.92	26.335	171.6	0.501	3.35	51.0	30.0	1.86	25.0	0.00	0.00	0.02	195
	200 ISL	8.55	8.53	33.94	26.361	169.2	0.511	3.31	50.4	30.8	1.88	25.3	0.00	0.00	0.02	201
1	218	8.32	8.30	33.98	26.429	163.1	0.541	3.18	48.1	33.5	1.96	26.3	0.00	0.00	0.02	219
	250 ISL	7.80	7.78	34.00	26.522	154.6	0.592	3.00	44.9	38.8	2.08	28.1	0.00			251
1	252	7.77	7.75	34.00	26.526	154.2	0.595	2.99	44.7	39.2	2.09	28.2	0.00			253
1	292	7.13	7.10	34.01	26.625	145.1	0.655	2.70	39.8	47.7	2.26	30.7	0.00			294
	300 ISL	7.05	7.02	34.01	26.639	143.8	0.666	2.60	38.2	49.2	2.30	31.2	0.00			302
1	346	6.64	6.61	34.04	26.716	137.0	0.731	1.97	28.7	57.4	2.55	34.3	0.00			348
	400 ISL	6.07	6.04	34.08	26.822	127.3	0.802	1.33	19.1	68.8	2.82	37.7	0.00			403
1	410	5.97	5.93	34.09	26.842	125.4	0.815	1.23	17.6	70.8	2.86	38.3	0.00			413
1	479	5.60	5.56	34.15	26.936	117.1	0.898	0.74	10.5	80.7	3.06	40.4	0.00			482
	500 ISL	5.51	5.47	34.17	26.965	114.5	0.923	0.65	9.2	83.5	3.10	40.9	0.00			503
1	559	5.26	5.21	34.24	27.048	107.2	0.988	0.38	5.4	91.2	3.22	42.3	0.00			563

RV DAVID STARR JORDAN CALCOFI CRUISE 9003 STATION 87 33

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
33 53.4 N	118 29.5 W	12/03/90	1216 UTC	53 M	310	05 KT			1017.4 MB	10.8 C	7.6 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 D.BAR
1	0	12.31	12.31	33.532	25.391	257.6	0.000	5.53	91.1	9.7	0.84	6.2	0.23	3.69	0.40	0
1	10	12.28	12.28	33.532	25.397	257.3	0.026	5.55	91.4	9.7	0.84	6.1	0.23	3.69	0.42	10
1	20	12.17	12.17	33.528	25.415	255.8	0.051	5.44	89.4	10.1	0.91	6.6	0.23	3.28	0.45	20
1	30	11.32	11.32	33.531	25.575	240.8	0.076	3.71	59.9	18.0	1.92	15.7	0.16	0.26	0.17	30
1	41	11.05	11.05	33.615	25.689	230.2	0.102	3.38	54.2	20.0	1.97	18.0	0.20	0.13	0.16	41
	50 ISL	10.94	10.93	33.698	25.774	222.3	0.122	3.22	51.6	20.5	1.78	18.5	0.23	0.08	0.20	50
1	51	10.93	10.92	33.707	25.783	221.5	0.125	3.20	51.3	20.6	1.76	18.5	0.23	0.07	0.20	51

RV DAVID STARR JORDAN CALCOFI CRUISE 9003 STATION 87 35

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
33 49.4 N	118 37.6 W	12/03/90	1447 UTC	760 M	240	15 KT	280 04 05	0	1018.5 MB	12.0 C	9.5 C	0/8	

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 D.BAR
	0 ISL	12.97	12.97	33.524	25.256	270.4	0.000	5.92	98.9	5.5	0.56	2.1	0.15	1.00	0.29	0
1	1	12.97	12.97	33.524	25.256	270.4	0.003	5.92	98.9	5.5	0.56	2.1	0.15	1.00	0.29	1
	10 ISL	12.95	12.95	33.524	25.260	270.3	0.027	5.92	98.9	5.4	0.56	2.1	0.15	1.05	0.28	10
1	11	12.95	12.95	33.524	25.260	270.3	0.030	5.92	98.9	5.4	0.56	2.1	0.15	1.06	0.28	11
1	20	12.95	12.95	33.522	25.259	270.7	0.054	5.90	98.5	5.3	0.56	2.2	0.16	1.01	0.29	20
1	30	12.92	12.92	33.523	25.266	270.2	0.081	5.89	98.3	5.4	0.57	2.3	0.17	0.98	0.29	30
1	39	12.42	12.41	33.531	25.370	260.6	0.105	5.19	85.7	8.1	0.85	6.3	0.40	0.27	0.20	39
1	49	11.57	11.56	33.581	25.569	241.9	0.130	4.23	68.6	13.8	1.25	13.2	0.06	0.12	0.13	49
	50 ISL	11.52	11.51	33.586	25.582	240.6	0.133	4.18	67.8	14.1	1.27	13.6	0.06	0.11	0.13	50
1	60	11.14	11.13	33.631	25.686	230.9	0.156	3.84	61.8	16.4	1.41	15.9	0.04	0.07	0.10	60
1	70	10.92	10.91	33.676	25.761	224.1	0.179	3.63	58.1	18.4	1.52	17.4	0.03	0.06	0.09	70
	75 ISL	10.81	10.80	33.703	25.801	220.3	0.190	3.51	56.1	19.3	1.57	18.2	0.02	0.05	0.08	75
1	83	10.61	10.60	33.764	25.884	212.6	0.207	3.26 "	51.9	21.3	1.67	19.7	0.02	0.04	0.08	83
1	98	10.18	10.17	33.968	26.118	190.7	0.238	2.56	40.4	27.8	1.97	23.6	0.03	0.02	0.09	99
	100 ISL	10.15	10.14	33.979	26.132	189.4	0.241	2.55	40.2	28.2	1.98	23.8	0.03	0.02	0.09	101
1	118	9.96	9.95	34.021	26.197	183.6	0.275	2.41	37.9	29.9	2.05	24.7	0.03	0.02	0.08	119
	125 ISL	9.85	9.84	34.047	26.236	180.0	0.288	2.34	36.7	30.9	2.09	25.2	0.04	0.02	0.08	126
1	143	9.54	9.52	34.115	26.341	170.4	0.319	2.14	33.3	34.1	2.19	26.6	0.05	0.02	0.09	144
	150 ISL	9.38	9.36	34.136	26.383	166.4	0.331	2.05	31.8	35.7	2.24	27.2	0.04	0.02	0.08	151
1	172	8.97	8.95	34.191	26.493	156.4	0.366	1.78	27.4	40.2	2.38	28.9	0.01	0.02	0.06	173
	200 ISL	8.90	8.88	34.230	26.535	153.0	0.410	1.59	24.4	42.2	2.45	29.6	0.01	0.01	0.05	201
1	202	8.90	8.88	34.231	26.536	152.9	0.413	1.58	24.3	42.3	2.45	29.6	0.01	0.01	0.05	203
1	231	8.58	8.56	34.217	26.575	149.6	0.457	1.53	23.3	44.7	2.51	30.5	0.01			232
	250 ISL	8.40	8.37	34.213	26.600	147.6	0.485	1.47	22.3	46.1	2.54	31.0	0.01			252
1	271	8.21	8.18	34.214	26.630	145.0	0.516	1.38	20.9	47.9	2.59	31.6	0.01			273
	300 ISL	7.92	7.89	34.229	26.685	140.1	0.557	1.14	17.1	51.8	2.69	32.9	0.01			**302**
1	324	7.70	7.67	34.245	26.730	136.2	0.590	0.94	14.0	55.2	2.78	34.0	0.01			**326**
1	383	7.37	7.33	34.271	26.798	130.5	0.669	0.67	9.9	60.5	2.92	35.6	0.01			**386**
	400 ISL	7.26	7.22	34.278	26.819	128.7	0.691	0.61	9.0	62.5	2.96	36.0	0.01			**403**
1	449	6.88	6.84	34.296	26.886	122.8	0.752	0.45	6.6	68.9	3.06	37.3	0.01			**452**
	500 ISL	6.40	6.35	34.317	26.968	115.4	0.813	0.32	4.6	76.8	3.15	38.8	0.01			**504**
1	517	6.24	6.19	34.325	26.995	112.9	0.833	0.27	3.9	79.4	3.18	39.3	0.01			**521**

RV DAVID STARR JORDAN | CALCOFI CRUISE 9003 | STATION 87 40

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
33 39.4 N	119 0.0 W	12/03/90	1948 UTC	1563 M	280	21 KT	2 80 05 05	1	1019.8 MB	13.7 C	11.0 C	1/8	CU

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 D.BAR
	0	ISL	13.31	13.31	33.515	25.181	277.5	0.000	6.03	101.5	4.3	0.45	0.9	0.07	1.75	0.28	0
1	1		13.31	13.31	33.515	25.181	277.5	0.003	6.03	101.5	4.3	0.45	0.9	0.07	1.75	0.28	1
1	10		13.23	13.23	33.515	25.198	276.2	0.028	6.03	101.3	4.2	0.45	0.9	0.07	1.72	0.24	10
1	19		13.21	13.21	33.513	25.200	276.2	0.053	6.04	101.4	4.2	0.45	0.8	0.07	1.54	0.26	19
	20	ISL	13.21	13.21	33.513	25.200	276.2	0.055	6.04	101.4	4.2	0.45	0.8	0.07	1.53	0.26	20
	30	ISL	13.19	13.19	33.510	25.202	276.3	0.083	6.03	101.2	4.1	0.45	0.8	0.07	1.24	0.26	30
1	31		13.19	13.19	33.510	25.202	276.4	0.086	6.03	101.2	4.1	0.45	0.8	0.07	1.20	0.26	31
1	40		12.98	12.97	33.558	25.281	269.1	0.110	5.67	94.8	5.3	0.58	2.9	0.16	0.45	0.21	40
1	50		11.46	11.45	33.645	25.639	235.2	0.135	3.95	64.0	13.9	1.36	14.4	0.06	0.11	0.16	50
1	59		11.08	11.07	33.645	25.708	228.8	0.156	3.67	59.0	16.5	1.48	16.7	0.04	0.08	0.13	59
1	74		10.85	10.84	33.695	25.788	221.6	0.190	3.55	56.8	18.7	1.55	17.9	0.04	0.06	0.11	74
	75	ISL	10.83	10.82	33.698	25.794	221.0	0.192	3.55	56.7	18.9	1.55	18.0	0.04	0.06	0.11	75
1	88		10.50	10.49	33.747	25.890	212.1	0.220	3.49	55.4	21.2	1.62	19.1	0.06	0.06	0.12	88
	100	ISL	10.25	10.24	33.825	25.994	202.5	0.245	3.16	49.9	23.9	1.75	21.1	0.04	0.04	0.10	101
1	108		10.09	10.08	33.883	26.067	195.7	0.261	2.90	45.7	25.8	1.85	22.5	0.03	0.02	0.08	109
	125	ISL	9.64	9.63	33.985	26.222	181.3	0.293	2.58	40.2	30.1	2.02	25.0	0.02	0.01	0.07	126
1	128		9.57	9.56	33.999	26.245	179.2	0.299	2.54	39.6	30.8	2.04	25.3	0.02	0.01	0.07	129
	150	ISL	9.43	9.41	34.026	26.289	175.4	0.338	2.46	38.2	32.1	2.09	26.0	0.02	0.01	0.07	151
1	153		9.42	9.40	34.027	26.292	175.2	0.343	2.46	38.2	32.2	2.09	26.0	0.02	0.01	0.07	154
1	181		9.00	8.98	34.097	26.414	164.0	0.390	2.15	33.1	36.8	2.24	28.0	0.01	0.01	0.07	182
	200	ISL	8.79	8.77	34.134	26.477	158.4	0.421	1.93	29.6	39.4	2.33	29.1	0.01	0.01	0.07	201
1	215		8.66	8.64	34.157	26.515	155.0	0.445	1.78	27.2	41.2	2.40	29.9	0.01	0.01	0.07	216
1	250		8.39	8.36	34.190	26.583	149.1	0.498	1.54	23.4	44.7	2.52	31.2	0.01			252
1	290		8.01	7.98	34.243	26.682	140.2	0.556	1.04	15.7	52.1	2.74	33.2	0.01			292
	300	ISL	7.91	7.88	34.252	26.704	138.3	0.570	0.95	14.3	53.9	2.78	33.7	0.01			302
1	343		7.48	7.45	34.280	26.789	130.7	0.627	0.68	10.1	61.2	2.93	35.4	0.00			345
	400	ISL	6.92	6.88	34.303	26.886	122.1	0.700	0.46	6.8	70.3	3.06	37.2	0.01			403
1	408		6.84	6.80	34.305	26.899	120.9	0.709	0.44	6.4	71.5	3.07	37.4	0.01			411
1	476		6.29	6.25	34.327	26.989	112.8	0.789	0.29	4.2	80.6	3.20	38.7	0.01			479
	500	ISL	6.14	6.10	34.334	27.014	110.7	0.816	0.27	3.9	83.7	3.22	38.9	0.01			**504**
1	556		5.80	5.75	34.353	27.073	105.5	0.876	0.22	3.1	90.8	3.28	39.5	0.01			560

RV DAVID STARR JORDAN | CALCOFI CRUISE 9003 | STATION 87 45

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
33 29.4 N	119 19.1 W	13/03/90	0044 UTC	1631 M	280	30 KT	2 80 08 05	1	1018.8 MB	11.9 C	9.2 C	1/8	CU

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 D.BAR
	0	ISL	12.77	12.77	33.557	25.321	264.2	0.000	5.89	98.0	6.5	0.62	3.3	0.13	1.00	0.33	0
1	1		12.77	12.77	33.557	25.321	264.2	0.003	5.89	98.0	6.5	0.62	3.3	0.13	1.00	0.33	1
	10	ISL	12.76	12.76	33.561	25.326	264.0	0.026	5.89	98.0	6.4	0.63	3.3	0.13	1.03	0.31	10
1	11		12.76	12.76	33.561	25.326	264.0	0.029	5.89	98.0	6.4	0.63	3.3	0.13	1.03	0.31	11
	20	ISL	12.77	12.77	33.557	25.322	264.7	0.053	5.90	98.2	5.9	0.62	3.3	0.13	1.04	0.32	20
1	21		12.77	12.77	33.556	25.321	264.8	0.055	5.90	98.2	5.9	0.62	3.3	0.13	1.04	0.32	21
	30	ISL	12.75	12.75	33.557	25.326	264.6	0.079	5.86	97.5	6.3	0.63	3.4	0.14	1.00	0.32	30
1	31		12.75	12.75	33.557	25.326	264.6	0.082	5.86	97.5	6.3	0.63	3.4	0.14	0.99	0.32	31
1	40		11.49	11.49	33.604	25.601	238.6	0.105	4.60	74.5	12.4	1.15	11.6	0.47	0.35	0.21	40
1	50		11.00	10.99	33.652	25.727	226.7	0.128	4.18	67.0	15.5	1.34	14.8	0.24	0.16	0.15	50
1	60		10.37	10.36	33.735	25.903	210.3	0.150	3.55	56.2	20.8	1.62	19.3	0.04	0.05	0.11	60
1	75		10.11	10.10	33.809	26.005	200.8	0.181	3.15	49.6	23.5	1.81	21.7	0.02	0.03	0.08	75
1	88		9.90	9.89	33.855	26.077	194.3	0.206	3.01	47.2	25.2	1.84	22.7	0.01	0.02	0.08	88
	100	ISL	9.71	9.70	33.939	26.174	185.3	0.229	2.75	42.9	27.9	1.94	24.2	0.01	0.01	0.08	101
1	108		9.61	9'.60	33.990	26.231	180.1	0.244	2.59	40.4	29.5	2.01	25.1	0.01	0.01	0.07	109
	125	ISL	9.48	9.47	34.001	26.261	177.5	0.274	2.57	39.9	30.4	2.04	25.6	0.01	0.01	0.05	126
1	129		9.46	9.45	33.999	26.263	177.4	0.281	2.56	39.8	30.5	2.04	25.6	0.01	0.01	0.05	130
	150	ISL	9.27	9.25	34.052	26.335	171.0	0.318	2.37	36.7	32.6	2.13	26.7	0.01	0.01	0.06	151
1	153		9.24	9.22	34.061	26.347	169.9	0.323	2.34	36.2	33.0	2.15	26.9	0.01	0.01	0.06	154
1	182		8.85	8.83	34.136	26.469	158.8	0.370	2.01	30.8	38.3	2.31	28.7	0.01	0.01	0.05	183
	200	ISL	8.67	8.65	34.165	26.520	154.3	0.399	1.77	27.0	41.4	2.40	29.8	0.01	0.01	0.04	201
1	215		8.56	8.54	34.182	26.550	151.6	0.422	1.59	24.2	43.5	2.47	30.6	0.01	0.01	0.03	216
1	250		8.38	8.35	34.205	26.597	147.8	0.474	1.40	21.2	45.9	2.56	31.4	0.01			252
1	289		8.01	7.98	34.226	26.669	141.5	0.530	1.21	18.2	50.2	2.68	32.7	0.01			291
	300	ISL	7.93	7.90	34.233	26.687	140.0	0.546	1.13	17.0	51.5	2.71	33.1	0.01			302
1	344		7.62	7.59	34.261	26.754	134.2	0.606	0.82	12.2	57.1	2.85	34.7	0.00			**346**
	400	ISL	7.10	7.06	34.294	26.854	125.2	0.679	0.51	7.5	66.0	3.01	36.6	0.00			**403**
1	406		7.05	7.01	34.297	26.864	124.4	0.686	0.48	7.1	66.9	3.03	36.8	0.00			**409**
1	475		6.61	6.57	34.312	26.936	118.2	0.770	0.35	5.1	74.4	3.13	37.9	0.00			47 8
	500	ISL	6.44	6.39	34.319	26.964	115.8	0.799	0.32	4.6	77.4	3.16	38.3	0.00			**504**
1	556		6.05	6.00	34.337	27.029	110.0	0.863	0.26	3.7	84.2	3.24	39.3	0.00			**560**

RV DAVID STARR JORDAN | CALCOFI CRUISE 9003 | STATION 87 50

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	**DRY**	WET	CLOUD AMT	TYPE
33 19.4 N	119 39.8 W	13/03/90	0442 UTC	71 M	310	25 KT			1021.1 MB	11.1 C	9.1 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 D.BAR
	0	ISL	12.81	12.81	33.544	25.303	265.9	0.000	6.11	101.8	4.6	0.41	1.6	0.07	2.73	0.51	0
1	1		12.81	12.81	33.544	25.303	265.9	0.003	6.11	101.8	4.6	0.41	1.6	0.07	2.73	0.51	1
	10	ISL	12.80	12.80	33.543	25.305	266.1	0.027	6.10	101.6	4.5	0.39	1.6	0.07	2.82	0.45	10
1	11		12.80	12.80	33.543	25.305	266.1	0.029	6.10	101.6	4.5	0.39	1.6	0.07	2.84	0.44	11
	20	ISL	12.80	12.80	33.541	25.303	266.4	0.053	6.11	101.7	4.7	0.39	1.5	0.07	2.94	0.50	20
1	21		12.80	12.80	33.541	25.303	266.5	0.056	6.11	101.7	4.7	0.39	1.5	0.07	2.94	0.51	21
	30	ISL	12.72	12.72	33.542	25.320	265.1	0.080	6.02	100.1	5.0	0.44	2.2	0.10	2.77	0.42	30
1	31		12.71	12.71	33.542	25.322	265.0	0.082	6.01	99.9	5.0	0.44	2.3	0.10	2.75	0.40	31
1	40		11.86	11.85	33.574	25.509	247.3	0.106	5.02	82.0	10.7	0.94	8.6	0.25	0.98	0.27	40
	50	ISL	11.42	11.41	33.638	25.641	235.1	0.130	4.38	70.9	15.2	1.23	12.7	0.23	0.35	0.22	50
1	51		11.38	11.37	33.644	25.653	233.9	0.132	4.32	69.8	15.6	1.26	13.1	0.23	0.29	0.21	51

RV DAVID STARR JORDAN | CALCOFI CRUISE 9003 | STATION 87 55

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
33 9.5 N	120 0.3 W	13/03/90	0826 UTC	1193 M	310	20 KT			1022.2 MB	11.4 C	9.2 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 D.BAR
	0	ISL	12.58	12.58	33.462	25.284	267.7	0.000	6.09	100.9	5.1	0.58	2.2	0.12	0.94	0.30	0
1	1		12.58	12.58	33.462	25.284	267.7	0.003	6.09	100.9	5.1	0.58	2.2	0.12	0.94	0.30	1
	10	ISL	12.57	12.57	33.460	25.285	267.9	0.027	6.08	100.7	5.1	0.55	2.2	0.12	0.97	0.31	10
1	11		12.57	12.57	33.460	25.285	267.9	0.029	6.08	100.7	5.1	0.55	2.2	0.12	0.97	0.31	11
	20	ISL	12.59	12.59	33.461	25.282	268.4	0.054	6.07	100.6	5.0	0.55	2.2	0.12	0.97	0.28	20
1	21		12.59	12.59	33.461	25.282	268.5	0.056	6.07	100.6	5.0	0.55	2.2	0.12	0.97	0.28	21
1	29		12.58	12.58	33.460	25.284	268.5	0.078	6.08	100.7	5.0	0.56	2.1	0.12	0.92	0.28	29
	30	ISL	12.58	12.58	33.460	25.284	268.6	0.080	6.08	100.7	5.0	0.56	2.1	0.12	0.92	0.28	30
1	40		12.57	12.56	33.460	25.286	268.6	0.107	6.09	100.9	4.9	0.55	2.2	0.12	0.91	0.29	40
1	49		12.53	12.52	33.464	25.297	267.8	0.131	6.05	100.1	5.0	0.57	2.4	0.12	0.87	0.29	49
	50	ISL	12.53	12.52	33.465	25.298	267.7	0.134	6.04	100.0	5.0	0.57	2.4	0.12	0.86	0.29	50
1	58		12.40	12.39	33.472	25.328	265.0	0.155	5.97	98.5	5.6	0.61	3.2	0.12	0.71	0.27	58
1	72		11.36	11.35	33.460	25.514	247.6	0.191	5.20	83.9	9.9	1.00	9.1	0.18	0.21	0.17	72
	75	ISL	11.09	11.08	33.482	25.579	241.4	0.199	4.92	79.0	11.8	1.12	11.2	0.15	0.16	0.15	75
1	86		10.21	10.20	33.602	25.827	218.0	0.224	3.92	61.8	18.7	1.52	18.4	0.02	0.06	0.09	86
	100	ISL	9.97	9.96	33.793	26.017	200.2	0.253	3.29	51.6	23.6	1.76	22.0	0.01	0.05	0.08	101
1	106		9.87	9.86	33.841	26.071	195.2	0.265	3.15	49.3	24.9	1.81	22.5	0.01	0.04	0.08	107
	125	ISL	9.53	9.52	33.925	26.193	183.9	0.301	2.90	45.1	28.3	1.94	24.3	0.01	0.02	0.07	126
1	126		9.51	9.50	33.927	26.198	183.5	0.303	2.89	44.9	28.4	1.94	24.4	0.01	0.02	0.07	127
1	148		9.39	9.37	33.967	26.250	179.1	0.343	2.71	42.0	30.3	2.01	25.4	0.01	0.01	0.07	149
	150	ISL	9.36	9.34	33.975	26.261	178.0	0.346	2.68	41.5	30.7	2.02	25.6	0.01	0.01	0.07	151
1	177		8.93	8.91	34.078	26.411	164.3	0.393	2.32	35.6	36.2	2.20	27.7	0.01	0.02	0.06	178
	200	ISL	8.72	8.70	34.100	26.461	159.9	0.430	2.17	33.2	38.2	2.26	28.5	0.01	0.01	0.05	201
1	211		8.66	8.64	34.102	26.472	159.0	0.447	2.12	32.4	38.8	2.28	28.7	0.01	0.01	0.05	212
1	243		8.56	8.53	34.143	26.520	155.0	0.498	1.87	28.5	41.8	2.40	29.9	0.01			**244**
	250	ISL	8.50	8.47	34.154	26.538	153.4	0.508	1.78	27.1	42.9	2.44	30.3	0.01			**251**
1	281		8.20	8.17	34.202	26.622	145.9	0.555	1.38	20.9	47.9	2.61	31.9	0.01			**283**
	300	ISL	8.10	8.07	34.218	26.650	143.6	0.582	1.25	18.9	49.6	2.66	32.4	0.01			**302**
1	336		7.93	7.90	34.237	26.690	140.3	0.633	1.07	16.1	52.6	2.74	33.3	0.00			**338**
1	399		7.30	7.26	34.273	26.810	129.6	0.718	0.67	9.9	62.8	2.96	35.8	0.00			**402**
	400	ISL	7.29	7.25	34.274	26.812	129.4	0.720	0.67	9.9	62.9	2.96	35.8	0.00			**403**
1	468		6.74	6.70	34.299	26.908	120.9	0.805	0.46	6.7	71.5	3.09	37.8	0.00			471
	500	ISL	6.42	6.37	34.307	26.957	116.4	0.843	0.41	5.9	76.5	3.14	38.8	0.00			**503**
1	550		5.93	5.88	34.322	27.032	109.5	0.899	0.32	4.6	84.4	3.21	40.4	0.00			**554**

RV DAVID STARR JORDAN | CALCOFI CRUISE 9003 | STATION 87 60

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
32 59.4 N	120 21.0 W	13/03/90	1312 UTC	709 M	320	22 KT			1023.1 MB	12.0 C	9.5 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 D.BAR
	0	ISL	12.80	12.80	33.464	25.243	271.6	0.000	6.12	101.9	4.2	0.49	1.0	0.05	0.67	0.26	0
1	1		12.80	12.80	33.464	25.243	271.6	0.003	6.12	101.9	4.2	0.49	1.0	0.05	0.67	0.26	1
	10	ISL	12.80	12.80	33.462	25.242	272.0	0.027	6.12	101.9	4.1	0.49	1.0	0.05	0.67	0.26	10
1	16		12.80	12.80	33.460	25.240	272.3	0.044	6.12	101.9	4.0	0.49	1.0	0.05	0.67	0.26	16
	20	ISL	12.80	12.80	33.460	25.240	272.4	0.054	6.12	101.9	4.0	0.49	1.0	0.05	0.68	0.26	20
1	30		12.80	12.80	33.459	25.240	272.7	0.082	6.12	101.9	4.0	0.49	1.0	0.05	0.69	0.27	30
1	40		12.80	12.79	33.459	25.240	273.0	0.109	6.12	101.9	4.0	0.49	1.0	0.05	0.68	0.26	40
1	49		12.73	12.72	33.458	25.253	271.9	0.133	6.06	100.7	4.2	0.53	1.4	0.08	0.52	0.23	49
	50	ISL	12.68	12.67	33.459	25.264	271.0	0.136	6.04	100.3	4.3	0.54	1.6	0.09	0.48	0.22	50
1	58		12.23	12.22	33.472	25.361	261.9	0.157	5.89	96.9	5.2	0.67	3.1	0.17	0.16	0.14	58
1	73		11.90	11.89	33.492	25.439	254.8	0.196	5.67	92.6	6.4	0.79	4.8	0.29	0.08	0.11	73
	75	ISL	11.89	11.88	33.492	25.441	254.7	0.201	5.65	92.3	6.4	0.80	4.8	0.30	0.08	0.11	75
1	87		11.78	11.77	33.499	25.467	252.5	0.232	5.55	90.4	7.6	0.84	5.9	0.34	0.06	0.09	87
	100	ISL	11.13	11.12	33.549	25.625	237.7	0.264	4.80	77.1	12.5	1.14	11.4	0.29	0.04	0.10	101
1	102		11.02	11.01	33.559	25.653	235.1	0.268	4.67	74.9	13.3	1.19	12.3	0.28	0.04	0.10	103
1	117		10.61	10.60	33.607	25.762	224.9	0.303	4.15	66.0	16.8	1.40	16.0	0.15	0.03	0.09	118
	125	ISL	10.34	10.33	33.681	25.867	215.1	0.320	3.77	59.6	19.8	1.55	18.4	0.09	0.03	0.09	126
1	136		10.00	9.98	33.791	26.011	201.6	0.343	3.29	51.7	24.0	1.74	21.5	0.02	0.02	0.09	137
	150	ISL	9.73	9.71	33.867	26.116	191.9	0.371	2.99	46.7	27.0	1.87	23.4	0.01	0.02	0.08	151
1	158		9.61	9.59	33.899	26.161	187.8	0.386	2.90	45.2	28.2	1.91	24.0	0.01	0.02	0.08	159
1	182		9.30	9.28	33.995	26.287	176.2	0.430	2.72	42.1	31.3	2.01	25.6	0.01	0.01	0.06	183
	200	ISL	9.04	9.02	34.030	26.356	169.9	0.461	2.64	40.6	33.3	2.06	26.4	0.01	0.01	0.05	201
1	216		8.81	8.79	34.046	26.405	165.5	0.488	2.60	39.8	34.9	2.10	27.0	0.01	0.01	0.05	217
	250	ISL	8.47	8.44	34.064	26.472	159.6	0.543	2.53	38.4	38.1	2.17	28.0	0.01			251
1	251		8.46	8.43	34.064	26.474	159.5	0.545	2.53	38.4	38.2	2.17	28.0	0.01			**252**
1	291		8.13	8.10	34.112	26.562	151.7	0.607	2.07	31.2	43.8	2.36	30.2	0.00			**293**
	300	ISL	8.01	7.98	34.113	26.581	150.0	0.620	2.00	30.1	45.3	2.39	30.7	0.00			**302**
1	345		7.38	7.35	34.126	26.682	140.8	0.686	1.63	24.2	53.4	2.57	33.3	0.00			**347**
	400	ISL	6.97	6.93	34.226	26.818	128.5	0.760	0.83	12.2	64.6	2.91	36.2	0.00			**403**
1	411		6.90	6.86	34.246	26.844	126.2	0.774	0.68	10.0	66.7	2.97	36.7	0.00			**414**
1	478		6.31	6.27	34.255	26.930	118.5	0.856	0.48	6.9	75.3	3.10	39.1	0.00			**481**
	500	ISL	6.15	6.11	34.268	26.961	115.7	0.882	0.43	6.2	78.3	3.13	39.6	0.00			**503**
1	557		5.75	5.70	34.305	27.041	108.5	**0.946**	0.30	4.3	86.1	3.21	40.9	0.00			**561**

RV DAVID STARR JORDAN | CALCOFI CRUISE 9003 | STATION 87 70

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	HAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
32 39.A N	121 1.7 W	13/03/90	2010 UTC	3639 M	330	16 KT	330 07 08	1	1026.9 MB	13.5 C	10.5 C	5/8	CU

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 D.BAR
	0	ISL	12.94	12.94	33.412	25.175	278.1	0.000	6.16	102.8	3.5	0.44	0.5	0.04	0.73	0.24	0
1	2		12.94	12.94	33.412	25.175	278.1	0.006	6.16	102.8	3.5	0.44	0.5	0.04	0.73	0.24-	2
	10	ISL	12.91	12.91	33.411	25.181	277.8	0.028	6.16	102.7	3.5	0.44	0.5-	0.04	0.74	0.24	10
1	17		12.87	12.87	33.409	25.187	277.4	0.047	6.16	102.6	3.5	0.44	0.5	0.04	0.75	0.24	17
	20	ISL	12.86	12.86	33.408	25.188	277.4	0.056	6.16	102.6	3.5	0.44	0.5	0.04	0.76	0.24	20
1	30		12.84	12.84	33.404	25.190	277.5	0.083	6.16	102.6	3.5	0.45	0.6	0.04	0.78	0.26	30
1	43		12.74	12.73	33.395	25.202	276.6	0.119	6.15	102.2	3.6	0.47	0.8	0.04	0.76	0.27	43
	50	ISL	12.10	12.09	33.362	25.300	267.5	0.138	5.87	96.2	5.2	0.65	3.4	0.19	0.31	0.19	50
1	51		12.01	12.00	33.360	25.315	266.0	0.141	5.83	95.4	5.4	0.67	3.8	0.21	0.25	0.18	51
1	60		11.88	11.87	33.441	25.403	257.9	0.165	5.87	95.8	5.5	0.71	3.9	0.31	0.13	0.14	60
	75	ISL	10.40	10.39	33.309	25.566	242.6	0.202	5.21	82.3	10.0	1.05	10.7	0.16	0.07	0.09	75
1	76		10.30	10.29	33.301	25.577	241.6	0.205	5.15	81.1	10.4	1.08	11.2	0.14	0.07	0.09	76
1	88		10.20	10.19	33.427	25.692	230.8	0.233	4.60	72.4	14.3	1.29	14.7	0.05	0.04	0.08	88
	x00	ISL	10.11	10.10	33.485	25.753	225.3	0.260	4.32	67.9	15.9	1.39	16.4	0.03	0.04	0.08	101
1	102		10.10	10.09	33.493	25.761	224.6	0.265	4.30	67.5	16.0	1.40	16.6	0.03	0.04	0.08	103
1	118		9.27	9.26	33.483	25.890	212.5	0.300	4.40	67.8	17.9	1.46	17.9	0.02	0.01	0.04	119
	125	ISL	9.24	9.23	33.541	25.940	207.9	0.314	4.25	65.5	19.3	1.52	18.9	0.02	0.01	0.04	126
1	137		9.18	9.17	33.642	26.029	199.7	0.339	3.90	60.1	22.0	1.63	20.8	0.02	0.01	0.03	138
	150	ISL	9.01	8.99	33.746	26.137	189.6	0.364	3.57	54.8	25.2	1.76	22.9	0.01	0.00	0.03	151
1	156		8.91	8.89	33.790	26.188	184.9	0.375	3.45	52.9	26.6	1.81	23.8	0.01	0.00	0.03	157
1	180		8.45	8.43	33.932	26.370	167.9	0.418	3.29	49.9	31.4	1.90	25.5	0.01	0.01	0.02	181
	200	ISL	8.17	8.15	33.980	26.451	160.6	0.451	3.14	47.4	34.8	1.98	26.7	0.01	0.00	0.03	201
1	214		8.00	7.98	33.997	26.490	157.1	0.473	2.98	44.8	37.4	2.05	27.6	0.01	0.00	0.04	215
1	246		7.65	7.63	34.060	26.590	147.9	0.522	2.28	34.0	45.3	2.33	30.9	0.01			247
	250	ISL	7.60	7.58	34.062	26.599	147.1	0.528	2.24	33.4	46.0	2.35	31.2	0.01			**251**
1	284		7.18	7.15	34.070	26.665	141.2	0.577	1.98	29.2	51.5	2.48	32.9	0.01			**286**
	300	ISL	7.05	7.02	34.086	26.696	138.5	0.599	1.76	25.9	54.4	2.57	33.8	0.01			**302**
1	338		6.81	6.78	34.133	26.766	132.3	0.650	1.24	18.1	60.9	2.77	35.9	0.00			**340**
	400	ISL	6.53	6.49	34.201	26.858	124.3	0.730	0.76	11.1	69.0	2.97	37.9	0.00			**403**
1	401		6.53	6.49	34.202	26.859	124.3	0.731	0.75	10.9	69.1	2.97	37.9	0.00			**404**
1	470		6.13	6.09	34.279	26.972	114.2	0.814	0.40	5.8	78.0	3.15	39.6	0.00			**473**
	500	ISL	5.97	5.93	34.307	27.014	110.5	0.847	0.34	4.9	81.3	3.19	40.2	0.00			**503**
1	552		5.69	5.64	34.356	27.089	103.8	0.903	0.23	3.3	87.0	3.26	41.2	0.01			**556**

RV DAVID STARR JORDAN | CALCOFI CRUISE 9003 | STATION 87 80

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
32 19.4 N	121 42.9 W	14/03/90	0259 UTC	4010 M	330	19 KT	320 05 05	1	1026.0 MB	12.3 C	9.9 C	3/8	ST

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 D.BAR
	0	ISL	12.94	12.94	33.307	25.094	285.8	0.000	6.20	103.4	4.3	0.44	0.4	0.03	0.65	0.19	0
1	1		12.94	12.94	33.307	25.094	285.8	0.003	6.20	103.4	4.3	0.44	0.4	0.03	0.65	0.19	1
	10	ISL	12.93	12.93	33.306	25.095	285.9	0.029	6.19	103.2	4.2	0.45	0.4	0.03	0.67	0.16	10
1	17		12.93	12.93	33.305	25.095	286.2	0.049	6.18	103.0	4.2	0.45	0.4	0.03	0.68	0.14	17
	20	ISL	12.92	12.92	33.309	25.100	285.8	0.057	6.19	103.2	4.2	0.45	0.4	0.03	0.70	0.16	20
	30	ISL	12.85	12.85	33.328	25.129	283.3	0.086	6.24	103.9	4.3	0.45	0.5	0.03	0.80	0.23	30
1	31		12.84	12.84	33.330	25.132	283.0	0.088	6.24	103.9	4.3	0.45	0.5	0.03	0.81	0.24	31
1	41		12.67	12.66	33.351	25.182	278.5	0.117	6.24	103.5	4.4	0.46	0.8	0.04	0.97	0.29	41
1	50		12.62	12.61	33.371	25.208	276.3	0.142	6.21	102.9	4.9	0.48	0.9	0.04	1.00	0.31	50
1	60		12.50	12.49	33.405	25.257	271.9	0.169	6.18	102.2	4.9	0.50	1.4	0.07	0.55	0.27	60
1	75		12.19	12.18	33.448	25.350	263.4	0.209	6.05	99.4	5.2	0.60	2.6	0.16	0.33	0.23	75
1	89		11.91	11.90	33.488	25.435	255.7	0.245	5.87	95.9	6.4	0.74	4.2	0.26	0.19	0.18	89
	100	ISL	11.68	11.67	33.508	25.493	250.3	0.273	5.66	92.0	8.1	0.86	6.0	0.39	0.13	0.18	100
1	104		11.59	11.58	33.515	25.515	248.3	0.283	5.56	90.2	8.9	0.91	6.8	0.44	0.12	0.18	105
1	119		11.23	11.22	33.556	25.613	239.3	0.320	5.05	81.3	12.1	1.10	10.6	0.52	0.06	0.18	120
	125	ISL	10.91	10.89	33.568	25.680	233.0	0.334	4.73	75.6	14.1	1.22	12.9	0.38	0.05	0.16	126
1	138		10.15	10.13	33.614	25.848	217.2	0.363	4.04	63.6	18.9	1.49	18.1	0.05	0.03	0.12	139
	150	ISL	9.57	9.55	33.712	26.021	200.8	0.388	3.59	55.8	23.6	1.69	21.6	0.03	0.02	0.08	151
1	159		9.21	9.19	33.789	26.140	189.7	0.406	3.37	52.0	26.6	1.80	23.5	0.01	0.02	0.05	160
1	183		8.66	8.64	33.894	26.309	173.9	0.449	3.45	52.6	29.8	1.82	24.3	0.01	0.01	0.02	184
	200	ISL	8.38	8.36	33.945	26.392	166.2	0.478	3.38	51.2	32.4	1.85	25.1	0.01	0.01	0.02	201
1	218		8.11	8.09	33.983	26.462	159.8	0.508	3.30	49.7	35.7	1.92	26.2	0.01	0.01	0.02	219
	250	ISL	7.53	7.51	34.016	26.573	149.6	0.557	2.77	41.2	44.0	2.17	29.5	0.00			251
1	251		7.51	7.49	34.017	26.577	149.2	0.559	2.75	40.9	44.3	2.18	29.6	0.00			**252**
1	292		7.13	7.10	34.035	26.645	143.2	0.619	2.34	34.5	50.4	2.36	32.0	0.00			**294**
	300	ISL	7.03	7.00	34.039	26.662	141.7	0.630	2.23	32.8	52.2	2.41	32.6	0.00			**302**
1	345		6.54	6.51	34.073	26.755	133.2	0.692	1.59	23.1	62.1	2.66	35.7	0.00			**3*7**
	400	ISL	6.31	6.27	34.135	26.834	126.3	0.763	1.02	14.7	69.6	2.90	38.0	0.00			**403**
1	409		6.28	6.24	34.146	26.847	125.3	0.775	0.94	13.6	70.7	2.93	38.3	0.00			**412**
1	477		5.82	5.78	34.228	26.970	114.1	0.856	0.49	7.0	82.3	3.12	40.5	0.00			**480**
	500	ISL	5.81	5.77	34.262	26.999	111.7	0.882	0.42	6.0	83.5	3.15	40.6	0.00			**503**
1	556		5.79	5.74	34.343	27.066	106.2	0.943	0.24	3.4	86.5	3.24	40.9	0.00			**560**

RV DAVID STARR JORDAN CALCOFI CRUISE 9003 STATION 87 90

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
31 59.5 N	122 23.6 W	14/03/90	0826 UTC	3897 M	330	18 KT			1027.0 MB	12.7 C	10.9 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 D.BAR
	0	ISL	13.84	13.84	33.342	24.940	300.5	0.000	6.00	102.0	3.5	0.39	0.0	0.00	0.25	0.07	0
1	1		13.84	13.84	33.342	24.940	300.5	0.003	6.00	102.0	3.5	0.39	0.0	0.00	0.25	0.07	1
	10	ISL	13.83	13.83	33.343	24.943	300.5	0.030	6.00	102.0	3.5	0.39	0.0	0.00	0.25	0.07	10
1	16		13.83	13.83	33.343	24.943	300.6	0.048	6.00	102.0	3.5	0.39	0.0	0.00	0.25	0.07	16
	20	ISL	13.84	13.84	33.342	24.940	301.0	0.060	6.01	102.1	3.5	0.39	0.0	0.00	0.25	0.07	20
	30	ISL	13.85	13.85	33.341	24.938	301.5	0.090	6.02	102.3	3.4	0.39	0.0	0.00	0.24	0.07	30
1	31		13.85	13.85	33.341	24.938	301.6	0.093	6.02	102.3	3.4	0.39	0.0	0.00	0.24	0.07	31
1	41		13.84	13.83	33.341	24.940	301.6	0.123	6.00	102.0	3.4	0.39	0.0	0.00	0.25	0.07	41
	50	ISL	13.84	13.83	33.342	24.941	301.8	0.151	6.01	102.1	3.4	0.39	0.0	0.00	0.25	0.06	50
1	51		13.84	13.83	33.342	24.941	301.8	0.154	6.01	102.1	3.4	0.39	0.0	0.00	0.25	0.06	51
1	61		13.85	13.84	33.342	24.939	302.2	0.184	5.99	101.8	3.2	0.39	0.0	0.00	0.23	0.07	61
1	75		13.85	13.84	33.341	24.939	302.7	0.226	6.01	102.1	3.2	0.39	0.0	0.00	0.24	0.07	75
1	89		13.85	13.84	33.341	24.940	303.0	0.269	6.04	102.7	3.2	0.40	0.0	0.00	0.29	0.20	89
	100	ISL	12.91	12.90	33.257	25.064	291.3	0.301	5.89	98.1	4.1	0.51	1.5	0.08	0.25	0.19	100
1	105		12.40	12.39	33.223	25.137	284.5	0.316	5.80	95.6	4.6	0.58	2.5	0.11	0.21	0.18	105
1	120		11.44	11.43	33.230	25.321	267.0	0.357	5.56	89.8	6.4	0.76	5.7	0.03	0.07	0.07	121
	125	ISL	11.17	11.15	33.254	25.389	260.7	0.370	5.44	87.3	7.4	0.83	7.1	0.02	0.05	0.05	126
1	139		10.54	10.52	33.360	25.583	242.4	0.405	5.01	79.4	10.9	1.07	11.4	0.01	0.02	0.03	140
	150	ISL	10.18	10.16	33.478	25.737	228.0	0.431	4.55	71.6	14.7	1.28	15.1	0.01	0.01	0.03	151
1	159		9.92	9.90	33.578	25.858	216.5	0.451	4.17	65.3	18.0	1.45	18.0	0.01	0.01	0.03	160
1	185		9.18	9.16	33.787	26.143	189.8	0.504	3.50	54.0	25.4	1.75	23.0	0.01	0.00	0.02	186
	200	ISL	8.91	8.89	33.860	26.243	180.5	0.532	3.51	53.8	27.3	1.77	23.8	0.01	0.00	0.02	201
1	219		8.62	8.60	33.923	26.338	171.8	0.565	3.53	53.8	29.5	1.79	24.2	0.00	0.00	0.02	220
	250	ISL	8.05	8.02	34.003	26.487	158.0	0.616	3.17	47.7	36.9	1.99	26.9	0.01			251
1	252		8.01	7.98	34.007	26.496	157.1	0.620	3.14	47.2	37.4	2.00	27.1	0.01			253
1	292		7.51	7.48	34.028	26.586	149.0	0.681	2.71	40.3	43.9	2.18	29.6	0.01			294
	300	ISL	7.45	7.42	34.034	26.599	147.9	0.693	2.61	38.7	45.2	2.22	30.1	0.01			302
1	346		7.10	7.07	34.065	26.673	141.4	0.759	2.04	30.0	52.8	2.45	32.7	0.00			348
	400	ISL	6.47	6.43	34.080	26.770	132.5	0.833	1.48	21.5	63.3	2.69	36.1	0.00			402
1	410		6.35	6.31	34.083	26.788	130.9	0.846	1.39	20.1	65.3	2.73	36.7	0.00			413
1	479		5.86	5.82	34.149	26.903	120.5	0.933	0.80	11.4	77.1	2.99	39.7	0.00			482
	500	ISL	5.77	5.73	34.175	26.935	117.7	0.958	0.69	9.9	80.0	3.04	40.2	0.00			503
1	558		5.51	5.46	34.245	27.022	109.9	1.024	0.40	5.7	87.9	3.16	41.6	0.00			562

RV DAVID STARR JORDAN CALCOFI CRUISE 9003 STATION 87 100

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED .	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
31 39.5 N	123 4.2 W	14/03/90	1439 UTC	3740 M	310	17 KT	330 05 05	1	1027.9 MB	13.0 C	10.2 C	4/8	CU

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 D.BAR
	0	ISL	14.44	14.44	33.414	24.870	307.1	0.000	5.93	102.1	2.8	0.40	0.1	0.00	0.13	0.05	0
1	1		14.44	14.44	33.414	24.870	307.1	0.003	5.93	102.1	2.8	0.40	0.1	0.00	0.13	0.05	1
	10	ISL	14.43	14.43	33.414	24.873	307.2	0.031	5.93	102.1	2.8	0.39	0.1	0.00	0.13	0.05	10
1	20		14.41	14.41	33.414	24.877	307.0	0.061	5.92	101.8	2.7	0.38	0.1	0.00	0.13	0.05	20
	30	ISL	14.41	14.41	33.413	24.877	307.4	0.092	5.92	101.8	2.7	0.38	0.1	0.00	0.13'	0.05	30
1	40		14.41	14.40	33.412	24.876	307.7	0.123	5.92	101.8	2.7	0.38	0.1	0.00	0.13	0.05	40
	50	ISL	14.41	14.40	33.412	24.876	308.0	0.154	5.92	101.8	2.7	.0.38	0.1	0.00	0.13	0.05	50
1	59		14.41	14.40	33.412	24.877	308.2	0.181	5.92	101.8	2.7	0.38	0.1	0.00	0.13	0.05	59
1	74		13.81	13.80	33.346	24.951	301.5	0.227	5.95	101.0	2.8	0.40	0.0	0.02	0.35	0.22	74
	75	ISL	13.79	13.78	33.345	24.954	301.2	0.230	5.95	101.0	2.8	0.40	0.0	0.02	0.34	0.22	75
1	83		13.69	13.68	33.342	24.973	299.7	0.254	5.93	100.5	2.8	0.42	0.1	0.04	0.27	0.17	83
1	94		13.42	13.41	33.325	25.015	296.0	0.287	5.91	99.5	2.9	0.45	0.4	0.11	0.19	0.12	94
	100	ISL	13.15	13.14	33.306	25.054	292.3	0.305	5.88	98.5	3.3	0.49	0.8	0.19	0.16	0.11	100
1	104		12.93	12.92	33.292	25.087	289.2	0.316	5.86	97.7	3.6	0.52	1.3	0.22	0.15	0.11	104
1	113		12.28	12.27	33.259	25.188	279.8	0.342	5.78	95.0	4.2	0.61	2.9	0.15	0.13	0.11	114
	125	ISL	11.37	11.35	33.254	25.353	264.1	0.374	5.50	88.7	6.3	0.79	6.4	0.04	0.10	0.10	126
1	128		11.17	11.15	33.262	25.395	260.2	0.382	5.41	86.8	7.0	0.84	7.3	0.02	0.09	0.10	129
1	148		10.56	10.54	33.433	25.636	237.6	0.432	4.87	77.2	11.5	1.11	12.2	0.01	0.04	0.06	149
	150	ISL	10.47	10.45	33.452	25.667	234.7	0.437	4.79	75.8	12.2	1.15	12.9	0.01	0.04	0.06	151
1	166		9.77	9.75	33.606	25.905	212.2	0.473	4.17	65.1	18.0	1.46	18.1	0.01	0.01	0.03	167
1	192		9.35	9.33	33.798	26.125	191.8	0.525	3.58	55.4	23.8	1.71	22.0	0.00	0.00	0.02	193
	200	ISL	9.20	9.18	33.849	26.189	185.8	0.540	3.44	53.1	25.6	1.77	22.9	0.00	0.00	0.02	201
1	216		8.92	8.90	33.935	26.301	175.4	0.569	3.21	49.2	29.0	1.88	24.5	0.01	0.00	0.02	217
1	249		8.52	8.49	34.019	26.429	163.7	0.625	2.95	44.9	34.2	2.01	26.5	0.00			250
	250	ISL	8.50	8.47	34.020	26.433	163.3	0.627	2.95	44.8	34.4	2.01	26.6	0.00			251
1	289		7.79	7.76	34.024	26.543	153.3	0.688	2.83	42.3	40.9	2.13	28.6	0.00			291
	300	ISL	7.61	7.58	34.022	26.567	151.0	0.705	2.77	41.3	42.9	2.17	29.2	0.00			302
1	345		6.93	6.90	34.023	26.663	142.2	0.771	2.40	35.2	51.8	2.38	32.0	0.00			347
	400	ISL	6.30	6.26	34.067	26.782	131.3	0.846	1.55	22.4	65.0	2.72	36.4	0.00			402
1	407		6.23	6.19	34.074	26.797	129.9	0.855	1.44	20.8	66.6	2.76	36.9	0.00			409
1	478		5.71	5.67	34.130	26.906	120.0	0.944	0.85	12.1	78.3	3.00	39.8	0.00			481
	500	ISL	5.62	5.58	34.158	26.940	117.1	0.970	0.73	10.4	81.3	3.06	40.3	0.00			503
1	558		5.37	5.32	34.232	27.029	109.1	1.036	0.41	5.8	89.3	3.20	41.7	0.00			562

RV DAVID STARR JORDAN CALCOFI CRUISE 9003 STATION 90 28

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
33 29.1 N	117 46.0 W	11/03/90	1722 UTC	63 M	260	19 KT	280 04 05	1	1016.1 MB	13.8 C	10.2 C	3/8	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 D.BAR
	0	ISL	13.28	13.28	33.469	25.152	280.3	0.000	6.84	115.0	9.2	0.40	1.5	0.06	11.98	0.67	0
1	1		13.28	13.28	33.469	25.152	280.3	0.003	6.84	115.0	9.2	0.40	1.5	0.06	11.98	0.67	1
	10	ISL	13.23	13.23	33.468	25.161	279.7	0.028	6.69	112.4	.9.2	0.40	1.8	0.07	9.63	0.51	10
1	11		13.22	13.22	33.468	25.163	279.5	0.031	6.67	112.0	9.2	0.40	1.8	0.07	9.12	0.48	11
	20	ISL	12.67	12.67	33.487	25.287	268.0	0.055	5.28	87.7	10.2	0.76	5.4	0.16	2.36	0.29	20
1	21		12.59	12.59	33.490	25.305	266.3	0.058	5.10	84.5	10.4	0.81	5.9	0.17	1.65	0.27	21
	30	ISL	11.97	11.97	33.505	25.435	254.1	0.082	4.17	68.2	13.3	1.33	10.9	0.24	0.36	0.18	30
1	31		11.91	11.91	33.508	25.449	252.9	0.084	4.10	J67.0	13.7	1.38	11.4	0.24	0.22	0.17	31
1	41		11.50	11.49	33.586	25.585	240.1	0.109	3.74	60.6	15.9	1.47	15.0	0.22	0.12	0.14	41
	50	ISL	11.13	11.12	33.682	25.728	226.8	0.130	3.31	53.2	19.7	1.75	18.7	0.19	0.09	0.18	50
1	51		11.09	11.08	33.693	25.743	225.3	0.132	3.26	52.4	20.1	1.78	19.0	0.19	0.09	0.19	51
1	62		10.86	10.85	33.793	25.862	214.2	0.156	2.96	47.4	22.4	1.75	19.9	0.11	0.07	0.17	62

RV DAVID STARR JORDAN CALCOFI CRUISE 9003 STATION 90 30

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
33 25.1 N	117 54.4 W	11/03/90	1358 UTC	633 M	260	14 KT	2 80 03 07	2	1014.5 MB	12.8 C	11.0 C	8/8	SC

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 D.BAR
	0	ISL	14.37	14.37	33.527	24.972	297.4	0.000	6.27	107.9	2.8	0.31	0.0	0.00	0.38	0.08	0
1	1		14.37	14.37	33.527	24.972	297.4	0.003	6.27	107.8	2.8	0.31	0.0	0.00	0.38	0.08	1
	10	ISL	14.37	14.37	33.526	24.972	297.7	0.030	6.28	108.0	2.8	0.31	0.0	0.00	0.38	0.09	10
1	11		14.37	14.37	33.526	24.972	297.8	0.033	6.28	108.0	2.8	0.31	0.0	0.00	0.38	0.09	11
	20	ISL	14.36	14.36	33.525	24.973	297.9	0.060	6.27	107.8	2.6	0.31	0.0	0.00	0.47	0.10	20
1	21		14.36	14.36	33.525	24.973	297.9	0.063	6.27	107.8	2.6	0.31	0.0	0.00	0.48	0.10	21
	30	ISL	14.33	14.33	33.523	24.978	297.7	0.089	6.28	107.9	2.7	0.32	0.0	0.00	0.55	0.12	30
1	31		14.33	14.33	33.523	24.978	297.7	0.092	6.28	107.9	2.7	0.32	0.0	0.00	0.56	0.13	31
1	41		12.83	12.82	33.470	25.243	272.7	0.121	5.15	85.8	6.0	0.70	3.7	0.25	0.58	0.25	41
1	50		11.90	11.89	33.480	25.429	255.2	0.145	4.42	72.2	10.6	1.12	11.1	0.09	0.26	0.20	50
1	60		11.38	11.37	33.527	25.562	242.8	0.169	4.18	67.5	13.2	1.26	13.7	0.05	0.20	0.20	60
1	71		11.21	11.20	33.670	25.704	229.5	0.195	3.63	58.5	16.8	1.48	16.9	0.03	0.10	0.12	71
	75	ISL	11.16	11.15	33.700	25.737	226.5	0.205	3.49	56.2	17.8	1.53	17.6	0.03	0.08	0.11	75
1	85		10.96	10.95	33.754	25.815	219.3	0.227	3.25	52.1	19.9	1.64	19.0	0.02	0.06	0.10	85
1	98		10.43	10.42	33.831	25.968	204.9	0.254	3.08	48.8	22.5	1.76	21.2	0.02	0.03	0.07	98
	100	ISL	10.37	10.36	33.845	25.990	203.0	0.259	3.05	48.3	23.0	1.78	21.5	0.02	0.03	0.07	101
1	119		9.97	9.96	33.969	26.155	187.6	0.296	2.74	43.0	27.6	1.94	23.8	0.02	0.01	0.06	120
	125	ISL	9.89	9.88	33.994	26.188	184.6	0.307	2.68	42.0	28.4	1.97	24.2	0.02	0.01	0.06	126
1	144		9.68	9.66	34.051	26.268	177.4	0.341	2.55	39.8	30.1	2.04	25.3	0.01	0.01	0.05	145
	150	ISL	9.61	9.59	34.067	26.292	175.2	0.352	2.51	39.1	30.7	2.06	25.6	0.01	0.01	0.05	151
1	173		9.32	9.30	34.115	26.377	167.5	0.391	2.35	36.4	33.5	2.15	26.8	0.01	0.01	0.05	174
	200	ISL	8.88	8.86	34.137	26.465	159.5	0.435	2.20	33.8	37.7	2.26	28.2	0.01	0.01	0.04	201
1	203		8.84	8.82	3 4.140	26.474	158.8	0.440	2.17	33.3	38.2	2.27	28.4	0.01	0.01	0.04	204
1	230		8.66	8.64	34.209	26.556	151.4	0.482	1.67	25.5	42.5	2.46	30.0	0.01			231
	250	ISL	8.57	8.54	34.246	26.600	147.7	0.512	1.37	20.9	45.6	2.57	30.9	0.01			251
1	271		8.45	8.42	34.269	26.636	144.5	0.543	1.14	17.3	48.5	2.65	31.7	0.01			273
	300	ISL	8.15	8.12	34.263	26.677	141.0	0.584	1.09	16.5	51.5	2.71	32.7	0.00			**302**
1	326		7.85	7.82	34.248	26.710	138.2	0.620	. 1.04	15.6	54.0	2.75	33.5	0.00			**328**
1	384		7.32	7.28	34.267	26.802	130.1	0.698	0.72	10.7	60.7	2.92	35.6	0.00			**387**
	400	ISL	7.20	7.16	34.268	26.820	128.5	0.719	0.67	9.9	62.3	2.95	36.1	0.00			**403**
1	448		6.86	6.82	34.273	26.871	124.2	0.779	0.55	8.1	67.3	3.03	37.4	0.00			**451**
	500	ISL	6.50	6.45	34.304	26.944	117.7	0.842	0.37	5.4	74.2	3.13	38.6	0.01			**503**
1	518		6.37	6.32	34.315	26.970	115.4	0.863	0.31	4.5	76.6	3.17	39.0	0.01			**522**

RV DAVID STARR JORDAN CALCOFI CRUISE 9003 STATION 90 35

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
33 15.1 N	118 14.9 W	11/03/90	0718 UTC	303 M	260	15 KT			1014.9 MB	13.8 C	12.5 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 D.BAR
	0	ISL	14.12	14.12	33.516	25.016	293.2	0.000	6.48	110.9	3.6	0.33	0.0	0.01	0.50	0.14	0
1	1		14.12	14.12	33.516	25.016	293.3	0.003	6.48	110.9	3.6	0.33	0.0	0.01	0.50	0.14	1
	10	ISL	14.10	14.10	33.516	25.021	293.1	0.029	.6.47	110.7	3.4	0.33	0.0	0.01	0.48	0.15	10
1	12		14.09	14.09	33.516	25.023	292.9	0.035	6.47	110.6	3.4	0.33	0.0	0.01	0.48	0.15	12
	20	ISL	13.93	13.93	33.516	25.056	290.0	0.058	6.34	108.1	3.8	0.35	0.0	0.01	0.84	0.27	20
1	21		13.91	13.9-1	33.516	25.060	289.6	0.061	6.31	107.5	3.9	0.36	0.0	0.01	0.88	0.29	21
	30	ISL	13.69	13.69	33.520	25.109	285.2	0.087	5.98	101.4	3.8	0.44	0.6	0.05	0.91	0.42	30
1	31		13.65	13.65	33.520	25.117	284.5	0.090	5.93	100.5	3.8	0.46	0.7	0.05	0.91	0.43	31
1	41		12.96	12.95	33.502	25.242	272.8	0.118	5.27	88.0	6.8	0.74	4.9	0.24	0.48	0.2B	41
	50	ISL	12.38	12.37	33.519	25.368	261.0	0.142	4.72	77.9	9.8	0.98	8.8	0.25	0.24	0.20	50
1	51		12.32	12.31	33.522	25.382	259.7	0.145	4.68	77.1	10.1	1.00	9.1	0.25	0.22	0.19	51
1	61		11.94	11.93	33.537	25.466	251.9	0.170	4.72	77.2	10.7	1.04	9.7	0.33	0.10	0.17	61
1	71		11.44	11.43	33.602	25.610	238.5	0.195	3.93	63.6	15.5	1.34	14.6	0.08	0.08	0.15	71
	75	ISL	11.29	11.28	33.625	25.655	234.3	0.204	3.75	60.5	16.6	1.41	15.8	0.07	0.07	0.15	75
1	85		10.99	10.98	33.683	25.754	225.1	0.227	3.46	55.5	18.8	1.54	17.9	0.05	0.05	0.14	85
1	100		10.58	10.57	33.794	25.913	210.2	0.260	3.10	49.3	22.4	1.71	20.5	0.03	0.04	0.11	101
1	120		10.12	10.11	33.899	26.075	195.3	0.300	2.81	44.3	27.0	1.87	22.9	0.04	0.02	0.10	121
	125	ISL	10.03	10.02	33.926	26.111	191.9	0.310	2.76	43.4	27.7	1.90	23.4	0.04	0.02	0.09	126
1	145		9.74	9.72	34.031	26.242	179.8	0.347	2.54	39.7	30.3	2.02	25.0	0.02	0.01	0.07	146
	150	ISL	9.68	9.66	34.058	26.273	177.0	0.356	2.45	38.3	31.3	2.06	25.5	0.02	0.01	0.07	151
1	170		9.51	9.49	34.146	26.370	168.2	0.391	2.11	32.8	34.8	2.20	27.0	0.02	0.01	0.06	17 1
1	195		9.36	9.34	34.176	26.419	164.0	0.432	1.97	30.6	36.6	2.27	27.7	0.02	0.01	0.06	196
	200	ISL	9.31	9.29	34.182	26.432	162.9	0.440	1.93	29.9	37.1	2.29	27.9	0.02			201
1	224		9.06	9.04	34.205	26.490	157.7	0.479	1.75	27.0	39.9	2.37	28.8	0.02			**225**
	250	ISL	8.80	8.77	34.216	26.540	153.4	0.519	1-64	25.1	42.3	2.44	29.6	0.01			**251**
1	252		8.78	8.75	34.217	26.544	153.0	0.522	1.63	25.0	42.5	2.45	29.7	0.01			**253**

RV DAVID STARR JORDAN CALCOFI CRUISE 9003 STATION 90 37

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
33 11.1 N	118 23.3 W	11/03/90	0421 UTC	1171 M	260	12 KT			1014.9 MB	13.1 C	12.9 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 D.BAR
	0	ISL	14.14	14.14	33.534	25.026	292.3	0.000	6.10	104.4	3.0	0.38	0.1	0.00	0.46	0.14	0
1	1		14.14	14.14	33.534	25.026	292.3	0.003	6.10	104.4	3.0	0.38	0.1	0.00	0.46	0.14	1
	10	ISL	14.13	14.13	33.536	25.030	292.2	0.029	6.11	104.6	2.9	0.38	0.1	0.00	0.45	0.14	10
1	11		14.13	14.13	33.536	25.030	292.2	0.032	6.11	104.6	2.9	0.38	0.1	0.00	0.45	0.14	11
	20	ISL	13.93	13.93	33.524	25.062	289.4	0.058	6.16	105.0	3.0	0.36	0.1	0.00	0.76	0.28	20
1	21		13.90	13.90	33.522	25.067	289.0	0.061	6.16	104.9	3.0	0.36	0.1	0.00	0.79	0.30	21
	30	ISL	13.71	13.71	33.511	25.098	286.3	0.087	5.93	100.6	3.1	0.40	0.4	0.04	0.68	0.29	30
1	31		13.69	13.69	33.510	25.101	286.0	0.090	5.90	100.1	3.1	0.41	0.4	0.05			31
1	41		13.48	13.47	33.508	25.143	282.3	0.118	5.91	99.8	3.6	0.46	1.2	0.08	0.55	0.28	41
	50	ISL	13.22	13.21	33.504	25.192	277.8	0.144	5.87	98.6	4.1	0.51	1.7	0.12	0.46	0.31	50
1	51		13.18	13.17	33.504	25.200	277.1	0.146	5.86	98.3	4.2	0.51	1.7	0.13	0.45	0.31	51
1	61		12.33	12.32	33.507	25.369	261.2	0.173	5.38	88.7	6.6	0.79	5.3	0.28	0.18	0.23	61
1	72		11.94	11.93	33.534	25.464	252.4	0.202	4.65	76.0	10.3	1.05	10.0	0.28	0.12	0.17	72
	75	ISL	11.75	11.74	33.556	25.517	247.5	0.209	4.41	71.8	11.8	1.15	11.6	0.23	0.10	0.16	75
1	85		11.13	11.12	33.649	25.703	230.0	0.233	3.67	59.0	16.8	1.45	16.6	0.06	0.06	0.14	85
1	99		10.65	10.64	33.770	25.882	213.1	0.264	3.16	50.3	21.2	1.68	20.0	0.03	0.04	0.12	99
	100	ISL	10.61	10.60	33.778	25.896	211.9	0.266	3.14	50.0	21.5	1.69	20.2	0.03	0.04	0.12	100
1	119		10.04	10.03	33.906	26.094	193.4	0.305	2.83	44.5	26.0	1.87	23.2	0.03	0.03	0.08	120
	125	ISL	9.94	9.93	33.934	26.133	189.8	0.316	2.77	43.5	26.7	1.90	23.7	0.03	0.03	0.08	126
1	144		9.73	9.71	33.999	26.219	182.0	0.351	2.65	41.4	28.5	1.98	24.7	0.02	0.02	0.09	145
	150	ISL	9.65	9.63	34.018	26.247	179.5	0.362	2.62	40.9	29.2	2.00	25.0	0.02	0.02	0.09	151
1	174		9.30	9.28	3 4.082	26.354	169.7	0.404	2.47	38.2	32.4	2.09	26.4	0.01	0.01	0.07	175
	200	ISL	8.92	8.90	34.128	26.452	160.8	0.447	2.22	34.1	36.2	2.21	27.8	0.01	0.01	0.06	201
1	203		8.88	8.86	34.132	26.461	160.0	0.452	2.19	33.6	36.6	2.22	28.0	0.01	0.01	0.06	204
1	232		8.59	8.57	34.169	26.536	153.3	0.497	1.89	28.8	40.8	2.36	29.6	0.01			233
	250	ISL	8.42	8.39	34.179	26.570	150.4	0.525	1.76	26.7	43.3	2.43	30.3	0.01			251
1	273		8.21	8.18	34.188	26.609	147.0	0.559	1.60	24.2	46.3	2.50	31.2	0.01			275
	300	ISL	8.02	7.99	34.209	26.654	143.1	0.598	1.36	20.5	49.9	2.60	32.3	0.01			302
1	327		7.84	7.81	34.230	26.698	139.3	0.636	1.13	16.9	53.3	2.70	33.4	0.00			329
1	385		7.41	7.37	34.256	26.781	132.2	0.715	0.79	11.7	59.7	2.86	35.3	0.00			387
	400	ISL	7.29	7.25	34.264	26.804	130.1	0.735	0.71	10.5	61.5	2.90	35.8	0.00			403
1	449		6.89	6.85	34.290	26.881	123.3	0.797	0.48	7.0	67.8	3.02	37.5	0.00			452
	500	ISL	6.47	6.42	3 4.306	26.950	117.2	0.858	0.36	5.2	74.6	3.12	39.0	0.00			503
1	518		6.32	6.27	34.312	26.974	114.9	0.879	0.32	4.6	77.0	3.15	39.5	0.00			522

RV DAVID STARR JORDAN CALCOFI CRUISE 9003 STATION 90 45

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
32 55.1 N	118 56.1 W	10/03/90	2154 UTC	1690 M	270	17 KT	270 04 06	2	1015.2 MB	13.9 C	12.1 C	8/8	CU

CAST	DEPTH M		TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN ML/L	OXY PCT	S103 UM/L	PO4 UM/L	NO3 UM/L	NO2 UM/L	CHL-A UG/L	PHAEO UG/L	PRESS D.BAR
	0	ISL	14.25	14.25	33.565	25.027	292.2	0.000	6.04	103.7	2.5	0.39	0.1	0.01	0.25	0.08	0
1	1		14.25	14.25	33.565	25.027	292.2	0.003	6.04	103.7	2.5	0.39	0.1	0.01	0.25	0.08	1
	10	ISL	14.18	14.18	33.565	25.042	291.1	0.029	6.05	103.7	2.2	0.40	0.1	0.01	0.25	0.08	10
1	11		14.17	14.17	33.565	25.044	290.9	0.032	6.05	103.7	2.2	0.40	0.1	0.01	0.25	0.08	11
	20	ISL	14.10	14.10	33.560	25.055	290.1	0.058	6.06	103.7	2.1	0.39	0.1	0.00	0.29	0.10	20
1	21		14.09	14.09	33.560	25.057	289.9	0.061	6.06	103.7	2.1	0.39	0.1	0.00	0.29	0.11	21
	30	ISL	14.00	14.00	33.555	25.072	288.8	0.087	6.03	102.9	2.3	0.40	0.1	0.01	0.51	0.19	30
1	31		13.99	13.99	33.555	25.074	288.6	0.090	6.03	102.9	2.3	0.40	0.1	0.01	0.54	0.20	31
1	41		13.80	13.79	33.555	25.114	285.1	0.119	6.02	102.4	2.5	0.40	0.2	0.01	0.84	0.35	41
1	50		13.35	13.34	33.541	25.195	277.6	0.144	5.67	95.5	4.1	0.57	2.0	0.14	0.80	0.39	50
1	60		12.74	12.73	33.511	25.293	268.5	0.171	5.27	87.6	6.6	0.76	5.2	0.28	0.49	0.30	60
1	71		11.68	11.67	33.540	25.517	247.3	0.200	4.49	73.0	12.1	1.15	11.7	0.16	0.19	0.16	71
	75	ISL	11.48	11.47	33.554	25.565	242.9	0.210	4.32	69.9	13.2	1.23	13.0	0.12	0.14	0.14	75
1	85		11.11	11.10	33.608	25.674	232.7	0.233	3.98	64.0	15.5	1.38	15.5	0.04	0.08	0.12	85
1	99		10.46	10.45	33.746	25.897	211.8	0.264	3.39	53.8	20.4	1.64	19.8	0.02	0.04	0.08	99
	100	ISL	10.43	10.42	33.753	25.907	210.B	0.267	3.37	53.4	20.7	1.65	20.0	0.02	0.04	0.08	100
1	120		9.93	9.92	33.855	26.072	195.4	0.307	3.07	48.1	25.5	1.80	22.5	0.01	0.02	0.08	121
	125	ISL	9.79	9.78	33.881	26.il6	191.3	0.317	3.01	47.1	26.5	1.84	23.1	0.01	0.02	0.08	126
1	144		9.34	9.32	33.971	26.261	177.9	0.352	2.79	43.2	29.9	1.97	25.0	0.01	0.01	0.07	145
	150	ISL	9.29	9.27	33.991	26.285	175.8	0.363	2.71	41.9	30.7	2.00	25.4	0.01	0.01	0.07	151
1	174		9.16	9.14	34.050	26.352	169.8	0.404	2.43	37.5	33.6	2.11	26.7	0.01	0.01	0.06	175
	200	ISL	8.88	8.86	34.100	26.436	162.3	0.447	2.27	34.8	36.5	2.19	27.8	0.01	0.01	0.04	201
1	202		8.85	8.83	34.103	26.443	161.6	0.450	2.26	34.6	36.7	2.20	27.9	0.01	0.01	0.04	203
1	230		8.45	8.43	34.151	26.543	152.6	0.494	1.87	28.4	41.7	2.37	30.0	0.01			231
	250	ISL	8.32	8.29	34.179	26.585	148.9	0.525	1.63	24.7	44.6	2.46	31.0	0.01			251
1	271		8.23	8.20	34.203	26.618	146.1	0.556	1.41	21.3	47.3	2.55	31.8	0.01			273
	300	ISL	8.06	8.03	34.234	26.668	141.8	0.597	1.13	17.0	50.9	2.67	32.9	0.00			302
1	325		7.91	7.88	34.255	26.707	138.5	0.632	0.93	14.0	53.8	2.77	33.7	0.00			327
1	383		7.49	7.45	34.281	26.789	131.4	0.711	0.64	9.5	60.1	2.91	35.3	0.00			385
	400	ISL	7.31	7.27	34.288	26.820	128.6	0.733	0.56	8.3	62.8	2.95	35.9	0.00			403
1	448		6.79	6.75	34.306	26.907	120.8	0.793	0.39	5.7	70.9	3.05	37.7	0.00			451
	500	ISL	6.34	6.29	34.322	26.979	114.2	0.854	0.29	4.2	77.7	3.15	39.0	0.00			503
1	518		6.19	6.14	34.329	27.004	111.9	0.874	0.26	3.8	80.1	3.18	39.4	0.00			522

RV DAVID STARR JORDAN | CALCOFI CRUISE 9003 | STATION 90 53

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AKT	TYPE
32 39.1 N	119 28.9 W	10/03/90	1405 UTC	1300 M	300	8 KT	2 80 03 07	1	1015.0 MB	12.7 C	11.0 C	A/8	SC

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 D.BAR
1	0		13.77	13.77	33.544	25.110	2 84.3	0.000	6.08	103.3	3.1	0.42	0.2	0.01	0.68	0.24	0
1	10		13.60	13.60	33.543	25.145	281.3	0.028	6.10	103.3	2.9	0.43	0.2	0.01	0.69	0.25	10
1	20		13.60	13.60	33.542	25.144	281.6	0.056	6.10	103.3	2.8	0.41	0.2	0.01	0.72	0.25	20
	30	ISL	13.51	13.51	33.537	25.159	2 80.5	0.085	6.07	102.6	2.9	0.44	0.5	0.03	0.91	0.37	30
1	31		13.50	13.50	33.536	25.160	2 80.4	0.087	6.07	102.6	2.9	0.44	0.5	0.03	0.92	0.38	31
1	41		13.02	13.01	33.527	25.250	272.1	0.115	5.87	98.2	4.4	0.57	2.1	0.12	0.73	0.36	41
	50	ISL	12.40	12.39	33.518	25.364	261.4	0.139	5.54	91.5	6.3	0.74	4.5	0.26	0.51	0.31	50
1	51		12.32	12.31	33.519	25.380	259.9	0.142	5.48	90.3	6.7	0.77	4.9	0.28	0.48	0.30	51
1	60		11.37	11.36	33.591	25.614	237.9	0.164	4.43	71.6	13.0	1.20	12.4	0.33	0.12	0.15	60
1	74		10.59	10.58	33.716	25.850	215.6	0.196	3.54	56.3	19.6	1.58	18.7	0.03	0.04	0.10	74
	75	ISL	10.55	10.54	33.722	25.862	214.5	0.198	3.51	55.8	19.9	1.60	19.0	0.03	0.04	0.10	75
1	88		10.07	10.06	33.794	26.000	201.6	0.225	3.21	50.5	23.6	1.76	21.7	0.01	0.02	0.08	88
	100	ISL	9.77	9.76	33.865	26.107	191.7	0.249	2.99	46.7	26.5	1.87	23.4	0.01	0.01	0.07	101
1	108		9.62	9.61	33.913	26.169	185.9	0.264	2.86	44.6	28.1	1.93	24.2	0.01	0.01	0.07	109
	125	ISL	9.43	9.42	34.012	26.278	175.9	0.294	2.60	40.4	30.8	2.04	25.5	0.01	0.01	0.06	126
1	129		9.39	9.38	34.032	26.300	173.9	0.301	2.55	39.6	31.3	2.06	25.8	0.01	0.01	0.06	130
	150	ISL	9.13	9.11	34.077	26.378	166.9	0.337	2.37	36.6	34.0	2.16	27.0	0.01	0.01	0.05	151
1	153		9.09	9.07	34.080	26.386	166.1	0.342	2.35	36.2	34.4	2.17	27.2	0.01	0.01	0.05	154
1	183		8.56	8.54	34.094	26.481	157.6	0.391	2.27	34.6	38.6	2.24	28.6	0.02	0.01	0.05	184
	200	ISL	8.33	8.31	34.117	26.534	152.7	0.417	2.08	31.5	41.6	2.33	29.7	0.02	0.01	0.05	201
1	217		8.15	8.13	34.144	26.583	148.4	0.443	1.84	27.8	44.7	2.44	30.8	0.01	0.01	0.05	-218
	250	ISL	7.90	7.87	34.190	26.657	141.9	0.491	1.43	21.5	50.1	2.61	32.5	0.01			252
1	252		7.89	7.86	34.192	26.660	141.7	0.493	1.41	21.2	50.4	2.62	32.6	0.01			254
1	293		7.62	7.59	34.225	26.725	136.0	0.550	1.06	15.8	55.7	2.76	34.1	0.00			295
	300	ISL	7.58	7.55	34.230	26.735	135.2	0.560	1.01	15.1	56.6	2.78	34.3	0.00			302
1	345		7.30	7.27	34.262	26.801	129.5	0.619	0.73	10.8	62.1	2.92	35.8	0.00			**347**
	400	ISL	6.96	6.92	34.293	26.873	123.4	0.689	0.50	7.3	68.1	3.04	37.1	0.00			403
1	410		6.90	6.86	34.297	26.884	122.4	0.701	0.47	6.9	69.1	3.06	37.3	0.00			4X3
1	478		6.50	6.46	34.316	26.953	116.5	0.782	0.34	4.9	75.0	3.14	38.7	0.00			481
	500	ISL	6.39	6.34	34.323	26.974	114.8	0.808	0.32	4.6	77.0	3.16	39.0	0.00			503
1	559		6.08	6.03	34.342	27.029	110.1	0.874	0.28	4.0	82.3	3.22	39.9	0.00			563

RV DAVID STARR JORDAN | CALCOFI CRUISE 9003 | STATION 90 60

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
32 25.1 N	119 57.6 W	10/03/90	0805 UTC	845 M	360	11 KT			1015.8 MB	12.2 C	10.8 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 D.BAR
1	0		13.40	13.40	33.469	25.128	282.6	0.000	6.10	102.8	3.3	0.42	0.1	0.01	0.55	0.18	0
1	10		13.40	13.40	33.469	25.128	2 82.9	0.028	6.10	102.8	3.2	0.42	0.1	0.01	0.56	0.19	10
1	19		13.39	13.39	33.468	25.129	2 83.0	0.054	6.10	102.8	3.1	0.43	0.1	0.01	0.56	0.19	19
	20	ISL	13.39	13.39	33.468	25.129	283.0	0.057	6.10	102.8	3.1	0.43	0.1	0.01	0.56	0.19	20
1	30		13.38	13.38	33.467	25.131	283.1	0.085	6.08	102.4	3.1	0.42	0.1	0.02	0.60	0.19	30
1	39		13.38	13.37	33.466	25.130	283.4	0.110	6.07	102.3	3.0	0.42	0.1	0.01	0.56	0.20	39
1	48		13.38	13.37	33.466	25.131	2 83.6	0.136	6.05	101.9	2.9	0.42	0.2	0.02	0.54	0.20	48
	50	ISL	13.37	13.36	33.466	25.133	283.5	0.142	6.04	101.7	2.9	0.43	0.2	0.02	0.53	0.20	50
1	59		13.30	13.29	33.463	25.145	282.6	0.167	6.00	100.9	3.1	0.45	0.4	0.03	0.43	0.17	59
1	73		11.30	11.29	33.383	25.465	252.3	0.204	4.85	78.1	10.6	1.07	10.5	0.08	0.10	0.12	73
	75	ISL	11.31	11.30	33.420	25.492	249.8	0.209	4.68	75.4	11.4	1.13	11.4	0.07	0.09	0.12	75
1	86		11.35	11.34	33.588	25.615	238.3	0.236	3.86	62.3	15.1	1.40	15.3	0.02	0.06	0.11	86
	100	ISL	10.91	10.90	33.697	25.780	223.0	0.269	3.44	55.1	19.0	1.60	18.5	0.01	0.04	0.09	100
1	106		10.62	10.61	33.723	25.851	216.3	0.282	3.39	53.9	20.4	1.65	19.5	0.01	0.04	0.08	107
1	125		9.60	9.59	33.792	26.078	194.9	0.321	3.35	52.1	24.7	1.78	22.4	0.00	0.01	0.05	126
	150	ISL	9.24	9.22	33.886	26.210	182.8	0.368	3.14	48.5	27.7	1.88	24.2	0.00	0.01	0.05	151
1	151		9.24	9.22	33.890	26.214	182.5	0.370	3.13	48.3	27.8	1.88	24.2	0.00	0.01	0.05	152
1	180		8.70	8.68	34.020	26.401	165.1	0.420	2.95	45.1	33.5	1.99	26.1	0.00	0.01	0.04	181
	200	ISL	8.67	8.65	34.086	26.458	160.1	0.453	2.63	40.2	36.0	2.11	27.2	0.00	0.01	0.04	201
1	215		8.64	8.62	34.111	26.482	158.1	0.477	2.38	36.3	37.6	2.20	27.9	0.00	0.01	0.04	216
1	247		8.30	8.27	34.125	26.546	152.5	0.526	2.16	32.7	41.6	2.31	29.3	0.00			**248**
	250	ISL	8.28	8.25	34.131	26.554	151.8	0.531	2.11	31.9	42.1	2.33	29.5	0.00			**251**
1	287		8.03	8.00	34.194	26.641	144.1	0.586	1.49	22.4	48.6	2.58	31.8	0.00			**289**
	300	ISL	7.77	7.74	34.184	26.672	141.3	0.604	1.41	21.1	51.3	2.63	32.7	0.00			**302**
1	341		6.93	6.90	34.144	26.759	133.1	0.661	1.28	18.8	59.6	2.75	35.3	0.00			**343**
	400	ISL	6.59	6.55	34.204	26.852	124.9	0.737	0.78	11.4	67.9	2.96	37.5	0.00			**403**
1	406		6.58	6.54	34.212	26.860	124.3	0.744	0.73	10.6	68.6	2.98	37.7	0.00			**409**
1	475		5.97	5.93	34.231	26.954	115.8	0.827	0.50	7.2	78.9	3.12	39.9	0.00			47 8
	500	ISL	5.93	5.89	34.258	26.981	113.6	0.856	0.44	6.3	80.6	3.15	40.1	0.00			**503**
1	556		5.85	5.80	34.319	27.040	108.7	0.918	0.29	4.2	84.4	3.22	40.7	0.00			**560**

RV DAVID STARR JORDAN CALCOFI CRUISE 9003 STATION 90 70

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
32 5.1 N	120 38.A W	09/03/90	2336 UTC	3569 M	290	21 KT	310 08 09	1	1013.1 MB	13.2 C	12.2 C	7/8	CU

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 D.BAR
	0 ISL	13.71	13.71	33.529	25.111	284.2	0.000	6.09	103.3	2.3	0.42	0.0	0.01	0.63	0.20	0
1	1	13.71	13.71	33.529	25.111	2 84.2	0.003	6.09	103.3	2.3	0.42	0.0	0.01	0.63	0.20	1
	10 ISL	13.71	13.71	33.528	25.110	284.5	0.028	6.09	103.3	2.3	0.41	0.0	0.01	0.63	0.20	10
1	11	13.71	13.71	33.528	25.110	284.5	0.031	6.09	103.3	2.3	0.41	0.0	0.01	0.63	0.20	11
	20 ISL	13.69	13.69	33.529	25.116	284.3	0.057	6.11	103.6	2.1	0.42	0.0	0.01	0.64	0.21	20
1	22	13.69	13.69	33.529	25.116	2 84.4	0.063	6.11	103.6	2.1	0.42	0.0	0.01	0.64	0.21	22
	30 ISL	13.68	13.68	33.528	25.117	284.4	0.085	6.10	103.4	2.1	0.42	0.0	0.01	0.66	0.21	30
1	32	13.68	13.68	33.528	25.117	284.5	0.091	6.09	103.3	2.1	0.42	0.0	0.01	0.66	0.21	32
1	43	13.65	13.64	33.527	25.123	284.3	0.122	6.07	102.9	2.1	0.42	0.0	0.01	0.68	0.23	43
	50 ISL	13.64	13.63	33.527	25.125	2 84.3	0.142	6.06	102.7	2.1	0.42	0.0	0.02	0.67	0.24	50
1	53	13.64	13.63	33.527	25.125	284.3	0.151	6.05	102.5	2.1	0.42	0.0	0.02	0.66	0.24	53
1	62	13.58	13.57	33.523	25.135	2 83.7	0.176	6.03	102.0	2.0	0.43	0.2	0.03	0.64	0.25	62
	75 ISL	12.36	12.35	33.489	25.350	263.4	0.212	5.17	85.3	6.8	0.83	6.3	0.20	0.25	0.18	75
1	77	12.13	12.12	33.494	25.397	258.9	0.217	4.97	81.6	8.0	0.92	7.7	0.22	0.18	0.17	77
1	92	11.00	10.99	33.745	25.801	220.8	0.253	3.09	49.6	20.5	1.68	19.5	0.02	0.05	0.10	92
	100 ISL	10.89	10.88	33.857	25.908	210.8	0.270	2.54	40.7	24.5	1.89	22.2	0.02	0.04	0.08	100
1	112	10.73	10.72	33.929	25.992	203.0	0.295	2.12	33.9	28.1	2.05	23.7	0.02	0.02	0.07	113
	125 ISL	10.54	10.53	33.967	26.056	197.3	0.321	2.10	33.4	28.9	2.08	24.5	0.01	0.01	0.06	126
1	132	10.44	10.42	33.975	26.079	195.2	0.335	2.09	33.2	29.3	2.10	24.7	0.01	0.01	0.06	133
	150 ISL	10.21	10.19	34.013	26.149	188.9	0.369	2.05	32.4	30.5	2.13	25.6	0.01	0.01	0.07	151
1	157	10.14	10.12	34.027	26.172	186.9	0.383	2.03	32.0	31.0	2.14	25.9	0.01	0.01	0.07	158
1	187	10.00	9.98	34.079	26.237	181.4	0.438	1.94	30.5	32.3	2.20	26.6	0.01	0.01	0.05	188
	200 ISL	9.93	9.91	34.101	26.266	178.8	0.461	1.91	30.0	33.0	2.22	26.9	0.01	0.01	0.05	201
1	219	9.80	9.77	34.131	26.312	174.9	0.495	1.86	29.1	34.1	2.25	27.3	0.01	0.01	0.05	220
	250 ISL	9.44	9.41	34.175	26.406	166.4	0.548	1.79	27.8	36.3	2.31	28.2	0.01			251
1	254	9.38	9.35	34.179	26.419	165.3	0.554	1.78	27.6	36.7	2.32	28.3	0.01			255
1	293	8.75	8.72	34.203	26.539	154.4	0.617	1.67	25.6	41.3	2.43	30.0	0.01			**295**
	300 ISL	8.64	8.61	34.208	26.560	152.4	0.627	1.60	24.4	42.5	2.46	30.4	0.01			302
1	347	8.00	7.96	34.242	26.684	141.1	0.696	1.09	16.4	51.2	2.70	33.1	0.00			**349**
	400 ISL	7.50	7.46	34.258	26.770	133.6	0.769	0.83	12.3	58.0	2.84	34.8	0.00			**403**
1	410	7.41	7.37	34.260	26.784	132.3	0.783	0.80	11.9	59.2	2.86	35.1	0.00			**413**
1	479	6.68	6.64	34.292	26.911	120.7	0.870	0.45	6.6	71.2	3.08	38.1	0.00			**482**
	500 ISL	6.52	6.47	34.298	26.937	118.4	0.895	0.41	6.0	73.7	3.11	38.6	0.00			503
1	558	6.06	6.01	34.317	27.012	111.6	0.962	0.30	4.3	80.7	3.18	40.1	0.00			562

RV DAVID STARR JORDAN CALCOFI CRUISE 9003 STATION 90 80

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
31 45.1 N	121 18.9 W	09/03/90	1322 UTC	3581 M	310	22 KT			1014.5 MB	11.3 C	8.7 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 D.BAR
1	0	14.14	14.14	33.484	24.987	296.0	0.000	5.98	102.4	2.7	0.39	0.0	0.00	0.28	0.09	0
	10 ISL	14.13	14.13	33.483	24.989	296.1	0.030	5.98	102.3	2.6	0.39	0.0	0.00	0.27	0.10	10
1	15	14.13	14.13	33.483	24.989	296.2	0.044	5.98	102.3	2.6	0.39	0.0	0.00	0.27	0.10	15
	20 ISL	14.13	14.13	33.483	24.989	296.4	0.059	5.98	102.3	2.6	0.39	0.0	0.00	0.27	0.10	20
	30 ISL	14.14	14.14	33.483	24.987	296.8	0.089	5.98	102.3	2.5	0.39	0.0	0.00	0.27	0.10	30
1	31	14.14	14.14	33.483	24.987	296.9	0.092	5.98	102.3	2.5	0.39	0.0	0.00	0.27	0.10	31
1	40	14.13	14.12	33.483	24.990	296.9	0.119	5.99	102.5	2.5	0.38	0.0	0.00	0.28	0.08	40
	50 ISL	13.77	13.76	33.478	25.061	290.4	0.148	5.93	100.7	2.5	0.47	0.8	0.06	0.53	0.27	50
1	51	13.71	13.70	33.474	25.070	289.5	0.151	5.92	100.4	2.5	0.48	0.9	0.07	0.55	0.29	51
1	60	12.97	12.96	33.366	25.135	283.5	0.177	5.88	98.1	3.6	0.52	1.1	0.14	0.38	0.26	60
	75 ISL	11.35	11.34	33.213	25.323	265.8	0.218	5.53	89.1	6.6	0.82	6.4	0.09	0.20	0.20	75
1	76	11.25	11.24	33.212	25.341	264.1	0.220	5.51	88.6	6.9	0.85	6.9	0.09	0.19	0.20	76
1	88	10.62	10.61	33.448	25.636	236.2	0.250	4.46	70.8	13.8	1.30	14.6	0.03	0.11	0.15	88
	100 ISL	10.46	10.45	33.637	25.812	219.8	0.278	3.76	59.6	18.1	1.55	18.5	0.01	0.07	0.10	100
1	103	10.42	10.41	33.672	25.846	216.7	0.284	3.65	57.8	19.0	1.59	19.1	0.01	0.06	0.09	103
1	119	9.44	9.43	33.747	26.069	195.6	0.317	3.53	54.7	23.8	1.74	22.3	0.01	0.04	0.20	120
	125 ISL	9.35	9.34	33.799	26.124	190.5	0.329	3.45	53.4	25.1	1.78	23.0	0.01	0.03	0.16	126
1	138	9.17	9.15	33.878	26.215	182.0	0.353	3.21	49.5	27.6	1.87	24.2	0.01	0.01	0.04	139
	150 ISL	9.14	9.12	33.976	26.297	174.5	0.375	2.90	44.7	30.1	1.97	25.2	0.01	0.01	0.04	151
1	157	9.11	9.09	34.025	26.340	170.6	0.387	2.74	42.2	31.5	2.03	25.8	0.01	0.01	0.04	158
1	183	8.54	8.52	34.067	26.463	159.3	0.430	2.67	40.6	36.1	2.12	27.4	0.01	0.01	0.03	184
	200 ISL	8.19	8.17	34.054	26.506	155.4	0.456	2.70	40.8	38.3	2.14	27.9	0.01	0.01	0.03	201
1	218	7.90	7.88	34.041	26.539	152.5	0.484	2.73	40.9	40.7	2.16	28.6	0.01	0.00	0.04	219
	250 ISL	7.69	7.67	34.108	26.622	145.0	0.532	2.01	30.0	47.4	2.43	31.3	0.01			**251**
1	252	7.68	7.66	34.113	26.628	144.5	0.534	1.96	29.3	47.9	2.45	31.5	0.01			**253**
1	292	6.96	6.93													**294**
	300 ISL	6.85	6.82	34.110	26.742	134.0	0.601	1.54	22.6	57.2	2.66	34.6	0.00			**302**
1	347	6.35	6.32	34.090	26.793	129.5	0.663	1.39	20.1	64.9	2.77	36.7	0.00			**349**
	400 ISL	6.15	6.11	34.146	26.864	123.4	0.730	0.94	13.5	71.4	2.95	38.5	0.01			**403**
1	411	6.14	6.10	34.162	26.877	122.3	0.744	0.84	12.1	72.6	2.98	38.8	0.01			**414**
1	479	6.09	6.05	34.284	26.981	113.5	0.824	0.37	5.3	79.5	3.16	'40.0	0.00			**482**
	500 ISL	5.96	5.92	34.291	27.003	111.5	0.847	0.35	5.0	81.5	3.18	40.4	0.00			**503**
1	556	5.63	5.58	34.309	27.059	106.6	0.909	0.28	4.0	86.7	3.24	41.3	0.00			**560**

RV DAVID STARR JORDAN | CALCOFI CRUISE 9003 | STATION 90 90

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	HAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
31 25.1 N	121 59.4 W	09/03/90	0315 UTC	3875 K	320	19 KT			1017.0 MB	12.2 C	9.3 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	PO4 UM/L	NO3 UM/L	NO2 UM/L	CHL-A UG/L	PHAEO UG/L	PRESS D.BAR
	0	ISL	13.63	13.63	33.405	25.031	291.8	0.000	6.09	103.1	3.0	0.42	0.3	0.00	0.43	0.13	0
1	3		13.63	13.63	33.405	25.031	291.8	0.009	6.09	103.1	3.0	0.42	0.3	0.00	0.43	0.13	3
	10	ISL	13.63	13.63	33.405	25.032	292.0	0.029	6.09	103.1	2.9	0.42	0.3	0.00	0.42	0.13	10
1	17		13.62	13.62	33.404	25.033	292.1	0.050	6.09	103.1	2.8	0.41	0.2	0.00	0.42	0.13	17
	20	ISL	13.62	13.62	33.404	25.033	292.2	0.058	6.09	103.1	2.8	0.41	0.2	0.00	0.42	0.13	20
	30	ISL	13.62	13.62	33.402	25.032	292.5	0.088	6.09	103.1	2.7	0.41	0.2	0.00	0.43	0.13	30
1	31		13.62	13.62	33.402	25.032	292.6	0.091	6.09	103.1	2.7	0.41	0.2	0.00	0.43	0.13	31
1	42		13.64	13.63	33.409	25.034	292.7	0.123	6.09	103.1	2.4	0.41	0.1	0.00	0.42	0.14	42
	50	ISL	13.66	13.65	33.417	25.036	292.7	0.146	6.07	102.8	2.2	0.41	0.1	0.00	0.44	0.14	50
1	51		13.67	13.66	33.419	25.036	292.8	0.149	6.07	102.8	2.2	0.41	0.1	0.00	0.44	0.14	51
1	60		13.77	13.76	33.461	25.048	291.9	0.175	6.02	102.2	2.2	0.42	0.1	0.00	0.44	0.17	60
	75	ISL	13.49	13.48	33.523	25.153	282.3	0.218	5.92	100.0	2.1	0.49	0.3	0.04	0.22	0.16	75
1	76		13.47	13.46	33.529	25.162	281.5	0.221	5.91	99.8	2.1	0.50	0.3	0.04	0.20	0.16	76
1	90		12.37	12.36	33.346	25.237	274.5	0.260	5.73	94.4	4.5	0.66	3.2	0.14	0.16	0.14	90
	100	ISL	11.14	11.13	33.237	25.380	260.9	0.287	5.47	87.7	6.9	0.86	7.2	0.07	0.12	0.12	100
1	104		10.69	10.68	33.219	25.446	254.7	0.297	5.35	85.0	8.0	0.95	8.9	0.04	0.11	0.11	104
1	117		10.21	10.20	33.340	25.623	238.0	0.329	4.96	78.0	11.5	1.15	12.4	0.02	0.07	0.07	118
	125	ISL	10.07	10.06	33.379	25.677	233.0	0.348	4.83	75.8	12.7	1.22	13.6	0.01	0.06	0.05	126
1	138		9.86	9.84	33.456	25.773	224.2	0.378	4.56	71.2	15.2	1.34	15.7	0.01	0.04	0.04	139
	150	ISL	9.47	9.45	33.618	25.964	206.2	0.404	4.01	62.2	20.2	1.57	19.8	0.00	0.02	0.03	151
1	157		9.25	9.23	33.718	26.078	195.5	0.418	3.68	56.8	23.2	1.71	22.2	0.00	0.01	0.03	158
1	181		8.98	8.96	33.909	26.270	177.6	0.463	3.02	46.4	29.5	1.94	25.3	0.00	0.01	0.03	182
	200	ISL	8.68	8.66	33.974	26.369	168.6	0.495	2.87	43.8	32.6	2.02	26.5	0.00	0.01	0.03	201
1	216		8.41	8.39	34.000	26.431	162.9	0.522	2.82	42.8	35.0	2.06	27.2	0.00	0.01	0.03	217
1	250		7.88	7.85	34.055	26.553	151.6	0.575	2.42	36.3	42.4	2.26	29.8	0.00			251
1	289		7.38	7.35	34.097	26.659	142.1	0.633	1.87	27.7	50.6	2.50	32.6	0.00			291
	300	ISL	7.27	7.24	34.103	26.679	140.2	0.648	1.76	26.0	52.5	2.55	33.2	0.00			**302**
1	344		6.85	6.82	34.113	26.745	134.4	0.709	1.41	20.6	60.0	2.71	35.3	0.00			346
	400	ISL	6.08	6.05	34.105	26.840	125.6	0.781	1.09	15.7	70.7	2.90	38.4	0.00			**403**
1	407		5.99	5.95	34.105	26.851	124.5	0.790	1.05	15.1	72.0	2.92	38.7	0.00			**410**
1	476		5.70	5.66	34.178	26.946	116.3	0.873	0.61	8.7	80.6	3.09	40.4	0.00			479
	500	ISL	5.59	5.55	34.208	26.983	113.0	0.901	0.52	7.4	83.9	3.14	40.9	0.00			503
1	553		5.34	5.29	34.275	27.066	105.5	0.959	0.31	4.4	91.1	3.24	41.9	0.00			557

RV DAVID STARR JORDAN | CALCOFI CRUISE 9003 | STATION 90 100

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
31 5.1 N	122 39.7 W	08/03/90	1558 UTC	3977 M	350	19 KT	340 06 05	2	1018.1 MB	14.3 C	12.6 C	8/8	SC

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 D.BAR
1	0		14.87	14.87	33.438	24.797	314.1	0.000	5.86	101.8	2.2	0.37	0.0	0.00	0.11	0.03	0
	10	ISL	14.84	14.84	33.443	24.807	313.4	0.031	5.87	101.9	2.3	0.37	0.0	0.00	0.11	0.03	10
1	15		14.82	14.82	33.446	24.814	312.9	0.047	5.88	102.0	2.3	0.37	0.0	0.00	0.11	0.03	15
	20	ISL	14.83	14.83	33.439	24.807	313.7	0.063	5.87	101.9	2.3	0.36	0.0	0.00	0.11	0.03	20
1	28		14.84	14.84	33.429	24.797	314.9	0.088	5.87	101.9	2.3	0.36	0.0	0.00	0.12	0.04	28
	30	ISL	14.83	14.83	33.427	24.798	314.9	0.094	5.87	101.8	2.3	0.36	0.0	0.00	0.12	0.04	30
1	37		14.75	14.74	33.417	24.808	314.2	0.116	5.89	102.0	2.3	0.38	0.0	0.00	0.14	0.04	37
1	46		14.61	14.60	33.403	24.827	312.6	0.144	5.91	102.1	2.3	0.38	0.0	0.00	0.18	0.06	46
	50	ISL	14.46	14.45	33.388	24.847	310.8	0.157	5.94	102.3	2.3	0.38	0.0	0.00	0.21	0.08	50
1	55		14.28	14.27	33.372	24.873	308.4	0.172	5.97	102.4	2.3	0.39	0.0	0.00	0.24	0.09	55
1	65		14.20	14.19	33.374'	24.892	306.9	0.203	5.98	102.4	2.2	0.38	0.0	0.00	0.20	0.07	65
1	75		13.97	13.96	33.359	24.928	303.7	0.234	6.00	102.2	2.3	0.40	0.0	0.00	0.28	0.11	75
1	87		13.62	13.61	33.330	24.978	299.3	0.270	6.01	101.7	2.3	0.41	0.0	0.01	0.38	0.21	87
	100	ISL	12.68	12.67	33.308	25.148	283.3	0.308	5.79	96.0	3.5	0.54	2.1	0.09	0.32	0.21	100
1	101		12.60	12.59	33.306	25.162	282.0	0.310	5.77	95.5	3.6	0.55	2.3	0.10	0.31	0.21	101
1	115		11.76	11.75	33.231	25.263	272.5	0.349	5.63	91.5	4.8	0.70	4.6	0.06	0.18	0.14	116
	125	ISL	11.38	11.36	33.260	25.356	263.9	0.376	5.44	87.7	6.2	0.81	6.6	0.03	0.13	0.11	126
1	137		10.98	10.96	33.337	25.488	251.6	0.407	5.16	82.5	8.4	0.95	9.3	0.01	0.09	0.09	138
	150	ISL	10.40	10.38	33.424	25.657	235.6	0.439	4.83	76.3	11.5	1.14	12.5	0.01	0.05	0.06	151
1	160		9.98	9.96	33.503	25.790	223.1	0.462	4.56	71.4	14.2	1.28	14.9	0.01	0.03	0.04	161
1	188		9.35	9.33	33.758	26.093	194.7	0.520	3.87	59.9	21.6	1.58	20.4	0.00	0.00	0.02	189
	200	ISL	9.03	9.01	33.840	26.209	183.9	0.543	3.74	57.5	24.4	1.67	22.0	0.00			201
1	216		8.65	8.63	33.931	26.340	171.6	0.571	3.55	54.1	28.3	1.78	23.8	0.00			**217**
	250	ISL	8.25	8.22	34.068	26.509	156.1	0.627	2.58	39.0	38.2	2.16	28.2	0.00			**251**
1	253		8.23	8.20	34.077	26.519	155.2	0.632	2.49	37.6	39.1	2.20	28.6	0.00			25*
1	300		7.77	7.74	34.166	26.657	142.6	0.702	1.51	22.6	49.9	2.58	32.6	0.00			**302**
1	361		7.44	7.40	34.239	26.763	133.5	0.786	0.88	13.1	57.7	2.83	35.0	0.00			**363**
	400	ISL	7.15	7.11	34.268	26.827	127.8	0.837	0.63	9.3	62.8	2.95	36.3	0.00			**402**
1	421		6.99	6.95	34.280	26.859	125.1	0.863	0.54	7.9	65.6	3.01	36.9	0.00			**424**
1	487		6.52	6.48	34.317	26.952	116.8	0.943	0.34	4.9	74.1	3.14	38.7	0.00			**490**
	500	ISL	6.42	6.37	34.324	26.970	115.1	0.958									**503**

RV DAVID STARR JORDAN | CALCOFI CRUISE 9003 | STATION 93 26.7

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
32 57.4 N	117 18.4 W	04/03/90	2123 UTC	64 M	240	10 KT	230 03 07	5	1017.5 MB	14.8 C	13.9 C	8/8	SC

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 D.BAR
	0	ISL	14.36	14.36	33.389	24.868	307.4	0.000	7.76	133.3	3.6	0.27	0.0	0.00	4.61	0.19	0
1	1		14.36	14.36	33.389	24.868	307.4	0.003	7.76	133.3	3.6	0.27	0.0	0.00	4.61	0.19	1
	10	ISL	13.87	13.87	33.412	24.988	296.2	0.030	7.22	122.8	3.8	0.28	0.0	0.00	5.04	0.34	10
1	13		13.62	13.62	33.425	25.049	290.4	0.039	7.04	119.2	3.9	0.28	0.0	0.00	5.18	0.40	13
	20	ISL	13.21	13.21	33.452	25.153	280.7	0.059	5.75	96.5	5.8	0.60	1.7	0.18	3.00	0.38	20
1	22		13.10	13.10	33.460	25.181	278.1	0.065	5.38	90.1	6.4	0.70	2.4	0.23	2.30	0.37	22
	30	ISL	12.68	12.68	33.494	25.291	267.9	0.086	4.83	80.2	7.8	0.86	5.4	0.24	1.01	0.34	30
1	33		12.53	12.53	33.507	25.330	264.2	0.094	4.74	78.5	8.4	0.91	6.7	0.25	0.75	0.33	33
1	43		12.05	12.04	33.547	25.453	252.8	0.120	4.24	69.5	11.8	1.18	10.7	0.26	0.26	0.37	43
	50	ISL	11.76	11.75	33.594	25.544	244.3	0.138	3.97	64.7	13.9	1.31	12.9	0.23	0.22	0.38	50
1	54		11.60	11.59	33.622	25.595	239.5	0.147	3.81	61.9	15.1	1.39	14.2	0.22	0.19	0.38	54

RV DAVID STARR JORDAN CALCOFI CRUISE 9003 STATION 93 28

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
32 54.9 N	117 23.6 W	04/03/90	2345 UTC	540 M	260	13 KT	250 03 06	2	1016.5 MB	14.8 C	13.1 C	8/8	SC

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 D.BAR
1	0	14.80	14.80	33.539	24.890	305.3	0.000	6.13	106.4	2.7	0.37	0.0	0.00	0.39	0.06	0
	10 ISL	14.70	14.70	33.533	24.907	303.9	0.030	6.26	108.4	2.7	0.41	0.0	0.00	0.64	0.08	10
1	11	14.69	14.69	33.532	24.908	303.8	0.033	6.27	108.6	2.7	0.41	0.0	0.00	0.66	0.08	11
	20 ISL	14.05	14.05	33.511	25.028	292.7	0.060	6.25	106.8	2.9	0.40	0.0	0.00	3.42	0.21	20
1	21	13.97	13.97	33.509	25.042	291.3	0.063	6.25	106.6	2.9	0.40	0.0	0.00	3.65	0.23	21
	30 ISL	13.64	13.64	33.500	25.104	285.7	0.089	6.01	101.8	2.9	0.43	0.0	0.00	1.50	0.37	30
1	31	13.61	13.61	33.499	25.109	2 85.3	0.092	5.97	101.1	2.9	0.43	0.0	0.00	1.17	0.38	31
1	42	13.24	13.23	33.485	25.173	279.4	0.123	5.50	92.4	4.4	0.56	1.4	0.13	0.54	0.29	42
	50 ISL	12.59	12.58	33.490	25.305	267.0	0.145	4.78	79.2	8.2	0.91	6.7	0.24	0.50	0.34	50
1	52	12.42	12.41	33.496	25.343	263.5	0.150	4.60	76.0	9.3	1.00	8.2	0.26	0.49	0.35	52
1	63	11.82	11.81	33.574	25.517	247.1	0.178	4.01	65.4	13.4	1.31	12.9	0.15	0.28	0.33	63
1	73	11.27	11.26	33.672	25.695	230.4	0.202	3.50	56.5	17.6	1.59	16.9	0.05	0.17	0.25	73
	75 ISL	11.20	11.19	33.687	25.719	228.2	0.207	3.44	55.4	18.2	1.61	17.4	0.05	0.16	0.24	75
1	88	10.89	10.88	33.772	25.841	216.8	0.236	3.14	50.3	21.0	1.69	19.3	0.03	0.09	0.17	88
	100 ISL	10.65	10.64	33.848	25.943	207.4	0.261	2.90	46.2	23.6	1.80	21.0	0.02	0.06	0.15	101
1	104	10.58	10.57	33.872	25.974	204.6	0.269	2.82	44.9	24.4	1.84	21.5	0.02	0.05	0.15	105
1	125	10.21	10.20	34.000	26.138	189.4	0.311	2.46	38.9	28.4	2.00	23.8	0.02	0.03	0.11	126
	150 ISL	9.90	9.88	34.136	26.297	174.8	0.356	2.06	32.3	33.1	2.21	26.1	0.01	0.02	0.07	151
1	152	9.88	9.86	34.145	26.308	173.8	0.360	2.03	31.9	33.4	2.22	26.3	0.01	0.02	0.07	153
1	183	9.65	9.63	34.197	26.387	166.9	0.413	1.86	29.0	36.3	2.30	27.4	0.02	0.01	0.06	184
	200 ISL	9.52	9.50	34.215	26.423	163.8	:0.441	1.76	27.4	37.6	2.35	27.9	0.02	0.01	0.07	201
1	215	9.42	9.40	34.226	26.448	161.7	0.465	1.68	26.1	38.6	2.39	28.3	0.01	0.01	0.08	216
1	247	9.29	9.26	34.242	26.483	159.0	0.516	1.57	24.3	40.3	2.43	28.8	0.00			248
	250 ISL	9.26	9.23	34.244	26.489	158.5	0.521	1.55	24.0	40.6	2.44	28.9	0.00			251
1	289	8.87	8.84	34.267	26.570	151.4	0.582	1.32	20.3	44.3	2.61	30.3	0.00			**291**
	300 ISL	8.77	8.74	34.264	26.584	150.3	0.598	1.31	20.1	45.0	2.63	30.5	0.00			**302**
1	344	8.31	8.27	34.249	26.643	145.2	0.663-	1.25	18.9	48.8	2.67	31.7	0.00			**346**
	400 ISL	7.56	7.52	34.269	26.770	133.6	0.741	0.84	12.5	58.4	2.83	34.6	0.01			**403**
1	402	7.53	7.49	34.270	26.775	133.1	0.744	0.82	12.2	58.8	3.27 U	34.7	0.01			**405**
1	461	6.90	6.86	34.275	26.868	124.8	0.820	0.57	8.4	68.1	3.03	36.9	0.00			**464**
	500 ISL	6.55	6.50	34.305	26.938	118.3	0.867	0.40	5.8	74.8	3.13	38.2	0.01			**503**
1	519	6.38	6.33	34.320	26.973	115.2	0.890	0.31	4.5	78.1	3.18	38.8	0.01			**523**

RV DAVID STARR JORDAN CALCOFI CRUISE 9003 STATION 93 30

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
32 50.8 N	117 31.8 W	05/03/90	0428 UTC	880 M	260	12 KT			1016.1 MB	14.5 C	13.4 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 D.BAR
1	0	14.60	14.60	33.538	24.932	301.3	0.000	6.06	104.7	2.6	0.39	0.1	0.01	0.40	0.10	0
	10 ISL	14.59	14.59	33.537.	24.933	301.4	0.030	6.08	105.1	2.3	0.37	0.1	0.00	0.38	0.09	10
1	11	14.59	14.59	33.537	24.933	301.4	0.033	6.08	105.1	2.3	0.37	0.1	0.00	0.38	0.09	11
	20 ISL	13.88	13.88	33.515	25.066	2 89.1	0.060	6.04	102.8	2.7	0.40	0.1	0.02	1.03	0.26	20
1	21	13.80	13.80	33.512	25.080	287.8	0.063	6.04	102.7	2.8	**0.40**	0.1	0.02	1.10	0.28	21
	30 ISL	13.53	13.53	33.493	25.121	2 84.1	0.088	5.86	99.0	3.0	0.40	0.1	0.01	0.94	0.27	30
1	32	13.50	13.50	33.490	25.125	2 83.8	0.094	5.80	98.0	3.1	0.40	0.1	0.01	0.91	0.27	32
1	43	13.23	13.22	33.486	25.176	279.2	0.125	5.24	88.0	5.1	0.64	2.7	0.26	0.38	0.25	43
	50 ISL	12.35	12.34	33.531	25.384	259.6	0.144	4.45	73.4	10.2	1.05	9.5	0.14	0.24	0.24	50
1	54	11.83	11.82	33.567	25.510	247.6	0.154	4.02	65.6	13.1	1.28	13.4	0.05	0.21	0.23	54
1	65	11.43	11.42	33.644	25.644	235.1	0.181	3.65	59.1	15.8	1.44	15.6	0.04	0.21	0.20	65
1	75	11.29	11.28	33.690	25.705	229.5	0.204	3.49	56.3	17.5	1.52	17.0	0.03	0.14	0.16	75
1	91	11.04	11.03	33.769	25.812	219.7	0.240	3.17	50.9	20.0	1.67	19.0	0.02	0.11	0.15	91
	100 ISL	10.85	10.84	33.831	25.895	212.0	0.259	2.96	47.4	22.0	1.76	20.4	0.01	0.08	0.12	101
1	106	10.73	10.72	33.871	25.947	207.2	0.272	2.83	45.2	23.3	1.82	21.3	0.01	0.06	0.10	107
	125 ISL	10.47	10.46	33.934	26.042	198.6	0.310	2.67	42.4	25.6	1.91	22.6	0.01	0.04	0.10	126
1	128	10.44	10.42 -	33.942	26.053	197.5	0.316	2.65	42.0	25.9	1.92	22.7	0.01	0.04	0.10	129
	150 ISL	10.16	10.14	34.056	26.191	184.9	0.358	2.33	36.8	29.4	2.07	**24.6**	0.01	0.04	0.15	151
1	153	10.12	10.10	34.071	26.210	183.2	0.364	2.29	36.1	29.9	2.09	24.9	0.01	0.04	0.16	154
1	185	9.72	9.70	34.164	26.350	170.5	0.420	2.01	31.4	34.0	2.23	26.8	0.01	0.02	0.08	186
	200 ISL	9.46	9.44	34.204	26.424	163.7	0.445	1.78	27.7	37.0	2.34	27.9	0.01	0.02	0.07	201
1	217	9.18	9.16	34.242	26.500	156.7	0.473	1.52	23.5	40.4	2.46	29.2	0.01	0.01 A	0.05 A	218
1	249	8.97	8.94													**250**
	250 ISL	8.96	8.93	34.270	26.557	151.9	0.524	1.27	19.5	44.5	2.59	30.6	0.01			**251**
1	290	8.46	8.43	34.271	26.637	144.9	0.583	1.14	17.3	47.9	2.67	31.6	0.01			**292**
	300 ISL	8.38	8.35	34.273	26.651	143.7	0.597	1.11	16.9	48.7	2.69	31.9	0.01			**302**
1	347	8.06	8.02	34.274	26.700	139.7	0.664	0.98	14.8	52.6	2.77	33.0	0.00			**349**
	400 ISL	7.60	7.56	34.268	26.764	134.3	0.737	0.84	12.5	57.7	2.87	34.5	0.01			**403**
1	411	7.49	7.45	34.268	26.779	132.8	0.751	0.80	11.9	59.1	2.89	34.9	0.01			**414**
1	478	6.61	6.57	34.294	26.922	119.6	0.836	0.43	6.3	71.8	3.10	38.1	0.00			**481**
	500 ISL	6.49	**6.44**	34.305	26.946	117.5	0.862	0.38	5.5	74.1	3.14	38.5	0.00			**503**
1	552	6.21	**6.16**	34.333	27.005	112.4	0.922	0.27	3.9	79.6	3.22	39.6	0.00			**556**

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

RV DAVID STARR JORDAN CALCOFI CRUISE 9003 STATION 93 35

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
32 40.8 N	117 52.4 W	05/03/90	1027 UTC	581 M	300	18 KT			1016.4 MB	13.2 C	12.3 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	PO4 UM/L	NO3 UM/L	NO2 UM/L	CHL-A UG/L	PHAEO UG/L	PRESS D.BAR
1	0	14.70	14.70	33.541	24.913	303.1	0.000	6.03	104.4	2.4	0.35	0.1	0.00	0.30	0.09	0
	10 ISL	14.69	14.69	33.546	24.919	302.8	0.030	6.03	104.4	2.4	0.35	0.0	0.00	0.28	0.07	10
1	11	14.69	14.69	33.546	24.919	302.8	0.033	6.03	104.4	2.4	0.35	0.0	0.00	0.28	0.07	11
	20 ISL	14.61	14.61	33.542	24.933	301.7	0.061	6.01	103.9	2.5	0.36	0.0	0.00	0.27	0.09	20
1	21	14.59	14.59	33.539	24.935	301.5	0.064	6.01	103.8	2.5	0.36	0.0	0.00	0.27	0.09	21
	30 ISL	14.28	14.28	33.536	24.999	295.7	0.090	5.99	102.8	2.5	0.38	0.0	0.00	0.29	0.11	30
1	31	14.24	14.24	33.536	25.007	295.0	0.093	5.99	102.8	2.5	0.38	0.0	0.00	0.29	0.11	31
1	42	13.76	13.75	33.511	25.088	287.6	0.125	5.69	96.6	3.9	0.54	1.2	0.10	0.53	0.31	42
	50 ISL	12.98	12.97	33.461	25.207	276.4	0.148	5.21	87.0	6.3	0.76	4.4	0.21	0.47	0.32	50
1	51	12.87	12.86	33.457	25.225	274.7	0.151	5.14	85.7	6.7	0.79	4.9	0.22	0.45	0.32	51
1	62	11.71	11.70	33.507	25.486	250.1	0.180	4.32	70.3	12.2	1.19	12.0	0.09	0.28	0.29	62
1	73	11.56	11.55	33.611	25.594	240.0	0.207	3.80	61.7	15.1	1.40	15.1	0.04	0.20	0.27	73
	75 ISL	11.46	11.45	33.639	25.635	236.2	0.211	3.70	59.9	16.0	1.44	15.8	0.04	0.18	0.26	75
1	87	10.83	10.82	33.807	25.879	213.2	0.238	3.18	50.9	21.5	1.69	19.9	0.02	0.06	0.17	87
	100 ISL	10.58	10.57	33.905	26.000	202.0	0.265	2.90	46.1	24.3	1.83	21.8	0.02	0.03	0.11	100
1	103	10.55	10.54	33.920	26.017	200.5	0.271	2.86	45.5	24.7	1.85	22.0	0.02	0.02	0.10	104
	125 ISL	10.32	10.31	34.032	26.144	188.8	0.314	2.54	40.2	28.2	1.99	23.9	0.01	0.02	0.06	126
1	126	10.31	10.30	34.036	26.149	188.4	0.316	2.53	40.1	28.4	2.00	24.0	0.01	0.02	0.06	127
1	150	10.14	10.12	34.135	26.256	178.7	0.360	2.00	31.6	32.8	2.19	25.9	0.01	0.01	0.08	151
1	182	9.88	9.86	34.199	26.351	170.4	0.416	1.81	28.4	35.6	2.29	27.2	0.01	0.01	0.06	183
	200 ISL	9.42	9.40	34.163	26.399	166.0	0.446	2.07	32.2	36.4	2.24	27.4	0.01	0.01	0.06	201
1	212	9.11	9.09	34.141	26.432	163.0	0.466	2.21	34.1	37.1	2.22	27.6	0.01	0.01	0.06	213
1	244	8.89	8.86	34.218	26.528	154.5	0.517	1.67	25.6	42.4	2.46	29.5	0.01			245
	250 ISL	8.79	8.76	34.214	26.540	153.4	0.526	1.68	25.7	43.1	2.46	29.7	0.01			251
1	286	8.23	8.20	34.183	26.602	147.9	0.580	1.72	26.0	46.6	2.49	30.8	0.01			**288**
	300 ISL	8.23	8.20	34.212	26.626	146.0	0.601	1.53	23.1	48.0	2.55	31.3	0.01			**302**
1	344	8.25	8.21	34.300	26.692	140.5	0.664	0.88	13.3	52.6	2.77	32.8	0.01			**346**
	400 ISL	7.42	7.38	34.256	26.780	132.6	0.740	0.82	12.2	60.2	2.87	35.2	0.01			**403**
1	405	7.34	7.30	34.251	26.787	131.9	0.747	0.82	12.2	60.9	2.88	35.4	0.01			**408**
1	471	6.88	6.84	34.292	26.884	123.4	0.831	0.51	7.5	69.8	3.03	37.3	0.01			**474**
	500 ISL	6.65	6.60	34.301	26.922	120.0	0.866	0.43	6.3	73.3	3.09	38.1	0.01			**503**
1	543	6.31	6.26	34.317	26.980	114.8	0.917	0.32	4.6	78.6	3.17	39.3	0.02			**547**

RV DAVID STARR JORDAN CALCOFI CRUISE 9003 STATION 93 40

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
32 30.9 N	118 12.7 W	05/03/90	2012 UTC	1626 M	290	26 KT	310 07 06	1	1019.5 MB	13.0 C	11.0 C	4/8	CU

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 D.BAR
	0 ISL	14.27	14.27	33.536	25.000	294.8	0.000	6.11	104.9	2.4	0.35	0.0	0.01	0.47	0.10	0
1	1	14.27	14.27	33.536	25.000	294.8	0.003	6.11	104.9	2.4	0.35	0.0	0.01	0.47	0.10	1
	10 ISL	14.26	14.26	33.537	25.003	294.7	0.029	6.11	104.9	2.6	0.35	0.0	0.01	0.45	0.10	10
1	11	14.26	14.26	33.537	25.003	294.7	0.032	6.11	104.9	2.6	0.35	0.0	0.01	0.45	0.10	11
	20 ISL	14.26	14.26	33.536	25.003	295.1	0.059	6.11	104.9	2.5	0.35	0.0	0.01	0.44	0.10	20
1	23	14.26	14.26	33.535	25.002	295.2	0.068	6.11	104.9	2.4	0.35	0.0	0.01	0.43	0.10	23
	30 ISL	14.25	14.25	33.533	25.003	295.4	0.088	6.12	105.0	2.5	0.35	0.0	0.01	0.49	0.11	30
1	**33**	14.25	14.25	33.532	25.002	295.5	0.097	6.12	105.0	2.6	0.35	0.0	0.01	0.51	0.12	33
1	42	13.83	13.82	33.519	25.080	288.4	0.124	5.99	101.9	2.9	0.37	0.0	0.01	0.92	0.26	42
	50 ISL	12.93	12.92	33.511	25.255	271.8	0.146	5.11	85.3	6.5	0.75	4.9	0.20	0.52	0.25	50
1	53	12.58	12.57	33.513	25.325	265.2	0.154	4.74	78.5	8.2	0.92	7.1	0.26	0.33	0.24	53
1	63	11.97	11.96	33.530	25.455	253.0	0.180	4.15	67.9	12.1	1.21	11.8	0.13	0.36	0.28	63
	75 ISL	11.36	11.35	33.585	25.611	238.5	0.209	3.88	62.7	14.7	1.39	14.9	0.05	0.18	0.20	75
1	78	11.23	11.22	33.601	25.647	235.1	0.217	3.86	62.2	15.2	1.42	15.4	0.04	0.13	0.17	78
1	93	10.71	10.70	33.669	25.793	221.5	0.251	3.70	59.0	17.6	1.51	17.6	0.03	0.09	0.12	93
	100 ISL	10.58	10.57	33.702	25.841	217.0	0.266	3.63	57.7	18.7	1.55	18.4	0.03	0.07	0.11	100
1	114	10.35	10.34	33.773	25.937	208.2	0.296	3.45	54.6	21.1	1.64	19.9	0.03	0.05	0.09	115
	125 ISL	10.02	10.01	33.854	26.057	197.1	0.318	3.20	50.3	23.5	1.74	21.3	0.03	0.04	0.09	126
1	134	9.79	9.77													135
	150 ISL	9.81	9.79	34.027	26.227	181.4	0.365	2.63	41.2	28.9	1.98	24.2	0.01	0.02	0.07	151
1	160.	9.82	9.80	34.092	26.277	176.9	0.383	2.39	37.4	31.1	2.08	25.3	0.01	0.02	0.07	161
1	191	9.31	9.29	34.181	26.431	162.8	0.436	2.00	31.0	36.4	2.26	27.6	0.01	0.01	0.07	192
	200 ISL	9.20	9.18	34.192	26.457	160.4	0.450	1.94	30.0	37.5	2.29	28.0	0.01			**201**
1	227	8.90	8.88													**228**
	250 ISL	8.68	8.65	34.219	26.561	151.3	0.528	1.64	25.1	**43.6**	2.46	30.0	0.01			**251**
1	262	8.56	8.53	34.217	26.579	149.9	0.546	1.58	24.1	45.1	2.49	30.4	0.01			**264**
	300 ISL	8.05 .	8.02	34.238	26.673	141.4	0.602	1.24	18.7	51.8	2.65	32.3	0.01			**302**
1	303	8.01	7.98	34.239	26.680	140.8	0.606	1.21	18.2	52.3	2.66	32.5	0.01			**305**
1	360	7.39	7.35	34.263	26.789	131.0	0.683	0.79	11.7	61.2	2.88	35.1	0.00			**362**
	400 ISL	7.08	7.04	34.274	26.841	126.4	0.735	0.62	9.1	65.9	2.97	36.3	0.01			**403**
1	427	6.91	6.87	34.281	26.870	124.0	0.769	0.54	7.9	68.8	3.02	37.0	0.01			**430**
	500 ISL	6.50	6.45	34.313	26.951	117.0	0.857	0.35	5.1	76.7	3.11	38.4	0.00			**503**
1	502	6.49	6.44	34.314	26.953	116.9	0.859	0.35	5.1	76.9	3.11	38.4	0.00			**505**
1	587	5.93	5.88	34.322	27.032	109.9	0.955	0.25	3.6	83.6	3.19	39.8	0.00			**591**

RV DAVID STARR JORDAN CALCOFI CRUISE 9003 STATION 93 45

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
32 20.8 N	118 33.3 W	06/03/90	015A UTC	187 9 M	290	25 KT	310 08 06	1	1019.0 MB	12.9 C	10.3 C	3/8	CU

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	POA UM/L	NO3 UM/L	NO2 UM/L	CHL-A UG/L	PHAEO UG/L	PRESS D.BAR
	0	ISL	1A.30	1A.30	33.556	25.009	293.9	0.000	6.00	103.1	2.3	0.38	0.1	0.00	0.32	0.08	0
2	3		1A.30	1A.30	33.556	25.009	29A.0	0.009	6.00	103.1	2.3	0.38	0.1	0.00	0.32	0.08	3
	10	ISL	1A.30	1A.30	33.555	2-5.009	29A.2	0.029	6.01	103.2	2.2	0.38	0.0	0.00	0.32	0.08	10
2	13		1A.30	1A.30	33.555	25.009	29A.3	0.038	6.01	103.2	2.1	0.38	0.0	0.00	0.32	0.08	13
	20	ISL	1A.31	1A.31	33.555	25.007	29A.7	0.059	6.01	103.3	2.0	0.38	0.0	0.00	0.33	0.08	20
2	23		1A.31	1A.31	33.555	25.007	29A.8	0.068	6.01	103.3	2.0	0.38	0.0	0.00	0.33	0.08	23
	30	ISL	1A.23	1A.23	33.553	25.023	293.5	0.088	6.01	103.1	1.9	0.38	0.0	0.00	0.35	0.09	30
1	33	P	1A.17	1A.17	33.552	25.035	292.A	0.097	6.01	103.0	1.9	0.38	0.0	0.00	0.36	0.10	33
1	50	P	13.59	13.58	33.5A6	25.150	281.9	0.1A6	5.92	100.2	2.2	0.A5	0.3	0.02	0.67	0.27	50
1	61	P	12.21	12.20	33.A98	25.385	259.7	0.176	A.92	80.9	8.A	0.91	7.5	0.22	0.29	0.27	61
1	75	P	11.20	11.19	33.5A3	25.607	238.8	0.211	A.11	66.1	1A.2	1.30	1A.A	0.05	0.1A	0.16	75
1	90	P	10.77	10.76	33.593	25.723	228.1	0.2A6	3.92	62.5	16.1	1.A2	16.2	0.0A	0.09	0.1A	90
	100	ISL	10.A9	10.A8	33.670	25.832	217.9	0.268	3.66	58.0	18.3	1.5A	18.1	0.03	0.07	0.12	100
1	109	P	10.26	10.25	33.7A5	25.930	208.7	0.287	3.Al	53.8	20.5	1.6A	19.9	0.02	0.06	0.11	II0
	125	ISL	9.95	9.9A	33.828	26.0A8	197.9	0.320	3.18	A9.9	23.6	1.77	21.9	0.01	0.0A	0.09	126
1	135	P	9.79	9.77	33.870	26.108	192.A	0.339	3.08	A8.2	25.3	1.83	22.9	0.01	0.03	0.08	136
	150	ISL	9.59	9.57	33.9A0	26.196	18A.3	0.367	2.90	A5.2	27.6	1.91	2A.2	0.01	0.03	0.08	151
1	166	P	9.39	9.37	3A.003	26.278	176.8	0.396	2.73	A2.3	30.0	1.98	25.3	0.01	0.03	0.07	167
1	200	P	8.8A	8.82	3A.06A	26.A1A	16A.3	0.A5A	2.AA	37.A	35.5	2.15	27.7	0.01			201
1	236	P	8.29	8.27	3A.108	26.53A	153.5	0.511	2.20	33.3	Al.5	2.30	29.5	0.00			237
	250	ISL	8.17	8.1A	3A.12A	26.565	150.7	0.533	2.05	31.0	A3.5	2.36	30.2	0.00			251
1	291	P	7.92	7.89	3A.168	26.637	1AA.5	0.593	1.58	23.7	A9.1	2.53	32.2	0.01			293
	300	ISL	7.86	7.83	3A.179	26.65A	1A3.0	0.606	1.A8	22.2	50.A	2.57	32.6	0.01			302
1	356	P	7.46	7.A3	3A.2A0	26.761	133.6	0.68A	0.91	13.5	58.3	2.82	3A.9	0.00			358
	A00	ISL	7.16	7.12	3A.276	26.832	127.A	0.7A1	0.61	9.0	6A.2	2.96	36.5	0.00			A03
1	A25	P	6.98	6.9A	3A.292	26.870	12A.1	0.772	0.A9	7.2	67.5	3.02	37.3	0.00			A28
	500	ISL	6.30	6.25	3A.320	26.983	113.8	0.862	0.30	A.3	78.1	3.16	39.A	0.00			503
1	502	P	6.28	6.23	3A.321	26.986	113.5	0.86A	0.30	A.3	78.A	3.16	39.5	0.00			505

RV DAVID STARR JORDAN CALCOFI CRUISE 9003 STATION 93 50

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
32 10.9 N	118 53.5 W	06/03/90	0700 UTC	1698 M	310	22 KT			1020.7 MB	12.2 C	11.1 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	POA UM/L	NO3 UM/L	NO2 UM/L	CHL-A UG/L	PHAEO UG/L	PRESS D.BAR
	0	ISL	1A.33	1A.33	33.53A	2A.986	296.1	0.000	5.96	102.A	3.7	0.40	0.0	0.01	0.29	0.08	0
1	1		1A.33	1A.33	33.53A	2A.986	296.1	0.003	5.96	102.A	3.7	0.A0	0.0	0.01	0.29	0.08	1
	10	ISL	1A.33	1A.33	33.536	2A.988	296.2	0.030	5.98	102.8	3.8	0.A0	0.0	0.01	0.28	0.08	10
1	12		1A.33	1A.33	33.536	2A.988	296.3	0.036	5.98	102.8	3.9	0.A0	0.0	0.01	0.28	0.08	12
	20	ISL	1A.3A	1A.3A	33.53A	2A.98A	296.8	0.059	5.98	102.8	A.l	0.Al	0.0	0.01	0.29	0.08	20
1	22		1A.3A	1A.3A	33.533	2A.98A	297.0	0.065	5.98	102.8	A.l	0.Al	0.0	0.01	0.29	0.08	22
	30	ISL	1A.33	1A.33	33.53A	2A.987	296.9	0.089	5.98	102.8	A.2	0.A0	0.0	0.01	0.28	0.08	30
1	33		1A.33	1A.33	33.534	2A.987	297.0	0.098	5.98	102.8	A.3	0.A0	0.0	0.01	0.28	0.08	33
1	44		1A.13	1A.12	33.53A	25.029	293.2	0.130	6.02	103.0	A.6	0.A0	0.0	0.02	0.37	0.12	AA
	50	ISL	13.65	13.6A	33.500	25.102	286.A	0.148	5.90	100.0	4.6	0.47	0.7	0.10	0.54	0.24	50
1	54		13.19	13.18	33.464	25.167	2 80.3	0.159	5.76	96.6	4.6	0.56	1.8	0.15	0.62	0.30	5A
1	65		11.29	11.28	33.313	25.412	257.1	0.189	5.06	81.5	12.5	0.97	8.9	0.09	0.27	0.20	65
	75	ISL	11.38	11.37	33.619	25.634	236.3	0.213	3.73	60.3	19.0	1.43	15.5	0.05	0.11	0.13	75
1	78		11.41	11.40	33.699	25.691	231.0	0.220	3.33	53.9	20.7	1.56	17.2	0.0A	0.08	0.11	78
1	95		11.20	11.19	33.852	25.848	216.4	0.258	2.59	41.8	25.2	1.89	20.6	0.03	0.03	0.08	95
	100	ISL	11.06	11.05	33.867	25.885	213.0	0.269	2.62	42.1	26.2	1.89	21.1	0.03	0.03	0.08	100
1	115		10.59	10.58	33.895	25.990	203.2	0.300	2.70	43.0	28.4	1.89	22.0	0.03	0.02	0.07	116
	125	ISL	10.37	10.36	33.938	26.062	196.6	0.320	2.65	42.0	28.4	1.93	22.9	0.03	0.02	0.06	126
1	136		10.15	10.13	33.986	26.138	189.6	0.342	2.58	40.7	28.6	1.98	23.8	0.03	0.02	0.05	137
	150	ISL	9.84	9.82	34.017	26.215	182.6	0.368	2.57	40.3	31.6	2.02	24.7	0.03	0.01	0.05	151
1	162		9.61	9.59	34.039	26.270	177.5	0.389	2.54	39.6	34.4	2.06	25.3	0.03	0.01	0.05	163
1	194		9.37	9.35	34.134	26.384	167.3	0.444	2.18	33.8	36.8	2.20	27.1	0.02	0.01	0.06	195
	200	ISL	9.31	9.29	34.141	26.400	166.0	0.454	2.16	33.5	37.3	2.22	27.3	0.02	0.01	0.06	201
1	231		8.94	8.92	34.161	26.475	159.3	0.505	2.06	31.7	40.6	2.29	28.3	0.02	0.01	0.06	232
	250	ISL	8.59	8.56	34.172	26.539	153.4	0.534	1.89	28.8	43.3	2.37	29.3	0.02			251
1	' 268		8.27	8.24													270
	300	ISL	8.04	8.01	34.207	26.650	143.5	0.608	1.35	20.3	50.8	2.60	32.2	0.01			302
1	310		8.00	7.97	34.215	26.662	142.5	0.623	1.23	18.5	52.4	2.65	32.8	0.01			312
1	366		7.58	7.54	34.274 -	26.771	133.0	0.700	0.72	10.7	60.0	2.88	35.0	0.01			368
	400	ISL	7.30	7.26	34.289	26.823	128.4	0.744	0.56	8.3	64.4	2.97	36.0	0.01			403
1	435		7.01	6.97	34.297	26.870	124.3	0.788	0.46	6.8	68.8	3.03	37.0	0.01			43 8
	500	ISL	6.53	6.48	34.315	26.949	117.3	0.867	0.32	4.7	76.7	3.13	38.7	0.00			503
1	508		6.47	6.42	34.317	26.958	116.4	0.876	0.31	4.5	77.6	3.14	38.9	0.00			511
1	592		5.96	5.91	34.345	27.047	108.7	0.971	0.26	3.7	86.9	3.25	40.3	0.00			**596**

RV DAVID STARR JORDAN CALCOFI CRUISE 9003 STATION 93 55

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT TYPE
32 0.9 N	119 14.1 W	06/03/90	1212 UTC	1360 M	310	19 KT			1020.0 MB	13.0 C	12.5 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 D.BAR
	0	ISL	14.14	14.14	33.536	25.027	292.2	0.000	6.02	103.1	2.6	0.37	0.0	0.01	0.29	0.07	0
1	1		14.14	14.14	33.536	25.027	292.2	0.003	6.02	103.1	2.6	0.37	0.0	0.01	0.29	0.07	1
	10	ISL	14.12	14.12	33.538	25.033	291.9	0.029	6.06	103.7	2.5	0.37	0.0	0.01	0.27	0.06	10
1	12		14.12	14.12	33.538	25.033	291.9	0.035	6.07	103.9	2.5	0.37	0.0	0.01	0.27	0.06	12
	20	ISL	14.11	14.11	33.539	25.036	291.9	0.058	6.05	103.5	2.4	0.37	0.0	0.01	0.28	0.07	20
1	24		14.11	14.11	33.540	25.037	291.9	0.070	6.04	103.3	2.4	0.37	0.0	0.01	0.28	0.07	24
	30	ISL	13.93	13.93	33.570	25.098	286.3	0.087	6.02	102.6	2.6	0.39	0.2	0.02	0.40	0.13	30
1	35		13.75	13.75	33.595	25.155	281.0	0.102	5.97	101.4	2.7	0.43	0.5	0.03	0.49	0.20	35
1	46		13.49	13.48	33.605	25.216	275.5	0.132	5.69	96.2	4.8	0.56	2.1	0.09	0.46	0.36	46
	50	ISL	12.87	12.86	33.572	25.314	266.2	0.143	5.25	87.6	7.4	0.77	5.5	0.14	0.39	0.34	50
1	57		11.70	11.69	33.532	25.507	248.0	0.161	4.46	72.5	12.1	1.16	11.8	0.19	0.27	0.29	57
1	67		10.99	10.98	33.581	25.674	232.2	0.185	4.01	64.3	15.7	1.38	15.8	0.05	0.22	0.29	67
	75	ISL	10.74	10.73	33.622	25.751	225.1	0.203	3.83	61.1	17.6	1.48	17.4	0.04	0.23	0.28	75
1	81		10.64	10.63	33.653	25.792	221.3	0.217	3.74	59.5	18.7	1.53	18.2	0.04	0.24	0.27	81
1	98		10.29	10.28	33.750	25.929	208.6	0.253	3.37	53.2	21.8	1.68	20.4	0.03	0.11	0.20	98
	100	ISL	10.23	10.22	33.765	25.951	206.6	0.257	3.32	52.4	22.3	1.70	20.7	0.03	0.10	0.19	100
1	119		9.70	9.69	33.898	26.144	188.5	0.295	2.95	46.0	26.9	1.88	23.7	0.02	0.03	0.07	120
	125	ISL	9.57	9.56	33.924	26.186	184.7	0.306	2.87	44.7	28.0	1.92	24.3	0.02	0.03	0.07	126
1	143		9.26	9.24	33.983	26.283	175.8	0.339	2.71	41.9	30.8	2.02	25.7	0.01	0.02	0.08	144
	150	ISL	9.17	9.15	34.007	26.316	172.7	0.351	2.69	41.5	31.6	2.04	25.9	0.01	0.02	0.08	151
1	169		9.01	. 8.99	34.069	26.391	166.0	0.383	2.59	39.8	33.7	2.09	26.5	0.01	0.01	0.06	170
1	200		8.88	8.86	34.158	26.481	158.0	0.433	2.06	31.6	38.7	2.30	28.4	0.01	0.01	0.05	201
1	236		8.47	8.45	34.164	26.550	152.0	0.489	1.91	29.0	42.7	2.38	29.7	0.01	0.01	0.05	237
	250	ISL	8.35	8.32	- 34.170	26.573	150.0	0.510	1.84	27.9	44.1	2.42	30.2	0.01			251
1	272		8.18	6.15	34.185	26.611	146.7	0.543	1.67	25.2	46.6	2.50	31.0	0.00			274
	300	ISL	8.01	7.98	34.227	26.670	141.6	0.583	1.30	19.6	50.5	2.64	32.6	0.00			302
1	312		7.92	7.89-	34.244	26.697	139.2	0.600	1.14	17.1	52.5	2.71	33.3	0.00			314
1	368		7.10	7.06	34.260	26.827	127.3	0.675	0.69	10.2	64.2	2.95	36.2	0.00			370
	400	ISL	6.82	6.78	34.274	26.877	122.9	0.715	0.55	8.1	68.7	3.03	37.3	0.00			403
1	436		6.59	6.55	34.287	26.918	119.3	0.758	0.45	6.6	72.4	3.08	38.3	0.00			439
	500	ISL	6.26	6.22	34.297	26.970	115.0	0.833	0.36	5.2	77.0	3.15	39.4	0.00			503
1	509		6.22	6.17	34.298	26.976	114.5	0.843	0.35	5.1	77.6	3.16	39.5	0.00			512
1	590		5.84	5.79	34.315	27.038	109.3	0.934									594

RV DAVID STARR JORDAN CALCOFI CRUISE 9003 STATION 93 60

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT TYPE
31 50.8 N	119 34.4 W	06/03/90	1621 UTC	2999 M	310	17 KT	330 05 05	0	1021.5 MB	15.0 C	13.5 C	0/8

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 D.BAR
	0	ISL	14.10	14.10	33.539	25.038	291.1	0.000	6.03	103.2	2.0	0.39	0.0	0.00	0.38	0.11	0
1	1		14.10	14.10	33.539	25.038	291.2	0.003	6.03	103.2	2.0	0.39	0.0	0.00	0.38	0.11	1
	10	ISL	14.08	14.08	33.539	25.042	291.0	0.029	6.03	103.1	2.0	0.39	0.0	0.00	0.38	0.10	10
1	12		14.07	14.07	33.539	25.045	290.8	0.035	6.03	103.1	2.0	0.39	0.0	0.00	0.38	0.10	12
	20	ISL	14.06	14.06	33.538	25.046	290.9	0.058	6.02	102.9	2.0	0.39	0.0	0.00	0.39	0.11	20
1	22		14.06	14.06	33.538	25.046	291.0 -	0.064	6.02	102.9	2.0	0.39	0.0	0.00	0.39	0.11	22
	30	ISL	14.05	14.05	33.541	25.051	290.8	0.087	6.02	102.9	2.0	0.39	0.0	0.00	0.40	0.11	30
1	32		14.05	14.05	33.542	25.052	290.8	0.093	6.02	102.9	2.0	0.39	0.0	0.00	0.40	0.11	32
1	43		14.00	13.99	33.546	25.065	2 89.8	0.125	6.01	102.6	1.8	0.40	0.0	0.00	0.42	0.12	43
	50	ISL	13.82	13.81	33.593	25.139	2 83.0	0.145	5.91	100.5	2.8	0.45	0.8	0.03	0.43	0.25	50
1	53		13.67	13.66	33.613	25.186	278.6	0.154	5.80	98.4	3.2	0.50	1.1	0.05	0.44	0.31	53
1	63		12.71	12.70	33.623	25.385	259.8	0.180	4.98	82.8	9.0	0.91	7.5	0.19	0.30	0.35	63
	75	ISL	10.89	10.88	33.691	25.778	222.5	0.209	3.78	60.5	18.3	1.50	17.5	0.08	0.21	"0.30	75
1	78		10.46	10.45	33.719	25.875	213.3	0.216	3.52	55.8	20.5	1.63	19.7	0.04	0.19	0.28	78
1	93		9.70	9.69	33.864	26.117	190.5	0.246	3.02	47.1	25.9	1.86	23.5	0.01	0.10	0.12	93
	100	ISL	9.55	9.'54	33.896	26.167	185.9	0.259	2.92	45.4	27.2	1.91	24.3	0.01	0.07.	0.11	100
1	114		9.39	9.38	.33.937	26.225	180.6	0.285	2.82	43.7	29.2	1.96	25.0	0.01	0.04	0.10	115
	125	ISL	9.18	9.17	33.984	26.296	174.1	0.305	2.73-	42.1	31.4	2.01	25.8	0.01	0.03	0.07	126
1	135		9.00	8.99	34.024	26.357	168.6	0.322	2.65	40.8	33.3	2.06	26.4	0.01	0.02	0.05	136
	150	ISL	8.82	8.80	34.056	26.410	163.7	0.347	2.53 .	38.8	35.2	2.12	27.2	0.00	0.02	0.06	151
1	161		8.72	8.70	34.071	26.438	161.3	0.364	2.44	37.3	36.3	2.16	27.7	0.00	0.02	0.07	162
1	192		8.53	8.51	34.111	26.499	156.0	0.414	2.17	33.0	39.7	2.28	29.0	0.00	0.01	0.05	193
	200	ISL	8.47	8.45	34.123	26.518	154.4	0.426	2.07	31.5	40.9	2.32	29.4	0.00	0.01	0.05	201
1	227		8.23	8.21	34.163	26.586	148.3	0.467	1.70	25.7	45.3	2.47	31.0	0.00	0.02	0.06	228
	250	ISL	7.99	7.96	34.194	26.646	142.9	0.500	1.38	20.8	49.7	2.60	32.5	0.00			251
1	264		7.85	7.82	34.211	26.681	139.9	0.520	1.21	18.1	52.3	2.67	33.3	0.00			266
	300	ISL	7.63	7.60	34.245	26.740	134.8	0.570	0.98	14.6	56.6	2.78	34.0	0.00			302
1	305		7.60	7.57	34.248	26.746	134.2	0.576	0.96	14.3	57.1	2.79	34.1	0.00			307
1	365		7.13	7.10	34.259	26.822	127.7	0.655	0.71	10.5	63.6	2.93	36.0	0.00			367
	400	ISL	6.85	6.81	34.276	26.874	123.1	0.699	0.55	8.1	68.6	3.02	37.3	0.00			403
1	431		6.62	6.58	34.293	26.919	119.1	0.736	0.42	6.1	72.9	3.10	38.3	0.00			434
	500	ISL	6.21	6.17	34.320	26.995	112.6	0.816	0.31	4.5	79.8	3.18	39.6	0.00			503
1	503		6.19	6.15	34.321	26.998	112.3	0.820	0.31	4.5	80.0	3.18	39.6	0.00			506
1	585		5.81	5.76	34.338	27.060	107.2	0.910	0.26	3.7	86.2	3.24	40.9 '	0.00			589

RV DAVID STARR JORDAN CALCOFI CRUISE 9003 STATION 93 70

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
31 30.8 N	120 14.7 W	07/03/90	0015 UTC	1912 M	320	16 KT	320 06 10	1	1021.0 MB	14.8 C	13.2 C	6/8	CC

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 D.BAR
1	0		13.79	13.79	33.521	25.088	286.4	0.000	6.09	103.5	2.5	0.42	0.0	0.00	0.54	0.16	0
	10	ISL	13.77	13.77	33.525	25.096	285.9	0.029	6.10	103.6	2.3	0.41	0.0	0.00	0.54	0.17	10
1	16		13.76	13.76	33.527	25.100	285.7	0.046	6.11	103.8	2.2	0.41	0.0	0.00	0.54	0.17	16
	20	ISL	13.75	13.75	33.526	25.101	285.7	0.057	6.10	103.6	2.2	0.41	0.0	0.00	0.55	0.18	20
1	30		13.71	13.71	33.522	25.106	285.5	0.086	6.08	103.2	2.2	0.41	0.0	0.00	0.57	0.19	30
1	39		13.63	13.62	33.520	25.122	284.3	0.111	6.02	102.0	2.3	0.43	0.0	0.01	0.59	0.25	39
1	49		13.29	13.28	33.516	25.188	278.3	0.140	5.83	98.1	3.0	0.56	0.9	0.10	0.30	0.22	49
	50	ISL	13.28	13.27	33.519	25.192	277.9	0.142	5.81	97.7	3.1	0.56	1.0	0.10	0.29	0.22	50
1	58		13.08	13.07	33.514	25.228	274.6	0.164			3.7	0.58	1.7	0.14	0.23	0.20	58
1	68		11.93	11.92	33.393	25.356	262.6	0.191	5.20	84.9	8.0	0.90	7.3	0.23	0.10	0.20	68
	75	ISL	11.15	11.14	33.417	25.518	247.2	0.209	4.72	75.8	11.5	1.12	11.5	0.12	0.08	0.16	75
1	77		10.96	10.95	33.434	25.565	242.8	0.214	4.59	73.4	12.4	1.18	12.6	0.08	0.08	0.15	77
1	91		10.51	10.50	33.542	25.729	227.5	0.247	4.14	65.6	15.8	1.39	16.2	0.02	0.05	0.12	91
	100	ISL	10.26	10.25	33.640	25.848	216.3	0.267	3.80	59.9	18.7	1.53	18.6	0.02	0.04	0.10	100
1	106		10.12	10.11	33.709	25.926	209.0	0.280	3.58	56.3	20.7	1.62	20.1	0.02	0.03	0.09	107
1	121		9.95	9.94	33.865	26.077	195.0	0.310	3.10	48.6	24.5	1.80	22.3	0.01	0.02	0.09	122
	125	ISL	9.90	9.89	33.896	26.109	192.0	0.318	3.02	47.3	25.3	1.84	22.8	0.01	0.02	0.09	126
1	145		9.62	9.60	34.011	26.246	179.4	0.355	2.72	42.4	29.1	1.98	24.7	0.01	0.01	0.08	146
	150	ISL	9.55	9.53	34.035	26.277	176.6	0.364	2.66	41.4	30.1	2.01	25.1	0.01	0.01	0.08	151
1	169		9.27	9.25	34.105	26.377	167.4	0.396	2.45	37.9	33.6	2.11	26.6	0.01	0.01	0.07	170
1	199		8.81	8.79	34.132	26.472	158.8	0.445	2.20	33.7	37.5	2.24	28.2	0.01	0.01	0.06	200
	200	ISL	8.80	8.78	34.133	26.474	158.6	0.447	2.19	33.5	37.6	2.24	28.2	0.01			201
1	228		8.55	8.53	34.147	26.525	154.3	0.491	2.04.	31.1	40.2	2.32	29.2	0.01			229
	250	ISL	8.32	8.29	34.162	26.572	150.1	0.524	1.85	28.0	43.4	2.41	30.3	0.01			251
1	267		8.15	8.12	34.178	26.610	146.7	0.549	1.66	25.1	46.3	2.50	31.2	0.01			269
	300	ISL	7.86	7.83	34.226	26.691	139.5	0.597	1.16	17.4	52.7	2.70	33.2	0.00			302
1	320		7.71	7.68	34.253	26.735	135.6	0.624	0.89	13.3	56.3	2.81	34.3	0.00			322
1	380		7.31	7.27	34.263	26.800	130.2	0.704	0.72	10.7	61.3	2.91	35.6	0.00			382
	400	ISL	7.12	7.08	34.270	26.833	127.3	0.730	0.64	9.4	64.2	2.96	36.3	0.00			403
2	449		6.65	6.61	34.290	26.913	120.0	0.790	0.46	6.7	71.6	3.09	38.1	0.00			452
	500	ISL	6.30	6.25	34.306	26.972	114.9	0.850	0.35	5.1	77.5	3.15	39.4	0.00			503
2	520		6.16	6.11	34.313	26.996	112.8	0.873	0.30	4.3	79.8	3.18	39.9	0.00			524

RV DAVID STARR JORDAN CALCOFI CRUISE 9003 STATION 93 80

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
31 10.8 N	120 55.3 W	07/03/90	0743 UTC	3824 M	310	15 KT			1020.2 MB	13.2 C	11.9 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 D.BAR
	0	ISL	13.78	13.78	33.339'	24.950	299.5	0.000	6.08	103.2	3.4	0.40	0.0	0.00	0.21	0.05	0
1	1		13.78	13.78	33.339	24.950	299.6	0.003	6.08	103.2	3.4	0.40	0.0	0.00	0.21	0.05	1
	10	ISL	13.77	13.77	33.339	24.952	299.6	0.030	6.07	103.0	3.3	0.40	0.0	0.00	0.20	0.06	10
1	15		13.77	13.77	33.339	24.952	299.7	0.045	6.07	103.0	3.3	0.40	0.0	0.00	0.20	0.06	15
	20	ISL	13.77	13.77	33.339	24.952	299.9	0.060	6.07	103.0	3.3	0.40	0.0	0.00	0.20	0.06	20
1	30		13.78	13.78	33.339	24.951	300.3	0.090	6.08	103.2	3.3	0.39	0.0	0.00	0.21	0.06	30
1	40		13.75	13.74	33.354	24.969	298.9	0.120	6.09	103.3	3.1	0.40	0.0	0.00	0.26	0.08	40
1	50		13.51	13.50	33.369	25.029	293.4	0.150	6.07	102.5	3.2	0.42	0.1	0.02	0.49	0.19	50
1	60		13.03	13.02	33.375	25.130	284.0	0.178	5.92	98.9	4.0	0.50	1.0	0.12	0.33	0.19	60
1	69		13.00	12.99	33.408	25.162	281.2	0.204	5.87	98.1	4.3	0.54	1.4	0.15	0.22	0.16	69
	75	ISL	12.80	12.79	33.391	25.188	278.8	0.221	5.81	96.6	4.6	0.58	2.0	0.19	0.19	0.15	75
1	79		12.58	12.57	33.373	25.217	276.1	0.232	5.73	94.9	4.8	0.62	2.8	0.20	0.17	0.15	79
1	93		11.20	11.19	33.335	25.446	254.5	0.269	5.00	80.4	10.0	1.03	10.0	0.06	0.11	0.14	93
	100	ISL	10.78	10.77	33.438	25.601	239.9	0.286	4.52	72.0	13.6	1.25	13.8	0.03	0.09	0.12	100
1	108		10.40	10.39	33.564	25.765	224.4	0.305	4.07	64.4	17.2	1.45	17.3	0.02	0.08	0.10	109
1	124		9.54	9.53	33.581	25.923	209.6	0.339	4.13	64.1	19.3	1.51	18.9	0.01	0.03	0.05	125
	125	ISL	9.50	9.49	33.589	25.936	208.4	0.342	4.11	63.7	19.6	1.52	19.1	0.01	0.03	0.05	126
1	148		8.90	8.88	33.808	26.203	183.3	0.387	3.50	53.6	26.4	1.79	23.7	0.01	0.01	0.04	149
	150	ISL	8.86	8.84	33.822	26.221	181.7	0.390	3.50	53.6	26.8	1.79	23.8	0.01	0.01	0.04	151
1	173		8.53	8.51	33.944	26.368	168.1	0.430	3.52	53.5	30.1	1.80	24.4	0.00	0.01	0.03	174
	200	ISL	8.14	8.12	33.989	26.462	159.5	0.475	3.28	49.5	33.8	1.89	25.8	0.00	0.01	0.03	201
1	204		8.08	8.06	33.992	26.474	158.4	0.481	3.21	48.3	34.5	1.92	26.1	0.00	0.01	0.03	205
1	231		7.72	7.70	34.054	26.575	149.1	0.523	2.47	36.9	43.4	2.25	30.0	0.00			232
	250	ISL	7.50	7.48	34.071	26.621	145.0	0.550	2.21	32.8	47.4	2.37	31.4	0.00			251
1	271		7.28	7.25	34.080	26.659	141.6	0.581	2.02	29.9	50.9	2.46	32.4	0.00			273
	300	ISL	6.99	6.96	34.100	26.715	136.6	0.621	1.66	24.4	56.3	2.61	34.3	0.00			302
1	326		6.76	6.73	34.123	26.765	132.2	0.656	1.35	19.7	61.0	2.74	35.8	0.00			328
1	386		6.46	6.43	34.205	26.870	122.9	0.732	0.74	10.7	70.3	2.98	38.1	0.00			388
	400	ISL	6.38	6.34	34.220	26.892	120.9	0.749	0.65	9.4	72.3	3.02	38.5	0.00			403
1	451		6.09	6.05	34.264	26.965	114.6	0.810	0.42	6.0	78.9	3.13	39.9	0.00			"454
	500	ISL	5.86	5.82	34.297	27.020	109.8	0.865	0.31	4.4	83.8	3.19	40.8	0.00			503
1	520		5.77	5.73	34.311	27.043	107.8	0.886	0.27	3.9	85.8	3.22	41.1	0.00			524

RV DAVID STARR JORDAN CALCOFI CRUISE 9003 STATION 93 90

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	HAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
30 50.9 N	121 35.4 W	07/03/90	1445 UTC	4103 M	320	10 KT			1019.0 MB	14.1 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 D.BAR
	0	ISL	14.07	14.07	33.360	24.906	303.7	0.000	6.00	102.5	2.8	0.39	0.0	0.00	0.19	0.05	0
1	2		14.07	14.07	33,360	24.906	303.7	0.006	6.00	102.5	2.8	0.39	0.0	0.00	0.19	0.05	2
	10	ISL	14.06	14.06	33.360	24.908	303.8	0.030	6.01	102.6	2.7	0.39	0.0	0.00	0.19	0.05	10
1	16		14.04	14.04	33.359	24.912	303.6	0.049	6.02	102.7	2.7	0.39	0.0	0.00	0.19	0.05	16
	20	ISL	14.03	14.03	33.358	24.913	303.6	0.061	6.02	102.7	2.7	0.39	0.0	0.00	0.20	0.05	20
	30	ISL	14.01	14.01	33.355	24.916	303.6	0.091	6.02	102.7	2.7	0.40	0.0	0.00	0.21	0.05	30
1	32		14.00	14.00	33.355	24.918	303.5	0.097	6.02	102.7	2.7	0.40	0.0	0.00	0.21	0.05	32
1	41		13.03	13.02	33.262	25.042	291.8	0.124	5.99	100.0	3.4	0.48	0.8	0.10	0.38	0.15	41
	50	ISL	12.87	12.86	33.343	25.137	283.1	0.150	6.11	101.8	3.6	0.49	0.8	0.06	0.42	0.19	50
1	51		12.85	12.84	33.349	25.146	2 82.3	0.153	6.12	101.9	3.6	0.49	0.8	0.05	0.42	0.19	51
1	62		12.53	12.52	33.338	25.200	277.4	0.183	5.99	99.0	3.9	0.55	1.8	0.10	0.43	0.25	62
1	73		12.42	12.41	33.360	25.238	274.0	0.214	5.95	98.2	4.1	0.58	2.1	0.13	0.27	0.18	73
	75	ISL	12.36	12.35	33.362	25.251	272.8	0.219	5.93	97.7	4.3	0.60	2.4	0.16	0.23	0.16	75
1	80		12.14	12.13	33.357	25.289	269.3	0.233	5.85	95.9	5.0	0.66	3.4	0.22	0.15	0.11	80
1	96		10.57	10.56	33.186	25.441	254.9	0.275	5.54	87.7	7.8	0.90	8.2	0.08	0.09	0.10	96
	100	ISL	10.54	10.53	33.235	25.484	250.9	0.285	5.39	85.3	8.5	0.95	9.2	0.06	0.08	0.09	100
1	112		10.45	10.44	33.399	25.628	237.5	0.314	4.90	77.5	11.3	1.10	12.2	0.01	0.05	0.06	113
1	125		9.87	9.86	33.496	25.802	221.1	0.344	4.46	69.7	15.8	1.35	16.3	0.01	0.03	0.04	126
1	149		9.40	9.38	33.745	26.074	195.7	0.394	3.86	59.8	21.8	1.58	20.6	0.01	0.01	0.02	150
	150	ISL	9.38	9.36	33.754	26.085	194.7	0.396	3.84	59.5	22.1	1.59	20.8	0.01	0.01	0.02	151
1	174		8.84	8.82	33.916	26.298	174.8	0.440	3.49	53.4	27.8	1.78	23.7	0.00	0.00	0.02	175
	200	ISL	8.47	8.45	33.984	26.409	164.7	0.484	3.34	50.7	31.6	1.87	25.1	0.00	0.00	0.02	201
1	204		8.42	8.40	33.989	26.420	163.7	0.491	3.32	50.4	32.2	1.88	25.3	0.00	0.00	0.02	205
1	233		7.98	7.96	34.029	26.518	154.7	0.537	2.94	44.2	38.6	2.06	27.7	0.00			234
	250	ISL	7.74	7.72	34.045	26.566	150.4	0.563	2.70	40.3	42.2	2.17	29.1	0.00			251
1	272		7.44	7.41	34.059	26.620	145.5	0.596	2.39	35.5	46.8	2.31	30.8	0.00			274
	300	ISL	6.99	6.96	34.059	26.683	139.7	0.636	2.09	30.7	53.1	2.46	32.9	0.00			302
1	326		6.61	6.58	34.059	26.734	134.9	0.671	1.82	26.5	58.9	2.58	34.7	0.00			328
1	384		6.10	6.07	34.114	26.844	125.0	0.747	1.09	15.7	70.6	2.87	38.3	0.00			386
	400	ISL	6.00	5.97	34.129	26.869	122.8	0.766	0.96	13.8	73.1	2.92	39.0	0.00			402
1	448		5.75	5.71	34.173	26.935	116.9	0.824	0.68	9.7	79.5	3.05	40.4	0.00			451
	500	ISL	5.53	5.49	34.226	27.004	110.9	0.883	0.47	6.7	86.0	3.15	41.2	0.00			503
1	518		5.46	5.42	34.244	27.027	108.9	0.903	0.40	5.7	88.2	3.18	41.5	0.00			**521**

RV DAVID STARR JORDAN CALCOFI CRUISE 9003 STATION 93 100

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
30 30.8 N	122 15.6 W	08/03/90	0719 UTC	3644 M	360	14 KT			1018.6 MB	14.1 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 D.BAR
	0	ISL	15.26	15.26	33.491	24.753	318.3	0.000	5.82	101.9	3.0	0.35	0.0	0.00	0.08	0.02	0
1	1		15.26	15.26	33.491	24.753	318.3	0.003	5.82	101.9	3.0	0.35	0.0	0.00	0.08	0.02	1
	10	ISL	15.24	15.24	33.492	24.758	318.1	0.032	5.82	101.9	2.9	0.35	0.0	0.00	0.09	0.02	10
1	11		15.24	15.24	33.492	24.758	318.1	0.035	5.82	101.9	2.9	0.35	0.0	0.00	0.09	0.02	11
	20	ISL	15.25	15.25	33.490	24.755	318.7	0.064	5.82	101.9	2.9	0.35	0.0	0.00	0.09	0.02	20
1	21		15.25	15.25	33.490	24.755	318.8	0.067	5.82	101.9	2.9	0.35	0.0	0.00	0.09	0.02	21
	30	ISL	15.25	15.25	33.490	24.755	319.0	0.096	5.84	102.2	2.9	0.35	0.0	0.00	0.08	0.02	30
1	31		15.25	15.25	33.490	24.755	319.0	0.099	5.84	102.2	2.9	0.35	0.0	0.00	0.08	0.02	31
1	41		15.25	15.24	33.489	24.755	319.4	0.131	5.84	102.2	3.0	0.35	0.0	0.00	0.09	0.03	41
1	50		15.25	15.24	33.489	24.755	319.6	0.159	5.83	102.0	2.8	0.35	0.0	0.00	0.10	0.02	50
1	60		15.22	15.21	33.482	24.757	319.8	0.191	5.85	102.3	2.8	0.35	0.0	0.00	0.10	0.03	60
1	70		15.08	15.07	33.453	24.765	319.3	0.223	5.85	102.0	3.0	0.35	0.0	0.00	0.15	0.05	70
	75	ISL	14.92	14.91	33.432	24.784	317.6	0.239	5.86	101.8	3.0	0.36	0.0	0.00	0.20	0.08	75
1	84		14.51	14.50	33.391	24.840	312.4	0.268	5.88	101.3	3.0	0.39	0.0	0.00	0.29	0.15	84
1	98		13.70	13.69	33.332	24.964	301.0	0.311	5.89	99.8	2.9	0.43	0.3	0.09	0.33	0.19	98
	100	ISL	13.51	13.50	33.318	24.991	298.4	0.317	5.87	99.0	3.1	0.45	0.7	0.09	0.32	0.19	100
1	119		11.67	11.65	33.241	25.288	270.3	0.371	5.57	90.4	5.8	0.73	5.3	0.03	0.17	0.15	120
	125	ISL	11.33	11.31	33.261	25.366	262.9	0.387	5.44	87.6	6.9	0.82	6.8	0.02	0.13	0.13	126
1	144		10.58	10.56	33.389	25.598	241.1	0.434	4.95	78.5	11.0	1.09	11.7	0.01	0.05	0.06	145
	150	ISL	10.39	10.37	33.445	25.675	233.9	0.449	4.75	75.0	12.6	1.18	13.3	0.01	0.04	0.05	151
1	173		9.77	9.75	33.680	25.963	206.8	0.499	3.95	61.7	19.8	1.53	19.1	0.00	0.01	0.03	174
	200	ISL	9.12	9.10	33.934	26.268	178.3	0.551	3.05	47.0	29.1	1.92	24.9	0.00	0.00	0.02	201
1	202		9.08	9.06	33.950	26.287	176.5	0.555	2.99	46.0	29.8	1.94	25.2	0.00	0.00	0.02	203
1	231		8.65	8.63	34.067	26.447	161.8	0.604	2.45	37.4	36.5	2.17	28.1 '	0.00			232
	250	ISL	8.44	8.41	34.117	26.518	155.3	0.634	2.11	32.1	40.6	2.31	29.6	0.00			**251**
1	271		8.25	8.22	34.157	26.579	149.8	0.666	1.76	26.6	44.7	2.45	31.0	0.00			**272**
	300	ISL	8.10	8.07	34.201	26.636	144.8	0.709	1.39	21.0	48.6	2.60	32.3	0.00			**302**
1	326		7.97	7.94	34.229	26.678	141.3	0.746	1.12	16.8	51.7	2.71	33.3	0.00			**328**
1	384		7.41	7.37	34.277	26.797	130.6	0.825	0.63	9.4	61.4	2.94	35.8	0.00			**386**
	400	ISL	7.19	7.15	34.278	26.829	127.7	0.846	0.56	8.3	64.4	2.99	36.6	0.00			**402**
1	449		6.59	6.55	34.279	26.912	120.0	0.906	0.44	6.4	72.5	3.10	38.5	0.00			**452**
	500	ISL	6.38	6.33	34.300	26.957	116.4	0.967	0.34	4.9	76.2	3.16	39.1	0.00			**503**
1	518		6.30	6.25	34.308	26.974	114.9	0.987	0.31	4.5	77.5	3.18	39.3	0.00			**521**

PRIMARY PRODUCTIVITY CASTS

RV DAVID STARR JORDAN — CALCOFI CRUISE 9003 — STATION 77 77

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI DEPTH	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
34 10.4 N	122 43.4 W	18/ 3/90	1942 UTC	11 M	1214 - 1841 PST	1216 PST	1841 PST	392.5 MG C/M2

DEPTH M	TEMP DEG C	SALINITY PSS 78	SIGMA THETA	DISS O2 ML/L	OXY PCT	SIO3 UM/L	PO4 UM/L	NO3 UM/L	NO2 UM/L	CHL UG/L	PHAEO UG/L	LIGHT PCT	UPTAKE (MG C/M3) 1	2	MEAN	DARK
1	12.46	33.236	25.132	6.43	106.1	4.6	0.46	0.5	0.04	0.78	0.19	95.	11.8	11.9	11.9	0.13
9	12.37	33.235	25.149	6.45	106.2	4.5	0.45	0.5	0.05	0.82	0.18	31.	15.1	15.7	15.4	0.18
17	12.30	33.233	25.161	6.44	105.9	4.7	0.45	0.5	0.05	0.97	0.24	10.	13.7	14.4	14.0	0.19
27	12.14	33.237	25.195	6.42	105.2	4.5	0.46	0.5	0.05	1.00	0.32	3.1	6.4	6.6	6.5	0.15
31	12.13	33.250	25.207	6.33	103.7	4.5	0.48	0.8	0.07	1.03	0.39	1.4	2.9	3.5	3.2	0.11
50	12.20	33.307	25.238	6.13	100.6	4.9	0.55	1.7	0.21	0.42 A	0.24 A	0.10	0.16	0.16	0.16	0.07
60	11.86	33.304	25.300	5.96	97.1	5.6	0.64	3.4	0.43	0.23	0.17					
70	11.30	33.277	25.382	5.66	91.1	7.3	0.81	6.5	0.21	0.17	0.16					
83	10.75	33.295	25.494	5.28	84.0	9.8	1.02	10.0	0.15	0.11	0.16					
99	10.31	33.415	25.664	4.83	76.2	13.8	1.24	13.7	0.13	0.07	0.18					
118	9.76	33.694	25.975	3.57	55.7	22.3	1.69	21.0	0.02	0.04	0.15					
142	9.14	33.890	26.229	2.98	45.9	29.1	1.93	25.1	0.01	0.02	0.08					
174	8.45	33.934	26.372	3.04	46.1	32.9	1.99	26.7	0.00	0.00	0.07					
204	8.09	33.997	26.476	2.69	40.5	38.1	2.14	28.8	0.00	0.00	0.05					

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

RV DAVID STARR JORDAN — CALCOFI CRUISE 9003 — STATION 80 75

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI DEPTH	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
33 37.9 N	122 12.9 W	17/ 3/90	1916 UTC	22 M	1216 - 1849 PST	1216 PST	1848 PST	301.5 MG C/M2

DEPTH M	TEMP DEG C	SALINITY PSS 78	SIGMA THETA	DISS O2 ML/L	OXY PCT	SIO3 UM/L	PO4 UM/L	NO3 UM/L	NO2 UM/L	CHL UG/L	PHAEO UG/L	LIGHT PCT	UPTAKE (MG C/M3) 1	2	MEAN	DARK
0	13.95	33.307	24.890	6.01	102.4	3.1	0.39	0.o'	0.00	0.18	0.06	95.	1.4	1.2	1.3	0.07
16	13.39	33.264	24.971	6.13	103.2	3.4	0.41	0.0	0.01	0.47	0.13	31.	6.2	6.4	6.3	0.10
32	12.57	33.199	25.083	6.25	103.4	3.8	0.45	0.3	0.03	0.66	0.23	10.	7.4	7.4	7.4	0.10
50	12.14	33.189	25.158	5.94	97.3	4.6	0.60	2.4	0.17	0.41	0.24	3.1	2.7	3.0	2.8	0.06
60	11.79	33.219	25.247	5.95	96.8	5.3	0.65	3.3	0.27	0.28	0.17	1.4	1.0	1.1	1.1	0.05
95	10.09	33.373	25.669	4.53	71.1	15.5	1.40	16.4	0.02	0.05	0.09	0.10	0.02	0.03	0.03	0.04
117	9.55	33.553	25.899	3.91	60.7	20.7	1.66	20.5	0.01	0.02	0.06					
142	8.86	33.693	26.119	3.87	59.2	24.1	1.68	21.7	0.01	0.02	0.03					
171	8.39	33.885	26.343	3.46	52.4	30.9	1.86	24.8	0.01	0.01	0.02					
203	8.17	33.932	26.413	3.40	51.3	33.3	1.91	25.7	0.01	0.01	0.02					

RV DAVID STARR JORDAN — CALCOFI CRUISE 9003 — STATION 82 44

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI DEPTH	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
34 14.9 N	119 43.8 W	16/ 3/90	1937 UTC	7 M	1208 - 1832 PST	1208 PST	1833 PST	785.7 MG C/M2

DEPTH M	TEMP DEG C	SALINITY PSS 78	SIGMA THETA	DISS O2 ML/L	OXY PCT	SIO3 UM/L	PO4 UM/L	NO3 UM/L	NO2 UM/L	CHL UG/L	PHAEO UG/L	LIGHT PCT	UPTAKE (MG C/M3) 1	2	MEAN	DARK
1	12.45	33.695	25.490	5.99	99.1	10.0	0.80	6.0	0.18	2.06	0.59	95.	46.9	42.3	44.6	0.29
5	12.18	33.696	25.543	6.02	99.0	9.8	0.79	5.9	0.18	2.29	0.69	31.	54.8	56.1	55.5	0.34
10	12.05	33.695	25.567	6.01	98.6	9.9	0.79	6.0	0.18	2.30	0.64	10.	39.6	42.4	41.0	0.36
16	11.81	33.697	25.614	6.02	98.3	10.2	0.81	6.3	0.18	3.07	1.60	3.1	23.7	22.7	23.2	0.36
19	11.69	33.697	25.636	5.99	97.5	10.5	0.81	6.4	0.16	3.54	1.40	1.4	8.8	8.8	8.8	0.29
32	11.00	33.763	25.814	3.85	61.8	19.0	1.49	16.4	0.34	0.61	0.99	0.10	0.21	0.35	0.28	0.11
50	10.14	33.865	26.043	2.80	44.1	26.6	1.87	22.5	0.20	0.10	0.71					
59	10.01	33.892	26.087	2.64	41.5	27.8	1.95	23.5	0.08	0.07	0.48					
69	9.94	33.926	26.125	2.55	40.0	27.8	1.99	24.2	0.04	0.07	0.34					
83	9.68	34.012	26.236	2.33	36.4	31.0	2.10	25.7	0.02	0.04	0.32					
102	9.50	34.019	26.271	2.21	34.4	32.3	2.13	26.7	0.03	0.06	0.37					
122	9.28	34.071	26.348	2.04	31.6	35.0	2.19	27.7	0.03	0.03	0.35					
149	9.12	34.125	26.417	1.87	28.9	37.6	2.28	28.2	0.22	0.02	0.24					

RV DAVID STARR JORDAN — CALCOFI CRUISE 9003 — STATION 83 70

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI DEPTH	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
33 14.4 N	121 26.6 W	15/ 3/90	1921 UTC	26 M	1210 - 1834 PST	1213 PST	1836 PST	203.8 MG C/M2

DEPTH M	TEMP DEG C	SALINITY PSS 78	SIGMA THETA	DISS O2 ML/L	OXY PCT	SIO3 UM/L	PO4 UM/L	NO3 UM/L	NO2 UM/L	CHL UG/L	PHAEO UG/L	LIGHT PCT	UPTAKE (MG C/M3) 1	2	MEAN	DARK
1	13.72	33.316	24.944	6.04	102.4	3.0	0.39	0.0	0.00	0.28	0.09	95.	0.40	0.46	0.43	0.07
20	13.69	33.314	24.949	6.02	102.0	3.0	0.39	0.0	0.00	0.28	0.09	31.	2.9	3.1	3.0	0.07
37	13.64	33.310	24.957	6.03	102.0	3.0	0.39	0.0	0.00	0.29	0.10	10.	3.5	3.6	3.6	0.08
59	13.63	33.309	24.959	6.02	101.8	2.9	0.39	0.0	0.00	0.30	0.11	3.1	2.1	1.7	1.9	0.06
72	13.62	33.310	24.962	6.01	101.6	2.8	0.39	0.0	0.00	0.30	0.11	1.4	1.2	1.3	1.3	0.07
118	11.50	33.185	25.276	5.61	90.7	6.0	0.77	5.4	0.05	0.27	0.11	0.10	0.13	0.17	0.15	0.03

RV DAVID STARR JORDAN — CALCOFI CRUISE 9003 — STATION 84 100

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI DEPTH	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
32 2.9 N	123 22.3 W	1 A/ 3/90	1946 UTC	26 M	1220 - 1843 PST	1222 PST	1844 FST	150.2 MG C/M2

DEPTH M	TEMP DEG C	SALINITY PSS 78	SIGMA THETA	DISS O2 ML/L	OXY PCT	SIO3 UM/L	PO4 UM/L	NO3 UM/L	NO2 UM/L	CHL UG/L	PHAEO UG/L	LIGHT PCT	UPTAKE (MG C/M3) 1	2	MEAN	DARK
0	14.25	33.380	24.884	5.95	102.0	2.9	0.39	0.0	0.00	0.18	0.06	95.	0.47	0.34	0.40	0.07
20	14.21	33.377	24.891	5.94	101.7	2.9	0.38	0.0	0.00	0.17	0.06	31.	2.4	2.8	2.6	0.10
38	14.22	33.375	24.888	5.93	101.6	2.9	0.38	0.0	0.00	0.18	0.07	10.	2.6	2.6	2.6	0.07
58	14.21	33.376	24.891	5.93	101.6	2.9	0.38	0.0	0.00	0.19	0.07	3.1	1.3	1.4	1.4	0.06
71	14.20	33.372	24.890	5.94	101.7	2.9	0.39	0.0	0.00	0.19	0.08	1.4	0.71	0.83	0.77	0.06
118	10.85	33.134	25.352	5.54	88.2	7.1	0.87	7.4	0.02	0.13	0.12	0.10	0.03	0.07	0.05	0.03
141	9.89	33.313	25.656	4.94	77.1	12.7	1.21	13.5	0.01	0.04	0.06					
171	9.19	33.642	26.028	3.95	60.8	21.9	1.62	20.7	0.01	0.00	0.02					
200	8.71	33.876	26.287	3.45	52.7	28.5	1.82	24.2	0.01	0.00	0.02					

RV DAVID STARR JORDAN — CALCOFI CRUISE 9003 — STATION 87 40

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI DEPTH	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
33 39.4 N	119 0.0 W	12/ 3/90	1920 UTC	10 M	1200 - 1831 PST	1206 PST	1827 PST	505.1 MG C/M2

DEPTH M	TEMP DEG C	SALINITY PSS 78	SIGMA THETA	DISS O2 ML/L	OXY PCT	SIO3 UM/L	PO4 UM/L	NO3 UM/L	NO2 UM/L	CHL UG/L	PHAEO UG/L	LIGHT PCT	UPTAKE (MG C/M3) 1	2	MEAN	DARK
0	13.22	33.510	25.195	6.04	101.5	4.3	0.45	0.9	0.07	1.57	0.26	95.	3.9	3.3	3.6	0.27
8	13.23	33.511	25.195	6.03	101.3	4.5	0.45	0.8	0.07	1.39	0.27	31.	23.2	24.7	23.9	0.26
16	13.23	33.510	25.194	6.02	101.1	4.2	0.44	0.9	0.07	1.47	0.24	10.	21.4	23.0	22.2	0.28
23		33.509		6.00		4.1	0.43	0.9	0.07	1.20	0.29	3.1	9.6	13.5	11.5	0.22
29	13.17	33.509	25.206	6.00	100.7	4.5	0.41	1.0	0.07	1.01	0.26	1.4	4.7	5.2	5.0	0.21
46	11.76	33.525	25.490	4.16	67.8	11.6	1.21	12.7	0.14	0.12	0.19	0.10	0.09	0.08	0.09	0.07

RV DAVID STARR JORDAN — CALCOFI CRUISE 9003 — STATION 87 70

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI DEPTH	INCUBATION TIME	**LAN**	CIVIL TWILIGHT	INTEGRATED VALUE
32 39.4 N	121 1.7 W	13/ 3/90	1934 UTC	13 M	1213 - 1837 PST	1214 PST	1837 PST	306.0 MG C/M2

DEPTH M	TEMP DEG C	SALINITY PSS 78	SIGMA THETA	DISS O2 ML/L	OXY PCT	SIO3 UM/L	PO4 UM/L	NO3 UM/L	NO2 UM/L	CHL UG/L	PHAEO UG/L	LIGHT PCT	UPTAKE (MG C/M3) 1	2	MEAN	DARK
1	12.86	33.412	25.191	6.16	102.6	3.9	0.45	0.5	0.04	0.79	0.29	95.	2.5	2.4	2.4	0.12
10	12.89	33.413	25.186	6.16	102.7	3.8	0.45	0.5	0.04	0.73	0.25	31.	10.0	10.4	10.2	0.12
20	12.89	33.410	25.184	6.15	102.5	3.8	0.44	0.6	0.04	0.75	0.26	10.	9.9	9.6	9.8	0.11
30	12.84	33.410	25.194	6.12	101.9	3.7	0.45	0.6	0.04	0.77	0.26	3.1	6.2	6.0	6.1	0.11
37	12.82	33.410	25.198	6.15	102.4	3.7	0.45	0.7	0.04	0.75	0.27	1.4	2.9	3.1	3.0	0.09
60	12.10	33.419	25.344	5.81	95.2	5.7	0.70	4.0	0.28	0.16	0.14	0.10	0.11	0.07	0.09	0.05

RV DAVID STARR JORDAN — CALCOFI CRUISE 9003 — STATION 90 48

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI DEPTH	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
32 49.9 N	119 8.4 W	10/ 3/90	1927 UTC	10 M .	1204 - 1822 PST	1206 PST	1822 PST	404.9 MG C/M2

DEPTH M	TEMP DEG C	SALINITY PSS 78	SIGMA THETA	DISS O2 ML/L	OXY PCT	SIO3 UM/L	PO4 UM/L	NO3 UM/L	NO2 UM/L	CHL UG/L	PHAEO UG/L	LIGHT PCT	UPTAKE (MG C/M3) 1	2	MEAN	DARK
1	13.58	33.544	25.149	6.17	104.4	3.7	0.42	0.4	0.02	0.81	0.23	95.	14.5	15.1	14.8	0.24
9	13.54	33.544	25.157	6.17	104.3	3.7	0.43	0.4	0.02	0.81	0.24	31.	19.3	19.9	19.6	0.22
15	13.41	33.539	25.180	6.20	104.6	3.8	0.43	0.4	0.02	0.85	0.29	10.	14.4	15.2	14.8	0.21
24	13.18	33.537	25.225	5.93	99.5	4.5	0.54	1.9	0.07	0.82	0.38	3.1	7.4	7.8	7.6	0.14
29	13.05	33.540	25.253	5.82	97.4	4.7	0.57	2.5	0.09	0.84	0.37	1.4	2.8	2.6	2.7	0.12
45	12.14	33.558	25.444	5.04	82.8	9.3	0.94	8.0	0.25	0.38	0.26	0.10	0.16	0.13	0.14	0.05
59	11.43	33.600	25.609	4.43	71.7	13.3	1.20	12.2	0.29	0.17	0.18					
69	10.96	33.680	25.757	3.82	61.2	17.6	1.46	16.6	0.13	0.06	0.13					
83	10.48	33.748	25.894	3.44	54.6	20.9	1.63	19.4	0.06	0.04	0.11					
98	10.33	33.772	25.939	3.32	52.5	22.0	1.68	20.3	0.04	0.04	0.10					
118	9.76	33.858	26.103	2.97	46.4	25.9	1.86	23.3	0.01	0.02	0.07					
137	9.19	34.022	26.325	2.45	37.8	32.4	2.12	26.7	0.01	0.01	0.07					
168	8.87	34.099	26.436	2.14	32.8	36.7	2.25	28.2	0.01	0.01	0.05					
200	8.65	34.145	26.507	1.90	29.0	40.5	2.37	29.6	0.01	0.01	0.04					

PRIMARY PRODUCTIVITY CASTS

RV DAVID STARR JORDAN — CALCOFI CRUISE 9003 — STATION 90 75

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI DEPTH	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
31 55.2 N	120 58.8 W	9/ 3/90	1944 UTC	13 M	1214 - 1830 PST	1215 PST	1830 PST	248.2 MG C/M2

DEPTH M	TEMP DEG C	SALINITY PSS 78	SIGMA THETA	DISS O2 ML/L	OXY PCT	SIO3 UM/L	PO4 UM/L	NO3 UM/L	NO2 UM/L	CHL UG/L	PHAEO UG/L	LIGHT PCT	UPTAKE (MG C/M3) 1	2	MEAN	DARK
0	13.58	33.515	25.127	6.08	102.9	2.2	0.42	0.1	0.01	0.67	0.22	95.	7.4	7.8	7.6	0.10
10	13.61	33.514	25.120	6.06	102.6	2.2	0.42	0.1	0.01	0.67	0.21	31.	9.7	9.7	9.7	0.10
20	13.60	33.515	25.123	6.08	102.9	2.1	0.43	0.1	0.01	0.68	0.20	10.	6.8	7.2	7.0	0.10
30	13.57	33.514	25.129	6.06	102.5	2.1	0.42	0.1	0.01	0.70	0.21	3.1	3.0	3.6	3.3	0.11
35	13.56	33.513	25.130	6.06	102.5	2.1	0.43	0.1	0.01	0.69	0.23	1.4	1.3	1.1	1.2	0.10
59	13.17	33.505	25.203	5.80	97.3	3.1	0.56	1.3	0.15	0.43	0.25	0.10	0.07	0.10	0.09	0.05
68	12.66	33.502	25.302	5.42	90.0	5.6	0.74	4.2	0.40	0.17	0.18					
77	11.81	33.555	25.505	4.32	70.4	11.8	1.19	11.9	0.08	0.12	0.16					
92	11.10	33.654	25.712	3.51	56.4	17.4	1.54	17.3	0.02	0.06	0.14					
107	10.88	33.762	25.836	3.09	49.5	20.6	1.70	19.8	0.01	0.04	0.10					
122	10.40	33.905	26.031	2.56	40.6	25.8	1.95	23.1	0.01	0.02	0.07					
145	10.43	34.091	26.172	1.92	30.5	30.7	2.21	25.2	0.01	0.01	0.07					
170	10.10	34.091	26.229	2.05	32.3	31.5	2.20	25.9	0.00	0.01	0.07					
203	9.59	34.122	26.339	2.03	31.6	33.8	2.24	27.2	0.00	0.01	0.05					

RV DAVID STARR JORDAN — CALCOFI CRUISE 9003 — STATION 90 100

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI DEPTH	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
31 5.1 N	122 39.7 W	8/ 3/90	1919 UTC	23 M	1220 - 183 8 PST	1222 PST	1836 PST	77.9 MG C/M2

DEPTH M	TEMP DEG C	SALINITY PSS 78	SIGMA THETA	DISS O2 ML/L	OXY PCT	SIO3 UM/L	PO4 UM/L	NO3 UM/L	NO2 UM/L	CHL UG/L	PHAEO UG/L	LIGHT PCT	UPTAKE (MG C/M3) 1	2	MEAN	DARK
0	15.02	33.452	24.775	5.93	103.3	2.4	0.37	0.0	0.00	0.10	0.02	95.	0.40	0.42	0.41	0.07
16	15.00	33.449	24.778	5.88	102.4	2.4	0.36	0.0	0.00	0.10	0.02	31.	1.1	1.1	1.1	0.07
32	14.95	33.443	24.784	5.87	102.1	2.5	0.36	0.0	0.00	0.11	0.02	10.	1.3	1.0	1.2	0.08
50	14.42	33.371	24.843	5.90	101.5	2.5	0.38	0.0	0.00	0.21	0.11	3.1	0.84	0.95	0.90	0.06
61	14.15	33.368	24.897	5.95	101.8	2.5	0.38	0.0	0.00	0.33	0.16	1.4	0.84	0.78	0.81	0.06
103	12.46	33.254	25.149	5.79	95.5	3.9	0.59	2.5	0.16	0.21	0.14	0.10	0.09	0.11	0.10	0.02

RV DAVID STARR JORDAN — CALCOFI CRUISE 9003 — STATION 93 40

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI DEPTH	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
32 30.9 N	118 12.7 W	5/ 3/90	1937 UTC	12 M	1212 - 1821 PST	1205 PST	1820 PST	222.5 MG C/M2

DEPTH M	TEMP DEG C	SALINITY PSS 78	SIGMA THETA	DISS O2 ML/L	OXY PCT	SIO3 UM/L	PO4 UM/L	NO3 UM/L	NO2 UM/L	CHL UG/L	PHAEO UG/L	LIGHT PCT	UPTAKE (MG C/M3) 1	2	MEAN	DARK
1	14.33	33.540	24.991	6.06	104.2	2.5	0.36	0.0	0.01	0.48	0.10	95.	2.9	2.4	2.7	0.15
11	14.36	33.541	24.985	6.07	104.4	2.5	0.35	0.0	0.01	0.51	0.11	31.	8.4	8.8	8.6	0.16
19	14.34	33.540	24.989	6.07	104.3	2.5	0.35	0.0	0.02	0.48	0.11	10.	8.0	8.3	8.2	0.17
28	14.34	33.540	24.989	6.05	104.0	2.5	0.35	0.0	0.01	0.45	0.11	3.1	3.5	4.1	3.8	0.15
36	14.22	33.536	25.012	5.99	102.7	2.5	0.39	0.2	0.03	0.56	0.17	1.4	1.5	1.9	1.7	0.14
58	12.35	33.517	25.373	4.38	72.2	10.3	1.09	10.0	0.21	0.34	0.32	0.10	0.10	0.15	0.13	0.08

RV DAVID STARR JORDAN — CALCOFI CRUISE 9003 — STATION 93 60

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI DEPTH	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
31 50.8 N	119 34.4 W	6/ 3/90	1912 UTC	13 M	1207 - 1827 PST	1209 PST	1827 PST	254.0 MG C/M2

DEPTH M	TEMP DEG C	SALINITY PSS 78	SIGMA THETA	DISS O2 ML/L	OXY PCT	SIO3 UM/L	PO4 UM/L	NO3 UM/L	NO2 UM/L	CHL UG/L	PHAEO UG/L	LIGHT PCT	UPTAKE (MG C/M3) 1	2	MEAN	DARK
0	14.09	33.548	25.047	6.11	104.5	2.2	0.40	0.0	0.00	0.43	0.12	95.	4.2	3.6	3.9	0.08
11	14.09	33.548	25.047	6.12	104.7	2.2	0.40	0.0	0.00	0.42	0.12	31.	8.0	7.8	7.9	0.09
19	14.05	33.549	25.057	6.11	104.4	2.2	0.39	0.0	0.00	0.52	0.13	10.	8.9	8.6	8.7	0.11
31	14.03	33.547	25.060	6.15	105.1	2.2	0.40	0.0	0.00	0.59	0.13	3.1	4.6	5.4	5.0	0.10
37	14.02	33.548	25.063	6.16	105.2	2.0	0.39	0.0	0.00	0.45	0.14	1.4	1.7	1.6	1.6	0.07
60	13.04	33.626	25.323	5.11	85.6	8.5	0.87	6.6	0.18	0.35	0.36	0.10	0.21	0.20	0.20	0.04

RV DAVID STARR JORDAN — CALCOFI CRUISE 9003 — STATION 93 94

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI DEPTH	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
30 42.7 N	121 53.2 W	7/ 3/90	1922 UTC	21 M	1212 - 1833 PST	1219 PST	1813 PST	230.9 MG C/M2

DEPTH M	TEMP DEG C	SALINITY PSS 78	SIGMA THETA	DISS O2 ML/L	OXY PCT	SIO3 UM/L	PO4 UM/L	NO3 UM/L	NO2 UM/L	CHL UG/L	PHAEO UG/L	LIGHT PCT	UPTAKE (MG C/M3) 1	2	MEAN	DARK
1	14.16	33.406	24.923	6.11	104.6	2.5	0.39	0.0	0.00	0.23	0.05	95.	2.4	2.5	2.5	0.07
17	14.04	33.402	24.945	6.09	104.0	2.4	0.39	0.0	0.00	0.25	0.06	31.	4.0	3.9	3.9	0.09
33	13.96	33.404	24.964	6.08	103.6	2.4	0.39	0.0	0.00	0.29	0.07	10.	3.7	3.6	3.6	0.09
49	13.35	33.388	25.076	6.09	102.5	2.7	0.44	0.2	0.02	0.58	0.30	3.1	3.5	3.6	3.6	0.06
59	13.07	33.385	25.130	6.25	104.6	3.1	0.46	0.3	0.02	0.50	0.28	1.4	1.7	1.9	1.8	0.05
94	11.68	33.251	25.293	5.78	93.8	5.0	0.69	4.3	0.11	0.12	0.14	0.10	0.05	0.06	0.06	0.02
109	10.37	33.169	25.462	5.43	85.6	8.6	0.97	9.3	0.04	0.08	0.10					
123	10.40	33.445	25.673	4.87	77.0	11.7	1.11	12.4	0.01	0.04	0.07					
149	9.64	33.662	25.970	4.21	65.5	18.7	1.43	18.1	0.00	0.01	0.02					
173	8.92	33.862	26.243	3.70	56.7	25.9	1.70	22.6	0.00	0.00	0.01					
206	8.47	33.955	26.386	3.37	51.2	31.3	1.86	25.1	0.00	0.00	0.02					

Secchi Disk Observations

CalCOFI Cruise 9003

line	Sta.	Day	Mo	Local Time (+8: PST)	Secchi Depth (m)	Forel Water Color	Weather	Clouds Type	Clouds Amt
77	49	19	03	0848	9	5	4	ST	8/8
77	70	18	03	1500	13	3	4	ST	8/8
77	77	18	03	1105	11	4	4	ST	8/8
77	80	18	03	0915	13	4	4	ST	8/8
80	75	17	03	1035	22	2	2	ST	8/8
80	80	17	03	1410	33	2	1	ST	3/8
82	47	16	03	1315	12	4	1	SC	*6/8*
83	40.6	16	03	0821	3	5	2	AS	8/8
83	44	16	03	1103	7	5	1	ST	4/8
83	60	15	03	1600	15	3	1	CS	3/8
83	70	15	03	1100	26	3	1	SC	2/8
83	100	14	03	1442	22	2	1	*CS*	1/8
84	100	14	03	1105	26	2	1	AC	1/8
87	35	12	03	0750	10	4	0	–	0
87	40	12	03	1105	10	4	1	CU	1/8
87	45	12	03	1704	8	4	1	cu	▪1/8
87	70	13	03	1120	13	3	1	cu	5/8
90	28	11	03	0905	5	6	1	CI	3/8
90	45	10	03	1330	14	2	2	cu	8/8
90	48	10	03	1035	10	4	1	AC	3/8
90	70	9	03	1600	11	4	1	CU	7/8
90	75	9	03	1055	13	4	1	cu	4/8
90	100	8	03	1100	23	1	2	SC	8/8
93	26.7	4	03	1310	7	5	5	SC	8/8
93	28	4	03	1450	16	2	2	SC	8/8
93	40	5	03	1115	12	3	1	cu	4/8
93	45	5	03	1655	14	3	1	cu	3/8
93	60	6	03	1050	13	4	0	–	0
93	70	6	03	1550	13	3	1	cc	6/8
93	94	7	03	1035	21	3	1	AC	5/8

MACROZOOPLANKTON BIOMASS

Net Mesh Size: 0.505 mm

Line	Sta.	Position		Date Mo/Day	Time (PST) Start	Time (PST) End	Water Volume Strained (m)	Max. Tow Depth (m)	Volume per 1000 m Strained Total (cm)	Volume per 1000 m Strained Small (cm)
77	49	35 05.3N	120 46.6W	3/19	0913	0919	107	50	476	308
77	51	35 0L3N	120 55.1W	3/19	0638	0700	427	214	134	134
77	55	34 53. IN	121 1L9W	3/19	0245	0307	439	208	221	221
77	60	34 43.3N	121 33.0W	3/18	2212	2234	416	209	192	192
77	70	34 23.3N	122 14.8W	3/18	1614	1636	447	212	67	67
77	80	34 03.3N	122 56^W	3/18	0845	0907	448	208	67	67
77	90	33 43.2N	123 38.0W	3/18	0230	0252	437	211	321	110
80	51	34 27.0N	120 3L4W	3/16	1931	1938	136	63	959	959
80	55	34 19.0N	120 48.1W	3/16	2240	2302	429	211	236	224
80	60	34 09.0N	121 08.9W	3/17	0215	0237	385	215	228	228
80	70	33 49.0N	12150.6W	3/17	0806	0828	420	213	114	114
80	80	33 29.1N	122 32.0W	3/17	1435	1457	424	214	177	75
80	90	33 09.1N	123 *1Z2W*	3/17	2031	2053	426	212	202	89
82	47	34 16.5N	120 0L5W	3/16	1500	1522	416	223	115	115
83	40.6	34 13.5N	119 24.7W	3/16	0910	0914	69	27	231	231
83	42	34 10.7N	119 30.5W	3/16	0708	0719	173	97	852	852
83	51	33 52.7N	120 08.0W	3/16	0003	0012	175	85	412	377
83	55	33 44.7N	120 24.6W	3/15	2113	2135	435	215	168	154
83	60	33 34.7N	120 45.3W	3/15	1709	1731	430	213	60	60
83	70	33 14.4N	12126.6W	3/15	1010	1032	443	213	18	18
83	80	32 54.7N	122 07.8W	3/15	0345	0407	473	207	42	42
83	90	32 34.6N	122 48.7W	3/14	2118	2140	456	208	37	37
83	100	32 14.6N	123 29.5W	3/14	1507	1529	453	214	38	38
87	33	33 53.4N	118 29.5W	3/12	0510	0515	87	42	185	185
87	35	33 49.4N	118 37.6W	3/12	0800	0822	433	210	79	79
87	40	33 39.4N	119 00.0W	3/12	1252	1316	480	232	85	85
87	45	33 29.4N	119 19.1W	3/12	1715	1737	492	204	167	120
87	50	33 19.4N	119 39.8W	3/12	2110	2116	137	45	117	117
87	55	33 09.5N	120 00.3W	3/13	0148	0210	482	204	83	83
87	60	32 59.4N	120 2L0W	3/13	0618	0640	491	209	61	61
87	70	32 39.4N	1210L7W	3/13	1336	1358	457	219	55	55
87	80	32 19.4N	121 4Z9W	3/13	1945	2007	507	204	109	109
87	90	3159.5N	122 23£W	3/14	0120	0143	465	219	45	45
87	100	31 39.5N	123 04.2W	3/14	0730	0752	454	213	26	26
90	28	33 29.1N	117 46.0W	3/11	1012	1020	153	73	65	65
90	30	33 25. IN	117 54.4W	3/11	0708	0730	407	218	61	61
90	35	33 15. IN	118 14.9W	3/11	0147	0209	442	218	77	77
90	37	33 1L1N	118 23.3W	3/10	2120	2142	445	210	135	135
90	45	32 55. IN	118 56.1W	3/10	1456	1518	450	212	89	89
90	53	32 39. IN	119 28.9W	3/10	0707	0729	454	218	191	191
90	60	32 25. IN	119 57.6W	3/10	0107	0129	448	211	78	78
90	70	32 05. IN	120 3&.4W	3/09	1705	1727	457	225	72	72
90	80	31 45. IN	121 18.9W	3/09	0635	0657	491	223	98	98
90	90	31 25. IN	121 59.4W	3/08	2044	2106	458	225	87	87
90	100	310S1N	122 39.7W	3/08	0903	0925	506	210	28	28
93	26.7	32 57.4N	117 18.4W	3/04	1357	1403	146	61	234	234
93	28	32 54.9N	117 23.6W	3/04	1819	1841	457	203	112	112
93	30	32 50.8N	117 3L.8W	3/04	2215	2237	455	206	77	77
93	35	32 40.8N	117 52.4W	3/05	0545	0608	490	213	41	41
93	40	32 30.9N	118 12.7W	3/05	1258	1320	533	195	54	54
93	45	32 20.8N	118 33.3W	3/05	1923	1945	494	210	59	59
93	50	32 10.9N	118 53.5W	3/06	0020	0042	458	207	98	98
93	55	32 00.9N	119 14.1W	3/06	0515	0538	489	225	104	104
93	60	3150.8N	119 34.4W	3/06	0920	0942	456	216	74	74
93	70	31 30.8N	120 14.7W	3/06	1810	1832	465	215	90	90
93	80	31 10.8N	120 5S.3W	3/07	0035	0057	435	214	216	216
93	90	30 50.9N	1213S.4W	3/07	0740	0803	479	222	75	75
93	100	30 30.8N	122 1S.6W	3/08	0035	0058	474	213	38	38

FIGURES

Cruise 9004

1. CalCOFI Cruise 9004, 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) phosphate; F) nitrate; G) chlorophyll-a; H) oxygen saturation; I) oxygen; J) nitrite; and K) phaeopigments.

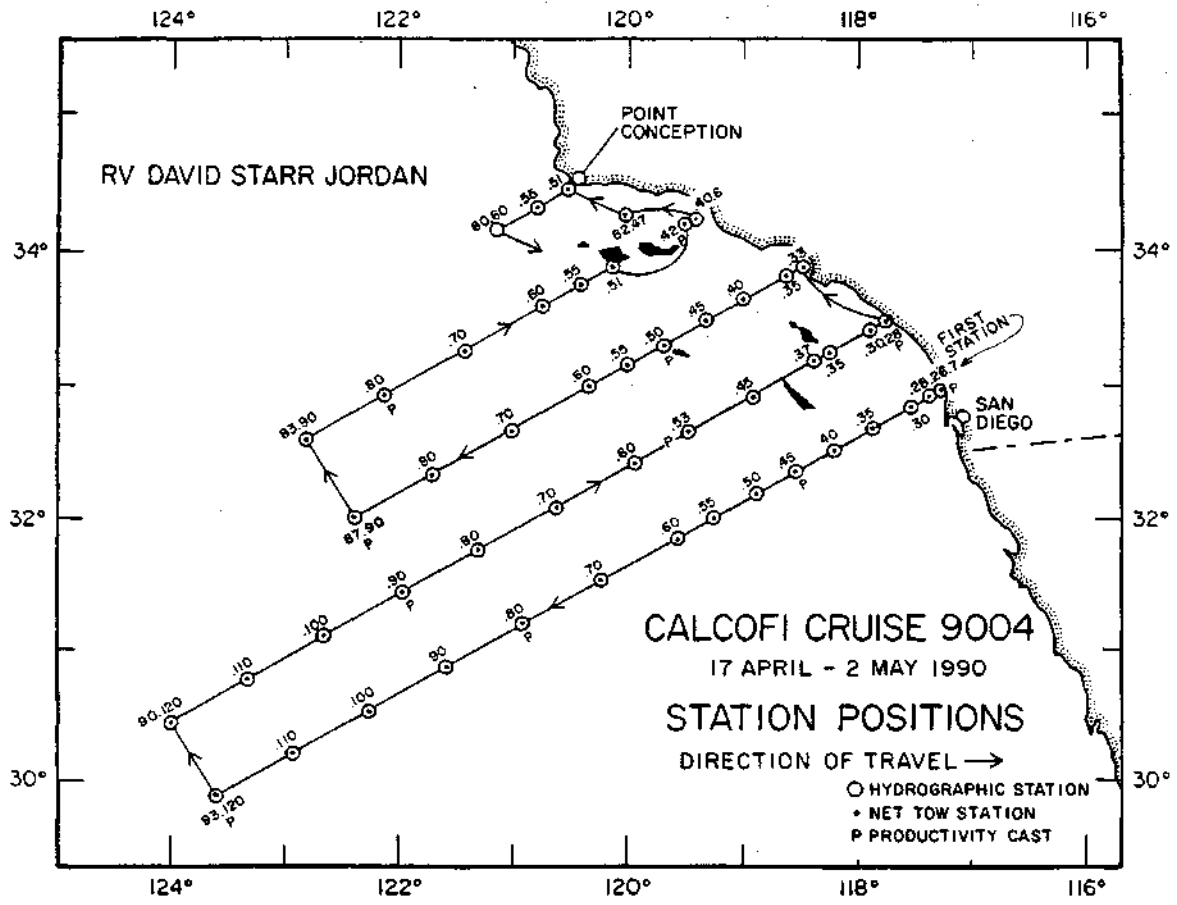


FIGURE 1

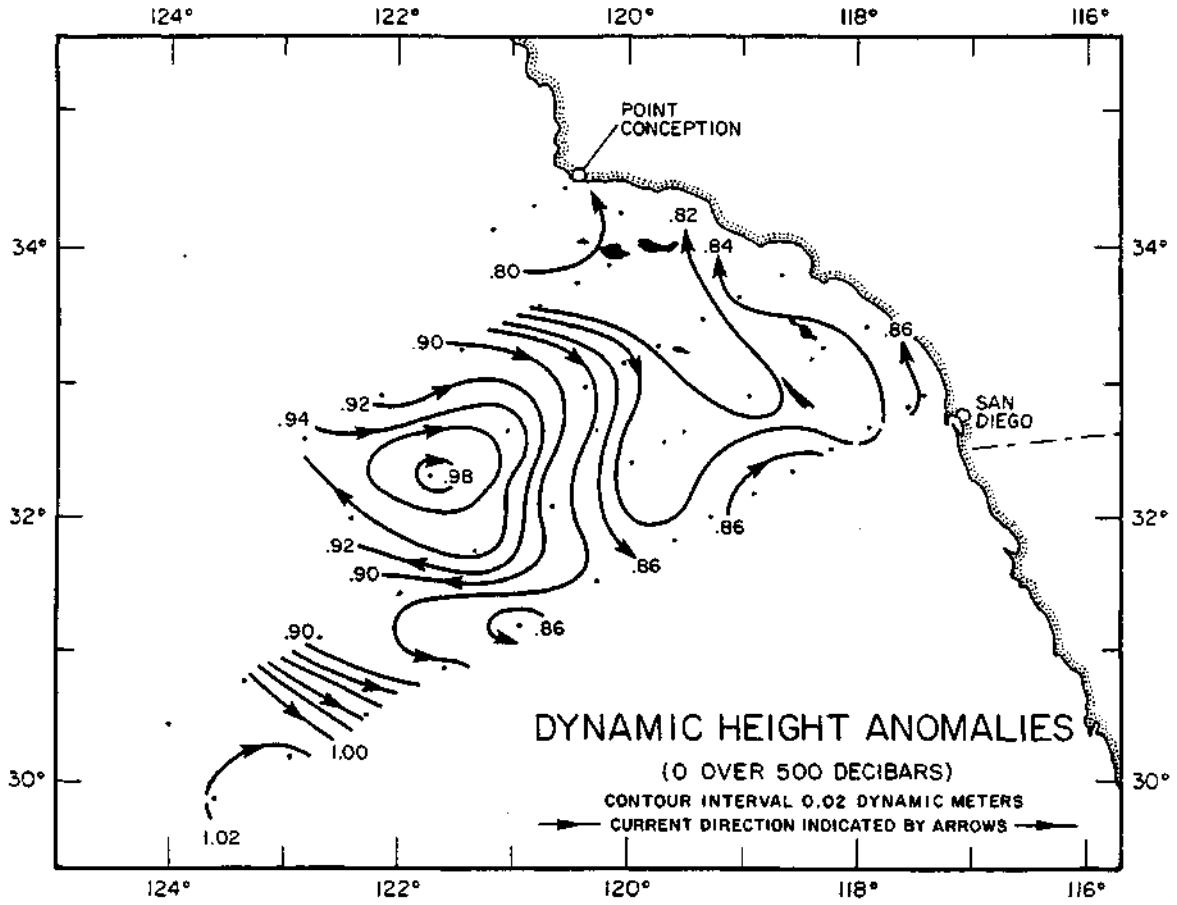


FIGURE 2

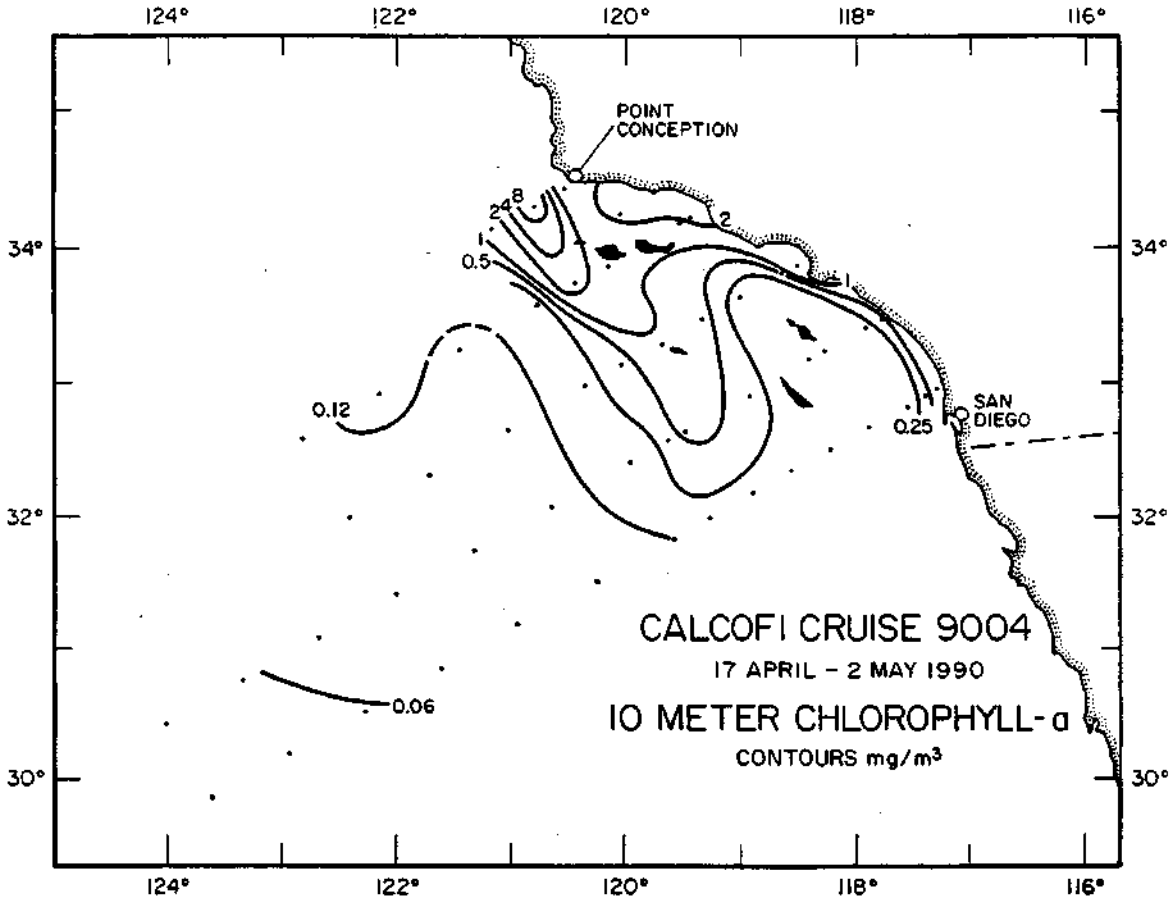


FIGURE 3A

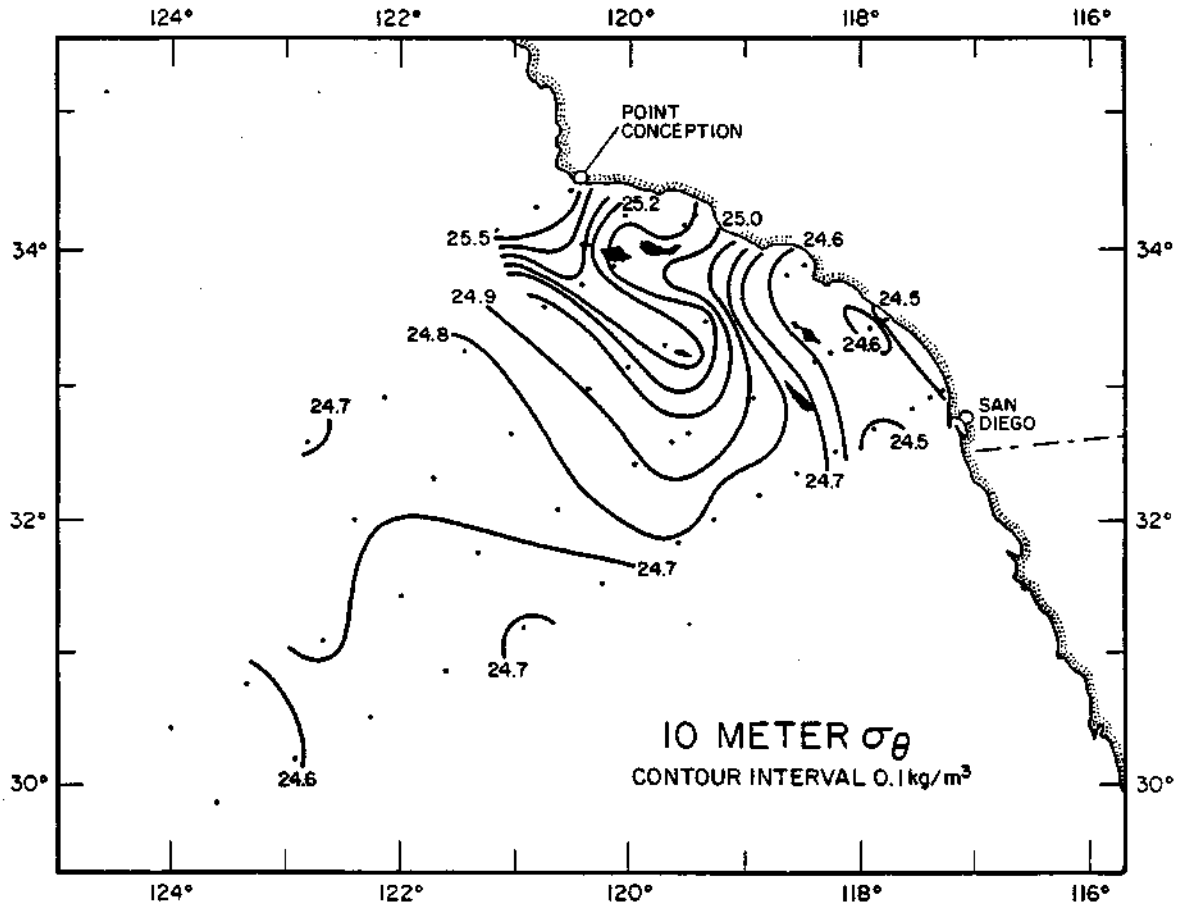


FIGURE 3B

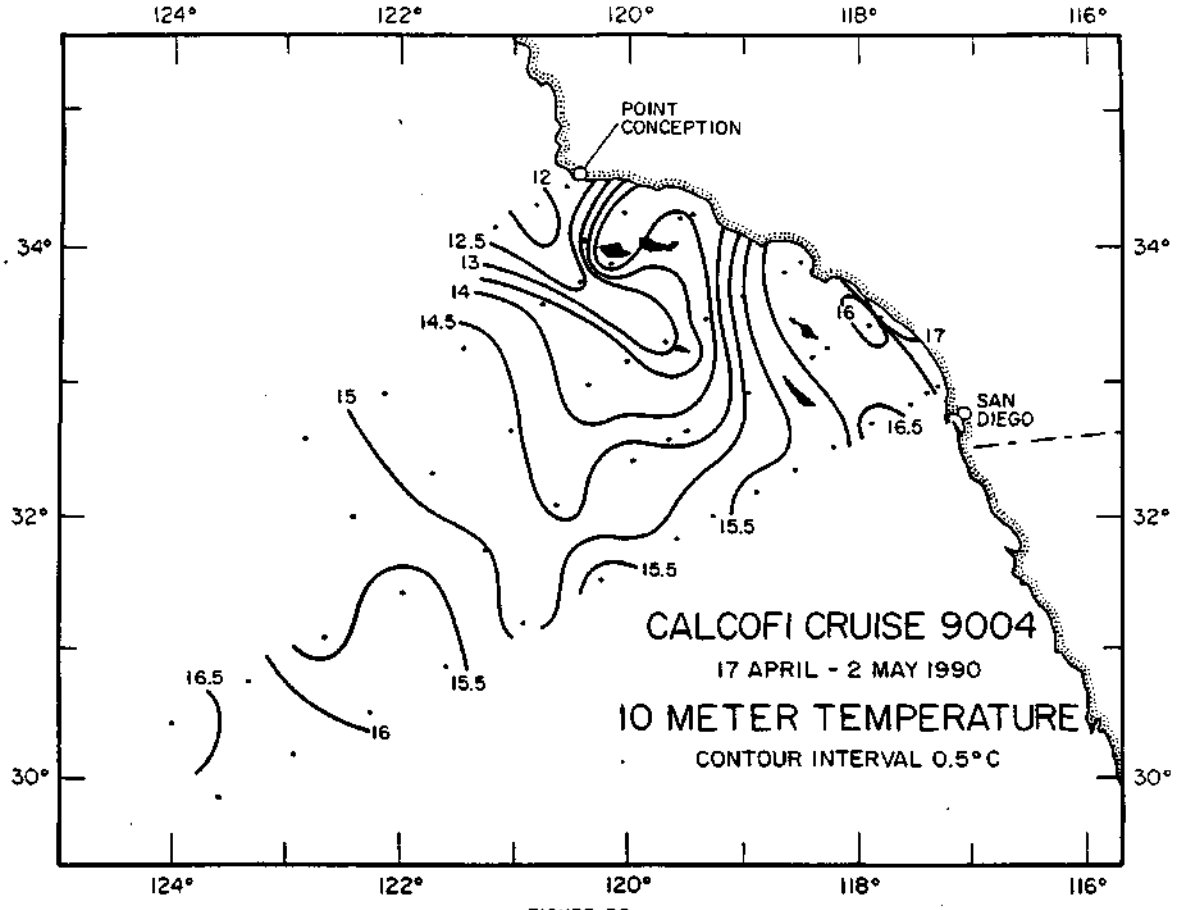


FIGURE 3C

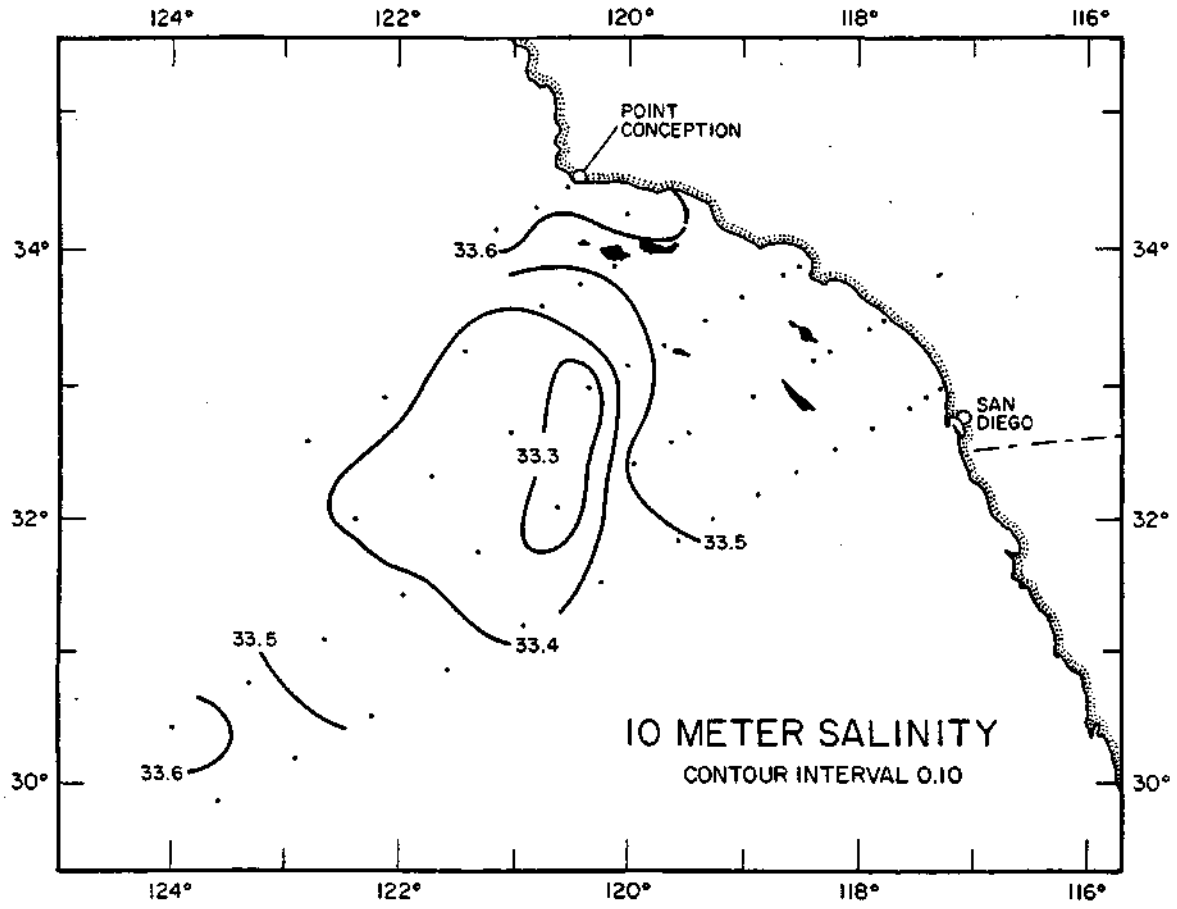


FIGURE 3D

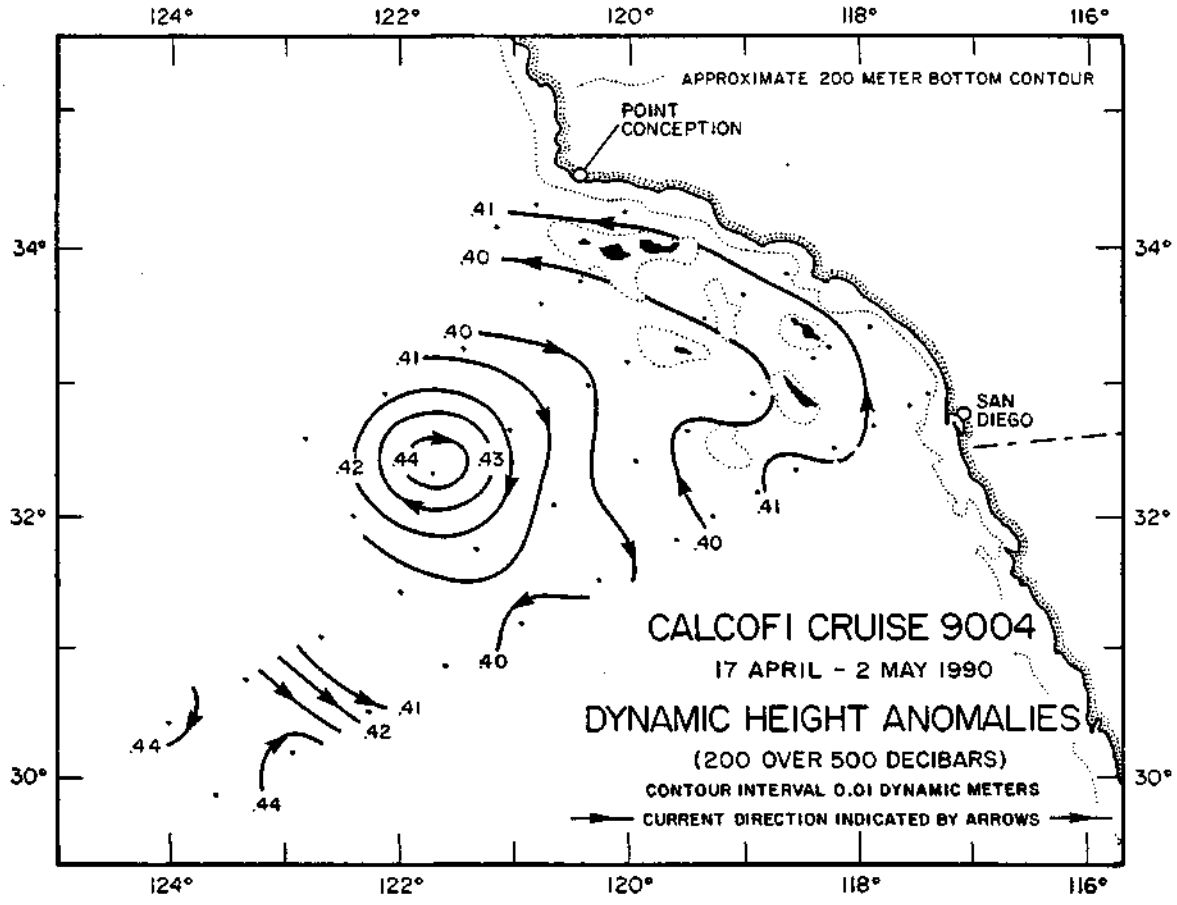


FIGURE 4A

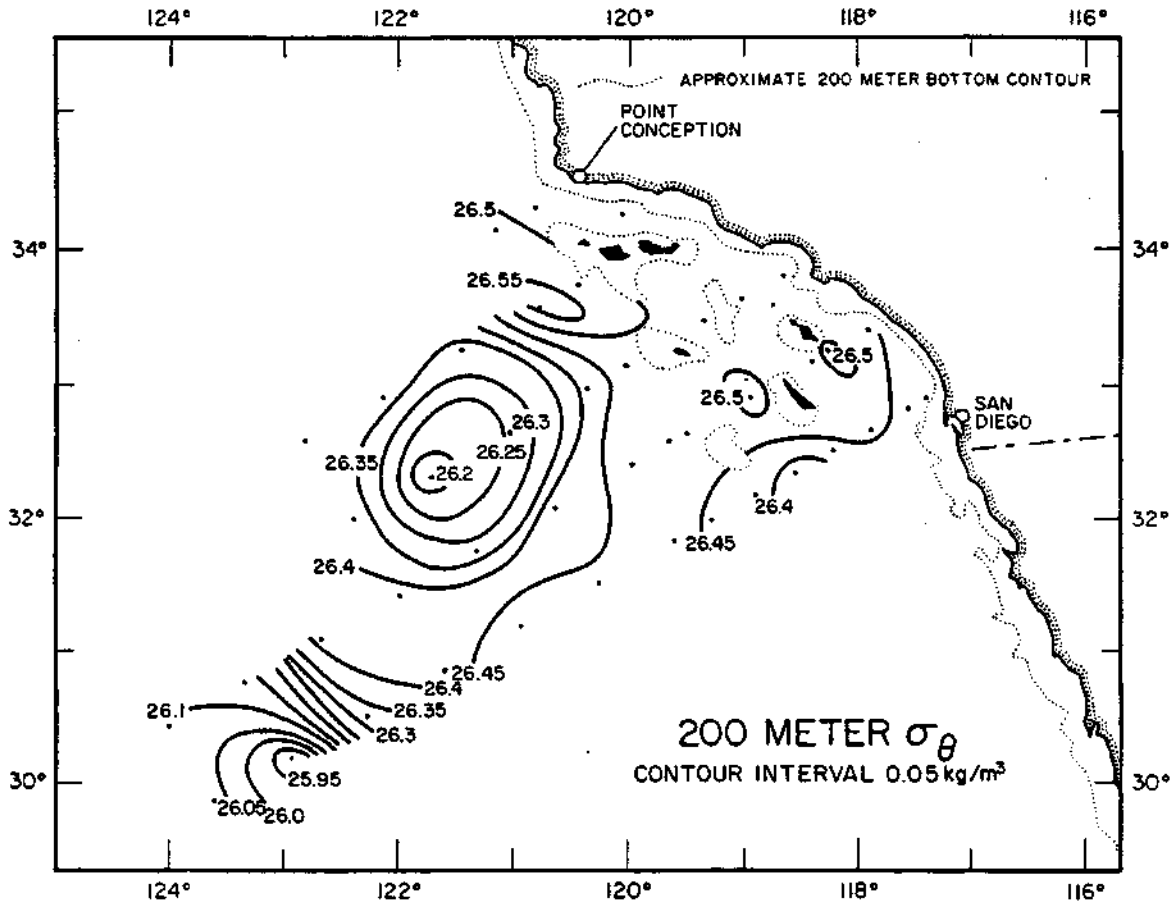


FIGURE 4B

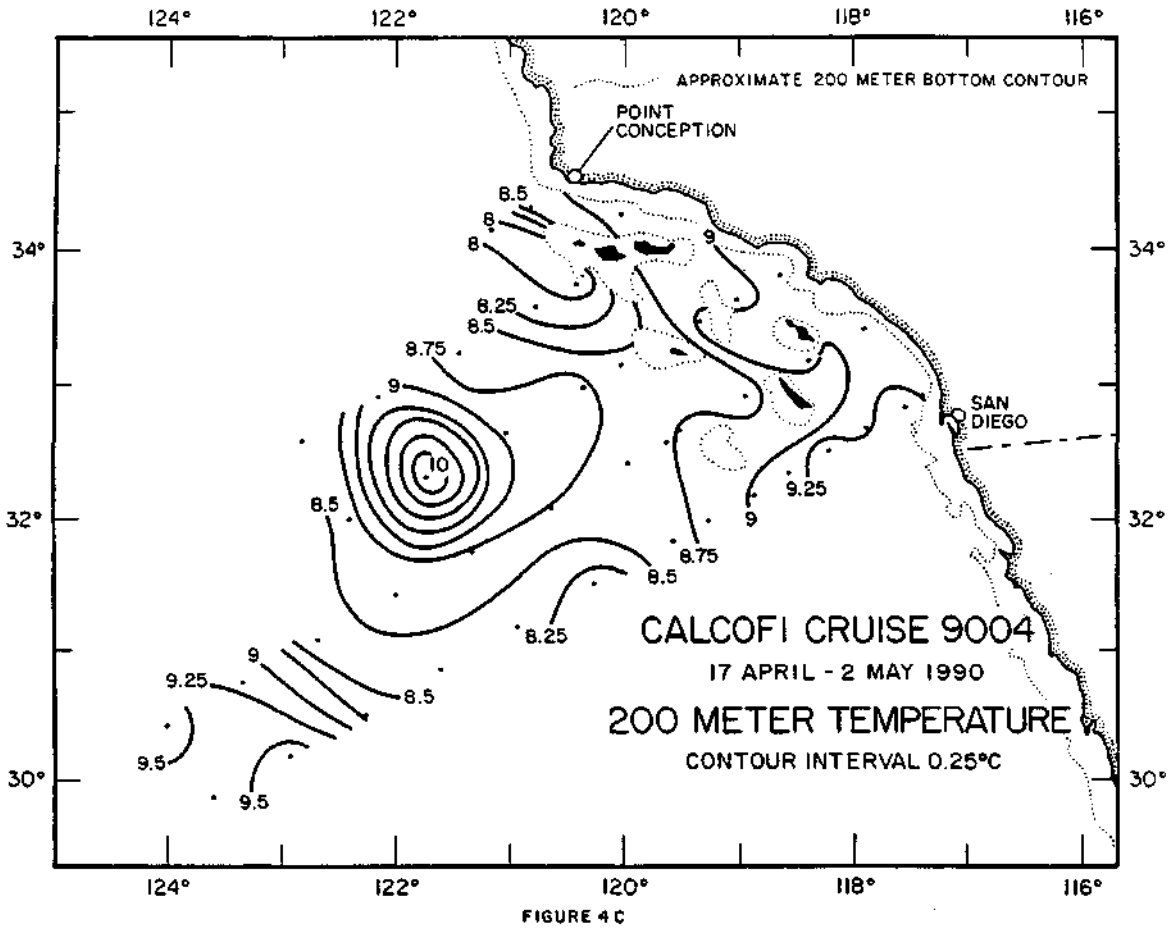


FIGURE 4C

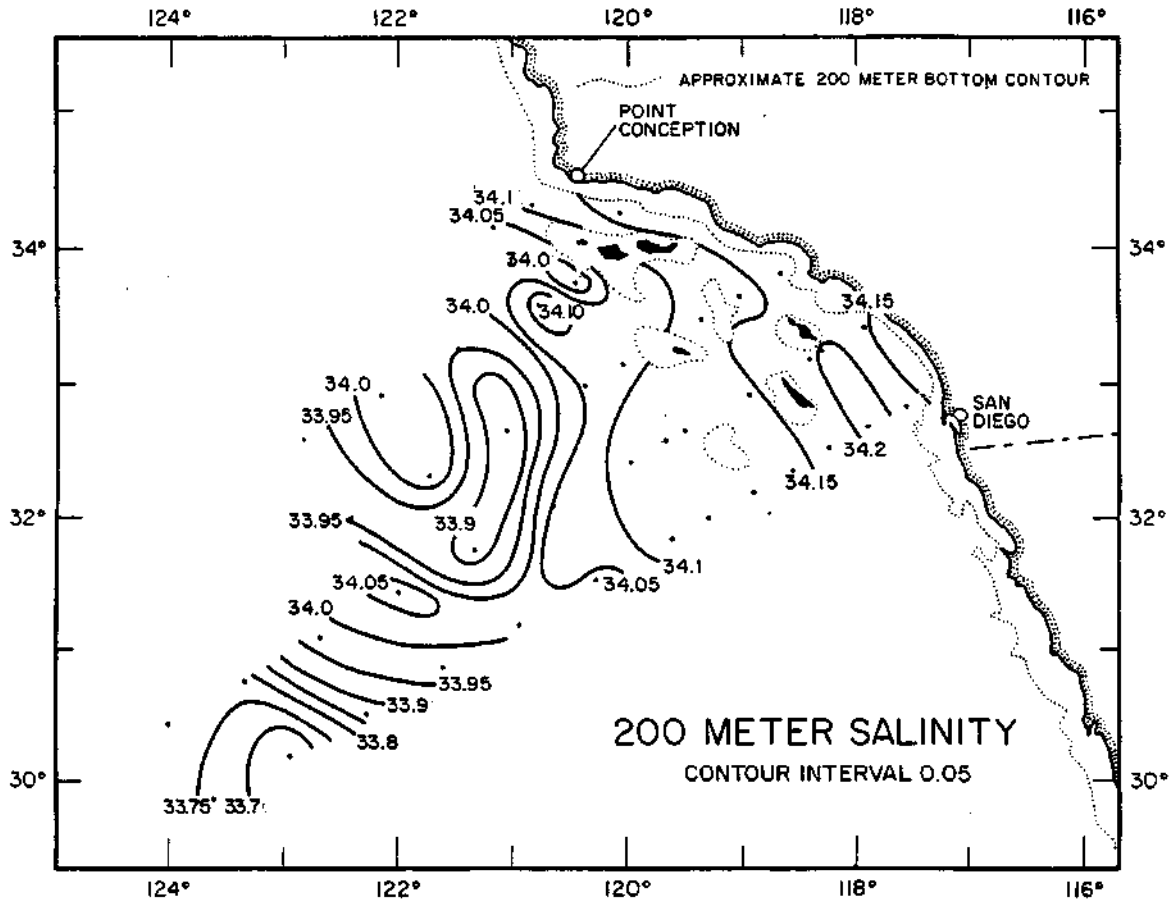


FIGURE 4D

CALCOFI CRUISE 9004

21-23 APRIL 1990

POTENTIAL DENSITY (σ_θ) ALONG CALCOFI LINE 90

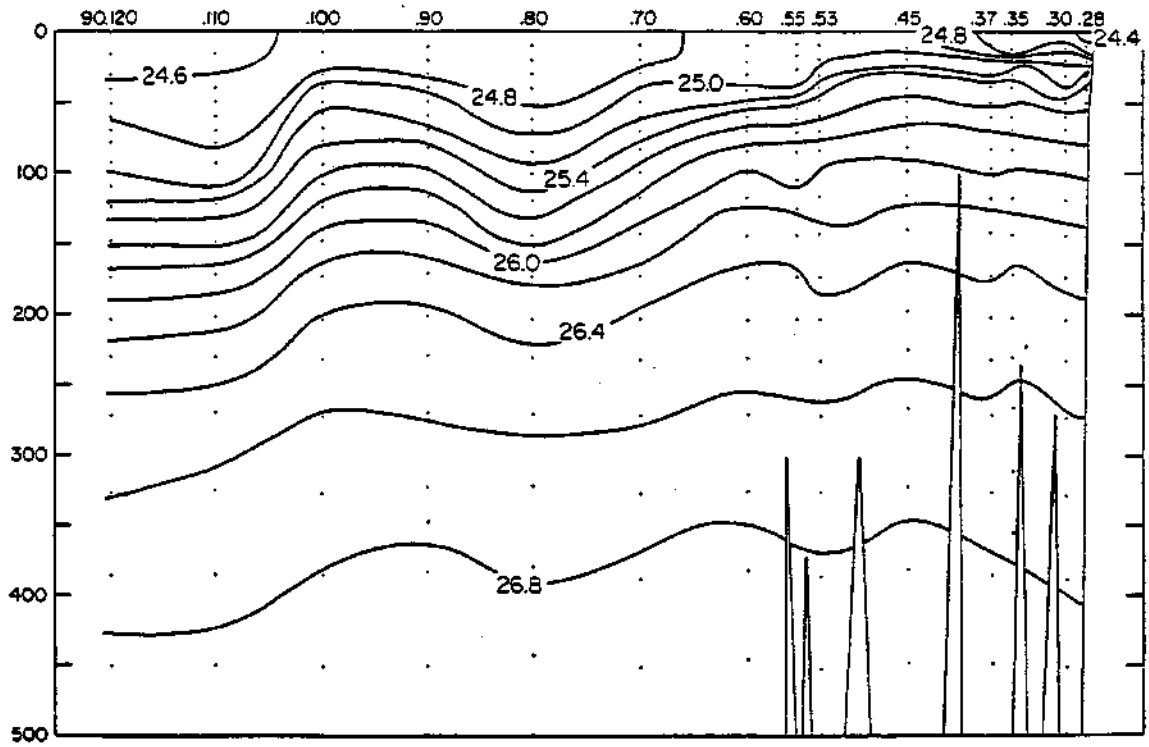


FIGURE 5A

TEMPERATURE (°C) ALONG CALCOFI LINE 90

DEPTH (m)

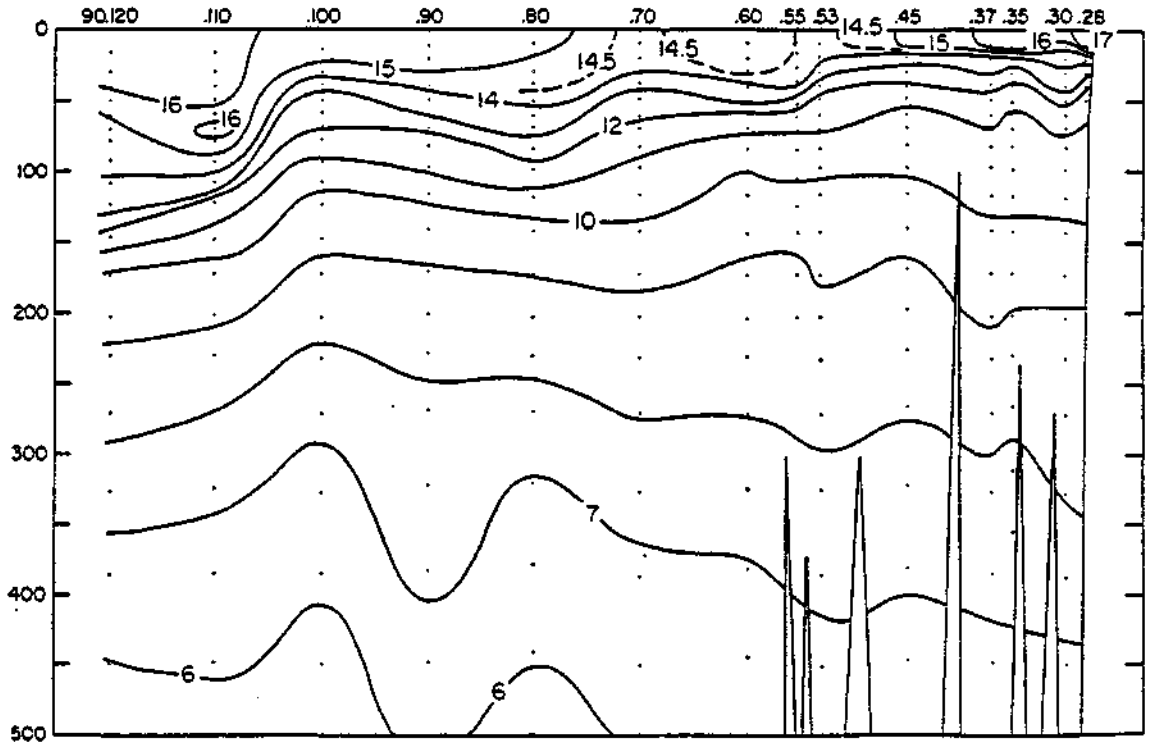


FIGURE 5B

CALCOFI CRUISE 9004

21-23 APRIL 1990

SALINITY ALONG CALCOFI LINE 90

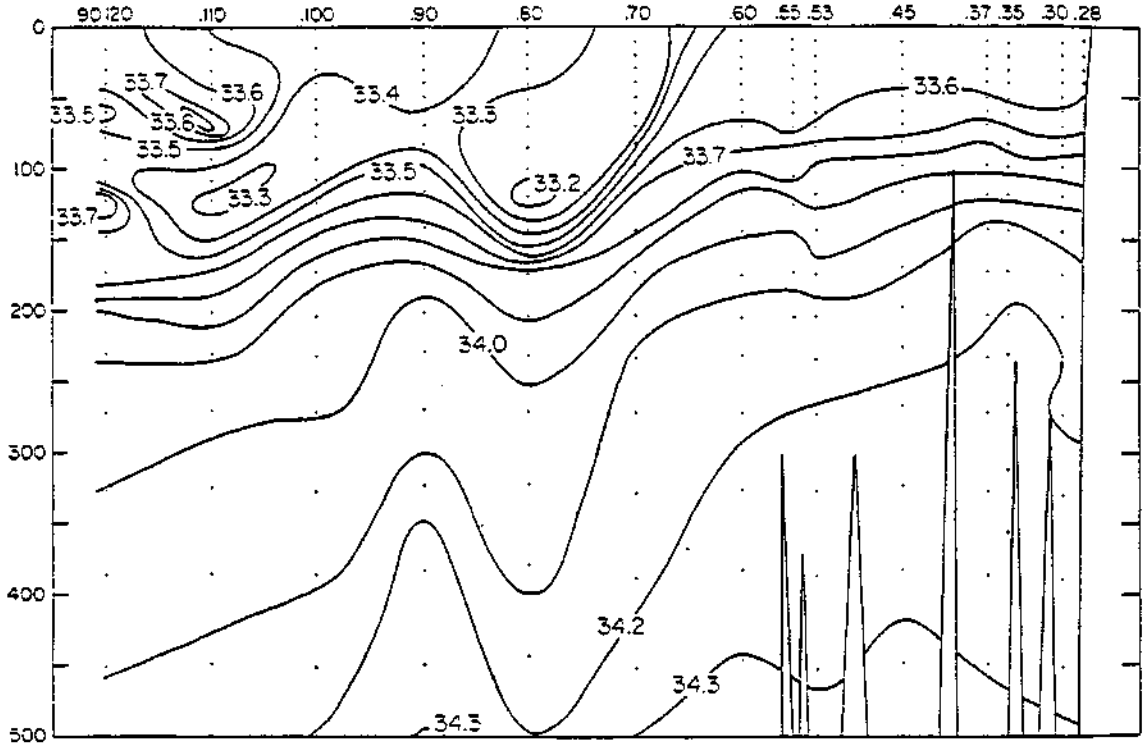


FIGURE 5C

SILICATE (μM/l) ALONG CALCOFI LINE 90

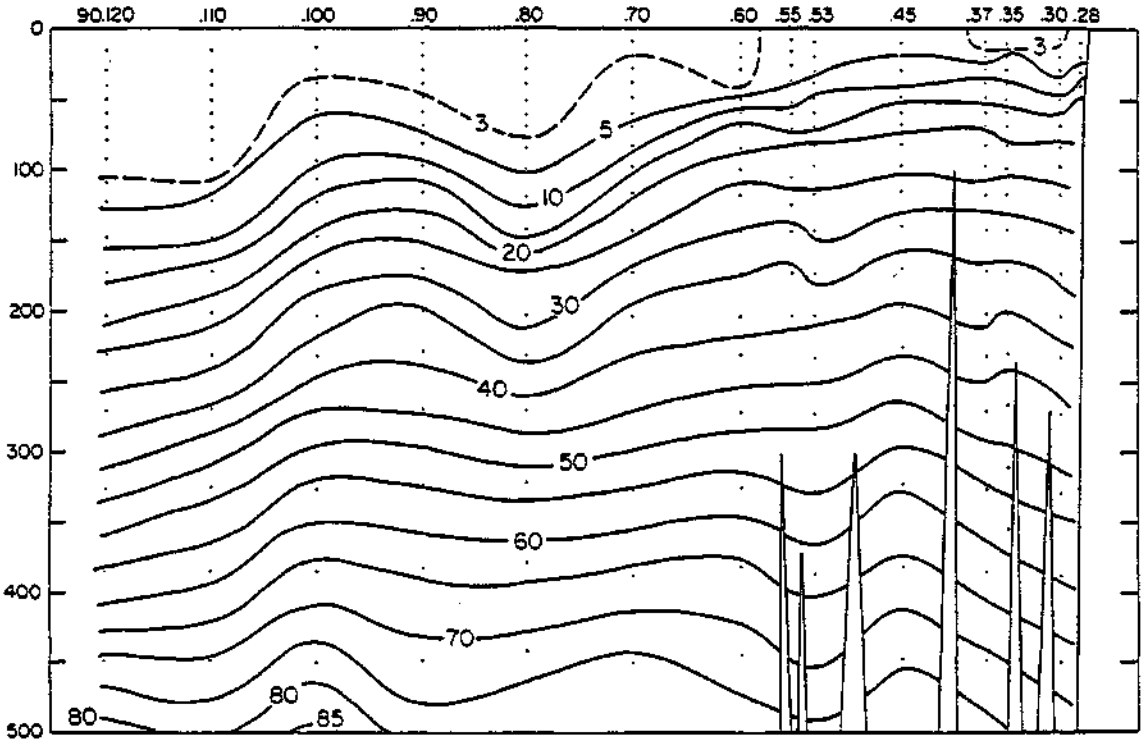


FIGURE 5D

CALCOFI CRUISE 9004

21-23 APRIL 1990

PHOSPHATE (μM/l) ALONG CALCOFI LINE 90

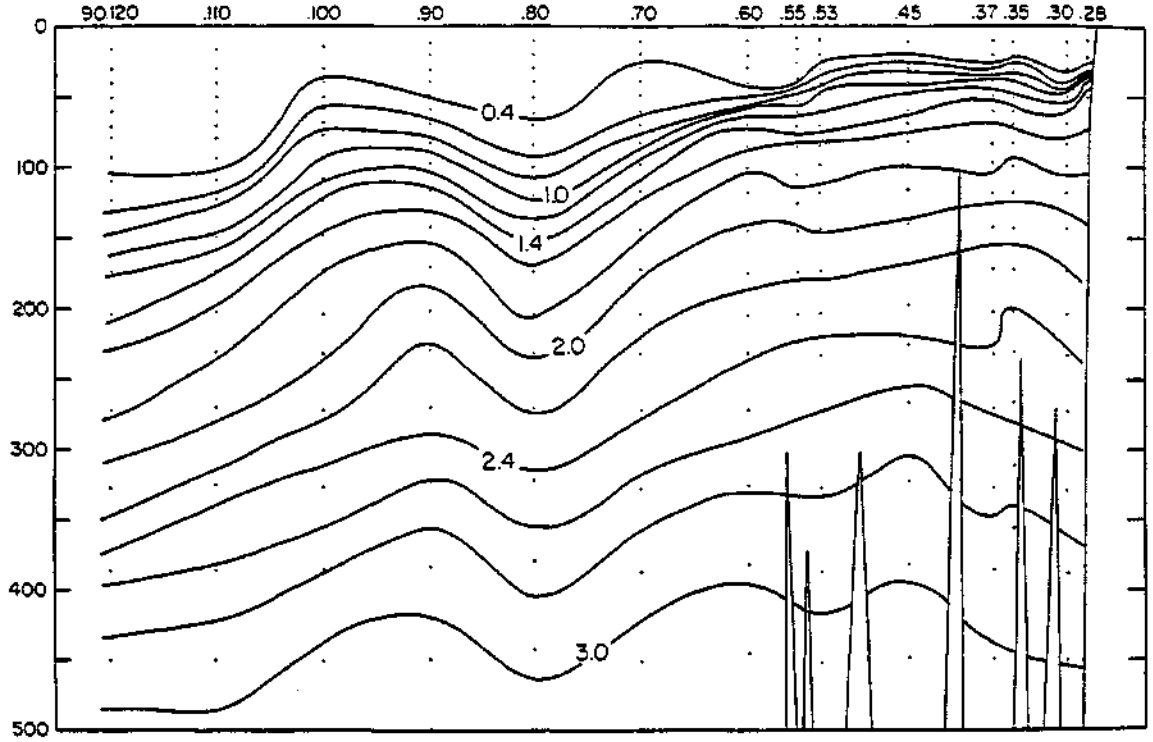


FIGURE 5E

NITRATE (μM/l) ALONG CALCOFI LINE 90

DEPTH (m)

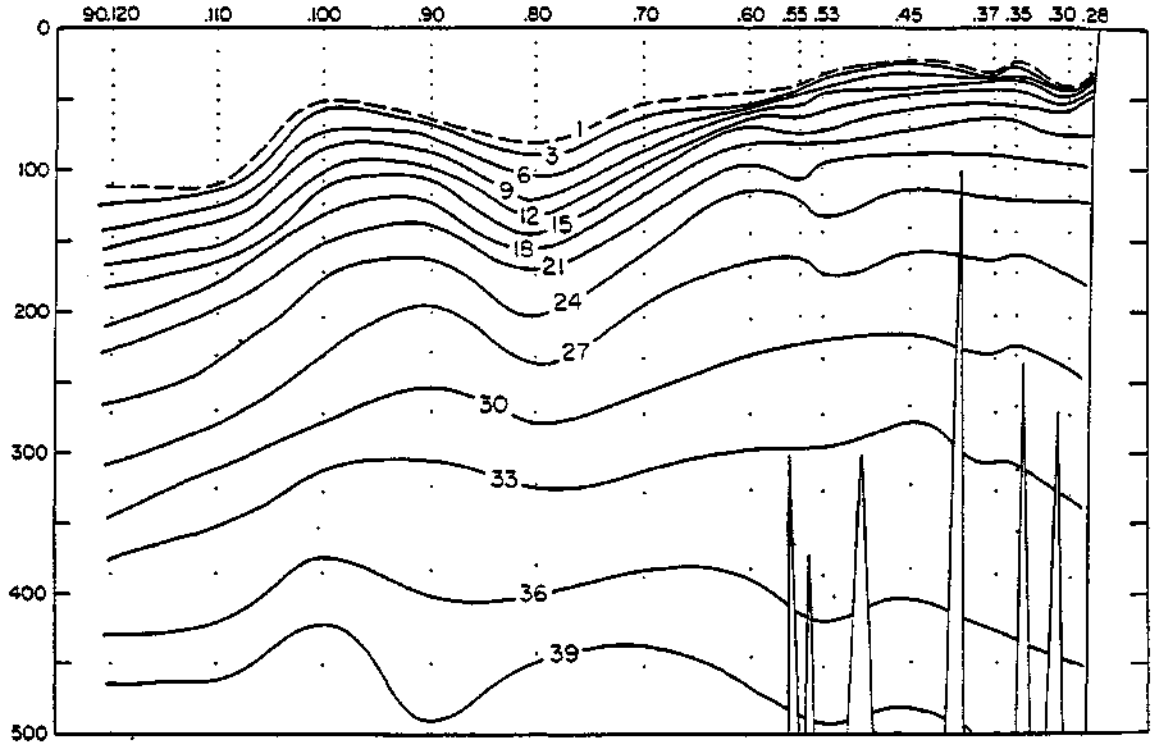


FIGURE 5F

CALCOFI CRUISE 9004

21-23 APRIL 1990

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

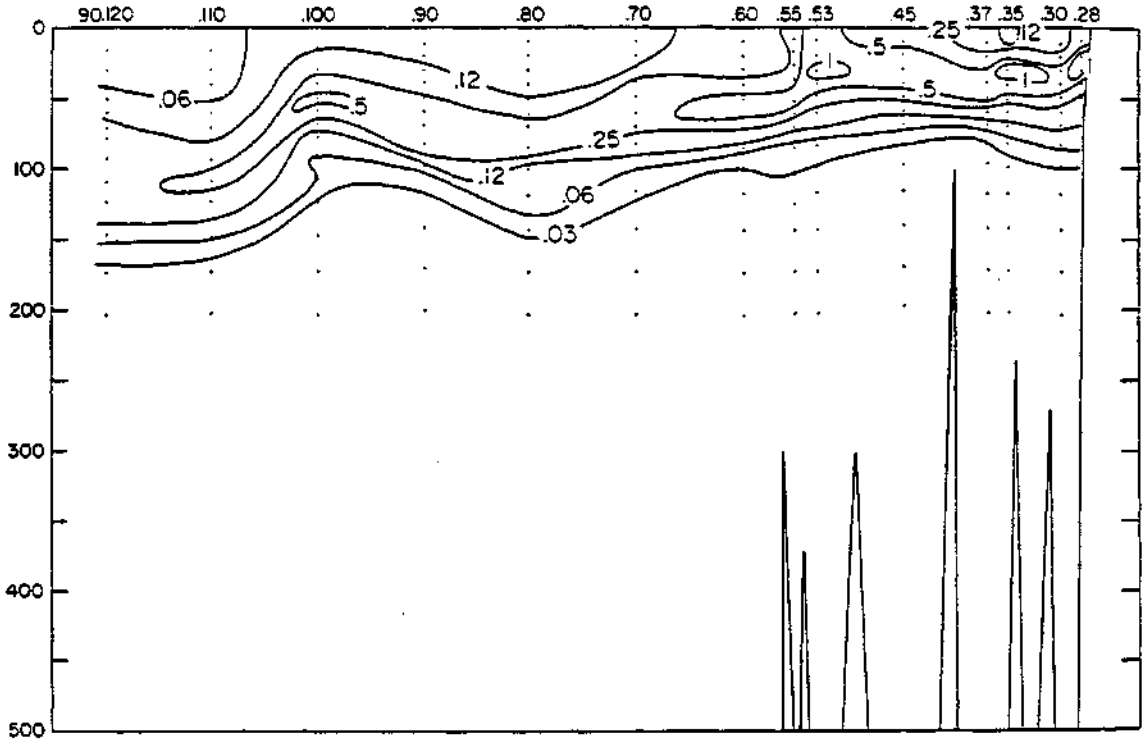


FIGURE 5G

OXYGEN SATURATION (%) ALONG CALCOFI LINE 90

DEPTH (m)

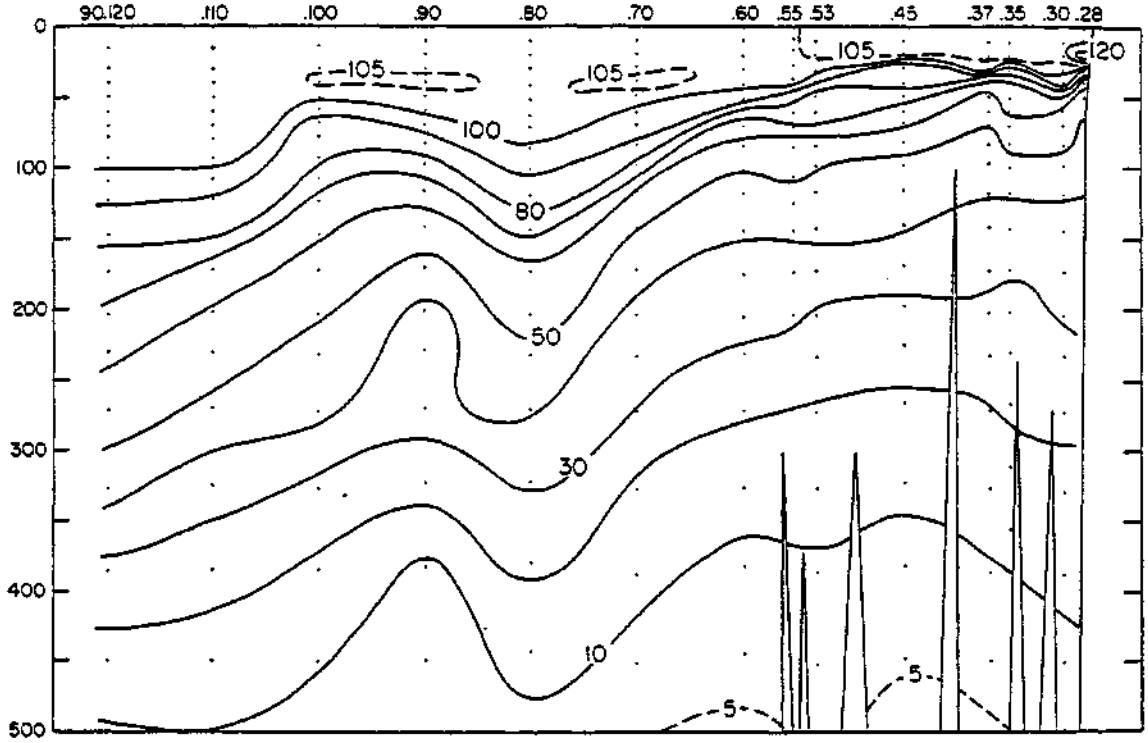


FIGURE 5H

CALCOFI CRUISE 9004

21-23 APRIL 1990

OXYGEN (ml/l) ALONG CALCOFI LINE 90

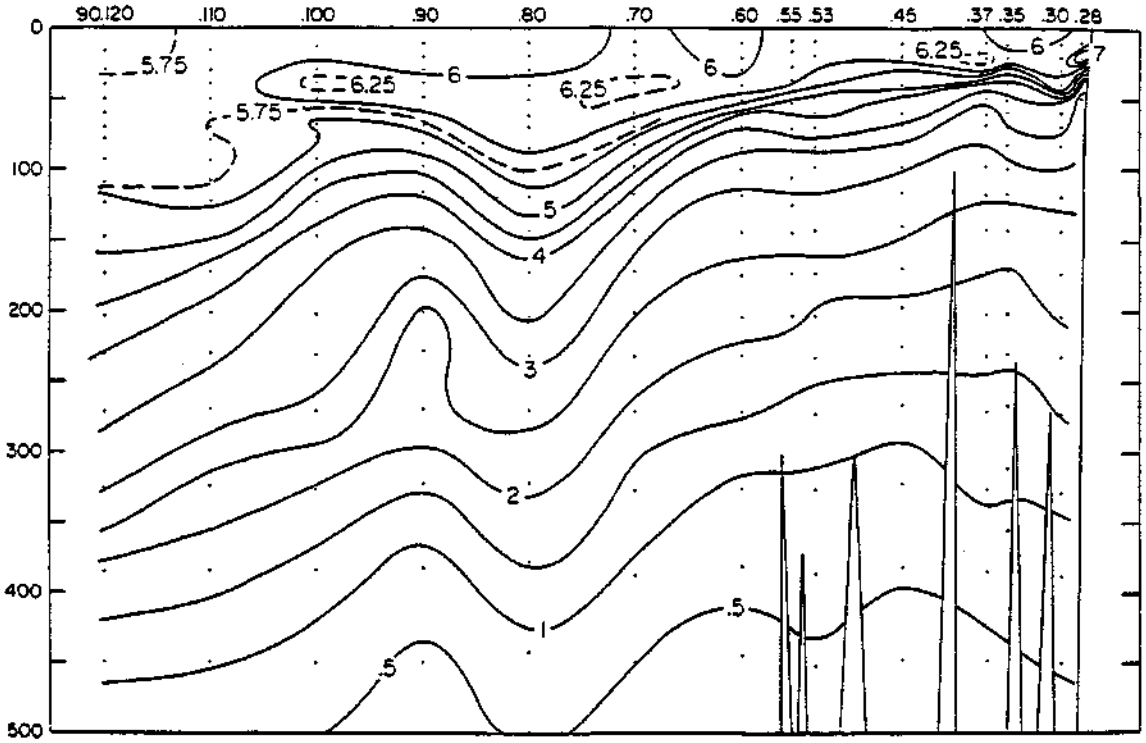


FIGURE 5I

NITRITE (μM/l) ALONG CALCOFI LINE 90

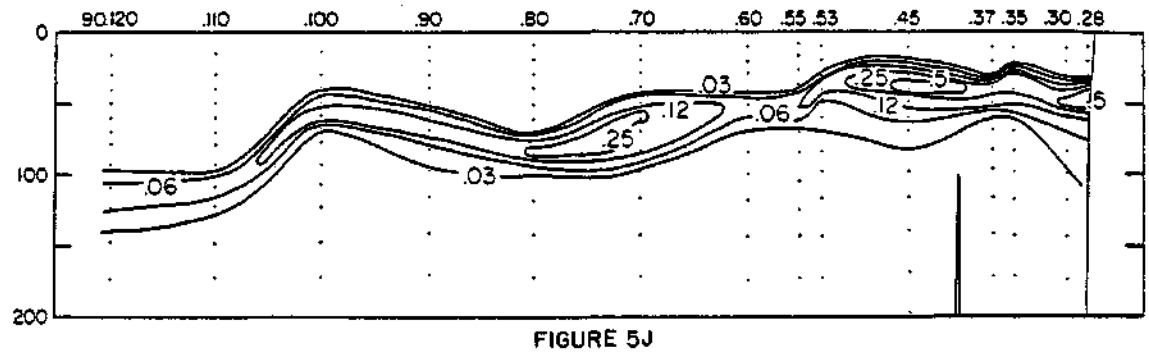


FIGURE 5J

PHAEOPIGMENTS (μg/l) ALONG CALCOFI LINE 90

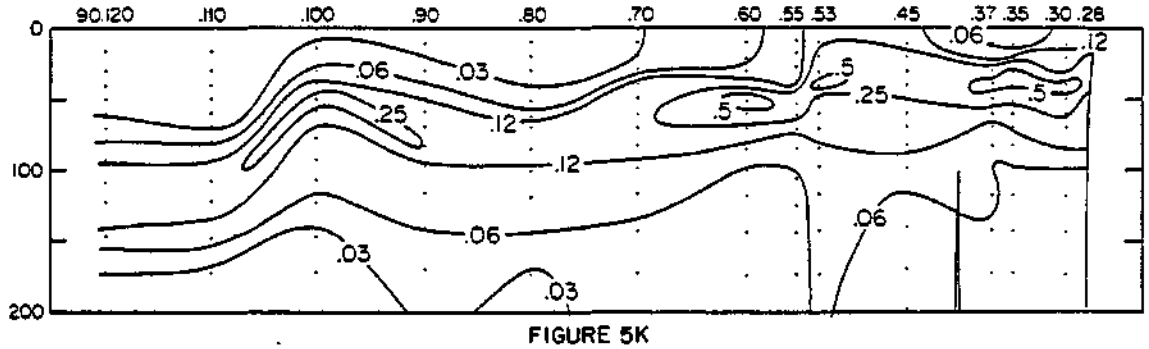


FIGURE 5K

PERSONNEL

CalCOFI Cruise 9004

SHIP'S CAPTAIN

Thomas L. Meyers, RV *David Starr Jordan*

PERSONNEL PARTICIPATING IN THE COLLECTION OF DATA

		Participation (Leg)
Griffith, David A. (in charge)	Fishery Biologist, NMFS	I,II
Abramenkoff, Dimitry N.	Fishery Biologist, NMFS	I, II
Acuna, Elaine M.	Biological Technician, NMFS	I, II
Dotson, Ronald C.	Fishery Biologist, NMFS	I, II
Foster, Diane E.	Secretary, NMFS	I
Gripp, Sherry L.	Staff Research Associate, SIO	I, II
Gruber, Dennis W.	Marine Technician, SIO	I,II
Hester, Arthur W.	Staff Research Associate, SIO	I,II
Lowell, William R.	Staff Research Associate, SIO	I, II
Meyer, Cindy A.	Computer Programmer, NMFS	I
Miller, Susan M	Fishery Technician, NMFS	II
Molina, Kathy C.	Preparator, L.A. County Museum of Natural History	II
Mullin, Michael M	Professor, Director of MLRG, SIO	I, II
Pyle, Peter B.	Biologist, Pt. Reyes Bird Observatory	I, II
Renger, Edward H.	Staff Research Associate, SIO	I, II

Leg t San Diego to Dana Point, CA, 17 - 23 April 1990

Leg It Dana Point to San Diego, CA, 24 April - 2 May 1990

RV DAVID STARR JORDAN | CALCOFI CRUISE 9004 | STATION 80 51

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
34 26.9 N	120 31.6 W	29/04/90	1018 UTC	73 M	320	25 KT			1012.1 MB	12.9 C	10.8 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 D.BAR
1	0		12.12	12.12	33.683	25.544	243.0	0.000	4.61	75.7'	16.3	1.32	13.7	0.22	1.21	0.44	0
	10	ISL	12.10	12.10	33.684	25.549	242.8	0.024	4.60	75.5	16.4	1.31	13.7	0.22	1.24	0.41	10
1	11		12.10	12.10	33.684	25.549	242.8	0.027	4.60	75.5	16.4	1.31	13.7	0.22	1.24	0.41	11
	20	ISL	12.08	12.08	33.685	25.554	242.6	0.049	4.56	74.9	16.5	1.32	13.8	0.22	1.19	0.41	20
1	22		12.07	12.07	33.685	25.556	242.5	0.053	4.54	74.5	16.5	1.33	13.9	0.22	1.17	0.41	22
	30	ISL	11.98	11.98	33.686	25.574	241.0	0.073	4.40	72.1	16.9	1.36	14.4	0.22	1.08	0.40	30
1	32		11.96	11.96	33.693	25.583	240.1	0.078	4.34	71.1	17.1	1.37	14.6	0.22	1.04	0.39	32
1	43		11.33	11.32	33.705	25.709	228.4	0.103	3.72	60.1	18.2	1.48	16.3	0.21	0.68	0.30	43
	50	ISL	10.90	10.89	33.772	25.839	216.2	0.119	3.15	50.4	21.4	1.70	19.5	0.15	0.34	0.22	50
1	54		10.66	10.65	33.811	25.911	209.3	0.127	2.82	44.9	23.3	1.83	21.3	0.11	0.14	0.17	54

RV DAVID STARR JORDAN | CALCOFI CRUISE 9004 | STATION 80 55

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
34 18.9 N	120 48.1 W	29/04/90	1258 UTC	760 M	320	26 KT	320 07 09	1	1013.0 MB	14.0 C	11.2 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 D.BAR
	0	ISL	11.74	11.74	33.609	25.558	241.7	0.000	5.99	97.6	8.4	0.72	6.9	0.17	11.59	1.68	0
1	2		11.74	11.74	33.609	25.558	241.7	0.005	5.99	97.6	8.4	0.72	6.9	0.17	11.59	1.68	2
	10	ISL	11.72	11.72	33.609	25.562	241.5	0.024	5.97	97.2	8.5	0.77	7.1	0.17	11.14	1.51	10
1	12		11.71	11.71	33.609	25.564	241.4	0.029	5.96	97.0	8.5	0.79	7.1	0.17	10.94	1.45	12
	20	ISL	11.60	11.60	33.617	25.591	239.1	0.048	5.76	93.6	9.5	0.79	8.0	0.18	9.95	1.37	20
1	22		11.57	11.57	33.619	25.598	238.5	0.053	5.71	92.7	9.8	0.79	8.2	0.18	9.70	1.35	22
	30	ISL	10.84	10.84	33.680	25.777	221.5	0.071	4.22	67.5	17.0	1.25	15.6	0.10	2.61	0.60	30
1	32		10.65	10.65	33.697	25.824	217.1	0.076	3.84	61.1	18.8	1.38	17.5	0.08	0.86	0.41	32
1	42		10.47	10.47	33.728	25.880	212.1	0.097	3.52	55.8	20.9	1.63	19.4	0.04	0.15	0.37	42
	50	ISL	10.30	10.29	33.804	25.969	203.8	0.114	3.08	48.7	24.2	1.79	21.5	0.02	0.08	0.34	50
1	53		10.24	10.23	33.835	26.003	200.6	0.120	2.92	46.1	25.4	1.83	22.3	0.02	0.06	0.33	53
1	63		10.03	10.02	33.892	26.083	193.2	0.140	2.64	41.5	27.4	1.82	23.7	0.02	0.05	0.24	63
	75	ISL	9.80	9.79	33.946	26.164	185.7	0.162	2.46	38.5	29.6	1.94	24.9	0.02	0.02	0.18	75
1	76		9.78	9.77	33.950	26.171	185.1	0.164	2.45	38.3	29.8	1.95	25.0	0.02	0.02	0.18	76
1	90		9.60	9.59	33.982	26.226	180.2	0.190	2.28	35.5	31.5	1.96	26.1	0.02	0.04	0.26	91
	100	ISL	9.56	9.55	33.997	26.245	178.6	0.208	2.18	33.9	32.0	2.03	26.6	0.01	0.03	0.25	101
1	109		9.51	9.50	34.009	26.262	177.1	0.224	2.12	33.0	32.5	2.11	26.9	0.01	0.02	0.24	II0
	125	ISL	9.25	9.24	34.033	26.323	171.6	0.252	2.15	33.3	34.3	2.18	27.4	0.01	0.02	0.27	126
1	128		9.20	9.19	34.037	26.335	170.6	0.257	2.16	33.4	34.7	2.19	27.5	0.01	0.02	0.27	129
	150	ISL	9.07	9.05	34.061	26.375	167.2	0.294	2.06	31.7	36.2	2.24	28.2	0.01	0.02	0.22	151
1	153		9.06	9.04	34.064	26.379	166.9	0.299	2.04	31.4	36.4	2.25	28.3	0.01	0.02	0.21	154
1	182		8.88	8.86	34.099	26.435	162.0	0.347	2.02	31.0	37.9	2.29	28.7	0.01	0.03	0.17	183
	200	ISL	8.71	8.69	34.115	26.474	158.6	0.375	1.97	30.1	39.9	2.31	29.3	0.02			201
1	214		8.58	8.56	34.128	26.505	155.9	0.397	1.89	28.8	41.6	2.34	29.8	0.02			**215**
1	247		8.48	8.45	34.178	26.560	151.3	0.448	1.56	23.7	44.5	2.44	30.6	0.02			**249**
	250	ISL	8.46	8.43	34.180	26.565	150.9	0.453	1.54	23.4	44.8	2.45	30.7	0.02			**252**
1	285		8.18	8.15	34.195	26.619	146.2	0.505	1.37	20.7	48.6	2.54	31.8	0.03			**287**
	300	ISL	8.01	7.98	34.198	26.647	143.8	0.526	1.28	19.3	50.7	2.60	32.5	0.03			**302**
1	339		7.52	7.49	34.193	26.715	137.7	0.581	1.10	16.4	56.3	2.75	34.3	0.03			**341**
1	400		6.71	6.67	34.145	26.790	130.9	0.663	1.15	16.8	62.8	2.80	35.9	0.01			403
1	468		6.02	5.98	34.138	26.874	123.2	0.750	0.91	13.1	73.3	2.83	38.6	0.01			**471**
	500	ISL	5.96	5.92	34.204	26.934	118.0	0.788	0.68	9.8	77.5	2.98	39.2	0.01			**504**
1	549		5.86	5.81	34.304	27.026	109.9	0.844	0.34	4.9	83.9	3.20	40.1	0.01			**553**

RV DAVID STARR JORDAN | CALCOFI CRUISE 9004 | STATION 80 60

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
34 9.1 N	121 9.1 W	29/04/90	1717 UTC	2227 M	320	20 KT	310 09 09	1	1014.9 MB	14.5 C	13.2 C	1/8	CU

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 D.BAR
	0	ISL	12.21	12.21	33.684	25.528	244.5	0.000	5.46	89.9	14.0	1.14	11.1	0.27	1.70	0.58	0
1	1		12.21	12.21	33.684	25.528	244.6	0.002	5.46	89.9	14.0	1.14	11.1	0.27	1.70	0.58	1
	10	ISL	12.16	12.16	33.684	25.538	243.9	0.024	5.44	89.5	14.0	1.16	11.2	0.27	1.29	0.45	10
1	12		12.15	12.15	33.684	25.540	243.7	0.029	5.44	89.4	14.0	1.17	11.2	0.27	1.16	0.42	12
	20	ISL	11.84	11.84 -	33.643	25.566	241.4	0.049	5.13	83.8	14.1	1.19	12.2	0.27	0.85	0.52	20
1	21		11.78	11.78	33.637	25.573	240.8	0.051	5.08	82.8	14.1	1.19	12.3	0.27	0.81	0.53	21
	30	ISL	11.02	11.02	33.606	25.688	230.1	0.072	4.77	76.5	14.4	1.28	13.5	0.27	0.50	0.40	30
1	31		10.93	10.93	33.604	25.702	228.7	0.075	4.74	75.9	14.4	1.29	13.7	0.27	0.47	0.38	31
1	42		10.42	10.42	33.577	25.771	222.4	0.099	4.32	68.4	16.9	1.44	16.8	0.15	0.18	0.30	42
	50	ISL	10.20	10.19	33.577	25.808	219.0	0.117	4.25	66.9	17.5	1.47	17.3	0.10	0.16	0.29	50
1	53		10.14	10.13	33.583	25.823	217.6	0.124	4.22	66.4	17.7	1.48	17.4	0.09	0.15	0.29	53
1	62		10.00	9.99	33.633	25.886	211.8	0.143	3.92	61.5	20.0	1.59	19.2	0.05	0.08	0.23	62
	75	ISL	9.61	9.60	33.751	26.043 .	197.1	0.170	3.39	52.8	24.2	1.81	22.2	0.03	0.03	0.18	75
1	76		9.58	9.57	33.759	26.055	196.1	0.171	3.36	52.3	24.5	1.82	22.4	0.03	0.03	0.18	76
1	90		9.23	9.22	33.786	26.133	188.9	0.198	3.26	50.3	26.1	1.85	23.7	0.05	0.02	0.21	90
	100	ISL	8.93	8.92	33.826	26.212	181.5	0.217	3.25	49.8	28.0	1.88	24.6	0.05	0.01	0.17	101
1	U0		8.66	8.65	33.866	26.286	174.7	0.235	3.24	49.4	29.8	1.91	25.3	0.04	0.01	0.13	111
	125	ISL	8.48	8.47	33.895	26.336	170.1	0.261	3.25	49.4	31.1	1.94	25.7	0.03	0.01	0.14	126
1	131		8.43	8.42	33.903	26.350	168.9	0.271	3.25	49.3	31.5	1.95	25.8	0.03	0.01	0.15	132
	150	ISL	8.20	8.18	33.941	26.415	163.0	0.302	3.17	47.8	33.7	1.99	26.5	0.03	0.01	0.14	151
1	155		8.15	8.13	33.951	26.430	161.7	0.310	3.14	47.3	34.3	2.00	26.7	0.03	0.01	0.14	156
1	185		7.98	7.96	34.003	26.497	155.9	0.358	2.86	43.0	37.8	2.12	28.0	0.02	0.01	0.09	186
	200	ISL	7.96	7.94	34.024	26.516	154.2	0.381	2.71	40.7	39.5	2.17	28.6	0.01	0.01	0.09	201
1	219		7.95	7.93	34.054	26.542	152.2	0.410	2.47	37.1	41.9	2.26	29.4	0.01	0.00	0.08	220
	250	ISL	7.85	7.83	34.125	26.613	146.0	0.457	1.84	27.6	47.5	2.49	31.5	0.01			252
1	253		7.83	7.80	34.131	26.620	145.3	0.461	1.79	26.8	48.1	2.51	31.7	0.01			**255**
1	293		7.36	7.33	34.110	26.672	140.9	0.518	1.74	25.8							**295**
	300	ISL	7.34	7.31	34.119	26.682	140.0	0.528	1.67	24.7	53.7	2.70	33.5	0.01			**302**
1	346		7.29	7.26	34.184	26.741	135.2	0.591	1.16	17.2	57.9	2.81	34.7	0.01			**348**
	400	ISL	6.75	6.71	34.162	26.798	130.2	0.663	1.04	15.2	63.9	2.92	36.1	0.01			**403**
1	411		6.63	6.59	34.156	26.809	129.2	0.677	1.03	15.0	58.1 U	2.79 U	34.7 U	0.01			**414**
1	479		6.33	6.29	34.220	26.900	121.4	0.763	0.62	9.0	64.9 U	2.90 U	37.1 U	0.01			**482**
	500	ISL	6.23	6.19	34.242	26.930	118.7	0.788	0.55	7.9	75.0	3.12	38.7	0.01			**504**
. 1	558		5.97	5.92	34.302	27.011	111.6	0.855	0.35	5.0	81.5	3.23	40.2	0.01			**562**

RV DAVID STARR JORDAN CALCOFI CRUISE 9004 STATION 82 47

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
34 16.4 N	120 1.6 W	29/04/90	0330 UTC	577 M		00 KT	2 80 03 06	1	1011.5 MB	15.0 C	13.8 C	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 D.BAR
1	0 A	15.42	15.42	33.623	24.819	312.0	0.000	6.48	113.9	5.5	0.40	0.1	0.01	1.45	0.44	0
1	10	14.07	14.07	33.613	25.102	2 85.4	0.030	6.52	111.5	6.8	0.48	0.7	0.06	3.44	1.05	10
1	20	12.82	12.82	33.656	25.388	258.3	0.057	5.35	89.2	11.1	0.91	7.5	0.24	1.91	0.78	20
1	30	11.51	11.51	33.673	25.651	233.6	0.082	4.25	68.9	16.2	1.33	14.1	0.29	0.93	0.45	30
1	47	10.46	10.45	33.841	25.970	203.6	0.119	2.76	43.8	24.8	1.88	22.2	0.04	0.13	0.20	47
	50 ISL	10.44	10.43	33.857	25.986	202.2	0.125	2.74	43.5	25.5	1.90	22.5	0.04	0.11	0.20	50
1	62	10.38	10.37	33.888	26.020	199.1	0.149	2.68	42.5	27.1	1.96	23.6	0.03	0.05	0.21	62
	75 ISL	10.03	10.02	33.955	26.133	188.7	0.174	2.48	39.0	28.7	2.02	24.5	0.03	0.03	0.22	75
1	76	10.00	9.99	33.960	26.142	187.9	0.176	2.46	38.7	28.8	2.02	24.6	0.03	0.03	0.22	76
1	91	9.88	9.87	34.002	26.195	183.1	0.204	2.36	37.0	29.9	2.07	25.2	0.03	0.02	0.13	92
	100 ISL	9.77	9.76	34.036	26.240	179.1	0.220	2.27	35.5	31.1	2.12	25.7	0.03	0.02	0.13	101
1	106	9.69	9.68	34.055	26.268	176.5	0.231	2.20	34.4	32.0	2.15	26.1	0.03	0.02	0.13	107
1	121	9.47	9.46	34.063	26.311	172.7	0.257	2.08	32.3	33.9	2.20	27.2	0.03	0.03	0.18	122
	125 ISL	9.42	9.41	34.066	26.322	171.8	0.264	2.06	32.0	34.3	2.22	27.4	0.03	0.03	0.18	126
1	146	9.24	9.22	34.090	26.370	167.6	0.300	1.97	30.5	36.4	2.29	28.3	0.03	0.02	0.18	147
	150 ISL	9.22	9.20	34.097	26.379	166.8	0.306	1.94	30.0	36.7	2.30	28.4	0.03	0.02	0.17	151
1	174	9.13	9.11	34.135	26.423	163.1	0.346	1.78	27.5	38.5	2.35	29.0	0.03	0.02	0.14	175
	200 ISL	8.97	8.95	34.156	26.466	159.5	0.388	1.66	25.5	40.7	2.42	29.7	0.02	0.01	0.12	201
1	205	8.93	8.91	34.159	26.474	158.8	0.396	1.63	25.0	41.2	2.44	29.9	0.02	0.01	0.12	206
1	243	8.47	8.44	34.171	26.556	151.6	0.455	1.28	19.5	47.6	2.60	31.6	0.02	0.01	0.14	245
	250 ISL	8.40	8.37	34.173	26.568	150.5	0.465	1.23	18.7	48.7	2.62	31.9	0.02			252
1	293	7.98	7.95	34.186	26.642	144.1	0.529	0.99	14.9	55.5	2.77	33.2	0.02			295
	300 ISL	7.92	7.89	34.188	26.653	143.2	5.539	0.98	14.7	56.6	2.79	33.4	0.02			302
1	341	7.58	7.55	34.202	26.714	137.9	0.596	0.89	13.3	63.6	2.94	34.0	0.02			343
1	389	7.14	7.10	34.222	26.792	131.0	0.661	0.52	7.7	73.2	3.12	34.4	0.02			392
	400 ISL	7.06	7.02	34.225	26.805	129.8	0.675	0.53	7.8	74.1	3.14	34.4	0.02			403
1	429	6.88	6.84	34.233	26.837	127.'l	0.712	0.57	8.4	78.1	3.20	34.3	0.02			432
1	467	6.62	6.58	34.242	26.879	123.4	0.760			93.0	3.44	30.7	0.02			470
1	497	6.52	6.47	34.243	26.893	122.4	0.797	0.25	3.6	101.5	3.66	27.0	0.01			501
	500 ISL	6.51	6.46	34.243	26.895	122.3	0.801	0.22	3.2	102.9	3.70	26.4	0.01			504
1	517	6.49	6.44	34.244	26.898	122.2	0.821	0.07	1.0	109.7	3.91	23.8	0.01			521
1	537	6.46	6.41	34.248	26.906	121.8	0.846	0.08	1.2	111.3	3.94	23.6	0.02			541
1	548	6.45	6.40	34.247	26.906	121.9	0.859	0.05	0.7	116.0	4.12	21.2	0.02			552
1	558	6.44	6.39	34.245	26.906	122.1	0.871	0.05	0.7	120.7	4.31	17.9	0.01			562
1	568	6.44	6.39	34.244	26.906	122.3	0.884	0.04	0.6	123.3	4.40	16.7	0.01			572
1	572	6.43	6.38	34.243	26.906	122.3	0.888	0.04	0.6	124.8	4.45	15.8	0.01			576

A) SANTA BARBARA BASIN STATION.

RV DAVID STARR JORDAN CALCOFI CRUISE 9004 STATION 83 40.6

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
34 13.5 N	119 24.8 W	28/04/90	2238 UTC	33 M	270	08 KT	250 01 09	2	1013.1 MB	17.8 C	15.6 C	8/8	SC

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 D.BAR
1	0	15.72	15.72	33.625	24.754	318.2	0.000	6.54	115.7	3.6	0.37	0.0	0.01	2.42	0.46	0
1	10	14.42	14.42	33.597	25.016	293.5	0.031	6.21	107.0	4.7	0.46	0.7	0.06	3.07	0.87	10
1	20	13.79	13.79	33.612	25.159	2 80.2	0.059	5.64	95.9	6.6	0.64	3.4	0.11	2.08	0.55	20
1	30	13.28	13.28	33.620	25.270	269.9	0.087	5.16	86.8	9.1	0.89	5.8	0.21	1.32	0.49	30

RV DAVID STARR JORDAN CALCOFI CRUISE 9004 STATION 83 42

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
34 11.7 N	119 30.5 W	28/04/90	2031 UTC	105 M	0 80	05 KT	0 80 01 07	2	1014.8 MB	18.8 C	16.5 C	8/8	ST

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 D.BAR
1	0	14.83	14.83	33.573	24.909	303.4	0.000	6.03	104.7	4.8	0.41	0.4	0.03	0.82	0.19	0
1	9	13.71	13.71	33.600	25.166	279.2	0.026	5.49	93.2	7.3	0.69	4.1	0.15	1.19	0.34	9
	10 ISL	13.70	13.70	33.601	25.169	279.0	0.029	5.48	93.0	7.4	0.69	4.2	0.15	1.18	0.36	10
1	20	13.55	13.55	33.612	25.208	275.5	0.057	5.36	90.7	8.0	0.74	5.0	0.14	0.98	0.51	20
1	30	13.41	13.41	33.620	25.243	272.4	0.084	5.26	88.8	8.4	0.79	5.6	0.15	0.85	0.56	30
1	39	12.87	12.86	33.648	25.373	260.3	0.108	4.91	81.9	10.8	0.97	8.0	0.19	0.77	0.38	39
1	50	12.21	12.20	33.710	25.549	243.8	0.136	4.38	72.1	14.6	1.21	11.7	0.19	0.60	0.42	50
1	60	11.36	11.35	33.722	25.717	228.0	0.159	3.87	62.6	17.0	1.43	15.5	0.14	0.27	0.23	60
1	70	10.70	10.69	33.787	25.886	212.1	0.181	3.03	48.3	20.9	1.78	20.6	0.04	0.08	0.11	70
	75 ISL	10.52	10.51	33.826	25.948	206.3	0.192	2.86	45.4	22.3	1.85	21.8	0.04	0.06	0.11	75
1	83	10.35	10.34	33.885	26.024	199.3	0.208	2.74	43.4	24.1	1.91	22.7	0.03	0.03	0.10	83
1	99	10.09	10.08	33.972	26.136	188.9	0.239	2.45	38.6	27.0	2.07	24.3	0.06	0.03	0.16	100

RV DAVID STARR JORDAN CALCOFI CRUISE 9004 STATION 83 51

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
33 52.9 N	120 8.1 W	28/04/90	142 8 UTC	96 M	090	12 KT	060 01 08	2	1013.9 MB	14.4 C	13.6 C	8/8	SC

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 D.BAR
	0 ISL	15.03	15.03	33.576	24.869	307.3	0.000	5.94	103.6	4.5	0.41	0.6	0.03	0.92	0.26	- 0
1	1	15.03	15.03	33.576	24.869	307.3	0.003	5.94	103.6	4.5	0.41	0.6	0.03	0.92	0.26	1
	10 ISL	14.13	14.13	33.571	25.057	289.6	0.030	5.76	98.6	5.8	0.54	2.5	0.08	1.15	0.29	10
1	12	13.84	13.84	33.574	25.119	2 83.7	0.036	5.68	96.7	6.4	0.59	3.2	0.10	1.22	0.31	12
	20 ISL	13.15	13.15	33.607	25.285	268.2	0.058	5.30	88.9	9.4	0.80	6.2	0.12	1.39	0.42	20
1	22	12.99	12.99	33.615	25.323	264.6	0.063	5.20	87.0	10.1	0.85	7.0	0.12	1.43	0.44	22
	30 ISL	12.26	12.26	33.608	25.460	251.8	0.084	4.85	79.9	11.4	1.00	9.3	0.16	0.93	0.33	30
1	32	12.09	12.09	33.606	25.491	248.9	0.089	4.77	78.3	11.7	1.04	9.9	0.17	0.79	0.29	32
1	42	11.50	11.49	33.636	25.624	236.4	0.113	4.34	70.3	14.4	1.23	13.1	0.16	0.58	0.24	42
	50 ISL	11.48	11.47	33.654	25.642	234.9	0.132	4.28	69.3	15.1	1.25	13.5	0.14	0.60	0.26	50
1	52	11.48	11.47	33.658	25.645	234.7	0.137	4.26	69.0	15.3	1.26	13.6	0.13	0.60	0.27	52
1	62	10.61	10.60	33.794	25.907	209.9	0.159	3.37	53.6	22.0	1.66	19.3	0.09	0.26	0.23	62
	75 ISL	10.07	10.06	33.888	26.074	194.4	0.185	2.88	45.3	26.3	1.88	22.5	0.08	0.10	0.16	75
1	77	9.99	9.98	33.903	26.099	192.0	0.189	2.81	44.1	27.0	1.91	23.0	0.08	0.08	0.15	77

RV DAVID STARR JORDAN | CALCOFI CRUISE 9004 | STATION 83 55

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	HAVES	HEATHER	BAROMETER	DRY	WET	CLOUD AMT TYPE
33 44.7 N	120 24.7 U	28/04/90	1111 UTC	1066 M	320 11 KT			1013.9 MB	13.7 C	12.9 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 D.BAR
	0 ISL	12.54	12.54	33.450	25.283	267.9	0.000	6.04	100.0	4.1	0.53	3.4	0.11	2.02	0.73	0
1	2	12.54	12.54	33.450	25.283	267.9	0.005	6.04	100.0	4.1	0.53	3.4	0.11	2.02	0.73	2
	10 ISL	12.44	12.44	33.445	25.298	266.6	0.027	5.96	98.4	4.5	0.60	3.9	0.11	2.01	0.84	10
1	12	12.41	12.41	33.447	25.306	266.0	0.032	5.94	98.1	4.7	0.62	4.1	0.11	2.01	0.87	12
	20 ISL	12.44	12.44	33.498	25.340	262.9	0.053	5.93	98.0	5.2	0.59	4.3	0.13	2.84	0.79	20
1	22	12.44	12.44	33.513	25.352	261.9	0.058	5.93	98.0	5.3	0.58	4.4	0.13	3.10	0.77	22
1	30	12.32	12.32	33.542	25.397	257.7	0.079	5.89	97.1	6.1	0.64	5.0	0.14	3.95	1.34	30
1	40	12.29	12.28	33.580	25.433	254.6	0.105	5.93	97.7	6.8	0.77	5.7	0.15	5.28	1.09	40
1	50	,11.76	11.75	33.497	25.468	251.4	0.130	5.58	90.9	7.9	0.86	7.4	0.13	3.58	0.87	50
1	60	10.32	10.31	33.413	25.660	233.3	0.154	4.69	74.0	13.8	1.22	14.3	0.09	0.93	0.56	60
1	75	10.21	10.20	33.563	25.796	220.7	0.188	4.27	67.3	17.1	1.38	17.2	0.07	0.34	0.84	75
1	89	9.86	9.85	33.696	25.959	205.5	0.218	3.63	56.8	22.1	1.58	20.7	0.03	0.11	0.25	89
	100 ISL	9.38	9.37	33.793	26.114	190.9	0.240	3.24	50.2	26.3	1.76	23.3	0.02	0.07	0.19	101
1	108	9.07	9.06	33.850	26.209	182.0	0.255	3.03	46.6	28.8	1.88	24.7	0.02	0.04	0.15	109
	125 ISL	8.95	8.94	33.902	26.269	176.7	0.285	2.91	44.7	30.6	1.98	25.6	0.02	0.11	0.21	126
1	127	8.95	8.94	33.905	26.271	176.5	0.289	2.90	44.5	30.7	1.99	25.6	0.02	0.12	0.22	128
	150 ISL	8.39	8.37	33.961	26.402	164.3	0.328	3.00	45.5	33.9	2.00	26.5	0.02	0.02	0.08	151
1	152	8.34	8.32	33.965	26.413	163.4	0.331	3.02	45.7	34.2	2.00	26.6	0.02	0.01	0.07	153
1	182	8.01	7.99	33.983	26.477	157.7	0.380	3.15	47.4	36.6	2.05	27.4	0.02	0.01	0.06	183
	200 ISL	7.82	7.80	33.999	26.517	154.1	0.408	2.93	43.9	39.3	2.05	28.4	0.02	0.01	0.06	201
1	215	7.69	7.67	34.019	26.552	151.0	0.431	2.65	39.6	42.0	2.05	29.4	0.02	0.01	0.06	216
1	250	7.54	7.52	34.110	26.646	142.7	0.482	1.88	28.0	49.4	2.38	31.9	0.01			252
1	290	7.20	7.17	34.096	26.683	139.6	0.538	1.75	25.8	53.7	2.48	33.2	0.01			292
	300 ISL	7.15	7.12	34.106	26.698	138.4	0.552	1.65	24.3	55.0	2.54	33.6	0.01			**302**
1	343	6.98	6.95	34.162	26.766	132.5	0.611	1.19	17.5	60.5	2.78	35.4	0.01			345
	400 ISL	6.73	6.69	34.202	26.832	127.0	0.685	0.84	12.3	66.3	2.92	37.0	0.01			403
1	409	6.69	6.65	34.208	26.842	126.1	0.696	0.80	11.7	67.1	2.93	37.2	0.01			**412**
1	478	6.48	6.44	34.276	26.925	119.2	0.781	0.47	6.8	73.5	2.93	38.3	0.00			**481**
	500 ISL	6.36	6.31	34.285	26.947	117.2	0.807	0.43	6.2	75.5	3.00	38.8	0.00			**504**
1	560	6.02	5.97	34.309	27.011	111.7	0.875	0.33	4.7	80.9	3.18	40.0	0.00			**564**

RV DAVID STARR JORDAN | CALCOFI CRUISE 9004 | STATION 83 60

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT TYPE
33 34.8 N	120 45.3 W	28/04/90	0642 UTC	1696 M	300 15 KT			1014.6 MB	14.5 C	13.5 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 D.BAR
1	0	14.09	14.09	33.374	24.913	303.1	0.000	6.07	103.7	3.3	0.44	0.3	0.02	0.18	0.05	0
	10 ISL	13.94	13.94	33.409	24.971	297.8	0.030	6.10	103.9	3.4	0.45	0.6	0.04	0.19	0.06	10
1	16	13.85	13.85	33.430	25.006	294.6	0.048	6.11	103.9	3.5	0.45	0.7	0.05	0.19	0.06	16
	20 ISL	13.82	13.82	33.447	25.026	292.9	0.060	6.11	103.9	3.5	0.45	0.8	0.06	0.27	0.08	20
1	30	13.76	13.76	33.490	25.072	288.8	0.089	6.11	103.8	3.5	0.46	1.0	0.07	0.45	0.12	30
1	41	12.17	12.16	33.492	25.387	259.0	0.119	5.71	93.8	6.6	0.80	5.4	0.47	0.36	0.15	41
1	50	11.35	11.34	33.520	25.562	242.5	0.141	5.16	83.3	10.2	1.07	10.4	0.42	0.23	0.12	50
1	59	10.86	10.85	33.546	25.670	232.4	0.163	4.63	74.0	13.6	1.27	13.9	0.09	0.20	0.13	59
1	75	10.02	10.01	33.698	25.934	207.6	0.198	3.70	58.1	21.5	1.66	20.3	0.02	0.05	0.16	75
1	89	9.12	9.11	33.688	26.074	194.5	0.226	3.67	56.5	24.2	1.73	22.4	0.02	0.02	0.06	89
	100 ISL	9.02	9.01	33.766	26.151	187.3	0.247	3.41	52.4	26.5	1.81	23.8	0.01	0.01	0.05	101
1	104	8.99	8.98	33.788	26.173	185.3	0.255	3.32	51.0	27.2	1.84	24.2	0.01	0.01	0.05	105
1	118	8.76	8.75	33.843	26.252	178.0	0.280	3.38	51.6	28.5	1.84	24.5	0.01	0.01	0.05	119
	125 ISL	8.68	8.67	33.865	26.282	175.3	0.292	3.32	50.6	29.4	1.87	24.9	0.01	0.01	0.05	126
1	138	8.56	8.55	33.902	26.330	171.0	0.315	3.16	48.1	31.3	1.93	25.9	0.01	0.01	0.05	139
	150 ISL	8.41	8.39	33.938	26.381	166.3	0.335	3.08	46.7	33.0	1.97	26.5	0.01	0.01	0.05	151
1	158	8.33	8.31	33.965	26.414	163.3	0.348	3.00	45.4	34.3	2.01	26.9	0.01	0.01	0.06	159
1	183	8.26	8.24	34.074	26.511	154.6	0.388	2.33	35.2	40.7	2.25	29.1	0.00	0.01	0.09	184
	200 ISL	8.11	8.09	34.102	26.556	150.6	0.414	2.12	32.0	43.3	2.34	30.1	0.00	0.01	0.10	201
1	215	7.96	7.94	34.111	26.585	148.0	0.436	2.01	30.2	45.2	2.40	30.9	0.00	0.01	0.11	216
1	250	7.68	7.66	34.135	26.645	142.8	0.487	1.67	24.9	50.1	2.54	32.5	0.00			**252**
1	290	7.44	7.41	34.175	26.712	137.1	0.543	1.26	18.7	55.2	2.71	34.1	0.00			**292**
	300 ISL	7.40	7.37	34.188	26.728	135.7	0.557	1.17	17.4	56.3	2.75	34.4	0.00			**302**
1	343	7.11	7.08	34.217	26.791	130.2	0.614	0.89	13.1	61.8	2.87	35.9	0.00			**345**
	400 ISL	6.12	6.08	34.144	26.866	123.2	0.686	0.89	12.8	72.2	2.96	39.1	0.00			**403**
1	406	6.02	5.98	34.137	26.873	122.5	0.694	0.89	12.8	73.2	2.97	39.4	0.00			**409**
1	473	5.94	5.90	34.226	26.954	115.7	0.773	0.52	7.5	78.2	3.12	40.1	0.00			**476**
	500 ISL	5.79	5.75	34.234	26.979	113.5	0.804	0.47	6.7	81.3	3.15	40.6	0.00			**504**
1	552	5.49	5.44	34.251	27.029	109.1	0.862	0.38	5.4	87.2	3.22	41.6	0.00			**556**

RV DAVID STARR JORDAK CALCOFI CRUISE 9004 STATION 83 70

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
33 14.8 N	121 25.9 W	28/04/90	0051 UTC	3677 M	330	18 KT	330 05 09	2	1015.5 MB	15.0 C	14.3 C	8/8	SC

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 D.BAR
1	0		14.94	14.94	33.383	24.739	319.6	0.000	5.92	102.9	2.6	0.37	0.0	0.00	0.08	0.03	0
	10	ISL	14.93	14.93	33.383	24.742	319.6	0.032	5.92	102.9	2.5	0.37	0.0	0.00	0.08	0.02	10
1	15		14.93	14.93	33.383	24.742	319.8	0.048	5.92	102.9	2.5	0.37	0.0	0.00	0.08	0.02	15
	20	ISL	14.92	14.92	33.383	24.744	319.7	0.064	5.92	102.9	2.5	0.37	0.0	0.00	0.08	0.02	20
	30	ISL	14.89	14.89	33.383	24.751	319.4	0.096	5.93	103.0	2.5	0.36	0.0	0.00	0.08	0.03	30
1	31		14.89	14.89	33.383	24.751	319.4	0.099	5.93	103.0	2.5	0.36	0.0	0.00	0.08	0.03	31
1	41		14.84	14.83	33.382	24.761	318.7	0.131	5.93	102.9	2.5	0.36	0.0	0.00	0.09	0.03	41
	50	ISL	14.55	14.54	33.381	24.823	313.1	0.159	6.00	103.5	2.6	0.37	0.0	0.00	0.13	0.05	50
1	51		14.52	14.51	33.390	24.836	311.8	0.163	6.01	103.6	2.6	0.37	0.0	0.00	0.13	0.05	51
1	62		12.64	12.63	33.323	25.167	280.5	0.195	6.11	101.3	3.5	0.51	1.3	0.23	0.42	0.19	62
	75	ISL	12.06	12.05	33.292	25.254	272.5	0.231	5.89	96.4	4.4	0.64	3.4	0.30	0.36	0.21	75
1	76		12.05	12.04	33.291	25.255	272.4	0.234	5.86	95.9	4.5	0.65	3.6	0.30	0.36	0.21	76
1	90		11.56	11.55	33.313	25.363	262.4	0.271	5.58	90.4	6.0	0.81	6.4	0.04	0.21	0.16	90
	100	ISL	11.46	11.45	33.334	25.398	259.3	0.297	5.48	88.6	6.7	0.85	7.0	0.03	0.16	0.13	100
1	105		11.41	11.40	33.366	25.432	256.2	0.310	5.43	87.7	7.0	0.87	7.7	0.02	0.14	0.12	105
1	120		10.12	10.11	33.476	25.745	226.6	0.346	4.47	70.2	15.1	1.37	15.7	0.01	0.03	0.07	121
	125	ISL	10.03	10.02	33.529	25.801	221.3	0.358	4.29	67.3	16.7	1.45	17.1	0.01	0.03	0.06	126
1	140		9.75	9.73	33.619	25.918	210.4	0.390	3.90	60.8	19.9	1.60	19.6	0.01	0.01	0.05	141
	150	ISL	9.61	9.59	33.690	25.997	203.1	0.411	3.63	56.5	21.9	1.70	21.2	0.01	0.01	0.04	151
1	159		9.49	9.47	33.752	26.065	196.8	0.429	3.42	53.1	23.6	1.78	22.4	0.01	0.01	0.03	160
1	183		9.18	9.16	33.899	26.231	181.5	0.474	3.10	47.8	27.9	1.92	24.5	0.00	0.00	0.03	184
	200	ISL	8.71	8.69	33.950	26.345	170.8	0.504	3.13	47.8	30.9	1.97	25.6	0.00	0.00	0.03	201
1	218		8.19	8.17	33.979	26.447	161.2	0.534	3.17	47.8	34.2	2.01	26.5	0.00	0.00	0.02	219
1	250		7.64	7.62	34.005	26.549	151.9	0.584	3.00	44.7	40.6	2.12	28.2	0.00			251
1	292		6.99	6.96	34.013	26.647	143.0	0.646	2.58	37.9	49.1	2.35	31.3	0.00			294
	300	ISL	6.89	6.86	34.018	26.664	141.4	0.657	2.45	35.9	50.9	2.40	32.0	0.00			302
1	345		6.45	6.42	34.054	26.752	133.5	0.719	1.71	24.8	60.9	2.70	35.6	0.00			347
	400	ISL	6.06	6.03	34.105	26.843	125.3	0.790	1.12	16.1	70.2	2.93	38.4	0.00			403
1	408		6.01	5.97	34.112	26.854	124.3	0.800	1.05	15.1	71.4	2.96	38.7	0.00			411
1	478		5.65	5.61	34.179	26.953	115.6	0.884	0.60	8.5	80.7	3.16	40.7	0.00			481
	500	ISL	5.49	5.45	34.187	26.978	113.3	0.909	0.55	7.8	83.8	3.19	41.2	0.00			503
1	558		5.08	5.03	34.211	27.046	107.1	0.973	0.43	6.0	91.9	3.28	42.4	0.00			562

RV DAVID STARR JORDAN CALCOFI CRUISE 9004 STATION 83 80

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
32 54.7 N	122 7.6 W	27/04/90	1729 UTC	4114 M	330	19 KT	330 07 08	0	1017.0 MB	16.5 C	14.8 C	0/8	

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 D.BAR
	0	ISL	14.82	14.82	33.422	24.795	314.2	0.000	5.95	103.2	2.6	0.37	0.0	0.00	0.15	0.04	0
1	1		14.82	14.82	33.422	24.795	314.3	0.003	5.95	103.2	2.6	0.37	0.0	0.00	0.15	0.04	1
	10	ISL	14.80	14.80	33.421	24.799	314.2	0.031	5.96	103.3	2.6	0.37	0.0	0.00	0.15	0.04	10
1	17		14.79	14.79	33.421	24.802	314.2	0.053	5.96	103.3	2.6	0.37	0.0	0.00	0.15	0.04	17
	20	ISL	14.79	14.79	33.421	24.802	314.2	0.063	5.96	103.3	2.6	0.37	0.0	0.00	0.15	0.04	20
1	30		14.79	14.79	33.421	24.802	314.5	0.094	5.96	103.3	2.7	0.37	0.0	0.00	0.16	0.04	30
1	41		14.77	14.76	33.421	24.807	314.4	0.129	5.95	103.1	2.6	0.37	0.0	0.00	0.15	0.04	41
1	50		14.76	14.75	33.421	24.809	314.5	0.157	5.96	103.3	2.6	0.37	0.0	0.00	0.16	0.05	50
1	61		12.76	12.75	33.393	25.198	277.6	0.190	6.49	107.9	3.2	0.40	0.2	0.03	0.65	0.27	61
1	75		12.09	12.08	33.439	25.362	262.2	0.228	5.51	90.3	5.3	0.76	5.9	0.08	0.36	0.22	75
1	89		11.14	11.13	33.413	25.517	247.7	0.263	5.21	83.7	8.2	0.99	9.7	0.02	0.11	0.13	89
	100	ISL	10.52	10.51	33.475	25.675	232.8	0.290	4.52	71.6	13.0	1.28	14.2	0.02	0.07	0.09	100
1	104		10.34	10.33	33.509	25.733	227.4	0.299	4.26	67.3	14.8	1.38	15.8	0.02	0.06	0.08	104
1	119		10.00	9.99	33.651	25.901	211.6	0.332	3.75	58.8	19.6	1.60	19.3	0.01	0.01	0.07	120
	125	ISL	9.92	9.91	33.680	25.938	208.3	0.344	3.66	57.3	20.6	1.65	20.0	0.01	0.01	0.07	126
1	137		9.82	9.80	33.734	25.997	203.0	0.369	3.48	54.4	22.3	1.72	21.0	0.01	0.01	0.06	138
	150	ISL	9.77	9.75	33.856	26.100	193.4	0.395	3.05	47.7	25.3	1.86	22.9	0.01	0.00	0.05	151
1	158		9.74	9.72	33.930	26.163	187.6	0.410	2.80	43.7	27.1	1.94	24.0	0.01	0.00	0.04	159
1	185		9.38	9.36	34.014	26.289	176.2	0.459	2.61	40.5	30.4	2.06	25.7	0.00	0.00	0.03	186
	200	ISL	9.13	9.11	34.048	26.356	170.0	0.485	2.53	39.0	32.6	2.11	26.6	0.00	0.00	0.03	201
1	218		8.77	8.75	34.069	26.429	163.2	0.515	2.49	38.1	35.3	2.16	27.5	0.00	0.00	0.03	219
	250	ISL	7.99	7.96	34.027	26.515	155.3	0.566	2.74	41.2	39.2	2.17	28.5	0.00			251
1	255		7.87	7.84	34.018	26.526	154.3	0.574	2.77	41.5	39.9	2.17	28.7	0.00			256
1	295		7.29	7.26	34.018	26.609	146.8	0.634	2.42	35.8	47.2	2.36	31.2	0.00			297
	300	ISL	7.22	7.19	34.017	26.618	145.9	0.641	2.36	34.8	48.4	2.39	31.6	0.00			302
1	350		6.66	6.63	34.027	26.703	138.3	0.712	1.72	25.1	59.6	2.66	35.0	0.00			352
	400	ISL	6.35	6.31	34.094	26.797	129.9	0.779	1.24	17.9	66.3	2.87	37.2	0.00			403
1	415		6.28	6.24	34.118	26.825	127.4	0.799	1.11	16.0	68.0	2.92	37.7	0.00			418
1	486		5.98	5.94	34.214	26.940	117.3	0.886	0.55	7.9	77.8	3.14	39.8	0.00			489
	500	ISL	5.90	5.86	34.226	26.959	115.6	0.902	0.51	7.3	79.5	3.16	40.1	0.00			503
1	568		5.54	5.49	34.288	27.053	107.2	0.978	0.31	4.4	87.6	3.27	41.3	0.00			572

RV DAVID STARR JORDAN CALCOFI CRUISE 9004 STATION 83 90

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT TYPE
32 34.5 N	122 48.9 W	27/04/90	1102 UTC	4066 M	330	20 KT			1017.0 MB	14.9 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 D.BAR
	0	ISL	15.29	15.29	33.429	24.698	323.5	0.000	5.86	102.6	3.0	0.35	0.0	0.00	0.07	0.02	0
1	2		15.29	15.29	33.429	24.698	323.5	0.006	5.86	102.6	3.0	0.35	0.0	0.00	0.07	0.02	2
	10	ISL	15.29	15.29	33.430	24.700	323.7	0.032	5.86	102.6	3.0	0.36	0.0	0.00	0.06	0.02	10
1	17		15.29	15.29	33.430	24.700	323.9	0.055	5.86	102.6	3.0	0.36	0.0	0.00	0.06	0.02	17
	20	ISL	15.29	15.29	33.430	24.700	324.0	0.065	5.86	102.6	3.0	0.36	0.0	0.00	0.06	0.02	20
	30	ISL	15.30	15.30	33.428	24.697	324.6	0.097	5.86	102.6	2.8	0.35	0.0	0.00	0.07	0.02	30
1	32		15.30	15.30	33.428	24.697	324.7	0.104	5.86	102.6	2.8	0.35	0.0	0.00	0.07	0.02	32
1	42		15.29	15.28	33.429	24.700	324.6	0.136	5.85	102.4	2.8	0.35	0.0	0.00	0.07	0.02	42
	50	ISL	15.28	15.27	33.428	24.702	324.7	0.162	5.86	102.6	2.7	0.35	0.0	0.00	0.07	0.02	50
1	53		15.28	15.27	33.428	24.702	324.8	0.172	5.86	102.6	2.7	0.35	0.0	0.00	0.07	0.02	53
1	62		15.14	15.13	33.410	24.719	323.4	0.201	5.89	102.8	2.7	0.35	0.0	0.00	0.08	0.02	62
	75	ISL	14.50	14.49	33.394	24.844	311.8	0.242	5.96	102.7	2.6	0.37	0.0	0.00	0.12	0.05	75
1	77		14.37	14.36	33.387	24.866	309.7	0.249	5.97	102.6	2.6	0.37	0.0	0.00	0.13	0.06	77
1	91		13.26	13.25	33.218	24.964	300.7	0.291	6.12	102.7	3.0	0.39	0.1	0.01	0.22	0.11	91
	100	ISL	12.14	12.13	33.218	25.182	280.0	0.317	5.73	93.9	5.1	0.63	4.1	0.04	0.30	0.20	100
1	107		11.30	11.29	33.253	25.364	262.6	0.336	5.36	86.3	7.2	0.85	7.7	0.06	0.33	0.26	107
1	121		10.43	10.42	33.310	25.562	244.0	0.372	5.00	79.0	10.6	1.11	12.0	0.02	0.17	0.17	122
	125	ISL	10.27	10.26	33.349	25.620	238.5	0.381	4.86	76.5	11.9	1.18	13.2	0.02	0.14	0.15	126
1	140		9.81	9.79	33.512	25.825	219.3	0.416	4.36	68.0	16.5	1.39	17.0	0.01	0.05	0.07	141
	150	ISL	9.52	9.50	33.591	25.934	209.0	0.437	4.21	65.3	18.6	1.46	18.5	0.01	0.02	0.04	151
1	162		9.22	9.20	33.678	26.051	198.1	0.462	4.04	62.3	21.0	1.54	20.0	0.01	0.01	0.03	163
1	187		8.75	8.73	33.878	26.282	176.5	0.508	3.30	50.4	28.9	1.87	24.8	0.00	0.00	0.02	188
	200	ISL	8.53	8.51	33.934	26.360	169.3	0.531	3.24	49.3	31.5	1.93	25.8	0.00	0.00	0.02	201
1	222		8.19	8.17	33.985	26.452	160.9	0.567	3.15	47.5	34.8	1.97	26.6	0.00	0.00	0.02	223
	250	ISL	7.83	7.81	34.008	26.524	154.4	0.611	2.96	44.3	39.3	2.08	28.0	0.00			251
1	259		7.72	7.69	34.009	26.541	152.9	0.625	2.90	43.3	40.7	2.11	28.5	0.00			260
1	300		7.11	7.08	34.007	26.626	145.2	0.686	2.75	40.5	47.6	2.24	30.4	0.01			302
1	357		6.54	6.51	34.061	26.745	134.3	0.766	1.64	23.8	59.8	2.65	35.6	0.00			359
	400	ISL	6.22	6.18	34.079	26.802	129.3	0.823	1.33	19.2	66.3	2.79	37.4	0.00			402
1	424		6.07	6.03	34.089	26.829	127.0	0.853	1.23	17.7	69.5	2.85	38.0	0.00			427
1	498		5.63	5.59	34.162	26.942	116.9	0.944	0.66	9.4	80.7	3.10	40.5	0.00			501
	500	ISL	5.62	5.58	34.165	26.945	116.5	0.946	0.65	9.2	81.0	3.10	40.5	0.00			503
1	581		5.30	5.25	34.273	27.070	105.4	1.036	0.31	4.4	91.9	3.27	42.0	0.00			585

RV DAVID STARR JORDAN CALCOFI CRUISE 9004 STATION 87 33

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT TYPE
33 53.3 N	118 29.0 W	24/04/90	0339 UTC	56 M	260	21 KT			1010.4 MB	15.4 C	14.0 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 D.BAR
	0	ISL	16.43	16.43	33.565	24.547	337.9	0.000	6.69	120.0	2.6	0.28	0.0	0.01	1.17	0.21	0
1	1		16.43	16.43	33.565	24.547	337.9	0.003	6.69	120.0	2.6	0.28	0.0	0.01	1.17	0.21	1
	10	ISL	16.41	16.41	33.564	24.551	337.8	0.034	6.66	119.4	2.6	0.25	0.0	0.01	1.32	0.22	10
1	11		16.41	16.41	33.564	24.551	337.9	0.037	6.66	119.4	2.6	0.25	0.0	0.01	1.34	0.22	11
	20	ISL	16.30	16.30	33.567	24.579	335.5	0.067	6.54	117.0	2.9	0.27	0.1	0.01	1.40	0.22	20
1	21		16.29	16.29	33.567	24.581	335.3	0.071	6.53	116.8	2.9	0.27	0.1	0.01	1.41	0.22	21
	30	ISL	14.57	14.57	33.552	24.950	300.4	0.099	6.02	104.0	4.1	0.40	0.2	0.02	1.61	0.53	30
1	31		14.34	14.34	33.552	24.999	295.8	0.102	5.93	101.9	4.2	0.41	0.2	0.02	1.63	0.56	31
1	41		12.46	12.45	33.556	25.382	259.5	0.130	4.29	70.9	10.9	1.22	8.7	0.69	0.54	0.37	41
	50	ISL	11.49	11.48	33.637	25.627	236.3	0.152	3.15	51.0	18.5	1.72	15.4	0.59	0.21	0.31	50
1	51		11.38	11.37	33.647	25.655	233.7	0.155	3.02	48.8	19.3	1.77	16.1	0.58	0.17	0.30	51

RV DAVID STARR JORDAN CALCOFI CRUISE 9004 STATION 87 35

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT TYPE
33 49.4 N	118 37.7 W	24/04/90	0552 UTC	613 M	270	21 KT			1010.0 MB	15.8 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 D.BAR
	0	ISL	16.29	16.29	33.570	24.583	334.5	0.000	6.04	108.0	2.6	0.31	0.0	0.00	0.25	0.07	0
1	1		16.29	16.29	33.570	24.583	334.5	0.003	6.04	108.0	2.6	0.31	0.0	0.00	0.25	0.07	1
1	10		16.27	16.27	33.570	24.588	334.4	0.033	6.06	108.3	2.6	0.31	0.0	0.00	0.25	0.07	10
1	20		14.65	14.65	33.552	24.933	301.8	0.065	6.25	108.1	2.6	0.32	0.0	0.00	0.38	0.10	20
1	30		13.18	13.18	33.528	25.218	274-8	0.094"	5.60	94.0	4.9	0.55	1.8	0.16	3.22	0.74	30
1	40		12.82	12.81	33.527	25.289	268.3	0.121	5.17	86.1	6.6	0.74	4.9	0.41	1.38	0.57	40
1	49		12.01	12.00	33.553	25.465	251.8	0.145	4.23	69.3	10.8	1.14	11.1	0.45	0.38	0.29	49
	50	ISL	11.93	11.92	33.554	25.481	250.3	0.147	4.22	69.0	11.1	1.16	11.5	0.41	0.37	0.29	50
1	59		11.32	11.31	33.565	25.602	238.9	0.169	4.15	67.0	13.6	1.28	14.0	0.05	0.31	0.24	59
1	75		10.64	10.63	33.665	25.802	220.2	0.206	3.66	58.2	18.2	1.53	18.1	0.01	0.10	0.11	75
1	87		10.36	10.35	33.764	25.928	208.5	0.232	3.30	52.2	21.2	1.68	20.3	0.01	0.04	0.08	87
	100	ISL	10.07	10.06	33.859	26.052	197.0	0.258	3.04	47.8	24.1	1.81	22.2	0.01	0.01	0.05	101
1	107		9.93	9.92	33.903	26.109	191.6	0.272	2.94	46.1	25.5	1.87	23.1	0.01	0.01	0.04	108
	125	ISL	9.71	9.70	33.992	26.216	181.8	0.305	2.71	42.3	28.4	1.98	24.6	0.00	0.01	0.05	126
1	127		9.69	9.68	34.000	26.226	181.0	0.309	2.69	42.0	28.7	1.99	24.7	0.00	0.01	0.05	128
	150	ISL	9.31	9.29	34.065	26.339	170.6	0.349	2.47	38.3	32.5	2.11	26.3	0.01	0.00	-0.04	151
1	153		9.26	9.24	34.071	26.352	169.4	0.354	2.44	37.8	32.9	2.12	26.5	0.01	0.00	0.04	154
1	183		9.07	9.05	34.132	26.431	162.5	0.404	2.15	33.1	35.9	2.23	27.9	0.01	0.01	0.04	184
	200	ISL	9.03	9.01	34.170	26.467	159.4	0.432	1.94	29.9	37.8	2.32	28.5	0.01	0.01	0.04	201
1	219		8.96	8.94	34.201	26.503	156.4	0.462	1.75	26.9	40.0	2.40	29.1	0.01	0.01	0.04	220
	250	ISL	8.55	8.52	34.194	26.562	151.2	0.509	1.71	26.1	43.2	2.45	30.0	0.00			252
1	252		8.52	8.49	34.193	26.566	150.9	0.512	1.71	26.0	43.4	2.45	30.1	0.00			254
1	295		8.28	8.25	34.244	26.643	144.3	0.576	1.24	18.8	48.3	2.63	31.8	0.02			297
	300	ISL	8.24	8.21	34.247	26.651	143.5	0.583	1.20	18.2	48.9	2.65	32.0	0.02			302
1	347		7.81	7.78	34.261	26.727	136.9	0.649	0.94	14.1	54.6	2.80	33.6	0.00			349
	400	ISL	7.51	7.47	34.272	26.780	132.7	0.720	0.76	11.3	59.1	2.90	34.7	0.00			403
1	413		7.44	7.40	34.274	26.791	131.7	0.737	0.73	10.8	60.1	2.92	35.0	0.00			416
1	481		6.91	6.86	34.289	26.877	124.2	0.824	0.50	7.3	67.6	3.05	37.1	0.00			484
	500	ISL	6.76	6.71	34.297	26.904	121.8	0.848	0.45	6.6	70.4	3.09	37.5	0.00			503
1	540		6.45	6.40	34.316	26.961	116.7	0.895	0.33	4.8	76.4	3.17	38.3	0.01			544

RV DAVID STARR JORDAN CALCOFI CRUISE 9004 STATION 87 40

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
33 38.9 N	118 59.5 W	24/04/90	1027 UTC	M	2 80	18 KT			1010.1 MB	15.5 C	14.0 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 D.BAR
	0	ISL	15.90	15.90	33.576	24.676	325.6	0.000	6.03	107.0	2.8	0.34	0.0	0.01	0.16	0.06	0
1	2		15.90	15.90	33.576	24.676	325.7	0.007	6.03	107.0	2.8	0.34	0.0	0.01	0.16	0.06	2
	10	ISL	15.90	15.90	33.576	24.676	325.9	0.033	6.04	107.2	2.8	0.32	0.0	0.01	0.17	0.06	10
1	12		15.90	15.90	33.576	24.676	326.0	0.039	6.04	107.2	2.8	0.31	0.0	0.01	0.17	0.06	12
	20	ISL	15.78	15.78	33.572	24.701	323.9	0.065	6.07	107.4	2.8	0.31	0.0	0.01	0.17	0.07	20
1	22		15.75	15.75	33.571	24.707	323.4	0.072	6.08	107.6	2.8	0.31	0.0	0.01	0.17	0.07	22
	30	ISL	14.04	14.04	33.530	25.044	291.4	0.096	6.15	105.1	3.9	0.36	0.1	0.02	0.30	0.13	30
1	33		13.36	13.36	33.525	25.180	278.6	0.105	6.18	104.1	4.5	0.40	0.1	0.02	0.38	0.18	33
1	42		12.75	12.74	33.537	25.311	266.3	0.129	5.36	89.2	6.7	0.67	3.9	0.36	0.80	0.50	42
	50	ISL	12.14	12.13	33.544	25.434	254.8	0.150	4.77	78.3	9.3	0.92	8.8	0.19	0.67	0.41	50
1	52		12.00	11.99	33.547	25.462	252.1	0.155	4.65	76.1	10.0	0.98	9.9	0.12	0.64	0.36	52
1	61		11.67	11.66	33.569	25.541	244.8	0.177	4.22	68.6	12.1	1.19	12.6	0.08	0.39	0.26	61
1	75		10.92	10.91	33.683	25.766	223.6	0.210	3.55	56.8	17.7	1.52	17.7	0.04	0.12	0.12	75
1	92		10.30	10.29	33.778	25.949	206.6	0.247	3.26	51.5	22.0	1.67	20.8	0.02	0.04	0.07	92
	100	ISL	10.21	10.20	33.809	25.989	203.0	0.263	3.15	49.7	23.2	1.72	21.4	0.02	0.03	0.07	101
1	II0		10.17	10.16	33.845	26.024	199.9	0.283	3.03	47.8	24.3	1.77	22.0	0.02	0.02	0.07	111
	125	ISL	10.01	10.00	33.920	26.110	192.0	0.313	2.82	44.3	26.2	1.87	23.3	0.02	0.01	0.06	126
1	130		9.95	9.94	33.945	26.140	189.3	0.322	2.76	43.3	26.9	1.90	23.7	0.02	0.01	0.05	131
	150	ISL	9.59	9.57	34.018	26.257	178.5	0.359	2.56	39.9	29.9	2.01	25.3	0.01	0.01	0.04	151
1	155		9.50	9.48	34.033	26.283	176.1	0.368	2.52	39.2	30.6	2.04	25.6	0.01	0.01	0.04	156
1	185		9.17	9.15	34.100	26.390	166.5	0.419	2.30	35.5	34.3	2.16	27.1	0.01	0.01	0.04 '	186
	200	ISL	8.94	8.92	34.129	26.449	161.1	0.444	2.01	30.9	38.0	2.29	28.4	0.01	0.01	0.05	201
1	219		8.66	8.64	34.159	26.517	154.9	0.474	1.65	25.2	42.6	2.45	30.0	0.01	0.01	0.06	220
	250	ISL	8.47	8.44	34.187	26.569	150.5	0.521	1.48	22.5	45.3	2.54	30.9	0.01			251
1	254		8.45	8.42	3 4.190	26.574	150.1	0.527	1.47	22.3	45.5	2.55	31.0	0.01			256
1	294		8.04	8.01	34.226	26.665	142.0	0.586	1.14	17.2	51.6	2.70	32.6	0.02			296
	300	ISL	8.00	7.97	34.230	26.674	141.2	0.594	1.10	16.6	52.2	2.72	32.8	0.02	.		302
1	346		7.67	7.64	34.256	26.743	135.3	0.658	0.85	12.7	56.8	2.83	34.2	0.01			348
	400	ISL	7.07	7.03	34.291	26.856	125.0	0.728	0.53	7.8	66.0	3.01	36.5	0.01			403
1	411		6.95	6.91	34.297	26.8-7 8	123.1	0.742	0.47	6.9	68.0	3.04	36.9	0.01			414
1	480		6.59	6.55	34.312	26.938	118.0	0.825	0.35	5.1							483
	500	ISL	6.47	6.42	34.318	26.959	116.3	0.848	0.33	4.8	76.5	3.15	38.3	0.01			503
1	557		6.14	6.09	34.335	27.016	111.4	0.913	0.26	3.7	81.9	3.22	39.2	0.01			561

RV DAVID STARR JORDAN CALCOFI CRUISE 9004 STATION 87 45

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
33 28.9 N	119 20.1 W	24/04/90	1457 UTC	1714 M	290	22 KT	300 06 05	1	1011.0 MB	14.5 C	13.0 C	1/8	CC

CAST	DEPTH M		TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN ML/L	OXY PCT	S103 UM/L	PO4 UM/L	NO3 UM/L	NO2 UM/L	CHL-A UG/L	PHAEO UG/L	PRESS D.BAR
	0	ISL	13.79	13.79	33.554	25.114	283.9	0.000	5.80	98.6	6.3	0.54	2.8	0.10	0.65	0.25	0
1	1		13.79	13.79	33.554	25.114	2 84.0	0.003	5.80	98.6	6.3	0.54	2.8	0.10	0.65	0.25	1
1	10		13.78	13.78	33.554	25.116	284.0	0.028	5.80	98.6	6.3	0.54	2.9	0.10	0.62	0.23	10
1	20		13.72	13.72	33.554	25.129	2 83.1	0.057	5.79	98.3	6.3	0.54	2.9	0.10	0.60	0.23	20
1	29		12.19	12.19	33.551	25.429	254.7	0.081	5.46	89.8	8.4	0.73	5.7	0.14	0.71	0.30	29
	30	ISL	12.04	12.04	33.559	25.464	251.4	0.083	5.33	87.4	9.1	0.79	6.7	0.14	0.68	0.29	30
1	39		10.96	10.96	33.644	25.728	226.4	0.105	4.13	66.2	15.5	1.35	15.2	0.10	0.35	0.20	39
1	49		10.62	10.61	33.681	25.817	218.2	0.127	3.85	61.2	17.6	1.49	17.1	0.07	0.19	0.17	49
	50	ISL	10.59	10.58	33.685	25.825	217.4	0.129	3.82	60.7	17.9	1.50	17.3	0.07	0.18	0.17	50
1	59		10.31	10.30	33.721	25.902	210.3	0.149	3.56	56.3	20.2	1.62	19.4	0.03	0.09	0.15	59
1	74		9.96	9.95	33.787	26.013	200.0	0.179	3.23	50.7	23.4	1.76	21.5	0.03	0.04	0.14	74
	75	ISL	9.94	9.93	33.795	26.023	199.1	0.181	3.20	50.2	23.7	1.77	21.7	0.03	0.04	0.14	75
1	88		9.80	9.79	33.897	26.126	189.6	0.207	2.79	43.6	27.3	1.92	23.7	0.02	0.01	0.12	88
	100	ISL	9.76	9.75	33.970	26.190	183.8	0.229	2.55	39.9	28.9	2.01	24.8	0.02	0.01	0.10	101
1	107		9.75	9.74	34.001	26.216	181.5	0.242	2.45	38.3	29.5	2.05	25.2	0.02	0.01	0.09	108
	125	ISL	9.61	9.60	34.037	26.268	176.9	0.274	2.34	36.5	31.2	2.12	25.9	0.02	0.01	0.09	126
1	128		9.58	9.57	34.040	26.275	176.3	0.279	2.33	36.3	31.5	2.13	26.0	0.02	0.01	0.09	129
	150	ISL	9.36	9.34	34.068	26.333	171.2	0.318	2.21	34.3	33.6	2.18	27.1	0.02	0.01	0.08	151
1	153		9.33	9.31	34.072	26.342	170.5	0.323	2.19	33.9	33.9	2.19	27.2	0.02	0.01	0.08	154
1	182		9.19	9.17	34.134	26.413	164.2	0.371	2.03	31.4	36.7	2.26	27.9	0.06	0.00	0.07	183
	200	ISL	9.00	8.98	34.149	26.456	160.5	0.401	1.91	29.4	38.5	2.32	28.6	0.04	0.00	0.07	201
1	218		8.80	8.78	34.157	26.494	157.2	0.429	1.78	27.3	40.3	2.38	29.4	0.01	0.00	0.06	219
	250	ISL	. 8.56	8.53	34.182	26.551	152.3	0.479	1.58	24.1	43.4	2.48	30.5	0.01			252
1	253		8.53	8.50	34.185	26.558	151.6	0.483	1.56	23.8	43.8	2.49	30.6	0.01			255
1	292		7.98	7.95	34.232	26.678	140.7	0.540	1.09	16.4	51.8	2.72	33.0	0.01			294
	300	ISL	7.90	7.87	34.240	26.697	139.0	0.551	1.02	15.3	53.2	2.76	33.4	0.01			302
1	346		7.52	7.49	34.274	26.779	131.8	0.614	0.71	10.6	60.2	2.91	35.0	0.00			348
	400	ISL	7.16	7.12	34.293	26.845	126.1	0.683	0.52	7.7	66.1	3.01	36.4	0.00			403
1	411		7.08	7.04	34.295	26.858	125.0	0.697	0.49	7.2	67.2	3.02	36.7	0.00			414
1	479		6.45	6.41	34.319	26.962	115.6	0.779	0.31	4.5	77.0	3.15	38.4	0.00			482
	500	ISL	6.31	6.26	34.325	26.986	113.6	0.803	0.29	4.2	79.6	3.18	38.6	0.00			504
1	557		5.94	5.89	34.343	27.047	108.1	0.866	0.22	3.2	86.6	3.26	39.1	0.00			561

RV DAVID STARR JORDAN CALCOFI CRUISE 9004 STATION 87 50

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
33 18.4 N	119 40.8 W	24/04/90	1946 UTC	73 M	290	27 KT	290 07 08	1	1013.9 MB	14.1 C	12.6 C	1/8	CS

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 D.BAR
	0	ISL	12.98	12.98	33.551	25.275	268.6	0.000	5.74	96.0	8.1	0.68	5.1	0.12	0.97	0.32	0
1	2		12.98	12.98	33.551	25.275	268.6	0.005	5.74	96.0	8.1	0.68	5.1	0.12	0.97	0.32	2
	10	ISL	12.98	12.98	33.550	25.275	268.9	0.027	5.73	95.8	8.2	0.69	5.1	0.12	0.98	0.33	10
1	13		12.98	12.98	33.550	25.275	269.0	0.035	5.73	95.8	8.2	0.70	5.1	0.12	0.98	0.33	13
	20	ISL	12.78	12.78	33.533	25.301	266.7	0.054	5.64	93.9	8.4	0.74	5.8	0.14	0.87	0.31	20
1	23		12.69	12.69	33.526	25.313	265.6	0.062	5.60	93.0	8.5	0.75	6.1	0.15	0.79	0.30	23
	30	ISL	11.41	11.41	33.489	25.526	245.4	0.080	5.15	83.2	11.0	1.04	10.5	0.18	0.44	0.27	30
1	34		10.67	10.67	33.492	25.661	232.7	0.089	4.86	77.3	12.9	1.22	13.2	0.20	0.25	0.25	34
1	43		10.33	10.32	33.599	25.803	219.3	0.109	4.41	69.7	16.8	1.43	16.4	0.21	0.16	0.21	43
	50	ISL	10.08	10.07	33.649	25.885	211.7	0.125	4.02	63.2	19.7	1.56	18.4	0.13	0.10	0.16	50
1	54		9.94	9.93	33.678	25.931	207.4	0.133	3.80	59.6	21.3	1.63	19.5	0.09	0.06	0.13	54

RV DAVID STARR JORDAN | CALCOFI CRUISE 900* | STATION 87 55

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	HAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
33 9.2 N	120 0.8 W	24/04/90	2333 UTC	1204 M	270	29 KT	300 09 06	1	1012.4 MB	14.0 C	12.6 C	3/8	CS

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 D.BAR
	0	ISL	13.52	13.52	33.436	25.078	287.3	0.000	6.13	103.6	4.3	0.52	1.2	0.07	0.37	0.12	0
1	2		13.52	13.52	33.436	25.078	287.4	0.006	6.13	103.6	4.3	0.52	1.2	0.07	0.37	0.12	2
	10	ISL	13.51	13.51	33.438	25.082	287.3	0.029	6.15	103.9	4.3	0.52	1.2	0.07	0.38	0.11	10
1	13		13.50	13.50	33.438	25.084	287.2	0.037	6.15	103.9	4.3	0.52	1.2	0.07	0.38	0.11	13
	20	ISL	13.50	13.50	33.435	25.082	2 87.6	0.057	6.14	103.7	4.2	0.51	1.2	0.07	0.37	0.12	20
1	23		13.50	13.50	33.435	25.082	2 87.6	0.066	6.13	103.5	4.1	0.51	1.2	0.07	0.37	0.13	23
	30	ISL	13.48	13.48	33.439	25.089	2 87.1	0.086	6.14	103.6	4.1	0.50	1.2	0.07	0.37	0.13	30
1	32		13.47	13.47	33.440	25.092	286.9	0.092	6.14	103.6	4.1	0.50	1.2	0.07	0.37	0.13	32
1	43		13.40	13.39	33.444	25.109	2 85.5	0.123	6.14	103.5	4.3	0.50	1.4	0.08	0.34	0.14	43
	50	ISL	12.64	12.63	33.330	25.172	279.7	0.143	6.05	100.3	4.6	0.57	2.4	0.11	0.41	0.19	50
1	53		12.27	12.26	33.289	25.211	276.0	0.152	5.98	98.3	4.7	0.62	3.1	0.12	0.43	0.21	53
1	61		11.63	11.62	33.325	25.359	262.1	0.173	5.67	92.0	6.3	0.81	6.1	0.05	0.32	0.17	61
	75	ISL	10.89	10.88	33.339	25.504	248.6	0.209	5.25	83.8	9.4	1.03	10.2	0.03	0.12	0.10	75
1	76		10.86	10.85	33.340	25.510	248.0	0.211	5.22	83.3	9.6	1.04	10.4	0.03	0.11	0.10	76
1	90		10.68	10.67	33.404	25.592	240.5	0.246	4.79	76.2	12.8	1.25	13.6	0.02	0.08	0.08	90
	100	ISL	10.44	10.43	33.526	25.729	227.7	0.269	4.39	69.5	16.0	1.43	16.4	0.02	0.06	0.10	100
1	111		10.13	10.12	33.662	25.888	212.8	0.293	3.97	62.5	19.6	1.60	19.2	0.02	0.05	0.13	112
	125	ISL	9.77	9.76	33.727	25.999	202.4	0.322	3.59	56.1	23.0	1.73	21.5	0.01	0.04	0.12	126
1	131		9.61	9.60	33.742	26.037	198.9	0.334	3.48	54.2	24.1	1.77	22.2	0.01	0.03	0.12	132
	150	ISL	9.00	8.98	33.800	26.182	185.4	0.371	3.46	53.1	26.4	1.80	23.6	0.01	0.01	0.05	151
1	154		8.90	8.88	33.816	26.210	182.8	0.378	3.45	52.9	26.9	1.81	23.8	0.01	0.01	0.03	155
1	183		8.94	8.92	34.052	26.389	166.5	0.429	2.45	37.6	34.6	2.14	27.0	0.01	0.01	0.05	184
	200	ISL	8.69	8.67	34.097	26.463	159.6	0.456	2.23	34.1	38.0	2.24	28.2	0.01	0.01	0.05	201
1	216		8.38	8.36	34.108	26.520	154.4	0.482	2.13	32.3	40.8	2.30	29.2	0.01	0.01	0.05	217
1	249		7.88	7.86	34.128	26.611	146.2	0.531	1.85	27.7	46.8	2.46	31.2	0.00			250
	250	ISL	7.87	7.84	34.129	26.613	146.0	0.533	1.84	27.6	47.0	2.46	31.3	0.00	.		251
1	289		7.61	7.58	34.169	26.683	140.0	0.588	1.43	21.3	52.7	2.64	33.0	0.00			291
	300	ISL	7.54	7.51	34.181	26.702	138.2	0.604	1.32	19.6	54.2	2.68	33.4	0.00			302
1	342		7.28	7.25	34.223	26.773	132.1	0.661	0.95	14.1	59.7	2.83	35.0	0.00			344
	400	ISL	6.81	6.77	34.256	26.864	124.0	0.735	0.59	8.6	67.9	2.99	37.1	0.00			403
1	403		6.78	6.74	34.257	26.869	123.6	0.739	0.58	8.5	68.3	3.00	37.2	0.00			406
1	472		6.31	6.27	34.280	26.950	116.6	0.821	0.43	6.2	76.0	3.13	38.9	0.00			475
	500	ISL	6.19	6.15	34.290	26.973	114.6	0.854	0.39	5.6	78.1	3.16	39.2	0.00			503
1	553		5.97	5.92	34.310	27.017	110.9	0.913	0.31	4.5	82.2	3.21	39.9	0.00			**557**

RV DAVID STARR JORDAN | CALCOFI CRUISE 9004 | STATION 87 60

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
32 58.9 N	120 21.2 W	25/04/90	1510 UTC	717 M	330	22 KT	340 10 08	1	1015.5 MB	14.9 C	13.9 C	1/8	CC

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 D.BAR
	0	ISL	13.78	13.78	33.276	24.901	304.2	0.000	6.10	103.5	3.6	0.41	0.0	0.00	0.20	0.07	0
1	1		13.78	13.78	33.276	24.901	304.2	0.003	6.10	103.5	3.6	0.41	0.0	0.00	0.20	0.07	1
	10	ISL	13.77	13.77	33.277	24.904	304.2	0.030	6.12	103.8	3.5	0.40	0.0	0.00	0.20	0.07	10
1	11		13.77	13.77	33.277	24.904	304.2	0.033	6.12	103.8	3.5	0.40	0.0	0.00	0.20	0.07	11
	20	ISL	13.78	13.78	33.277	24.902	304.6	0.061	6.10	103.5	3.5	0.40	0.0	0.00	0.19	0.07	20
1	21		13.78	13.78	33.277	24.902	304.6	0.064	6.10	103.5	3.5	0.40	0.0	0.00	0.19	0.07	21
1	30		13.77	13.77	33.276	24.904	' 304.7	0.091	6.11	103.6	3.3	0.40	0.0	0.00	0.20	0.07	30
1	42		13.77	13.76	33.275	24.904	305.1	0.128	6.11	103.6	3.3	0.39	0.0	0.00	0.20	0.05	42
	50	ISL	1*5.74	13.73	33.286	24.918	303.9	0.152	6.10	103.4	3.3	0.40	0.1	0.01	0.22	0.07	50
1	52		13.73	13.72	33.288	24.922	303.6	0.158	6.10	103.4	3.3	0.40	0.1	0.01	0.22	0.07	52
1	62		12.77	12.76	33.342	25.156	281.5	0.188	6.24	103.7	3.5	0.50	1.0	0.11	0.35	0.17	62
	75	ISL	11.82	11.81	33.275	25.286	269.5	0.223	5.87	95.6	5.0	0.68	4.1	0.19	0.23	0.15	75
1	76		11.76	11.75	33.269	25.292	268.8	0.226	5.83	94.8	5.2	0.69	4.4	0.19	0.22	0.15	76
1	90		11.19	11.18	33.339	25.451	254.0	0.263	5.59	89.8	7.0	0.86	7.6	0.25	0.13	0.14	90
	100	ISL	10.57	10.56	33.328	25.552	244.5	0.288	5.26	83.4	9.7	1.02	10.6	0.15	0.09	0.11	100
1	U0		9.96	9.95	33.327	25.655	234.8	0.312	4.88	76.3	12.9	1.20	13.7	0.02	0.06	0.0*8	HI
	125	ISL	9.41	9.40	33.468	25.856	215.9	0.345	4.32	66.8	18.0	1.45	18.0	0.01	0.03	0.06	126
1	139		9.15	9.13	33.648	26.038	198.8	0.374	3.79	58.3	22.8	1.67	21.5	0.01	0.01	0.05	140
	150	ISL	9.16	9.14	33.788	26.146	188.8	0.396	3.38	52.1	26.5	1.81	23.5	0.01	0.01	0.05	151
1	163		9.17	9.15	33.921	26.249	179.3	0.420	2.95	45.5	30.3	1.95	25.2	0.01	0.01	0.06	164
1	195		8.96	8.94	34.058	26.391	166.5	0.475	2.40	36.9	35.4	2.17	27.4	0.00	0.01	0.06	196
	200	ISL	8.87	8.85	34.071	26.415	164.3	0.483	2.34	35.9	36.4	2.20	27.8	0.00	0.01	0.06	201
1	228		8.36	8.34	34.116	26.529	153.8	0.528	2.07	31.4	41.9	2.36	29.6	0.00	0.01	0.04	229
	250	ISL	8.15	8.12	34.133	26.575	149.8	0.561	1.91	28.8	44.6	2.42	30.6	0.00			251
1	263		8.06	8.03	34.140	26.594	148.2	0.581	1.81	27.3	46.1	2.46	31.1	0.00			**265**
	300	ISL	7.69	7.66	34.174	26.675	140.9	0.634	1.43	21.4	51.9	2.65	33.0	0.00			**302**
1	304		7.65	7.62	34.178	26.684	140.1	0.640	1.39	20.7	52.6	2.67	33.2	0.00			**306**
1	358		7.04	7.01	34.222	26.805	129.1	0.712	0.84	12.4	62.9	2.92	36.1	0.00			**360**
	400	ISL	6.78	6.74	34.241	26.856	124.8	0.766	0.65	9.5	67.6	3.00	37.3	0.00			**403**
1	424		6.65	6.61	34.251	26.882	122.6	0.795	0.58	8.5	70.0	3.03	37.9	0.00			**427**
1	491		6.07	6.03	34.306	27.001	111.7	0.874	0.33	4.7	80.0	3.19	40.0	0.00			**494**
	500	ISL	6.02	5.98	34.307	27.008	111.1	0.884	0.33	4.7	80.5	3.20	40.1	0.00			**503**
1	566		5.68	5.63	34.318	27.060	106.7	0.956	0.31	4.4	84.0	3.25	40.7	0.00			**570**

RV DAVID STARR JORDAN CALCOFI CRUISE 9004 STATION 87 70

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
32 38.9 N	121 2.2 W	26/04/90	0247 UTC	3924 M	310	23 KT	330 09 10	1	1016.8 MB	15.3 C	14.4 C	4/8	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 D.BAR
	0	ISL	14.89	14.89	33.382	24.749	318.6	0.000	5.89	102.3	2.4	0.36	0.0	0.00	0.07	0.0.2	0
1	1		14.89	14.89	33.382	24.749	318.7	0.003	5.89	102.3	2.4	0.36	0.0	0.00	0.07	0.02	1
	10	ISL	14.88	14.88	33.383	24.753	316.6	0.032	5.90	102.5	2.4	0.36	0.0	0.00	0.08	0.02	10
1	15		14.88	14.88	33.383	24.753	318.8	0.048	5.90	102.4	2.4	0.36	0.0	0.00	0.08	0.02	15
	20	ISL	14.88	14.88	33.383	24.753	318.9	0.064	5.90	102.4	2.4	0.36	0.0	0.00	0.08	0.02	20
	30	ISL	14.89	14.89	33.383	24.751	319.4	0.096	5.89	102.3	2.4	0.35	0.0	0.00	0.07	0.02	30
1	31		14.89	14.89	33.383	24.751	319.4	0.099	5.89	102.3	2.4	0.35	0.0	0.00	0.07	0.02	31
1	41		14.88	14.87	33.384	24.754	319.4	0.131	5.89	102.3	2.4	0.35	0.0	0.00	0.08	0.02	41
	50	ISL	14.89	14.88	33.387	24.755	319.6	0.160	5.92	102.8	2.4	0.35	0.0	0.00	0.08	0.02	50
1	51		14.89	14.88	33.387	24.755	319.6	0.163	5.92	102.8	2.4	0.35	0.0	0.00	0.08	0.02	51
1	61		14.75	14.74	33.379	24.779	317.6	0.195	5.92	102.5	2.3	0.35	0.0	0.00	0.09	0.03	61
	75	ISL	13.76	13.75	33.311	24.934	303.1	0.238	6.01	101.9	2.5	0.38	0.0	0.00	0.18	0.10	75
1	76		13.67	13.66	33.305	24.948	301.8	0.241	6.02	101.9	2.5	0.38	0.0	0.00	0.19	0.11	76
1	91		12.41	12.40	33.233	25.142	2 83.6	0.285	6.01	99.1	3.6	0.53	1.5	0.35	0.24	0.17	91
	100	ISL	12.20	12.19	33.241	25.188	279.4	0.310	5.91	97.0	4.0	0.55	2.2	0.29	0.22	0.16	100
1	106		12.10	12.09	33.259	25.221	276.4	0.327	5.80	95.0	4.2	0.58	3.0	0.25	0.20	0.16	106
1	121		11.25	11.24	33.335	25.437	256.0	0.367	5.31	85.4	7.8	0.90	8.4	0.01	0.05	0.06	122
	125	ISL	11.15	11.13	33.355	25.471	252.9	0.377	5.19	83.3	8.6	0.96	9.3	0.01	0.05	0.06	126
1	141		10.80	10.78	33.440	25.600	241.0	0.417	4.75	75.7	11.9	1.15	12.4	0.01	0.03	0.06	142
	150	ISL	10.33	10.31	33.494	25.724	229.3	0.438	4.51	71.2	14.5	1.28	14.9	0.01	0.03	0.05	151
1	161		9.72	9.70	33.570	25.885	214.0	0.462	4.23	65.9	17.8	1.44	17.9	0.01	0.02	0.03	162
1	187		8.99	8.97	33.782	26.169	187.3	0.514	3.65	56.0	25.0	1.74	22.7	0.01	0.00	0.01	188
	200	ISL	8.76	8.74	33.854	26.262	178.7	0.538	3.54	54.1	27.2	1.79	23.7	0.01	0.00	0.01	201
1	220		8.46	8.44	33.935	26.372	168.5	0.573	3.47	52.7	30.3	1.82	24.5	0.01	0.00	0.01	221
	250	ISL	7.93	7.90	34.020	26.519	154.9	0.621	3.27	49.1	37.1	1.97	26.6	0.01			251
1	256		7.83	7.80	34.030	26.541	152.9	0.631	3.22	48.2	38.5	2.00	27.1	0.01			257
1	296		7.23	7.20	34.013	26.614	146.3	0.690	2.72	40.2	46.8	2.23	30.2	0.01			298
	300	ISL	7.19	7.16	34.015	26.621	145.7	0.696	2.66	39.2	47.6	2.26	30.5	0.01			302
1	349		6.73	6.70	34.053	26.714	137.3	0.766	1.88	27.4	57.3	2.55	34.2	0.01			351
	400	ISL	6.28	6.24	34.088	26.801	129.5	0.834	1.31	18.9	66.6	2.78	37.1	0.00			402
1	413		6.18	6.14	34.097	26.821	127.7	0.850	1.19	17.1	68.7	2.83	37.7	0.00			416
1	482		5.77	5.73	34.162	26.924	118.4	0.935	0.70	10.0	77.9	3.07	40.1	0.00			485
	500	ISL	5.70	5.66	34.183	26.950	116.2	0.956	0.62	8.8	80.2	3.10	40.4	0.00			503
1	561		5.48	5.43	34.253	27.032	109.0	1.025	0.37	5.2	87.9	3.22	41.4	0.00			565

RV DAVID STARR JORDAN CALCOFI CRUISE 9004 STATION 87 80

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
32 19.1 N	121 42.9 W	26/04/90	1002 UTC	4010 M	330	24 KT			1017.4 MB	15.0 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 D.BAR
1	0		14.96	14.96	33.370	24.725	321.0	0.000	5.90	102.6	2.4	0.35	0.0	0.00	0.08	0.02	0
	10	ISL	14.95	14.95	33.370	24.727	321.0	0.032	5.92	102.9	2.4	0.34	0.0	0.00 .	0.08	0.02	10
1	16		14.95	14.95	33.370	24.728	321.2	0.051	5.93	103.1	2.4	0.34	0.0	0.00	0.08	0.02	16
	20	ISL	14.94	14.94	33.369	24.729	321.2	0.064	5.93	103.1	2.4	0.33	0.0	0.00	0.08	0.02	20
1	29		14.93	14.93	33.368	24.731	321.3	0.093	5.91	102.7	*2.4	0.32	0.0	0.00	0.08	0.02	29
	30	ISL	14.93	14.93	33.368	24.731	321.3	0.096	5.91	102.7	2.4	0.32	0.0	0.00	0.08	0.02	30
1	39		14.91	14.90	33.368	24.735	321.1	0.125	5.89	102.3	2.4	0.36	0.0	0.00	0.08	0.02	39
1	48		14.87	14.86	33.365	24.742	320.8	0.154	5.92	102.8	2.4	0.33	0.0	0.00	0.09	0.02	48
	50	ISL	14.86	14.85	33.366	24.745	320.5	0.161	5.92	102.7	2.4	0.33	0.0	0.00	0.09	0.02	50
1	58		14.69	14.68	33.359	24.776	317.8	0.186	5.95	102.9	2.4	0.35	0.0	0.00	0.10	0.03	58
1	71		13.67	13.66	33.293	24.939	302.6	0.226	6.10	103.3	2.8	0.38	0.0	0.02	0.18	0.10	71
	75	ISL	13.44	13.43	33.284	24.979	298.9	0.238	6.09	102.6	2.9	0.40	0.1	0.08	0.25	0.15	75
1	85		12.90	12.89	33.272	25.077	289.7	0.268	6.00	99.9	3.2	0.47	0.8	0.22	0.39	0.25	85
1	100		12.02	12.01	33.268	25.243	274.1	0.310	5.80	94.8	4.3	0.61	3.3	0.25	0.24	0.16	100
1	113		11.87	11.86	33.417	25.387	260.7	0.345	5.66	92.3	5.0	0.71	5.2	0.10	0.12	0.10	114
	125	ISL	10.99	10.97	33.382	25.521	248.2	0.375	5.33	85.3	8.0	0.94	9.1	0.04	0.06	0.07	126
1	133		10.43	10.41	33.379	25.616	239.1	0.395	4.90	77.5	11.2	1.15	12.3	0.02	0.04	0.06	134
	150	ISL	10.67	10.65	33.735	25.852	217.2	0.434	3.10	49.4	21.0	1.73	19.8	0.01	0.02	0.05	151
1	152		10.73	10.71	33.782	25.879	214.7	0.438	2.89	46.1	22.2	1.79	20.6	0.01	0.02	0.05	153
1	174		10.50	10.48	33.953	26.053	198.7	0.484	2.09	33.2	28.7	2.12	24.5	0.01	0.00	0.04	175
	200	ISL	10.11	10.09	34.039	26.187	186.4	0.534	2.03	32.0	30.8	2.19	26.1	0.01	0.00	0.03	201
1	206		10.02	10.00	34.050	26.211	184.2	0.545	2.01	31.6	30.9	2.20	26.2	0.01	0.00	0.03	207
1	239		9.77	9.74	34.125	26.312	175.2	0.604	1.86	29.1	33.0	2.27	27.5	0.01			240
	250	ISL	9.66	9.63	34.147	26.348	172.1	0.623	1.82	28.4	33.9	2.30	27.8	0.01			251
1	274		9.35	9.32	34.182	26.427	164.9	0.664	1.73	26.8	36.4	2.36	28.5	0.01			276
	300	ISL	8.84	8.81	34.188	26.513	157.0	0.705	1.68	25.8	40.2	2.43	29.6	0.01			302
1	324		8.36	8.33	34.187	26.587	150.2	0.742	1.62	24.6	43.9	2.51	30.7	0.01			326
1	382		7.76	7.72	34.226	26.707	139.4	0.826	1.17	17.5	50.9	2.72	33.1	0.01			3 84
	400	ISL	7.61	7.57	34.236	26.737	136.8	0.851	1.04	15.5	53.6	2.78	33.8	0.01			402
1	444		7.24	7.20	34.258	26.807	130.5	0.910	0.74	10.9	60.8	2.93	35.6	0.00			447
	500	ISL	6.66	6.61	34.284	26.907	121.4	0.980	0.48	7.0	70.0	3.10	38.0	0.00			503
1	516		6.50	6.45	34.292	26.935	118.8	1.000	0.41	6.0	72.6	3.15	38.7	0.00			519

RV DAVID STARR JORDAN | CALCOFI CRUISE 9004 | STATION 87 90

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
31 59.5 N	122 23.8 W	26/04/90	2200 UTC	3928 M	330	24 KT	340 08 09	1	1018.1 MB	17.0 C	14.7 C	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 D.BAR
	0	ISL	15.11	15.11	33.380	24.700	323.3	0.000	5.94	103.6	2.3	0.35	0.0	0.00	0.08	0.02	0
1	1		15.11	15.11	33.380	24.700	323.3	0.003	5.94	103.6	2.3	0.35	0.0	0.00	0.08	0.02	1
	10	ISL	15.09	15.09	33.380	24.705	323.2	0.032	5.92	103.2	2.3	0.35	0.0	0.00	0.08	0.02	10
1	16		15.08	15.08	33.380	24.707	323.1	0.052	5.91	103.0	2.3	0.35	0.0	0.00	0.08	0.02	16
	20	ISL	15.08	15.08	33.381	24.708	323.2	0.065	5.91	103.0	2.3	0.35	0.0	0.00	0.08	0.02	20
	30	ISL	15.07	15.07	33.381	24.710	323.2	0.097	5.91	103.0	2.3	0.34	0.0	0.00	0.08	0.02	30
1	31		15.07	15.07	33.381	24.710	323.3	0.100	5.91	103.0	2.3	0.34	0.0	0.00	0.08	0.02	31
1	40		15.04	15.03	33.378	24.715	323.1	0.129	5.91	102.9	2.3	0.35	0.0	0.00	0.08	0.02	40
1	50		14.58	14.57	33.344	24.788	316.4	0.161	5.99	103.3	2.4	0.36	0.0	0.00	0.11	0.03	50
1	59		13.13	13.12	33.236	25.003	296.1	0.189	6.24	104.4	3.0	0.43	0.2	0.03	0.35	0.17	59
1	74		12.51	12.50	33.224	25.115	285.7	0.232	6.01	99.3	3.6	0.52	1.6	0.29	0.39	0.26	74
	75	ISL	12.47	12.46	33.222	25.121	285.1	0.235	6.00	99.0	3.7	0.52	1.7	0.29	0.39	0.26	75
1	88		11.92	11.91	33.207	25.214	276.6	0.272	5.91	96.4	5.3	0.61	2.9	0.25	0.32	0.19	88
	100	ISL	11.30	11.29	33.221	25.339	264.8	0.304	5.66	91.1	6.1	0.77	5.8	0.08	0.20	0.15	100
1	103		11.17	11.16	33.236	25.374	261.6	0.312	5.58	89.6	6.3	0.81	6.7	0.04	0.17	0.14	103
1	117		11.02	11.01	33.426	25.549	245.3	0.348	5.18	83.0	8.7	0.99	10.1	0.01	0.05	0.08	118
	125	ISL	10.83	10.81	33.513	25.651	235.7	0.367	4.69	74.9	11.9	1.16	13.0	0.01	0.03	0.07	126
1	137		10.41	10.39	33.609	25.799	221.8	0.394	4.00	63.3	17.0	1.41	17.2	0.01	0.01	0.06	138
	150	ISL	9.72	9.70	33.646	25.945	208.1	0.422	3.90	60.8	20.0	1.57	19.8	0.01	0.01	0.04	151
1	157		9.36	9.34	33.664	26.018	201.2	0.437	3.85	59.5	21.3	1.63	20.8	0.01	0.01	0.03	158
1	182		8.79	8.77	33.858	26.260	178.5	0.484	3.31	50.6	28.1	1.86	24.6	0.01	0.00	0.03	183
	200	ISL	8.53	8.51	33.937	26.363	169.1	0.515	3.13	47.6	31.4	1.94	25.9	0.01	0.00	0.03	201
1	218		8.33	8.31	33.985	26.431	162.9	0.545	3.00	45.4	34.1	2.00	26.8	0.01	0.00	0.03	219
	250	ISL	7.93	7.90	34.039	26.533	153.5	0.596	2.61	39.2	39.4	2.18	29.0	0.01			251
1	251		7.92	7.89	34.040	26.536	153.3	0.597	2.60	39.0	39.6	2.19	29.1	0.01			252
1	291		7.46	7.43	34.067	26.624	145.4	0.657	2.16	32.1	47.5	2.39	31.6	0.01			293
	300	ISL	7.32	7.29	34.064	26.641	143.8	0.670	2.09	30.9	49.4	2.43	32.2	0.01			302
1	347		6.73	6.70	34.077	26.733	135.5	0.736	1.66	24.2	58.3	2.64	35.0	0.00			349
	400	ISL	6.92	6.88	34.236	26.833	127.0	0.805	0.76	11.2	64.5	2.94	36.7	0.00			402
1	411		6.98	6.94	34.270	26.852	125.5	0.819	0.59	8.7	65.5	2.99	36.9	0.00			414
1	480		6.49	6.45	34.292	26.936	118.2	0.903	0.42	6.1	73.0	3.10	38.7	0.00			483
	500	ISL	6.27	6.23	34.280	26.955	116.4	0.927	0.42	6.1	75.8	3.12	39.3	0.00			503
1	561		5.60	5.55	34.247	27.013	110.9	0.996	0.43	6.1	84.4	3.18	41.2	0.00			565

RV DAVID STARR JORDAN | CALCOFI CRUISE 9004 | STATION 90 28

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
33 29.2 N	117 46.1 W	23/04/90	1714 UTC	60 M	150	05 KT	250 03 06	1	1015.0 MB	19.3 C	16.1 C	6/8	CU

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 D.BAR
1	0		17.21	17.21	33.578	24.374	354.3	0.000	6.01	109.4	3.6	0.28	0.0	0.00	0.35	0.07	0
1	10		17.05	17.05	33.570	24.407	351.6	0.035	6.05	109.8	3.6	0.27	0.0	0.00	0.41	0.09	10
	20	ISL	14.75	14.75	33.557	24.915	303.4	0.068	7.01	121.5	4.4	0.24	0.0	0.00	1.35	0.33	20
1	21		14.49	14.49	33.558	24.971	298.1	0.071	7.06	121.8	4.5	0.24	0.0	0.00	1.43	0.35	21
	30	ISL	13.13	13.13	33.541	25.238	272.9	0.097	5.45	91.4	5.9	0.46	0.1	0.02	1.10	0.42	30
1	31		13.01	13.01	33.538	25.260	270.9	0.099	5.22	87.3	6.0	0.48	0.1	0.02	1.06	0.42	31
1	40		12.05	12.04	33.535	25.443	253.6	0.123	3.94	64.6	12.3	1.32	10.6	0.95	0.42	0.39	40
1	50		11.61	11.60	33.603	25.579	241.0	0.148	3.32	53.9	15.2	1.52	15.8	0.87	0.21	0.21	50

RV DAVID STARR JORDAN | CALCOFI CRUISE 9004 | STATION 90 30

LATITUDE	LONGITUDE	DAY/MO/YR*	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
33 25.2 N	117 53.8 W	23/04/90	1454 UTC	609 M	090	04 KT	000 00 00	1	1014.0 MB	17.1 C	14.6 C	5/8	CU

CAST	DEPTH M		TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN ML/L	OXY PCT	S103 UM/L	PO4 UM/L	NO3 UM/L	NO2 UM/L	CHL-A UG/L	PHAEO UG/L	PRESS D.BAR
	0	ISL	16.78	16.78	33.562	24.463	345.9	0.000	5.83	105.2	2.7	0.32	0.0	0.01	0.23	0.08	0
1	1		16.78	16.78	33.562	24.463	345.9	0.003	5.83	105.3	2.7	0.32	0.0	0.01	0.23	0.08	1
	10	ISL	15.83	15.83	33.559	24.679	325.6	0.034	6.04	107.0	2.8	0.33	0.0	0.01	0.19	0.07	10
1	12		15.50	15.50	33.559	24.753	318.7	0.040	6.10	107.4	2.8	0.33	0.0	0.01	0.18	0.07	12
	20	ISL	14.41	14.41	33.544	24.977	297.5	0.065	6.14	105.7	3.2	0.34	0.0	0.01	0.25	0.18	20
1	21		14.29	14.29	33.542	25.001	295.3	0.068	6.15	105.6	3.3	0.34	0.0	0.01	0.26	0.19	21
	30	ISL	13.79	13.79	33.536	25.101	286.0	0.094	6.07	103.2	4.2	0.38	0.0	0.02	0.48	0.23	30
1	31		13.75	13.75	33.536	25.109	285.3	0.097	6.06	102.9	4.3	0.39	0.0	0.02	0.51	0.23	31
1	40		13.23	13.22	33.535	25.214	275.5	0.122	5.67	95.3	5.7	0.50	0.8	0.14	0.86	0.54	40
1	50		12.12	12.11	33.566	25.454	252.8	0.148	4.05	66.5	10.9	1.10	10.0	0.53	0.42	0.36	50
1	60		11.48	11.47	33.616	25.613	237.9	0.173	3.65	59.1	15.0	1.40	15.6	0.10	0.24	0.2B	60
1	70		11.13	11.12	33.635	25.691	230.7	0.196	3.63	58.4	16.3	1.43	16.7	0.06	0.15	0.20	70
	75	ISL	10.96	10.95	33.676	25.754	224.8	0.208	3.50	56.1	17.6	1.50	17.8	0.05	0.12	0.17	75
1	84		10.70	10.69	33.760	25.865	214.4	0.228	3.23	51.5	20.2	1.63	19.8	0.03	0.08	0.12	84
1	99		10.43	10.42	33.835	25.971	204.7	0.259	3.00	47.6	22.9	1.74	21.5	0.03	0.03	0.06	100
	100	ISL	10.41	10.40	33.842	25.980	203.9	0.261	2.98	47.2	23.1	1.75	21.6	0.03	0.03	0.06	101
1	119		10.14	10.13	33.965	26.123	190.7	0.298	2.62	41.3	26.9	1.89	23.8	0.03	0.01	0.04	120
	125	ISL	10.08	10.07	33.992	26.154	187.8	0.310	2.54	40.0	27.8	1.94	24.3	0.03	0.01	0.04	126
1	144		9.90	9.88	34.060	26.238	180.2	0.345	2.36	37.0	30.1	2.07	25.4	0.02	0.01	0.05	145
	150	ISL	9.83	9.81	34.082	26.267	177.6	0.356	2.30	36.0	30.9	2.10	25.7	0.02	0.01	0.05	151
1	174		9.49	9.47	34.146	26.374	167.9	0.397	2.12	33.0	33.9	2.20	27.0	0.02	0.00	0.03	175
	200	ISL	9.02	9.00	34.150	26.453	160.7	0.440	2.08	32.0	36.8	2.24	28.0	0.02	0.00	0.04	201
1	204		8.95	8.93	34.149	26.464	159.8	0.446	2.07	31.8	37.3	2.25	28.2	0.02	0.00	0.04	205
1	233		8.71	8.69	34.200	26.542	152.9	0.491	1.77	27.1	41.2	2.41	29.5	0.02			234
	250	ISL	8.52	8.49	34.201	26.572	150.2	0.517	1.66	25.3	43.3	2.46	30.3	0.02			251
1	273		8.27	8.24	34.196	26.606	147.3	0.551	1.54	23.3	46.0	2.52	31.2	0.01			275
	300	ISL	8.14	8.11	34.222	26.647	143.9	0.591	1.32	19.9	48.7	2.62	32.0	0.01			302
1	329		8.02	7.99	34.251	26.688	140.4	0.632	1.09	16.4	51.7	2.72	32.9	0.01			331
1	388		7.38	7.34	34.256	26.785	131.8	0.712	0.81	12.0	59.7	2.87	35.2	0.01			391
	400	ISL	7.28	7.24	34.259	26.802	130.3	0.728	0.76	11.2	61.1	2.89	35.6	0.01			403
1	450		6.89	6.85	34.276	26.870	124.4	0.792	0.55	8.1	66.7	2.99	37.1	0.01			453
	500	ISL	6.52	6.47	34.305	26.942	117.9	0.852	0.39	5.7	73.2	3.10	38.5	0.01			503
1	517		6.39	6.34	34.315	26.967	115.7	0.872	0.34	4.9	75.4	3.14	39.0	0.01			521

RV DAVID STARR JORDAN CALCOFI CRUISE 9004 STATION 90 35

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT TYPE
33 15.2 N	118 15.2 W	23/04/90	1059 UTC	391 M	340	08 KT			1013.0 MB	16.1 C	14.3 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	PO4 UM/L	NO3 UM/L	NO2 UM/L	CHL-A UG/L	PHAEO UG/L	PRESS D.BAR
	0 ISL	16.28	16.28	33.574	24.588	334.0	0.000	5.89	105.3	2.8	0.34	0.0	0.00	0.11	0.03	0
1	1	16.28	16.28	33.574	24.588	334.0	0.003	5.89	105.3	2.8	0.34	0.0	0.00	0.11	0.03	1
	10 ISL	16.25	16.25	33.572	24.594	333.8	0.033	5.89	105.2	2.7	0.33	0.0	0.00	0.12	0.03	10
1	12	16.24	16.24	33.572	24.596	333.6	0.040	5.89	105.2	2.7	0.33	0.0	0.00	0.12	0.03	12
	20 ISL	14.13	14.13	33.540	25.033	292.2	0.065	6.17	105.6	4.8	0.37	0.0	0.01	0.36	0.14	20
1	21	13.84	13.84	33.540	25.093	286.5	0.068	6.18	105.2	5.1	0.37	0.0	0.01	0.42	0.17	21
	30 ISL	12.60	12.60	33.538	25.340	263.2	0.093	5.24	86.9	7.1	0.73	4.5	0.23	1.72	0.72	30
1	31	12.52	12.52	33.538	25.356	261.7	0.095	5.10	84.4	7.4	0.78	5.2	0.26	1.82	0.77	31
1	40	11.98	11.97	33.565	25.480	250.1	0.118	4.22	69.1	11.5	1.12	10.8	0.27	0.78	0.51	40
	50 ISL	11.44	11.43	33.578	25.590	239.8	0.143	3.96	64.1	13.6	1.30	13.9	0.13	0.37	0.31	50
1	51	11.39	11.38	33.580	25.601	238.8	0.145	3.95	63.8	13.8	1.31	14.1	0.11	0.36	0.29	51
1	60	10.95	10.94	33.630	25.719	227.8	0.166	3.76	60.2	16.6	1.46	16.8	0.03	0.16	0.17	60
1	70	10.87	10.86	33.695	25.785	221.8	0.189	3.44	55.0	18.3	1.56	18.3	0.02	0.10	0.13	70
	75 ISL	10.72	10.71	33.717	25.828	217.7	0.200	3.40	54.2	19.1	1.59	18.9	0.02	0.08	0.10	75
1	83	10.48	10.47	33.756	25.901	211.0	0.217	3.35	53.1	20.6	1.64	19.8	0.02	0.05	0.07	83
1	99	10.44	10.43	33.888	26.011	200.9	0.250	2.79	44.3	24.1	1.84	22.2	0.02	0.02	0.06	100
	100 ISL	10.43	10.42	33.894	26.017	200.3	0.252	2.77	43.9	24.3	1.85	22.3	0.02	0.02	0.06	101
1	118	10.21	10.20	33.991	26.131	189.9	0.287	2.54	40.1	27.2	1.97	23.9	0.02	0.01	0.04	119
	125 ISL	10.09	10.08	34.030	26.182	185.2	0.300	2.43	38.3	28.6	2.02	24.6	0.02	0.01	0.04	126
1	143	9.76	9.74	34.116	26.305	173.8	0.332	2.17	34.0	32.2	2.15	26.3	0.02	0.01	0.05	144
	150 ISL	9.64	9.62	34.135	26.340	170.6	0.344	2.12	33.1	33.2	2.18	26.7	0.02	0.01	0.05	151
1	172	9.29	9.27	34.175	26.429	162.6	0.381	1.99	30.8	35.9	2.27	27.8	0.02	0.00	0.03	173
	200 ISL	8.96	8.94	34.213	26.512	155.1	0.426	1.65	25.4	40.2	2.42	29.1	0.01	0.00	0.04	201
1	202	8.94	8.92	34.215	26.517	154.7	0.429	1.63	25.1	40.5	2.43	29.2	0.01	0.00	0.04	203
1	230	8.62	8.60	34.219	26.570	150.1	0.471	1.53	23.4	43.7	2.49	30.3	0.01			231
	250 ISL	8.37	8.34	34.211	26.603	147.3	0.501	1.49	22.6	45.6	2.53	31.0	0.01			252
1	266	8.18	8.15	34.205	26.627	145.2	0.524	1.45	21.9	47.1	2.56	31.6	0.01			268
	300 ISL	7.92	7.89	34.217	26.676	141.0	0.573	1.26	18.9	50.8	2.65	32.7	0.01			302
1	311	7.85	7.82	34.224	26.691	139.7	0.589	1.18	17.7	52.1	2.69	33.1	0.01			313
1	355	7.46	7.43	34.250	26.769	132.9	0.649	0.84	12.5	58.6	2.86	34.9	0.01			357

RV DAVID STARR JORDAN CALCOFI CRUISE 9004 STATION 90 37

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT TYPE
33 11.3 N	118 23.3 W	23/04/90	0822 UTC	1202 M	230	03 KT			1014.1 MB	15.9 C	14.7 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 D.BAR
	0 ISL	16.28	16.28	33.573	24.587	334.1	0.000	6.00	107.3	2.7	0.32	0.0	0.00	0.16	0.05	0
1	1	16.28	16.28	33.573	24.587	334.1	0.003	6.00	107.3	2.7	0.32	0.0	0.00	0.16	0.05	1
	10 ISL	16.19	16.19	33.572	24.607	332.5	0.033	6.00	107.1	2.7	0.33	0.0	0.00	0.16	0.06	10
1	11	16.18	16.18	33.572	24.610	332.3	0.037	6.00	107.1	2.7	0.33	0.0	0.00	0.16	0.06	11
	20 ISL	14.21	14.21	33.533	25.011	294.3	0.065	6.27	107.5	4.2	0.35	0.0	0.00	0.25	0.10	20
1	21	13.97	13.97	33.531	25.060	2 89.7	0.068	6.29	107.3	4.4	0.35	0.0	0.00	0.27	0.10	21
1	30	13.15	13.15	33.527	25.223	274.3	0.093	6.04	101.3	5.9	0.42	0.0	0.00	0.43	0.28	30
1	39	12.13	12.12	33.566	25.452	252.7	0.117	4.18	68.6	11.2	1.10	9.8	0.49	0.78	0.59	39
1	50	11.65	11.64	33.604	25.572	241.6	0.144	3.62	58.8	14.2	1.35	14.3	0.13	0.51	0.40	50
1	60	11.21	11.20	33.673	25.706	229.0	0.168	3.25	52.4	17.5	1.51	17.7	0.03	0.20	0.18	60
1	69	11.00	10.99	33.726	25.786	221.7	0.188	3.13	50.2	19.4	1.61	19.2	0.02	0.08	0.11	69
	75 ISL	10.85	10.84	33.763	25.841	216.5	0.201	3.07	49.1	20.6	1.66	19.9	0.01	C.06	0.10	75
1	83	10.66	10.65	33.808	25.910	210.2	0.218	3.00	47.8	21.9	1.70	20.6	0.01	0.03	0.09	83
1	97	10.43	10.42	33.860	25.991	202.8	0.247	2.91	46.1	23.5	1.74	21.8	0.01	0.02	0.06	97
	100 ISL	10.41	10.40	33.877	26.007	201.3	0.253	2.87	45.5	23.9	1.77	22.1	0.01	0.02	0.06	101
1	118	10.26	10.25	33.989	26.121	190.9	0.288	2.57	40.6	26.9	1.96	23.8	0.01	0.02	0.07	119
	125 ISL	10.13	10.12	34.032	26.177	185.7	0.302	2.44	38.5	28.5	2.03	24.6	0.01	0.02	0.06	126
1	142	9.80	9.78	34.119	26.301	174.2	0.332	2.16	33.8	32.2	2.16	26.2	0.01	0.01	0.04	143
	150 ISL	9.70	9.68	34.140	26.334	171.2	0.346	2.10	32.8	33.2	2.19	26.6	0.01	0.01	0.04	151
1	172	9.47	9.45	34.170	26.396	165.8	0.383	2.01	31.3	35.4	2.25	27.5	0.01	0.00	0.04	173
	200 ISL	9.08	9.06	34.191	26.476	158.6	0.428	1.87	28.8	38.5	2.30	28.6	0.01	0.00	0.04	201
1	202	9.05	9.03	34.192	26.481	158.1	0.432	1.86	28.7	38.7	2.30	28.7	0.01	0.00	0.04	203
1	232	8.69	8.67	34.216	26.557	151.4	0.478	1.61	24.6	43.1	2.43	30.1	0.01			233
	250 ISL	8.58	8.55	34.234	26.589	148.7	0.505	1.45	22.1	45.1	2.51	30.7	0.01			251
1	271	8.44	8.41	34.249	26.622	145.9	0.536	1.28	19.5	47.4	2.59	31.3	0.00			273
	300 ISL	8.01	7.98	34.237	26.678	140.9	0.578	1.17	17.6	51.6	2.67	32.6	0.00			302
1	326	7.62	7.59	34.225	26.726	136.5	0.614	1.09	16.3	55.5	2.74	33.9	0.00			328
1	385	7.24	7.20	34.275	26.820	128.4	0.692	0.62	9.2	63.3	2.93	36.0	0.00			388
	400 ISL	7.13	7.09	34.282	26.841	126.6	0.711	0.56	8.3	65.0	2.96	36.4	0.00			403
1	448	6.78	6.74	34.297	26.901	121.3	0.770	0.43	6.3	70.2	3.02	37.7	0.00			451
	500 ISL	6.40	6.35	34.315	26.966	115.5	0.832	0.33	4.8	76.2	3.13	38.9	0.00			503
1	517	6.27	6.22	34.321	26.988	113.6	0.851	0.30	4.3	78.2	3.16	39.3	0.00			521

RV DAVID STARR JORDAN — CALCOFI CRUISE 9004 — STATION 90 45

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
32 55.2 N	118 55.4 W	23/04/90	0313 UTC	1789 M	300	17 KT	310 04 07	1	1014.9 MB	14.7 C	13.2 C	4/S	SC

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 D.BAR
	0 ISL	15.08	15.08	33.582	24.862	307.9	0.000	6.11	106.7	4.3	0.33	0.0	0.00	0.35	0.14	0
1	1	15.08	15.08	33.582	24.862	307.9	0.003	6.11	106.7	4.3	0.33	0.0	0.00	0.35	0.14	1
	10 ISL	15.04	15.04	33.582	24.871	307.3	0.031	6.12	106.7	4.3	0.33	0.0	0.00	0.40	0.16	10
1	11	15.03	15.03	33.582	24.874	307.1	0.034	6.12	106.7	4.3	0.33	0.0	0.00	0.40	0.16	11
1	20	13.77	13.77	33.570	25.131	282.9	0.060	6.18	105.0	5.0	0.40	0.5	0.03	0.94	0.38	20
1	30	12.32	12.32	33.569	25.418	255.7	0.087	5.33	87.9	8.0	0.79	5.8	0.40	0.86	0.38	30
1	40	11.90	11.89	33.582	25.508	247.4	0.112	5.03	82.2	9.9	0.96	8.7	0.59	0.85	0.38	40
1	49	11.18	11.17	33.625	25.674	231.8	0.134	4.37	70.3	14.1	1.25	13.6	0.15	0.32	0.25	49
	50 ISL.	11.14	11.13	33.629	25.684	230.9	0.136	4.33	69.6	14.4	1.27	13.9	0.14	0.29	0.24	50
1	60	10.82	10.81	33.653	25.760	223.9	0.159	4.12	65.8	16.4	1.39	15.7	0.07	0.14	0.19	60
1	69	10.38	10.37	33.663	25.845	215.9	0.179	3.92	62.0	18.8	1.51	17.9	0.03	0.07	0.17	69
	75 ISL	10.19	10.18	33.697	25.904	210.4	0.192	3.72	58.6	20.5	1.59	19.2	0.03	0.05	0.16	75
1	82	10.06	10.05	33.746	25.965	204.8	0.206	3.47	54.5	22.2	1.68	20.5	0.03	0.03	0.14	82
1	98	10.12	10.11	33.843	26.031	199.0	0.239	3.04	47.9	24.3	1.80	22.1	0.03	0.02	0.08	99
	100 ISL	10.09	10.08	33.854	26.044	197.7	0.242	3.01	47.4	24.6	1.81	22.3	0.03	0.02	0.08	101
1	116	9.76	9.75	33.932	26.161	186.9	0.273	2.82	44.1	27.5	1.91	24.1	0.02	0.01	0.06	117
	125 ISL	9.58	9.57	33.961	26.213	182.1	0.290	2.74	42.7	29.2	1.96	24.8	0.02	0.01	0.05	126
1	140	9.31	9.29	34.002	26.290	175.1	0.317	2.60	40.3	31.9	2.04	25.8	0.02	0.01	0.05	141
	150 ISL	9.17	9.15	34.033	26.337	170.8	0.334	2.46	38.0	33.7	2.10	26.7	0.02	0.01	0.05	151
1	169	8.94	8.92	34.087	26.416	163.6	0.366	2.19	33.6	36.8	2.22	28.2	0.01	0.02	0.05	170
1	197	8.69	8.67	34.138	26.496	156.5	0.411	1.92	29.3	40.4	2.34	29.4	0.01	0.01	0.04	198
	200 ISL	8.68	8.66	34.141	26.499	156.2	0.415	1.90	29.0	40.7	2.35	29.5	0.01			201
1	225	8.55	8.53	34.167	26.540	152.8	0.454	1.71	26.0	43.2	2.42	30.3	0.02			226
	250 ISL	8.27	8.24	34.202	26.611	146.4	0.491	1.40	21.2	47.6	2.56	31.7	0.02			252
1	266	8.07	8.04	34.224	26.658	142.1	0.514	1.20	18.1	50.8	2.65	32.6	0.01			268
	300 ISL	7.73	7.70	34.254	26.732	135.5	0.562	0.90	13.5	56.6	2.79	34.2	0.01			302
1	322	7.54	7.51	34.267	26.770	132.2	0.591	0.76	11.3	59.9	2.86	35.0	0.01			324
1	381	7.15	7.11	34.288	26.842	126.1	0.667	0.53	7.8	65.7	2.98	36.5	0.00			383
	400 ISL	6.98	6.94	34.295	26.872	123.5	0.691	0.47	6.9	68.3	3.02	37.1	0.00			403
1	447	6.58	6.54	34.311	26.938	117.5	0.748	0.35	5.1	74.6	3.10	38.4	0.00			450
	500 ISL	6.28	6.23	34.323	26.988	113.3	0.809	0.30	4.3	79.8	3.16	39.3	0.00			503
1	517	6.18	6.13	34.327	27.004	112.0	0.828	0.29	4.2	81.5	3.18	39.6	0.00			521

RV DAVID STARR JORDAN — CALCOFI CRUISE 9004 — STATION 90 53

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPjEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
32 38.9 N	119 28.8 W	22/04/90	2120 UTC	1334 M	300	15 KT	290 05 06	2	1016.9 MB	14.7 C	13.2 C	8/8	SC

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 D.BAR
	0 ISL	14.36	14.36	33.526	24.973	297.3	0.000	6.17	106.1	4.2	0.34	0.1	0.00	0.59	0.22	0
1	1	14.36	14.36	33.526	24.974	297.3	0.003	6.17	106.1	4.2	0.34	0.1	0.00	0.59	0.22	1
1	10	14.32	14.32	33.530	24.985	296.4	0.030	6.17	106.0	4.2	0.34	0.1	0.00	0.59	0.23	10
1	20'	14.27	14.27	33.533	24.998	295.5	0.059	6.17	105.9	4.2	0.34	0.1	0.00	0.67	0.27	20
	30 ISL	13.65	13.65	33.508	25.108	285.3	0.088	6.02	102.0	4.6	0.44	0.8	0.05	1.05	0.46	30
1	31	13.56 A	13.56	33.506	25.125	2 83.8	0.091	5.99	101.3	4.6	0.46	0.9	0.06	1.08	0.48	31
1	40	12.58	12.57	33.508	25.321	265.3	0.116	5.64	93.5	5.9	0.66	4.2	0.22	0.99	0.52	40
1	49	11.55	11.54	33.502	25.511	247.3	0.139	4.79	77.7	10.1	1.06	10.5	0.05	0.31	0.22	49
	50 ISL	11.53	11.52	33.511	25.522	246.3	0.141	4.77	77.3	10.3	1.07	10.8	0.05	0.30	0.22	50
1	60	11.31	11.30	33.561	25.601	239.0	0.166	4.60	74.2	12.0	1.15	12.3	0.05	0.22	0.20	60
1	70	11.06	11.05	33.629	25.699	229.9	0.189	4.28	68.7	14.6	1.30	14.5	0.03	0.13	0.16	70
	75 ISL	10.81	10.80	33.674	25.779	222.5	0.200	4.00	63.9	17.0	1.42	16.3	0.03	0.09	0.14	75
1	84	10.37	10.36	33.751	25.916	209.6	0.220	3.51	55.5	21.1	1.62	19.4	0.02	0.05	0.11	84
1	98	10.12	10.11	33.804	26.000	201.8	0.249	3.26	51.3	23.3	1.73	21.1	0.01	0.03	0.08	98
	100 ISL	10.09	10.08	33.811	26.011	200.9	0.253	3.23	50.8	23.6	1.74	21.3	0.01	0.03	0.08	101
1	117	9.89	9.88	33.868	26.089	193.7	0.286	2.99	46.9	25.9	1.85	22.8	0.01	0.02	0.08	118
	125 ISL	9.79	9.78	33.893	26.126	190.5	0.302	2.89	45.2	26.8	1.89	23.4	0.01	0.02	0.08	126
1	143	9.56	9.54	33.948	26.207	183.1	0.335	2.69	41.9	28.9	1.98	24.8	0.01	0.01	0.09	144
	150 ISL	9.46	9.44	33.970	26.240	180.0	0.348	2.62	40.7	29.9	2.01	25.3	0.01	0.01	0.09	151
1	173	9.14	9.12	34.042	26.349	170.1	0.388	2.35	36.3	33.6	2.13	27.0	0.01	0.00	0.08	174
	200 ISL	8.76	8.74	34.125	26.474	158.6	0.433	1.94	29.7	38.6	2.32	29.2	0.01	0.00	0.07	201
1	203	8.72	8.70	34.133	26.487	157.5	0.437	1.90	29.1	39.1	2.34	29.4	0.01	0.00	0.07	204
1	233	8.54	8.52	34.159	26.536	153.4	0.484	1.68	25.6	42.4	2.43	30.4	0.01			234
	250 ISL	8.41	8.38	34.181	26.573	150.1	0.510	1.50	22.8	44.6	2.50	31.2	0.01			251
1	272	8.22	8.19	34.210	26.625	145.5	0.542	1.27	19.2	47.7	2.60	32.2	0.01			274
	300 ISL	7.99	7.96	34.233	26.678	140.9	0.582	1.07	16.1	51.5	2.69	33.2	0.00			302
1	326	7.78	7.75	34.248	26.721	137.1	0.618	0.93	13.9	54.9	2.77	34.1	0.00			328
1	386	7.25	7.21	34.279	26.821	128.2	0.698	0.62	9.2	62.6	2.94	36.0	0.00			388
	400 ISL	7.12	7.08	34.282	26.842	126.4	0.716	0.58	8.6	64.2	2.97	36.5	0.00			403
1	451	6.69	6.65	34.294	26.911	120.3	0.779	0.46	6.7	69.9	3.06	38.0	0.00			454
	500 ISL	6.34	6.29	34.311	26.971	115.0	0.836	0.37	5.4	76.5	3.12	39.2	0.00			503
1	519	6.20	6.15	34.318	26.994	112.9	0.858	0.33	4.8	79.1	3.15	39.6	0.00			523

A) MEAN VALUE OF 13.52 AND 13.61 DEGREES CELSIUS.

LATITUDE LONGITUDE DAY/MO/YR MESSENGER BOTTOM WIND

RV DAVID STARR JORDAN CALCOFI CRUISE 9004 STATION 90 80

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
31 44.7 N	121 19.3 W	22/04/90	0127 UTC	3506 M	320	13 KT	330 04 07	2	1017.6 MB	16.0 C	13.7 C	8/6	SC

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. D.BAR
1	0	15.20	15.20	33.360	24.665	326.7	0.000	5.93	103.6	2.4	0.36	0.0	0.00	0.07	0.02	0
1	10	15.17	15.17	33.357	24.670	326.5	0.033	5.92	103.4	2.4	0.36	0.0	0.00	0.07	0.01	10
1	20	14.99	14.99	33.342	24.697	324.2	0.065	5.94	103.3	2.4	0.36	0.0	0.00	0.08	0.02	20
1	30	14.98	14.98	33.349	24.705	323.7	0.098	5.93	103.2	2.4	0.36	0.0	0.00	0.08	0.02	30
1	40	14.65	14.64	33.302	24.740	320.7	0.130	6.05	104.5	2.4	0.37	0.0	0.00	0.09	0.03	40
	50 ISL	14.31	14.30	33.269	24.787	316.5	0.162	6.08	104.3	2.4	0.37	0.0	0.00	0.13	0.04	50
1	51	14.27	14.26	33.267	24.794	315.9	0.165	6.08	104.2	2.4	0.37	0.0	0.00	0.13	0.04	51
1	62	13.69	13.68	33.257	24.907	305.4	0.199	6.16	104.3	2.5	0.39	0.0	0.00	0.18	0.08	62
1	70	13.33	13.32	33.262	24.984	298.2	0.223	6.11	102.7	2.7	0.41	0.1	0.03	0.34	0.22	70
	75 ISL	13.10	13.09	33.243	25.015	295.4	0.238	6.09	101.8	2.8	0.43	0.3	0.12	0.33	0.21	75
1	85	12.62	12.61	33.214	25.087	288.7	0.267	6.02	99.6	3.2	0.51	1.3	0.27	0.31	0.20	85
1	100	11.83	11.82	33.289	25.295	269.2	0.309	5.75	93.6	4.8	0.68	4.7	0.02	0.09	0.09	100
1	119	10.56	10.55	33.194	25.449	254.6	0.359	5.43	86.0	7.7	0.92	8.8	0.02	0.11	0.11	120
	125 ISL	10.32	10.31	33.209	25.502	249.7	0.374	5.30	83.5	8.9	1.00	10.2	0.02	0.10	0.10	126
1	143	9.80	9.78	33.346	25.697	231.5	0.417	4.82	75.1	13.5	1.26	14.6	0.02	0.04	0.06	144
	150 ISL	9.58	9.56	33.457	25.820	219.9	0.433	4.52	70.2	16.4	1.39	16.8	0.02	0.03	0.05	151
1	173	8.98	8.96	33.809	26.192	184.9	0.480	3.66	56.2	25.3	1.73	22.7	0.00	0.00	0.02	174
	200 ISL	8.70	8.68	33.898	26.306	174.5	0.528	3.54	54.0	28.5	1.78	23.9	0.00	0.00	0.02	201
1	203	8.68	8.66	33.898	26.309	174.3	0.533	3.53	53.8	28.7	1.79	24.0	0.00	0.00	0.02	204
1	231	8.24	8.22	33.964	26.428	163.3	0.581	3.14	47.4	34.1	1.97	26.5	0.00			232
	250 ISL	7.94	7.91	33.998	26.500	156.7	0.611	2.92	43.8	38.1	2.08	28.0	0.00			251
1	270	7.64	7.61	34.024	26.564	150.8	0.642	2.70	40.2	42.3	2.19	29.4	0.00			271
	300 ISL	7.22	7.19	34.040	26.636	144.2	0.686	2.37	35.0	48.6	2.33	31.5	0.00			302
1	321	6.96	6.93	34.045	26.676	140.6	0.716	2.15	31.5	52.8	2.43	32.8	0.00			323
1	378	6.38	6.35	34.074	26.777	131.5	0.793	1.53	22.2	62.7	2.69	36.1	0.00			**380**
	400 ISL	6.25	6.21	34.099	26.814	128.2	0.822	1.28	18.5	66.5	2.79	37.2	0.00			**402**
1	441	6.05	6.01	34.150	26.880	122.4	0.873	0.87	12.5	72.9	2.95	38.9	0.00			**444**
	500 ISL	5.75	5.71	34.202	26.959	115.4	0.944	0.60	8.6	79.8	3.08	40.4	0.00			503
1	507	5.72	5.68	34.208	26.967	114.7	0.952	0.57	8.1	80.6	3.10	40.6	0.00			510

RV DAVID STARR JORDAN CALCOFI CRUISE 9004 STATION 90 90

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
31 25.2 N	121 59.2 W	21/04/90	1800 UTC	3927 M	350	11 KT	340 03 03		1021.0 MB	17.9 C	14.8 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 D.BAR
1	0	15.66	15.66	33.462	24.642	328.8	0.000	5.87	103.6	2.5	0.35	0.0	0.00	0.10	0.02	0
	10 ISL	15.63	15.63	33.462	24.649	328.5	0.033	5.87	103.5	2.4	0.35	0.0	0.00	0.11	0.02	10
1	11	15.63	15.63	33.462	24.649	328.5	0.036	5.87	103.5	2.4	0.35	0.0	0.00	0.11	0.02	11
1	20	15.56	15.56	33.460	24.663	327.4	0.066	5.87	103.4	2.3	0.35	0.0	0.00	0.11	0.03	20
1	30	15.08	15.08	33.451	24.762	318.3	0.098	5.96	103.9	2.4	0.36	0.0	0.00	0.13	0.05	30
1	39	14.21	14.20	33.458	24.954	300.3	0.126	6.15	105.4	2.5	0.37	0.0	0.00	0.15	0.06	39
1	49	13.48	13.47	33.439	25.090	287.6	0.155	6.15	103.8	3.1	0.40	0.0	0.01	0.26	0.12	49
	50 ISL	13.44	13.43	33.437	25.096	287.0	0.158	6.14	103.5	3.1	0.40	0.0	0.02	0.27	0.12	50
1	59	13.04	13.03	33.407	25.153	281.8	0.184	6.00	100.3	3.5	0.46	0.8	0.09	0.34	0.16	59
1	69	12.21	12.20	33.331	25.255	272.2	0.211	5.70	93.6	4.6	0.64	3.7	0.14	0.34	0.22	69
	75 ISL	11.71	11.70	33.309	25.332	265.0	0.227	5.52	89.7	5.8	0.75	5.8	0.11	0.33	0.23	75
1	82	11.25	11.24	33.320	25.425	256.3	0.246	5.28	84.9	7.6	0.89	8.2	0.05	0.32	0.25	82
1	97	11.12	11.11	33.523	25.607	239.4	0.283	4.61	74.0	12.0	1.17	12.8	0.02	0.07	0.10	97
	100 ISL	11.00	10.99	33.539	25.641	236.2	0.290	4.50	72.1	12.9	1.22	13.6	0.02	0.06	0.10	100
1	116	10.26	10.25	33.590	25.810	220.3	0.327	4.02	63.4	17.2	1.46	17.4	0.01	0.03	0.09	117
	125 ISL	9.92	9.91	33.635	25.902	211.6	0.346	3.81	59.7	19.5	1.57	19.3	0.01	0.02	0.08	126
1	141	9.42	9.40	33.730	26.059	197.0	0.379	3.50	54.2	23.2	1.72	22.0	0.01	0.01	0.06	142
	150 ISL	9.23	9.21	33.796	26.142	189.3	0.396	3.36	51.9	25.2	1.79	23.1	0.01	0.01	0.06	151
1	170	8.94	8.92	33.934	26.296	175.0	0.432	3.05	46.8	29.4	1.92	25.1	0.01	0.00	0.05	171
1	200	8.71	8.69	34.052	26.425	163.3	0.483	2.46	37.6	35.4	2.13	27.5	0.01	0.00	0.04	201
1	228	8.53	8.51	34.086	26.480	158.5	0.528	2.23	33.9	38.1	2.22	28.7	0.01			229
	250 ISL	8.01	7.98	34.062	26.540	153.0	0.563	2.33	35.0	41.5	2.25	29.7	0.00			251
1	269	7.54	7.51	34.044	26.594	147.9	0.591	2.40	35.7	44.9	2.29	30.7	0.00			**271**
	300 ISL	7.37	7.34	34.105	26.667	141.5	0.636	1.97	29.2	50.7	2.47	32.5	0.00			**302**
1	322	7.25	7.22	34.143	26.714	137.3	0.667	1.54	22.8	54.8	2.62	33.8	0.00			**32***
1	382	7.09	7.05	34.269	26.836	126.7	0.746	0.62	9.1	64.3	2.95	36.3	0.00			**384**
	400 ISL	6.97	6.93	34.278	26.859	124.6	0.768	0.58	8.5	66.3	2.99	36.9	0.00			**403**
1	448	6.62	6.58	34.281	26.910	120.3	0.827	0.46	6.7	71.1	3.04	38.1	0.00			**451**
	500 ISL	6.28	6.24	34.301	26.970	115.0	0.888	0.36	5.2	76.6	3.13	39.2	0.00			**503**
1	516	6.18	6.13	34.307	26.988	113.4	0.907	0.33	4.8	78.3	3.16	39.6	0.00			**519**

RV DAVID STARR JORDAN CALCOFI CRUISE 9004 ' STATION 90 100

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT TYPE
31 4.8 N	122 39.6 W	21/04/90	1215 UTC	3927 M	040	14 KT			1018.0 MB	15.0 C	14.9 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 D.BAR
1	0		15.50	15.50	33.469	24.683	324.9	0.000	5.90	103.8	2.7	0.37	0.0	0.00	0.11	0.03	0
	10	ISL	15.34	15.34	33.477	24.725	321.3	0.032	5.93	104.0	2.6	0.37	0.0	0.00	0.12	0.03	10
1	14		15.27	15.27	33.480	24.743	319.7	0.045	5.94	104.0	2.6	0.37	0.0	0.00	0.12	0.03	14
	20	ISL	15.13	15.13	33.469	24.765	317.8	0.064	5.97	104.2	2.6	0.37	0.0	0.00	0.14	0.05	20
1	30		14.89	14.89	33.451	24.804	314.4	0.096	6.02	104.6	2.7	0.37	0.0	0.00	0.20	0.07	30
1	39		13.15	13.14	33.363	25.097	286.6	0.123	6.28	105.2	3.2	0.42	0.0	0.00	0.31	0.15	39
1	50		12.81	12.80	33.351	25.155	281.4	0.154	6.05	100.6	3.5	0.50	1.0	0.12	0.60	0.34	50
1	58		12.35	12.34	33.353	25.246	272.9"	0.176	5.64	92.9	4.6	0.66	3.9	0.16	0.26	0.18	58
1	68		12.01	12.00	33.363	25.318	266.2	0.203	5.49	89.8	5.6	0.76	5.7	0.03	0.16	0.12	68
	75	ISL	11.61	11.60	33.330	25.367	261.7	0.222	5.54	89.8	6.0	0.80	6.5	0.02	0.10	0.10	75
1	77		11.49	11.48	33.320	25.381	260.3	0.227	5.55	89.7	6.1	0.81	6.7	0.02	0.08	0.09	77
1	93		10.87	10.86	33.354	25.519	247.5	0.268	5.15	82.2	9.1	1.01	10.2	0.01	0.05	0.07	93
	100	ISL	10.52	10.51	33.368	25.592	240.7	0.285	4.98	78.9	10.7	1.10	11.8	0.01	0.06	0.07	100
1	107		10.19	10.18	33.393	25.668	233.6	0.301	4.81	75.6	12.4	1.19	13.4	0.01	0.06	0.07	108
1	123		9.71	9.70	33.525	25.851	216.4	0.337	4.34	67.6	16.9	1.43	17.5	0.01	0.03	0.05	124
	125	ISL	9.67	9.66	33.541	25.870	214.6	0.342	4.30	66.9	17.3	1.45	17.8	0.01	0.03	0.05	126
1	147		9.28	9.26	33.712	26.068	196.2	0.387	3.90	60.2	21.8	1.61	20.7	0.01	0.00	0.02	148
	150	ISL	9.21	9.19	33.736	26.098	193.4	0.393	3.84	59.2	22.6	1.64	21.1	0.01	0.00	0.02	151
1	172		8.75	8.73	33.884	26.287	175.8	0.433	3.48	53.2	28.3	1.80	23.9	0.00	0.00	0.02	173
	200	ISL	8.37	8.35	33;963	26.407	164.8	0.481	3.36	50.9	32.3	1.88	25.2	0.00	0.00	0.01	201
1	203		8.33	8.31	33.966	26.416	164.0	0.486	3.36	50.9	32.7	1.88	25.3	0.00	0.00	0.01	204
1	231		7.84	7.82	33.991	26.509	155.5	0.531	3.23	48.4	37.2	1.99	27.1	0.00			232
	250	ISL	7.50	7.48	33.995	26.561	150.7	0.560	3.12	46.4	41.0	2.07	28.3	0.00			251
1	271		7.17	7.14	33.999	26.611	146.2	0.591	2.93	43.2	45.5	2.17	29.7	0.00			273
	300	ISL	6.87	6.84	34.021	26.669	140.9	0.632	2.43	35.6	51.7	2.36	32.0	0.00			302
1	326		6.67	6.64	34.045	26.715	136.8	0.669	1.95	28.4	57.0	2.53	34.1	0.00			328
1	384		6.18	6.15	34.087	26.813	128.0	0.745	1.31	18.9	67.0	2.80	37.5	0.00			386
	400	ISL	6.06	6.03	34.103	26.841	125.5	0.766	1.14	16.4	70.0	2.87	38.3	0.00			403
1	449		5.72	5.68	34.154	26.924	118.0	0.825	0.72	10.3	78.7	3.04	40.2	0.00			452
	500	ISL	5.45	5.41	34.203	26.996	111.6	0.884	0.51	7.2	85.7	3.14	41.4	0.00			503
1	518		5.36	5.32	34.221	27.021	109.3	0.904	0.44	6.2	88.2	3.18	41.8	0.00			521

RV DAVID STARR JORDAN CALCOFI CRUISE 9004 STATION ' 90 110

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT TYPE
30 45.1 N	123 20.0 W	21/04/90	0603 UTC	4114 M	290	07 KT			1021.1 MB	17.0 C	15.8 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 D.BAR
	0	ISL	16.31	16.31	33.493	24.519	340.6	0.000	5.78	103.3	2.4	0.34	0.1	0.00	0.05	0.01	0
1	1		16.31	16.31	33.493	24.519	340.6	0.003	5.78	103.3	2.4	0.34	0.1	0.00	0.05	0.01	1
	10	ISL	16.24	16.24	33.519	24.555	337.4	0.034	5.77	103.0	2.4	0.33	0.1	0.00	0.05	0.01	10
1	16		16.18	16.18	33.540	24.585	334.8	0.054	5.76	102.7	2.4	0.33	0.1	0.00	0.05	0.01	16
	20	ISL	16.15	16.15	33.536	24.589	334.5	0.067	5.76	102.7	2.4	0.33	0.1	0.00	0.05	0.01	20
1	30		16.09	16.09	33.532	24.600	333.8	0.101	5.78	102.9	2.4	0.33	0.1	0.00	0.05	0.01	30
1	40		16.03	16.02	33.579	24.650	329.4	0.134	5.81	103.4	2.4	0.32	0.1	0.00	0.06	0.01	40
1	50		16.03	16.02	33.627	24.687	326.1	0.167	5.80	103.2	2.4	0.31	0.1	0.00	0.06	0.01	50
1	60		15.95	15.94	33.670	24.739	321.5	0.199	5.81	103.2	2.4	0.30	0.1	0.00	0.06	0.02	60
1	70		16.27	16.26	33.810	24.774	318.6	0.231	5.74	102.7	2.4	0.28	0.1	0.00	0.08	0.03	70
	75	ISL	15.90	15.89	33.711	24.782	317.9	0.247	5.78	102.6	2.3	0.30	0.1	0.00	0.09	0.04	75
1	79		15.52	15.51	33.607	24.787	317.5	0.260	5.83	102.7	2.3	0.32	0.1	0.00	0.11	0.05	79
1	93		14.72	14.71	33.457	24.847	312.2	0.304	5.88	101.8	2.3	0.34	0.1	0.00	0.19	0.12	93
	100	ISL	14.31	14.30	33.411	24.898	307.4	0.326	5.85	100.4	2.6	0.37	0.5	0.05	0.24	0.18	100
1	108		13.65	13.63	33.362	24.997	298.1	0.350	5.82	98.5	3.0	0.44	0.9	0.09	0.27	0.23	108
1	122		11.60	11.58	33.261	25.316	267.6	0.389	5.55	89.9	5.7	0.74	5.8	0.04	0.18	0.18	123
	125	ISL	11.39	11.37	33.259	25.353	264.1	0.397	5.50	88.7	6.1	0.78	6.5	0.03	0.17	0.17	126
1	148		10.62	10.60	33.353	25.563	244.5	0.456	5.08	80.6	9.7	1.03	10.9	0.01	0.08	0.09	149
	150	ISL	10.54	10.52	33.373	25.593	241.7	0.461	5.02	79.5	10.3	1.06	11.4	0.01	0.07	0.08	151
1	172		9.73	9.71	33.608	25.914	211.5	0.511	4.34	67.6	16.8	1.38	17.1	0.00	0.01	0.02	173
	200	ISL	9.14	9.12	33.752	26.122	192.1	0.567	3.88	59.7	22.5	1.60	21.0	0.00	0.00	0.02	201
1	201		9.12	9.10	33.755	26.128	191.6	0.569	3.87	59.6	22.7	1.61	21.1	0.00	0.00	0.02	202
1	230		8.63	8.61	33.894	26.314	174.3	0.622	3.58	54.5	28.0	1.77	23.7	0.00			231
	250	ISL	8.30	8.27	33.949	26.408	165.6	0.656	3.43	51.9	31.6	1.85	25.0	0.00			251
1	269		8.00	7.97	33.982	26.479	159.1	0.687	3.27	49.1	35.4	1.94	26.3	0.00			270
	300	ISL	7.50	7.47	34.019	26.580	149.7	0.735	2.75-	40.9	43.4	2.17	29.4	0.00			302
1	324		7.15	7.12	34.037	26.644	143.9	0.770	2.32	34.2	49.4	2.35	31.8	0.00			326
1	384		6.65	6.61	34.065	26.734	135.8	0.854	1.72	25.1	58.4	2.61	34.8	0.00			386
	400	ISL	6.49	6.45	34.076	26.764	133.1	0.875	1.55	22.5	61.5	2.68	35.8	0.00			402
1	448		6.04	6.00	34.114	26.853	125.0	0.937	1.06	15.2	70.9	2.89	38.5	0.00			451
	500	ISL	5.73	5.69	34.164	26.931	118.0	1.001	0.70	10.0	78.6	3.04	40.3	0.00			503
1	518		5.62	5.58	34.182	26.959	115.5	1.022	0.58	8.3	81.2	3.09	40.9	0.00			521

RV DAVID STARR JORDAN CALCOFI CRUISE 9004 STATION 90 120

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	HAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
30 25.3 N	124 0.4 W	21/04/90	0018 UTC	4261 M	2 80	10 KT	320 03 09	1	1021.1 MB	17.5 C	16.4 C	5/8	SC

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 D.BAR
	0	ISL	16.89	16.89	33.637	24.495	342.8	0.000	5.73	103.7	2.4	0.31	0.0	0.00	0.05	0.01	0
1	1		16.89	16.89	33.637	24.495	342.9	0.003	5.73	103.7	2.4	0.31	0.0	0.00	0.05	0.01	1
	10	ISL	16.76	16.76	33.642	24.530	339.9	0.034	5.72	103.3	2.3	0.31	0.0	0.00	0.05	0.01	10
1	16		16.65	16.65	33.646	24.559	337.3	0.054	5.72	103.1	2.3	0.31	0.0	0.00	0.05	0.01	16
	20	ISL	16.64	16.64	33.645	24.560	337.3	0.068	5.73	103.2	2.3	0.31	0.0	0.00	0.05	0.01	20
1	30		16.60	16.60	33.643	24.568	336.8	0.102	5.74	103.3	2.3	0.31	0.0	0.00	0.06	0.01	30
1	40		16.28	16.27	33.630	24.632	331.1	0.135	5.79	103.5	2.3	0.31	0.0	0.00	0.06	0.02	40
1	50		15.58	15.57	33.578	24.751	320.1	0.168	5.88	103.7	2.3	0.31	0.0	0.00	0.08	0.02	50
1	60		15.01	15.00	33.474	24.796	316.0	0.199	5.93	103.3	2.3	0.32	0.0	0.00	0.09	0.03	60
1	70		14.97	14.96	33.518	24.839	312.2	0.231	5.92	103.0	2.4	0.32	0.0	0.00	0.14	0.05	70
	75	ISL	14.85	14.84	33.496	24.848	311.5	0.246	5.91	102.6	2.4	0.33	0.0	0.00	0.14	0.06	75
1	78		14.77	14.76	33.478	24.852	311.2	0.256	5.91	102.4	2.4	0.33	0.0	0.00	0.13	0.06	78
1	93		14.55	14.54	33.452	24.879	309.0	0.302	5.90	101.8	2.4	0.34	0.0	0.00	0.17	0.10	93
	100	ISL	14.14	14.13	33.415	24.937	303.7	0.324	5.86	100.2	2.6	0.38	0.2	0.04	0.20	0.15	100
1	109		13.68	13.66	33.432	25.045	293.5	0.351	5.80	98.3	3.1	0.43	0.8	0.08	0.23	0.21	109
1	123		13.87	13.85	33.767	25.266	273.0	0.390	5.36	91.4	4.3	0.49	2.9	0.07	0.19	0.25	124
	125	ISL	13.72	13.70	33.765	25.295	270.3	0.396	5.33	90.6	4.5	0.51	3.3	0.07	0.18	0.24	126
1	147		11.51	11.49	33.580	25.581	243.1	0.452	5.15	83.4	7.8	0.80	8.0	0.02	0.07	0.08	148
	150	ISL	11.28	11.26	33.569	25.615	239.9	0.459	5.10	82.2	8.5	0.85	8.8	0.02	0.06	0.07	151
1	173		9.98	9.96	33.573	25.845	218.1	0.512	4.72	74.0	14.0	1.18	14.3	0.01	0.02	0.03	174
	200	ISL	9.53	9.51	33.783	26.084	195.9	0.568	4.45	69.1	18.3	1.32	17.2	0.00	0.00	0.02	201
1	203		9.51	9.49	33.808	26.107	193.8	0.574	4.42	68.6	18.8	1.33	17.4	0.00	0.00	0.02	204
1	230		8.83	8.81	33.894	26.283	177.3	0.624	4.00	61.2	25.2	1.60	21.4	0.00			231
	250	ISL	8.48	8.45	33.944	26.377	168.7	0.659	3.85	58.5	28.9	1.70	23.1	0.00			251
1	271		8.17	8.14	33.981	26.453	161.7	0.693	3.71	56.0	32.5	1.78	24.4	0.00			272
	300	ISL	7.70	7.67	33.997	26.535	154.2	0.739	3.38	50.4	38.4	1.95	26.8	0.00			302
1	326		7.31	7.28	34.001	26.594	148.8	0.778	3.00	44.4	44.0	2.12	29.1	0.00			328
1	385		6.71	6.67	34.045	26.711	138.2	0.863	1.90	27.7	56.4	2.55	34.3	0.00			387
	400	ISL	6.54	6.50	34.055	26.741	135.3	0.884	1.69	24.6	59.8	2.64	35.4	0.00			402
1	449		5.98	5.94	34.094	26.844	125.7	0.948	1.13	16.2	70.9	2.88	38.5	0.00			452
	500	ISL	5.52	5.48	34.161	26.954	115.6	1.009	0.69	9.8	82.1	3.07	40.7	0.00			503
1	517		5.37	5.33	34.184	26.990	112.2	1.028	0.54	7.6	85.8	3.13	41.4	0.00			520

RV DAVID STARR JORDAN CALCOFI CRUISE 9004 STATION 93 26.7

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
32 57.5 N	117 18.4 W	17/04/90	1950 UTC	60 M	180	10 KT	190 02 05	1	1013.6 MB	17.9 C	16.1 C	3/8	SC

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 D.BAR
	0	ISL	16.70	16.70	33.521	24.450	347.1	0.000	6.14	110.6	3.6	0.26	0.0	0.01	0.57	0.15	0
1	1		16.70	16.70	33.521	24.450	347.1	0.003	6.14	110.6	3.6	0.26	0.0	0.01	0.57	0.15	1
	10	ISL	16.58	16.58	33.533	24.488	343.9	0.035	6.14	110.4	3.4	0.26	0.0	0.01	0.62	0.17	10
1	11		16.56	16.56	33.534	24.493	343.4	0.038	6.14	110.3	3.4	0.26	0.0	0.01	0.63	0.17	11
	20	ISL	16.49	16.49	33.535	24.511	342.0	0.069	6.12	109.8	3.2	0.27	0.0	0.01	0.70	0.19	20
1	21		16.48	16.48	33.535	24.513	341.8	0.072	6.12	109.8	3.2	0.27	0.0	0.01	0.71	0.19	21
	30	ISL	14.50	14.50	33.546	24.960	299.4	0.101	5.91	101.9	5.7	0.41	0.2	0.03	1.47	0.57	30
1	31		14.22	14.22	33.549	25.022	293.6	0.104	5.89	101.0	6.1	0.42	0.2	0.03	1.53	0.61	31
1	41		11.89	11.88	33.541	25.478	250.3	0.131	4.23	69.1	11.3	1.15	11.0	0.30	0.65	0.41	41
	50	ISL	11.63	11.62	33.610	25.580	240.8	0.153	3.57	58.0	15.0	1.41	14.4	0.39	0.36	0.33	50
1	51		11.60	11.59	33.618	25.592	239.7	0.156	3.50	56.8	15.4	1.44	14.8	0.40	0.33	0.32	51

RV DAVID STARR JORDAN CALCOFI CRUISE 9004 STATION 93 28

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
32 54.7 N	117 23.7 W	17/04/90	2244 UTC	604 M	180	11 KT	190 02 08	1	1012.9 MB	18.3 C	17.7 C	3/8	SC

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 D.BAR
1	0		16.77	16.77	33.550	24.456	346.5	0.000	6.04	109.0	3.3	0.29	0.1	0.01	0.35	0.07	0
1	10		16.42	16.42	33.554	24.541	338.8	0.034	6.02	107.9	3.2	0.31	0.1	0.01	0.29	0.06	10
1	20		16.01	16.01	33.564	24.642	329.4	0.068	6.07	107.9	3.1	0.32	0.1	0.01	0.24	0.05	20
	30	ISL	14.03	14.03	33.549	25.061	289.8	0.099	6.14	104.9	4.9	0.34	0.1	0.01	0.68	0.33	30
1	31		13.81	13.81	33.549	25.107	285.5	0.102	6.15	104.6	5.2	0.34	0.1	0.01	0.74	0.37	31
1	40		12.50	12.49	33.555	25.373	260.3	0.126	4.52	74.8	9.0	0.84	4.5	0.30	1.19	0.63	40
1	50		11.80	11.79	33.545	25.498	248.6	0.152	4.16	67.8	12.4	1.21	12.6	0.19	0.43	0.34	50
1	60		11.37	11.36	33.603	25.623	237.0	0.176	3.77	60.9	15.4	1.40	15.7	0.06	0.28	0.26	60
1	70		11.11	11.10	33.684	25.733	226.7	0.199	3.36	54.0	17.7	1.56	18.1	0.03	0.15	0.14	70
	75	ISL	10.99	10.98	33.734	25.794	221.1	0.210	3.15	50.5	19.3	1.64	19.3	0.03	0.10	0.11	75
1	84		10.78	10.77	33.816	25.895	211.6	0.230	2.84	45.4	22.0	1.77	21.0	0.02	0.05	0.09	84
1	99		10.50	10.49	33.884	25.997	202.2	0.261	2.77	44.0	23.7	1.84	22.1	0.02	0.02	0.06	99
	100	ISL	10.49	10.48	33.888	26.002	201.8	0.263	2.76	43.8	23.8	1.85	22.2	0.02	0.02	0.06	101
1	118		10.39	10.38	33.951	26.069	195.8	0.298	2.52	39.9	26.2	1.95	23.3	0.03	0.01	0.06	119
	125	ISL	10.30	10.29	33.986	26.112	191.9	0.312	2.45	38.8	27.2	1.99	23.9	0.03	0.01	0.05	126
1	144		10.02	10.00	34.076	26.230	181.0	0.347	2.29	36.0	29.7	2.09	25.4	0.04	0.01	0.04	145
	150	ISL	9.97	9.95	34.097	26.255	178.8	0.358	2.23	35.1	30.4	2.12	25.7	0.04	0.01	0.04	151
1	175		9.73	9.71	34.152	26.339	171.3	0.402	2.04	31.9	33.3	2.21	26.7	0.02	0.01	0.04	176
	200	ISL	9.24	9.22	34.147	26.416	164.4	0.4+4	2.07	32.0	36.0	2.24	27.7	0.02	0.00	0.04	201
1	203		9.18	9.16	34.147	26.425	163.5	0.449	2.07	32.0	36.3	2.25	27.8	0.02	0.00	0.04	204
1	233		9.03	9.00	34.233	26.517	155.4	0.497	1.56	24.0	41.1	2.45	29.4	0.02			**234**
	250	ISL	8.93	8.90	34.247	26.544	153.1	0.523	1.46	22.4	42.4	2.49	29.8	0.02			**251**
1	273		8.77	8.74	34.248	26.571	151.0	0.558	1.41	21.6	43.9	2.51	30.3	0.02			275
	300	ISL	8.48	8.45	34.254	26.620	146.6	0.598	1.26	19.2	47.3	2.59	31.3	0.02			**302**
1	327		8.17	8.14	34.258	26.671	142.1	0.637	1.10	16.6	51.1	2.68	32.4	0.01			**329**
1	387		7.56	7.52	34.264	26.766	133.8	0.720	0.82	12.2	58.4	2.85	34.6	0.01			**389**
	400	ISL	7.44	7.40	34.264	26.783	132.3	0.737	0.76	11.6	59.7	2.88	35.0	0.01			**403**
1	452		7.02	6.98	34.271	26.848	126.6	0.804	0.61	9.0	65.2	2.98	36.6	0.01			**455**
	500	ISL	6.66	6.61	34.299	26.919	120.3	0.864	0.44	6.4	71.5	3.09	37.8	0.02			**503**
1	518		6.53	6.48	34.310	26.945	117.9	0.885	0.37	5.4	73.9	3.13	38.3	0.02			**522**

RV DAVID STARR JORDAN CALCOFI CRUISE 9004 STATION 93 30

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
32 50.2 N	117 32.9 W	18/04/90	0214 UTC	901 M	180 08 KT	190 02 09	1	1012.8 MB	17.6 C	15.9 C	2/8	SC

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 D.BAR
	0	ISL	16.62	16.62	33.527	24.474	344.9	0.000	5.93	106.7	2.3	0.33	0.0	0.01	0.17	0.04	0
1	1		16.62	16.62	33.527	24.474	344.9	0.003	5.93	106.7	2.3	0.33	0.0	0.01	0.17	0.04	1
	10	ISL	16.46	16.46	33.540	24.521	340.7	0.034	5.95	106.7	2.6	0.32	0.0	0.01	0.14	0.03	10
1	11		16.44	16.44	33.542	24.527	340.1	0.038	5.95	106.7	2.6	0.32	0.0	0.01	0.14	0.03	11
	20	ISL	14.93	14.93	33.549	24.870	307.7	0.067	6.58	114.5	3.1	0.29	0.0	0.01	0.26	0.08	20
1	21		14.74	14.74	33.551	24.912	303.7	0.070	6.64	115.1	3.2	0.29	0.0	0.01	0.28	0.09	21
	30	ISL	13.91	13.91	33.542	25.081	287.9	0.097	6.28	107.0	3.9	0.34	0.0	0.01	0.38	0.18	30
1	31		13.83	13.83	33.540	25.096	286.6	0.099	6.24	106.2	4.0	0.35	0.0	0.01	0.40	0.20	31
1	40		12.80	12.79	33.530	25.295	267.7	0.124	5.43	90.4	6.6	0.66	4.1	0.32	0.88	0.53	40
1	50		11.90	11.89	33.476	25.426	255.5	0.151	4.82	78.7	9.7	0.97	9.2	0.13	0.73	0.45	50
1	60		11.17	11.16	33.542	25.612	238.0	0.175	4.13	66.4	13.9	1.28	14.5	0.04	0.29	0.22	60
1	70		11.10	11.09	33.645	25.704	229.4	0.199	3.58	57.5	16.8	1.47	17.1	0.03	0.17	0.16	70
	75	ISL	10.99	10.98	33.685	25.755	224.7	0.210	3.43	55.0	18.1	1.54	18.1	0.03	0.12	0.13	75
1	85		10.68	10.67	33.748	25.860	215.0	0.232	3.27	52.1	20.4	1.64	19.7	0.02	0.05	0.09	85
1	100		10.15	10.14	33.810	26.000	201.9	0.263	3.17	49.9	22.7	1.71	21.5	0.01	0.01	0.06	100
1	118		10.35	10.34	34.014	26.125	190.5	0.298	2.40	38.0	27.9	2.05	24.2	0.01	0.01	0.05	119
	125	ISL	10.30	10.29	34.049	26.161	187.2	0.312	2.34	37.0	28.8	2.08	24.7	0.01	0.01	0.03	126
1	144		10.17	10.15	34.091	26.216	182.4	0.347	2.17	34.3	30.1	2.15	25.4	0.01	0.02	0.00	145
	150	ISL	10.09	10.07	34.106	26.242	180.1	0.358	2.14	33.7	30.8	2.17	25.7	0.01	0.02	0.01	151
1	173		9.76	9.74	34.152	26.334	171.8	0.398	2.03	31.8	33.4	2.24	26.7	0.01	0.00	0.04	174
	200	ISL	9.42	9.40	3 4.189	26.419	164.1	0.443	1.87	29.1	36.2	2.31	27.8	0.01	0.00	0.04	201
1	202		9.40	9.38	34.191	26.424	163.7	0.447	1.86	28.9	36.4	2.32	27.9	0.01	0.00	0.04	203
1	231		9.09	9.06	34.211	26.490	157.9	0.493	1.73	26.7	39.3	2.41	29.0	0.01			232
	250	ISL	8.91	8.88	34.236	26.539	153.6	0.523	1.51	23.2	42.0	2.49	29.9	0.01			251
1	270		8.73	8.70	34.262	26.588	149.3	0.553	1.26	19.3	45.0	2.58	30.8	0.01			272
	300	ISL	8.46	8.43	34.278	26.642	144.5	0.597	1.08	16.4	48.1	2.67	31.8	0.01			302
1	325		8.22	8.19	34.281	26.682	141.1	0.633	0.99	15.0	50.6	2.73	32.5	0.01			327
1	382		7.54	7.50	34.273	26.776	132.7	0.711	0.77	11.5	58.5	2.87	34.8	0.01			384
	400	ISL	7.36	7.32	34.274	26.802	130.4	0.735	0.70	10.4	60.7	2.91	35.4	0.01			403
1	448		6.96	6.92	34.282	26.865	124.9	0.796	0.54	7.9	66.2	3.01	36.9	0.01			451
	500	ISL	6.66	6.61	34.302	26.922	120.0	0.860	0.42	6.1	71.3	3.09	38.1	0.01			503
1	518		6.55	6.50	34.309	26.942	118.2	0.881	0.38	5.5	73.0	3.12	38.5	0.01			522

RV DAVID STARR JORDAN CALCOFI CRUISE 9004 STATION 93 35

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
32 41.1 N	117 53.0 W	18/04/90	0707 UTC	622 M	2 80 04 KT			1014.0 MB	16.1 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 D.BAR
	0	ISL	16.89	16.89	33.574	24.447	347.5	0.000	6.02	108.9	3.0	0.26	0.0	0.01	0.20	0.04	0
1	1		16.89	16.89	33.574	24.447	347.5	0.003	6.02	108.9	3.0	0.26	0.0	0.01	0.20	0.04	1
	10	ISL	16.67	16.67	33.573	24.498	342.9	0.035	6.10	109.9	3.0	0.27	0.0	0.00	0.24	0.06	10
1	12		16.62	16.62	33.573	24.509	341.9	0.041	6.12	110.1	3.0	0.27	0.0	0.00	0.25	0.06	12
	20	ISL	15.10	15.10	33.548	24.832	311.3	0.068	6.42	112.1	3.9	0.29	0.0	0.01	0.49	0.17	20
1	21		14.86	14.86	33.546	24.883	306.5	0.071	6.46	112.2	4.1	0.29	0.0	0.01	0.54	0.20	21
	30	ISL	12.76	12.76	33.542	25.312	265.8	0.096	4.96	82.5	8.4	0.78	5.2	0.18	1.19	0.71	30
1	31		12.55	12.55	33.544	25.355	261.8	0.099	4.76	78.8	9.0	0.85	6.0	0.20	1.23	0.75	31
1	41		11.69	11.68	33.581	25.547	243.8	0.124	3.96	64.4	12.8	1.25	13.1	0.13	0.45	0.36	41
	50	ISL	11.32	11.31	33.654	25.671	232.1	0.146	3.33	53.8	16.4	1.48	16.8	0.09	0.24	0.21	50
1	51		11.29	11.28	33.663	25.684	230.9	0.148	3.28	52.9	16.8	1.50	17.1	0.09	0.23	0.20	51
1	61		10.88	10.87	33.742	25.819	218.3	0.170	3.12	49.9	19.7	1.64	19.6	0.04	0.10	0.11	61
1	71		10.80	10.79	33.771	25.856	215.0	0.192	3.04	48.6	20.6	1.68	20.2	0.04	0.07	0.09	71
	75	ISL	10.71	10.70	33.801	25.895	211.4	0.201	2.95	47.1	21.5	1.72	20.8	0.03	0.06	0.08	75
1	84		10.48	10.47	33.875	25.993	202.2	0.219	2.74	43.5	23.8	1.82	22.2	0.02	0.03	0.07	84
1	99		10.33	10.32	33.947	26.076	194.7	0.249	2.55	40.4	26.3	1.92	23.5	0.02	0.02	0.10	100
	100	ISL	10.32	10.31	33.952	26.081	194.2	0.251	2.54	40.2	26.4	1.92	23.6	0.02	0.02	0.10	101
1	118		10.06	10.05	34.032	26.189	184.4	0.285	2.47	38.9	28.5	1.99	24.6	0.02	0.01	0.05	119
	125	ISL	9.99	9.98	34.053	26.217	181.8	0.298	2.42	38.1	29.2	2.02	25.0	0.02	0.01	0.05	126
1	144		9.80	9.78	34.097	26.284	175.9	0.332	2.26	35.4	31.2	2.09	26.0	0.02	0.01	0.05	145
	150	ISL	9.73	9.71	34.110	26.306	173.9	0.342	2.22	34.7	31.9	2.11	26.3	0.02	0.01	0.05	151
1	173		9.46	9.44	34.157	26.387	166.6	0.382	2.07	32.2	34.7	2.20	27.2	0.02	0.01	0.05	174
	200	ISL	9.24	9.22	34.209	26.464	159.8	0.426	1.81	28.0	37.5	2.30	28.3	0.02	0.01	0.04	201
1	202		9.23	9.21	34.212	26.468	159.5	0.429	1.79	27.7	37.7	2.31	28.4	0.02	0.01	0.04	203
1	231		8.99	8.96	34.240	26.529	154.2	0.474	1.56	24.0	41.0	2.41	29.5	0.02			232
	250	ISL	8.81	8.78	34.254	26.569	150.7	0.503	1.44	22.1	43.3	2.48	30.3	0.02			251
1	' 272		8.60	8.57	34.265	26.610	147.1	0.536	1.31	20.0	45.9	2.56	31.1	0.02			274
	300	ISL	8.32	8.29	34.266	26.654	143.3	0.577	1.16	17.6	48.8	2.63	32.0	0.01			302
1	326		8.06	8.03	34.263	26.691	140.1	0.614	1.04	15.7	51.6	2.69	32.9	0.01			328
1	391		7.39	7.35	34.267	26.792	131.2	0.702	0.75	11.1	60.6	2.86	35.3	0.01			394
	400	ISL	7.34	7.30	34.269	26.801	130.5	0.713	0.72	10.7	61.3	2.87	35.5	0.01			403
1	449		7.09	7.05	34.284	26.849	126.6	0.776	0.59	8.7	65.1	2.94	36.6	0.00			452
	500	ISL	6.65	6.60	34.304	26.924	119.7	0.839	0.41	6.0	71.5	3.04	38.2	0.00			503
1	518		6.50	6.45	34.311	26.950	117.4	0.861	0.35	5.1	73.8	3.08	38.7	0.00			522

RV DAVID STARE JORDAN CALCOFI CRUISE 9004 STATION 93 40

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
32 30.6 N	118 13.4 W	18/04/90	1127 UTC	1668 M	290	07 KT			1013.9 MB	18.0 C	15.7 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 D.BAR
	0 ISL	15.84	15.84	33.550	24.669	326.2	0.000	5.89	104.4	2.5	0.37	0.0	0.00	0.12	0.03	0
1	1	15.84	15.84	33.550	24.669	326.3	0.003	5.89	104.4	2.5	0.37	0.0	0.00	0.12	0.03	1
1	10	15.70	15.70	33.548	24.699	323.7	0.033	5.92	104.6	2.4	0.36	0.0	0.00	0.12	0.03	10
	20 ISL	14.86	14.86	33.531	24.871	307.6	0.064	6.07	105.5	2.5	0.36	0.0	0.00	0.15	0.05	20
1	21	14.76	14.76	33.529	24.891	305.7	0.067	6.09	105.6	2.5	0.36	0.0	0.00	0.16	0.05	21
	30 ISL	13.91	13.91	33.511	25.057	290.2	0.094	6.15	104.8	3.1	0.38	0.0	0.00	0.26	0.12	30
1	31	13.83	13.83	33.509	25.072	288.8	0.097	6.16	104.8	3.2	0.38	0.0	0.00	0.27	0.13	31
1	40	13.44	13.43	33.498	25.143	282.3	0.123	5.99	101.1	3.6	0.45	0.3	0.02	0.91	0.44	40
1	50	12.84	12.83	33.480	25.249	272.4	0.150	5.34	89.0	5.8	0.73	4.4	0.10	0.84'	0.51	50
1	59	12.03	12.02	33.463	25.392	259.0	0.174	4.84	79.3	8.9	0.98	8.8	0.04	0.41	0.31	59
1	69	11.70	11.69	33.487	25.472	251.5	0.200	4.54	73.8	10.9	1.11	11.0	0.03	0.28	0.24	69
	75 ISL	11.57	11.56	33.525	25.526	246.6	0.215	4.57	74.1	11.2	1.13	11.6	0.02	0.19	0.19	75
1	84	11.34	11.33	33.588	25.617	238.1	0.236	4.61	74.4	11.8	1.17	12.5	0.01	0.07	0.13	84
1	99	10.66	10.65	33.658	25.793	221.6	0.271	3.97	63.2	17.0	1.44	16.7	0.01	0.03	0.13	99
	100 ISL	10.63	10.62	33.665	25.804	220.6	0.273	3.92	62.4	17.4	1.46	17.0	0.01	0.03	0.13	100
1	117	10.17	10.16	33.794	25.984	203.8	0.309	3.24	51.1	22.9	1.72	21.2	0.01	0.02	0.08	118
	125 ISL	9.97	9.96	33.843	26.056	197.1	0.325	3.07	48.2	24.6	1.79	22.4	0.01	0.02	0.07	126
1	143	9.57	9.55	33.937	26.197	184.1	0.360	2.85	44.4	27.7	1.91	24.2	0.01	0.01	0.05	144
	150 ISL	9.44	9.42	33.966	26.241	180.0	0.372	2.78	43.2	28.9	1.95	24.8	0.01	0.01	0.05	151
1	172	9.18	9.16	34.051	26.350	170.0	0.411	2.54	39.2	32.4	2.07	26.3	0.00	0.01	0.04	173
	200 ISL	9.33	9.31	34.179	26.426	163.4	0.458	1.94	30.1	36.0	2.27	27.8	0.00	0.01	0.03	201
1	201	9.34	9.32	34.183	26.428	163.3	0.459	1.92	29.8	36.1	2.28	27.8	0.00	0.01	0.03	202
1	230	8.95	8.93	34.215	26.516	155.4	0.505	1.64	25.2	40.3	2.41	29.4	0.00			231
	250 ISL	8.68	8.65	34.211	26.555	151.9	0.536	1.60	24.5	42.2	2.45	30.0	0.00			251
1	270	8.43	8.40	34.202	26.587	149.2	0.566	1.58	24.0	44.1	2.48	30.5	0.00			272
	300 ISL	8.11	8.08	34.215	26.646	144.0	0.610	1.36	20.5	48.4	2.59	31.8	0.00			302
1	325	7.86	7.83	34.232	26.696	139.5	0.646	1.13	16.9	52.5	2.70	33.1	0.00			327
1	384	7.14	7.10	34.264	26.825	127.8	0.724	0.67	9.9	63.3	2.94	36.2	0.00			**386**
	400 ISL	7.03	6.99	34.272	26.847	125.9	0.745	0.60	8.8	65.2	2.98	36.7	0.00			**403**
1	450	6.74	6.70	34.295	26.905	120.9	0.806	0.44	6.4	70.2	3.07	37.8	0.00			453
	500 ISL	6.34	6.29	34.318	26.976	114.5	0.865	0.34	4.9	76.5	3.14	39.1	0.00			**503**
1	521	6.17	6.12	34.329	27.007	111.7	0.889	0.30	4.3	79.1	3.17	39.7	0.00			525

RV DAVID STARR JORDAN CALCOFI CRUISE 9004 STATION 93 45

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
32 21.0 N	118 33.1 W	18/04/90	1607 UTC	2776 M	310	09 KT	2 80 03 05	2	1015.9 MB	17.2 C	15.9 C	8/8	SC

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 D.BAR
	0 ISL	15.71	15.71	33.571	24.715	321.9	0.000	5.91	104.5	2.6	0.38	0.1	0.01	0.15	0.04	0
1	1	15.71	15.71	33.571	24.715	321.9	0.003	5.91	104.5	2.6	0.38	0.1	0.01	0.15	0.04	1
	10 ISL	15.68	15.68	33.570	24.721	321.6	0.032	5.94	104.9	2.6	0.37	0.0	0.01	0.16	0.04	10
1	11	15.68	15.68	33.570	24.721	321.7	0.035	5.95	105.1	2.6	0.37	0.0	0.01	0.16	0.04	11
	20 ISL	15.41	15.41	33.566	24.778	316.5	0.064	5.99	105.2	2.6	0.37	0.0	0.01	0.21	0.06	20
1	21	15.37	15.37	33.565	24.786	315.7	0.067	6.00	105.3	2.6	0.37	0.0	0.01	0.22	0.06	21
1	30	14.85	14.85	33.561	24.897	305.5	0.095	6.05	105.1	2.6	0.37	0.0	0.01	0.31	0.10	30
1	42	13.51	13.50	33.536	25.158	280.9	0.130	5.44	91.9	5.7	0.62	2.5	0.07	1.60	0.82	42
	50 ISL	12.93	12.92	33.574	25.304	267.2	0.152	4.51	75.3	9.7	0.99	8.0	0.12	0.78	0.54	50
1	51	12.87	12.86	33.580	25.321	265.6	0.155	4.40	73.4	10.2	1.03	8.7	0.12	0.65	0.49	51
1	62	12.46	12.45	33.603	25.419	256.6	0.184	3.95	65.3	12.6	1.21	11.7	0.06	0.38	0.36	62
1	71	12.22	12.21	33.630	25.486	250.4	0.207	3.60	59.2	14.6	1.36	13.8	0.04	0.27	0.29	71
	75 ISL	12.10	12.09	33.655	25.528	246.5	0.216	3.38	55.5	15.9	1.45	15.0	0.03	0.22	0.24	75
1	85	11.80	11.79	33.722	25.637	236.3	0.241	2.90	47.3	19.2	1.64	17.8	0.02	0.10	0.11	85
1	100	11.47	11.46	33.782	25.745	226.4	0.275	2.71	43.9	21.7	1.75	19.4	0.01	0.03	0.05	100
1	120	10.83	10.82	33.848	25.912	210.9	0.319	2.77	44.3	23.4	1.82	21.2	0.01	0.01	0.03	121
	125 ISL	10.69	10.68	33.871	25.954	206.9	0.329	2.75	43.9	24.1	1.85	21.7	0.01	0.01	0.03	126
1	144	10.21	10.19	33.963	26.110	192.5	0.367	2.60	41.1	27.0	1.95	23.6	0.01	0.00	0.03	145
	150 ISL	10.07	10.05	33.988	26.153	188.5	0.379	2.55	40.1	28.1	1.98	24.1	0.01	0.00	0.03	151
1	175	9.56	9.54	34.070	26.303	174.7	0.424	2.35	36.6	32.3	2.11	26.0	0.01	0.00	0.03	176
	200 ISL	9.20	9.18	34.101	26.386	167.1	0.467	2.27	35.1	34.6	2.17	27.1	0.01	0.00	0.03	201
1	204	9.14	9.12	34.103	26.397	166.2	0.474	2.26	34.9	35.0	2.18	27.3	0.01	0.00	0.03	205
1	231	8.66	8.64	34.123	26.489	157.8	0.517	2.15	32.8	39.1	2.27	28.7	0.01			232
	250 ISL	8.48	8.45	34.147	26.536	153.6	0.547	1.99	30.3	41.6	2.35	29.5	0.01			**251**
1	272	8.32	8.29	34.174	26.582	149.6	0.580	1.76	26.7	44.5	2.44	30.4	0.01			**-274**
	300 ISL	8.00	7.97	34.191	26.643	144.1	0.621	1.50	22.6	48.8	2.56	31.9	0.01			**302**
1	327	7.70	7.67	34.206	26.699	139.1	0.660	1.24	18.5	53.2	2.68	33.3	0.00			**329**
1	385	7.30	7.26	34.271	26.808	129.5	0.738	0.66	9.8	62.0	2.94	35.8	0.00			**387**
	400 ISL	7.20	7.16	34.279	26.829	127.7	0.757	0.59	8.7	63.8	2.98	36.2	0.00			**403**
1	452	6.83	6.79	34.296	26.893	122.1	0.822	0.46	6.7	69.6	3.06	37.5	0.00			**455**
	500 ISL	6.47	6.42	34.309	26.952	116.9	0.879	0.36	5.2	74.6	3.12	38.8	0.00			**503**
1	521	6.31	6.26	34.315	26.978	114.6	0.904	0.32	4.6	76.8	3.15	39.4	0.00			**525**

RV DAVID STARR JORDAN CALCOFI CRUISE 9004 STATION 93 50

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
32 11.0 N	118 53.2 W	18/04/90	2155 UTC	2529 M	310	12 KT	2 80 04 08	2	1016.1 MB	15.9 C	14.8 C	8/8	SC

CAST	DEPTH M		TEMP DEG C	POT TEMP DEG C	SALINITY PSS 7 8	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 D.BAR
	0	ISL	15.68	15.68	33.539	24.697	323.6	0.000	5.88	103.9	2.3	0.35	0.0	0.00	0.13	0.03	0
1	1		15.68	15.68	33.539	24.697	323.7	0.003	5.88	103.9	2.3	0.35	0.0	0.00	0.13	0.03	1
	10	ISL	15.65	15.65	33.539	24.704	323.3	0.032	5.90	104.1	2.3	0.35	0.0	0.00	0.13	0.03	10
1	11		15.65	15.65	33.539	24.704	323.3	0.036	5.90	104.1	2.3	0.35	0.0	0.00	0.13	0.03	11
1	20		15.45	15.45	33.538	24.748	319.4	0.065	5.96	104.8	2.3	0.35	0.0	0.00	0.14	0.03	20
	30	ISL	14.47	14.47	33.548	24.968	298.7	0.095	6.11	105.3	2.4	0.36	0.0	0.00	0.18	0.06	30
1	31		14.37	14.37	33.549	24.990	296.6	0.098	6.12	105.3	2.4	0.36	0.0	0.00	0.18	0.07	31
1	41		13.95	13.94	33.526	25.061	290.2	0.128	6.09	103.8	2.8	0.38	0.0	0.00	0.42	0.19	41
1	50		13.02	13.01	33.450	25.190	278.0	0.153	5.72	95.6	4.2	0.57	2.4	0.09	0.82	0.49	50
1	59		12.66	12.65	33.446	25.258	271.8	0.178	5.44	90.3	5.6	0.69	4.4	0.09	0.56	0.37	59
1	69		11.99	11.98	33.492	25.422	256.3	0.204	4.68	76.6	9.5	1.01	9.5	0.05	0.28	0.25	69
	75	ISL	11.70	11.69	33.541	25.514	247.7	0.220	4.25	69.1	11.9	1.19	12.2	0.03	0.19	0.19	75
1	84		11.37	11.36	33.611	25.630	236.9	0.241	3.75	60.6	15.0	1.40	15.3	0.02	0.11	0.13	84
1	99		11.01	11.00	33.655	25.729	227.8	0.276	3.58	57.4	16.9	1.49	17.0	0.01	0.06	0.07	99
	100	ISL	10.98	10.97	33.664	25.741	226.6	0.278	3.55	56.9	17.2	1.50	17.2	0.01	0.06	0.07	100
1	117		10.42	10.41	33.834	25.973	204.9	0.315	3.04	48.2	22.2	1.76	21.2	0.01	0.01	0.03	118
	125	ISL	10.27	10.26	33.894	26.045	198.2	0.331	2.86	45.2	23.9	1.84	22.4	0.01	0.01	0.03	126
1	142		10.04	10.02	33.986	26.157	188.0	0.364	2.60	40.9	26.7	1.96	24.0	0.01	0.00	0.03	143
	150	ISL	9.95	9.93	34.009	26.190	185.0	0.379	2.55	40.0	27.6	1.99	24.4	0.01	0.00	0.03	151
1	171		9.68	9.66	34.047	26.265	178.2	0.417	2.47	38.6	29.8	2.05	25.3	0.00	0.00	0.03	172
	200	ISL	9.02	9.00	34.110	26.422	163.7	0.467	2.24	34.5	34.9	2.20	27.5	0.01	0.01	0.03	201
1	201		9.00	8.98	34.112	26.427	163.3	0.468	2.23	34.3	35.1	2.21	27.6	0.01	0.01	0.03	202
1	231		8.62	8.60	34.121	26.494	157.3	0.516	2.14	32.6	38.6	2.28	28.8	0.00			232
	250	ISL	8.39	8.36	34.139	26.543	152.9	0.546	1.95	29.6	41.5	2.36	29.8	0.00			251
1	271		8.16	8.13	34.164	26.598	148.0	0.578	1.70	25.7	45.0	2.47	31.0	0.00			273
	300	ISL	7.91	7.88	34.195	26.660	142.5	0.620	1.39	20.9	49.6	2.61	32.4	0.00			302
1	327		7.70	7.67	34.221	26.711	138.0	0.658	1.13	16.9	53.7	2.72	33.6	0.00			329
1	387		7.24	7.20	34.253	26.802	130.0	0.738	0.77	11.4	61.2	2.90	35.6	0.00			3 89
	400	ISL	7.13	7.09	34.260	26.823	128.2	0.755	0.70	10.3	62.9	2.94	36.1	0.00			403
1	452		6.71	6.67	3 4.285	26.901	121.3	0.820	0.48	7.0	69.3	3.06	37.8	0.00			455
	500	ISL	6.42	6.37	34.305	26.956	116.5	0.877	0.37	5.4	73.8	3.12	38.8	0.00			503
1	522		6.29	6.24	34.314	26.980	114.4	0.902	0.32	4.6	75.9	3.15	39.3	0.00			526

RV DAVID STARR JORDAN CALCOFI CRUISE 9004 - STATION 93 55

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
31 59.9 N	119 15.7 W	19/04/90	0208 UTC	3547 M	310	14 KT	300 04 09	2	1016.6 MB	15.2 C	13.8 C	8/8	SC

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 D.BAR
	0	ISL	15.36	15.36	33.531	24.762	317.5	0.000	5.98	104.9	3.1	0.36	0.0	0.00	0.14	0.03	0
1	1		15.36	15.36	33.531	24.762	317.5	0.003	5.98	104.9	3.1	0.36	0.0	0.00	0.14	0.03	1
	10	ISL	15.35	15.35	33.531	24.764	317.5	0.032	5.98	104.9	3.1	0.36	0.0	0.00	0.14	0.04	10
1	11		15.35	15.35	33.531	24.764	317.5	0.035	5.98	104.9	3.1	0.36	0.0	0.00	0.14	0.04	11
	20	ISL	15.29	15.29	33.529	24.776	316.7	0.063	5.99	105.0	3.0	0.36	0.0	0.00	0.14	0.03	20
1	21		15.28	15.28	33.529	24.778	316.5	0.067	5.99	104.9	3.0	0.36	0.0	0.00	0.14	0.03	21
	30	ISL	14.31	14.31	33.514	24.976	297.9	0.094	6.20	106.5	3.3	0.37	0.0	0.00	0.20	0.07	30
1	31		14.18	14.18	33.512	25.001	295.5	0.097	6.23	106.7	3.3	0.37	0.0	0.00	0.21	0.07	31
1	42		13.11	13.10	33.471	25.188	278.0	0.129	6.31	105.7	3.6	0.41	0.1	0.04	0.78	0.32	42
	50	ISL	12.58	12.57	33.450	25.276	269.8	0.151	5.94	98.4	4.4	0.57	2.6	0.19	0.74	0.36	50
1	51		12.53	12.52	33.447	25.284	269.1	0.153	5.89	97.5	4.5	0.59	3.0	0.21	0.74	0.36	51
1	60		12.16	12.15	33.420	25.334	264.5	0.177	5.71	93.7	5.0	0.68	4.6	0.10	0.50	0.29	60
1	71		11.64	11.63	33.446	25.452	253.6	0.206	5.23	84.9	8.0	0.91	8.5	0.03	0.20	0.16	71
	75	ISL	11.29	11.28	33.459	25.526	246.5	0.216	4.97	80.1	9.9	1.04	10.6	0.02	0.14	0.13	75
1	84		10.52	10.51	33.508	25.700	230.0	0.237	4.38	69.4	14.5	1.32	15.3	0.01	0.06	0.08	84
1	100		9.94	9.93	33.656	25.915	209.9	0.273	3.72	58.3	20.4	1.60	19.8	0.01	0.02	0.05	100
1	119		9.56	9.55	33.830	26.114	191.3	0.311	3.21	49.9	25.5	1.81	23.1	0.01	0.01	0.03	120
	125	ISL	9.46	9.45	33.872	26.163	186.8	0.322	3.09	48.0	26.8	1.86	23.8	0.01	0.01	0.03	126
1	144		9.24	9.22	33.977	26.281	175.9	0.356	2.78	43.0	30.2	1.98	25.5	0.00	0.01	0.03 -	145
	150	ISL	9.23	9.21	34.006	26.306	173.7	0.367	2.67	41.3	31.2	2.02	25.9	0.00	0.01	0.03	151
1	175		9.17	9.15	34.092	26.383	166.9	0.410	2.29	35.4	34.5	2.17	27.2	0.01	0.00	0.03	176
	200	ISL	8.86	6.84	34.106	26.444	161.5	0.451	2.23	34.2	36.8	2.22	28.1	0.00	0.00	0.03	201
1	204		6.80	8.78	34.106	26.453	160.7	0.457	2.23	34.2	37.2	2.23	28.3	0.00	0.00	0.03	205
1	231		8.43	8.41	34.137	26.535	153.3	0.499	2.00	30.4	41.6	2.35	29.7	0.01			232
	250	ISL	8.18	8.15	34.158	26.590	148.4	0.528	1.78	26.9	45,3	2.45	30.8	0.01			251
1	271		7.95	7.92	34.181	26.642	143.7	0.559	1.53	23.0	49.1	2.56	31.9	0.00			273
	300	ISL	7.82	7.79	34,207	26.682	140.3	0.600	1.29	19.3	51.8	2.65	32.9	0.00			302
1	325		7.73	7.70	34.225	26.710	138.1	0.635	1.12	16.7	53.7	2.72	33.6	0.00			327
1	382		7.25	7.21													384
	400	ISL	7.05	7.01	34.264	26.838	126.7	0.734	0.65	9.6	64.8	2.96	36.6	0.00			403
1	447		6.56	6.52	34.284	26.920	119.3	0.792	0.45	6.6	71.9	3.08	38.3	0.00			450
	500	ISL	.6.31	6.26	34.306	26.971	115.0	0.854	0.35	5.1	76.6	3.15	39.3	0.00			503
1	514		6.24	6.19	34.312	26.984	113.8	0.870	0.32	4.6	77.9	3.17	39.6	0.00			518

RV DAVID STARR JORDAN CALCOFI CRUISE 9004 STATION 93 60

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT TYPE
31 50.3 N	119 34.8 W	19/04/90	0618 UTC	2793 M	310	12 KT			1018.1 MB	15.7 C	14.5 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 D.BAR
	0	ISL	15.10	15.10	33.498	24.793	314.5	0.000	6.00	104.7	3.5	0.36	0.0	0.00	0.12	0.03	0
1	1		15.10	15.10	33.498	24.793	314.5	0.003	6.00	104.7	3.5	0.36	0.0	0.00	0.12	0.03	1
	10	ISL	15.08	15.08	33.498	24.798	314.3	0.031	6.01	104.9	3.5	0.37	0.0	0.00	0.12	0.04	10
1	12		15.07	15.07	33.498	24.800	314.2	0.038	6.01	104.8	3.5	0.37	0.0	0.00	0.12	0.04	12
	20	ISL	14.47	14.47	33.442	24.886	306.2	0.063	6.19	106.6	3.1	0.36	0.0	0.00	0.16	0.05	20
1	22		14.25	14.25	33.421	24.916	303.4	0.069	6.24	107.0	3.0	0.36	0.0	0.00	0.17	0.06	22
	30	ISL	13.13	13.13	33.297	25.049	290.9	0.092	6.37	106.6	3.3	0.39	0.0	0.01	0.23	0.09	30
1	32		12.86	12.86	33.271	25.083	287.7	0.098	6.38	106.2	3.4	0.41	0.0	0.01	0.24	0.11	32
1	42		12.15	12.14	33.265	25.215	275.3	0.126	6.10'	100.0	4.3	0.56	2.2	0.16	0.58	0.29	42
1	50		11.73	11.72	33.321	25.337	263.9	0.148	5.77	93.8	5.4	0.73	5.1	0.21	0.58	0.26	50
1	60		11.38	11.37	33.320	25.401	258.1	0.174	5.59	90.2	6.3	0.81	6.8	0.10	0.39	0.19	60
1	72		11.35	11.34	33.391	25.462	252.6	0.205	5.30	85.5	7.9	0.92	8.8	0.05	0.26	0.17	72
	75	ISL	11.32	11.31	33.424	25.493	249.7	0.212	5.17	83.4	8.6	0.97	9.6	0.04	0.22	0.17	75
1	85		11.08	11.07	33.540	25.627	237.1	0.237	4.66	74.8	11.9	1.16	12.7	0.02	0.09	0.16	85
	100	ISL	10.28	10.27	33.661	25.861	215.1	0.270	3.74	59.0	19.1	1.55	18.8	0.01	0.03	0.12	100
1	101		10.22	10.21	33.668	25.877	213.6	0.273	3.68	58.0	19.6	1.57	19.2	0.01	0.03	0.12	101
1	120		9.50	9.49	33.783	26.087	193.9	0.311	3.34	51.9	24.2	1.76	22.7	0.01	0.01	0.09	121
	125	ISL	9.42	9.41	33.828	26.136	189.4	0.321	3.23	50.1	25.5	1.81	23.4	0.01	0.01	0.08	126
1	145		9.26	9.24	33.998	26.295	174.7	0.357	2.77	42.8	30.1	1.98	25.4	0.01	0.01	0.04	146
	150	ISL	9.24	9.22	34.023	26.318	172.6	0.366	2.67	41.3	31.0	2.02	25.8	0.01	0.01	0.04	151
1	175		9.08	9.06	34.100	26.404	164.9	0.408	2.30	35.4	34.9	2.17	27.4	0.01	0.00	0.04	176
	200	ISL	8.70	8.68	34.130	26.488	157.3	0.448	2.11	32.2	38.5	2.27	28.6	0.01	0.00	0.03	201
1	206		8.60	8.58	34.134	26.506	155.6	0.458	2.08	31.7	39.4	2.29	28.9	0.01	0.00	0.03	207
1	233		8.20	8.18	34.152	26.582	148.8	0.499	1.84	27.8	43.8	2.42	30.6	0.00			234
	250	ISL	8.02	7.99	34.167	26.621	145.4	0.524	1.66	25.0	46.8	2.50	31.5	0.00			251
1	272		7.84	7.81	34.188	26.664	141.6	0.555	1.43	21.4	50.5	2.60	32.5	0.00			274
	300	ISL	7.68	7.65	34.212	26.707	137.9	0.595	1.17	17.5	53.8	2.70	33.5	0.00			302
1	327		7.53	7.50	34.233	26.745	134.7	0.631	0.96	14.3	56.8	2.79	34.4	0.00			329
1	387		6.98	6.94	34.268	26.850	125.3	0.709	0.59	8.7	66.0	2.99	36.9	0.00			389
	400	ISL	6.88	6.84	34.273	26.868	123.7	0.726	0.54	7.9	67.3	3.02	37.3	0.00			403
1	451		6.54	6.50	34.291	26.928	118.5	0.787	0.40	5.8	72.1	3.09	38.5	0.00			454
	500	ISL	6.20	6.16	34.306	26.985	113.5	0.844	0.33	4.8	77.7	3.16	39.7	0.00			503
1	519		6.07	6.02	34.312	27.006	111.6	0.866	0.30	4.3	79.9	3.19	40.1	0.00			523

RV DAVID STARR JORDAN CALCOFI CRUISE 9004 STATION 93 70

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	KIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT TYPE
31 30.5 N	120 15.4 W	19/04/90	1242 UTC	4018 M	330	10 KT			1018.3 MB	15.5 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 D.BAR
1	0		15.68	15.68	33.490	24.659	327.2	0.000	5.86	103.5	2.6	0.36	0.0	0.01	0.10	0.02	0
1	10		15.67	15.67	33.486	24.659	327.6	0.033	5.92 U		2.5	0.36	0.0	0.00	0.10	0.03	10
1	20		15.68	15.68	33.486	24.657	328.1	0.066	5.86	103.5	2.5	0.36	0.0	0.00	0.09	0.03	20
1	29		14.37	14.37	33.421	24.891	306.0	0.094	6.13	105.4	2.5	0.37	0.0	0.00	0.14	0.04	29
	30	ISL	14.30	14.30	33.419	24.904	304.7	0.097	6.13	105.2	2.5	0.37	0.0	0.00	0.14	0.05	30
1	39		13.87	13.86	33.417	24.993	296.6	0.124	6.13	104.3	2.6	0.38	0.0	0.00	0.25	0.09	39
1	50		13.41	13.40	33.420	25.089	287.7	0.156	6.10	102.8	2.8	0.41	0.0	0.00	0.62	0.35	50
1	59		12.97	12.96	33.413	25.172	280.0	0.182	5.87	98.0	3.2	0.51	1.3	0.32	0.64	0.33	59
1	68		12.14	12.13	33.325	25.264	271.4	0.207	5.77	94.6	4.4	0.63	3.6	0.08	0.28	0.20	68
	75	ISL	11.67	11.66	33.352	25.373	261.1	0.225	5.35	86.9	7.1	0.83	7.1	0.05	0.17	0.16	75
1	83		11.20	11.19	33.425	25.516	247.7	0.246	4.79	77.0	10.8	1.09	11.4	0.01	0.12	0.14	83
1	97		10.25	10.24	33.539	25.771	223.6	0.279	4.22	66.5	15.9	1.39	16.6	0.01	0.05	0.07	97
	100	ISL	10.11	10.10	33.564	25.815	219.5	0.285	4.15	65.2	16.7	1.43	17.3	0.01	0.04	0.06	100
1	117		9.55	9.54	33.689	26.005	201.6	0.321	3.88	60.3	20.6	1.57	20.0	0.01	0.01	0.02	118
	125	ISL	9.38	9.37	33.733	26.068	195.8	0.337	3.79	58.7	22.1	1.62	20.9	0.01	0.01	0.02	126
1	141		9.13	9.11	33.805	26.165	186.9	0.368	3.63	55.9	24.7	1.70	22.3	0.00	0.00	0.02	142
	150	ISL	8.99	8.97	33.839	26.214	182.4	0.384	3.55	54.5	26.0	1.74	23.0	0.00	0.00	0.02	151"
1	171		8.67	8.65	33.909	26.319	172.7	0.421	3.33	50.8	29.6	1.85	24.8	0.00	0.00	0.02	172
	200	ISL	8.14	8.12	34.012	26.480	157.8	0.469	2.84	42.8	37.0	2.07	27.7	0.00	0.00	0.02	201
1	201		8.13	8.11	34.015	26.484	157.4	0.471	2.82	42.5	37.2	2.08	27.8	0.00	0.00	0.02	202
1	230		8.08	8.06	34.077	26.541	152.6	0.516	2.38	35.9	40.8	2.25	29.3	0.00			231
	250	ISL	7.96	7.93	34.081	26.562	150.9	0.546	2.06	30.9	44.2	2.37	30.6	0.00			251
1	270		7.81	7.78	34.08	26.583	149.1	0.576	1.77	26.5	47.8	2.48	31.8	0.00			272
	300	ISL	7.57	7.54	34.128	26.656	142.6	0.620	1.49	22.2	52.2	2.60	33.2	0.00			302
1	324		7.36	7.33	34.171	26.720	136.8	0.654	1.31	19.4	55.5	2.69	34.1	0.00			326
1	382		6.87	6.83	34.206	26.816	128.3	0.730	0.87	12.8	63.2	2.90	36.5	0.00			384
	400	ISL	6.73	6.69	34.218	26.845	125.8	0.753	0.75	11.0	65.8	2.96	37.2	0.00			403
1	445		6.43	6.39	34.251	26.911	119.9	0.809	0.52	7.5	72.1	3.07	38.7	0.00			448
	500	ISL	6.17	6.13	34.293	26.978	114.1	0.873	0.36	5.2	77.7	3.15	39.6	0.00			503
1	511		6.12	6.07	34.302	26.992	112.9	0.885	0.33	4.8	78.8	3.17	39.8	0.00			514

RV DAVID STARR JORDAN CALCOFI CRUISE 9004 STATION 93 80

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
31 10.6 N	120 55.7 W	19/04/90	1830 UTC	4028 M	360	08 KT	330 03 04	1	1020.1 MB	19.8 C	15.2 C	6/8	SC

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 D.BAR
1	0		15.01	15.01	33.337	24.689	324.4	0.000	5.96	103.7	2.4	0.38	0.0	0.00	0.10	0.02	0
	10	ISL	14.93	14.93	33.333	24.703	323.3	0.032	5.97	103.7	2.4	0.38	0.0	0.00	0.11	0.03	10
1	16		14.88	14.88	33.331	24.713	322.6	0.052	5.98	103.8	2.4	0.38	0.0	0.00	0.11	0.03	16
	20	ISL	14.60	14.60	33.321	24.765	317.7	0.065	6.05	104.4	2.6	0.38	0.0	0.00	0.13	0.04	20
1	30		13.88	13.88	33.304	24.903	304.8	0.096	6.24	106.1	3.0	0.39	0.0	0.00	0.22	0.07	30
1	42		13.63	13.62	33.313	24.961	299.6	0.132	6.35	107.4	2.8	0.38	0.0	0.00	0.40	0.15	42
	50	ISL	12.87	12.86	33.284	25.091	287.4	0.155	6.26	104.2	3.5	0.46	0.7	0.06	0.86	0.37	50
1	52		12.65	12.64	33.281	25.132	283.6	0.161	6.22	103.1	3.7	0.49	1.0	0.09	0.93	0.41	52
1	60		11.91	11.90	33.343	25.321	265.7	0.183	5.95	97.1	4.3	0.66	3.7	0.34	0.43	0.29	60
1	69		11.78	11.77	33.395	25.386	259.8	0.207	5.81	94.6	4.8	0.75	4.7	0.54	0.33	0.23	69
	75	ISL	11.81	11.80	33.472	25.440	254.8	0.222	5.54	90.3	6.2	0.83	6.3	0.55	0.23	0.20	75
1	79		11.82	11.81	33.522	25.477	251.3	0.232	5.34	87.1	7.3	0.89	7.6	0.56	0.17	0.19	79
1	95		11.30	11.29	33.551	25.596	240.4	0.272	4.92	79.3	11.0	1.12	11.5	0.32	0.09	0.14	95
	100	ISL	10.85	10.84	33.551	25.676	232.8	0.283	4.67	74.6	13.2	1.25	13.7	0.20	0.07	0.13	100
1	109		10.06	10.05	33.582	25.837	217.5	0.304	4.16	65.3	17.4	1.48	17.7	0.02	0.03	0.10	110
1	124		9.72	9.71	33.795	26.061	196.6	0.335	3.32	51.8	23.5	1.76	22.1	0.01	0.01	0.04	125
	125	ISL	9.69	9.68	33.803	26.072	195.5	0.337	3.32	51.8	23.8	1.77	22.3	0.01	0.01	0.04	126
1	148		8.96	8.94	33.903	26.268	177.2	0.380	3.22	49.4	28.2	1.88	24.5	0.01	0.00	0.02	149
	150	ISL	8.92	8.90	33.911	26.281	176.0	0.383	3.21	49.2	28.5	1.89	24.6	0.01	0.00	0.02	151
1	173		8.55	8.53	33.985	26.397	165.3	0.422	3.03	46.1	32.1	1.98	26.1	0.00	0.00	0.03	174
	200	ISL	8.33	8.31	34.045	26.478	158.1	0.466	2.70	40.9	36.5	2.11	27.6	0.00	0.00	0.02	201
1	201		8.32	8.30	34.046	26.480	157.9	0.468	2.69	40.7	36.7	2.12	27.7	0.00	0.00	0.02	202
1	231		7.87	7.85	34.062	26.560	150.7	0.514	2.46	36.9	41.8	2.25	29.5	0.00			232
	250	ISL	7.74	7.72	34.102	26.611	146.1	0.542	2.09	31.2	45.6	2.39	30.9	0.00			251
1	270		7.65	7.62	34.148	26.660	141.8	0.571	1.66	24.8	49.6	2.55	32.3	0.00			272
	300	ISL	7.48	7.45	34.184	26.713	137.2	0.613	1.28	19.0	54.2	2.70	33.8	0.00			302
1	326		7.32	7.29	34.205	26.753	133.8	0.648	1.04	15.4	57.9	2.79	34.8	0.00			328
1	382		6.83	6.79	34.249	26.855	124.6	0.720	0.63	9.2	66.5	2.98	37.1	0.00			384
	400	ISL	6.71	6.67	34.261	26.881	122.3	0.743	0.55	8.0	68.5	3.02	37.6	0.00			403
1	445		6.40	6.36	34.284	26.941	117.1	0.796	0.41	5.9	73.4	3.11	38.8	0.00			448
	500	ISL	5.91	5.87	34.293	27.011	110.7	0.859	0.34	4.9	81.4	3.19	40.3	0.00			503
1	513		5.80	5.76	34.295	27.026	109.3	0.873	0.32	4.6	83.3	3.21	40.6	0.00			516

RV DAVID STARR JORDAN CALCOFI CRUISE 9004 STATION 93 90

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
30 50.7 N	121 35.9 W	20/04/90	0038 UTC	4201 M	330	12 KT	330 04 08	1	1020.4 MB	16.4 C	15.2 C	6/8	SC

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 D.BAR
	0	ISL	15.75	15.75	33.466	24.625	330.4	0.000	5.88	104.0	2.3	0.36	0.0	0.00	0.08	0.02	0
1	1		15.75	15.75	33.466	24.625	330.5	0.003	5.88	104.0	2.3	0.36	0.0	0.00	0.08	0.02	1
1	10		15.71	15.71	33.466	24.634	329.9	0.033	5.89	104.0	2.3	0.36	0.0	0.00	0.08	0.02	10
	20	ISL	15.59	15.59	33.462	24.658	327.9	0.066	5.88	103.6	2.3	0.36	0.0	0.00	0.10	0.02	20
1	21		15.58	15.58	33.462	24.661	327.7	0.069	5.88	103.6	2.3	0.36	0.0	0.00	0.10	0.02	21
	30	ISL	14.75	14.75	33.425	24.813	313.4	0.098	6.07	105.1	2.4	0.38	0.0	0.00	0.14	0.04	30
1	31		14.64	14.64	33.420	24.833	311.5	0.101	6.09	105.3	2.4	0.38	0.0	0.00	0.15	0.05	31
1	40		13.74	13.73	33.394	25.002	295.7	0.128	6.20	105.2	2.4	0.38	0.0	0.00	0.22	0.14	40
1	49		13.57	13.56	33.398	25.040	292.4	0.155	6.14	103.8	2.5	0.40	0.0	0.00	0.25	0.14	49
	50	ISL	13.51	13.50	33.395	25.050	291.4	0.158	6.14	103.7	2.6	0.40	0.1	0.01	0.28	0.15	50
1	59		12.84	12.83	33.367	25.162	281.0	0.184	6.13	102.0	3.4	0.46	0.5	0.09	0.56	0.29	59
1	70		12.13	12.12	33.353	25.288	269.1	0.214	5.68	93.1	5.2	0.69	4.5	0.06	0.51	0.34	70
	75	ISL	11.76	11.75	33.332	25.341	264.2	0.227	5.50	89.5	6.2	0.78	6.1	0.05	0.42	0.30	75
1	84		11.13	11.12	33.313	25.441	254.8	0.251	5.19	83.3	8.4	0.94	8.9	0.03	0.23	0.20	84
1	99		10.35	10.34	33.427	25.667	233.5	0.287	4.67	73.7	12.8	1.21	13.8	0.01	0.09	0.10	99
	100	ISL	10.31	10.30	33.439	25.683	232.0	0.290	4.63	73.0	13.2	1.23	14.1	0.01	0.08	0.09	100
1	117		9.76	9.75	33.632-	25.927	209.1	0.327	3.98	62.1	19.2	1.53	19.1	0.01	0.02	0.03	118
	125	ISL	9.55	9.54	33.691	26.007	201.6	0.343	3.82	59.3	21.1	1.61	20.4	0.01	0.01	0.03	126
1	143		9.17	9.15	33.789	26.146	188.7	0.379	3.61	55.6	24.4	1.71	22.3	0.01	0.00	0.02	144
	150	ISL	9.04	9.02	33.826	26.195	184.1	0.392	3.55	54.6	25.7	1.74	22.9	0.01	0.00	0.02	151
1	171		8.71	8.69	33.917	26.319	172.7	0.429	3.40	51.9	29.1	1.83	24.3	0.01	0.00	0.02	172
	200	ISL	8.28	8.26	33.978	26.433	162.3	0.478	3.26	49.3	32.8	1.92	25.9	0.00	0.00	0.02	201
1	202		8.25	8.23	33.980	26.439	161.8	0.461	3.25	49.1	33.1	1.93	26.0	0.00	0.00	0.02	203
1	230		7.83	7.81	34.002	26.519	154.5	0.525	3.03	45.4	38.0	2.05	27.7	0.00			231
	250	ISL	7.61	7.59	34.009	26.556	151.2	0.556	2.91	43.3	40.9	2.12	28.7	0.00			251
1	270		7.40	7.37	34.014	26.590	148.2	0.586	2.77	41.1	43.9	2.20	29.7	0.00			272
	300	ISL	7.01	6.98	34.028	26.656	142.2	0.629	2.35	34.5	50.3	2.38	32.0	0.00			302
1	324		6.73	6.70	34.047	26.709	137.4	0.663	1.96	28.6	55.8	2.53	33.9	0.00			326
1	381		6.39	6.36	34.131	26.821	127.4	0.738	1.11	16.1	66.5	2.84	37.2	0.00			383
	400	ISL	6.34	6.30	34.156	26.847	125.2	0.762	0.94	13.6	68.5	2.91	37.8	0.00			403
1	447		6.16	6.12	34.204	26.908	119.9	0.820	0.66	9.5	73.4	3.03	38.9	0.00			450
	500	ISL	5.61	5.57	34.222	26.991	112.2	0.881	0.49	7.0	84.0	3.14	40.8	0.00			503
1	515		5.46	5.42	34.228	27.015	110.0	0.898	0.44	6.2	87.0	3.17	41.4	0.00			518

RV DAVID STARR JORDAN | CALCOFI CRUISE 9004 | STATION 93 100

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT TYPE
30 29.7 N	122 16.3 W	20/04/90	0633 UTC	3733 M	330	10 KT			1021.9 MB	15.8 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	PO4 UM/L	NO3 UM/L	NO2 UM/L	CHL-A UG/L	PHAEO UG/L	PRESS D.BAR
	0	ISL	15.77	15.77	33.454	24.611	331.8	0.000	5.82	102.9	2.8	0.33	0.0	0.00	0.05	0.01	0
1	1		15.77	15.77	33.454	24.611	331.8	0.003	5.82	102.9	2.8	0.33	0.0	0.00	0.05	0.01	1
1	10		15.73	15.73	33.453	24.620	331.3	0.033	5.81	102.7	2.7	0.33	0.1	0.00	0.05	0.01	10
	20	ISL	15.70	15.70	33.450	24.624	331.1	0.066	5.82	102.8	2.7	0.32	0.1	0.00	0.05	0.01	20
1	21		15.70	15.70	33.450	24.624	331.2	0.070	5.82	102.8	2.7	0.32	0.1	0.00	0.05	0.01	21
	30	ISL	15.68	15.68	33.448	24.628	331.1	0.099	5.81	102.6	2.5	0.33	0.1	0.00	0.06	0.01	30
1	32		15.67	15.67	33.447	24.629	331.1	0.106	5.81	102.5	2.5	0.33	0.1	0.00	0.06	0.01	32
1	41		15.50	15.49	33.457	24.675	327.0	0.136	5.85	102.9	2.4	0.32	0.1	0.00	0.06	0.02	41
	50	ISL	15.33	15.32	" 33.480	24.730	322.0	0.165	5.88	103.1	2.4	0.32	0.1	0.00	0.07	0.02	50
1	51		15.31	15.30	33.483	24.737	321.3	0.168	5.88	103.0	2.4	0.32	0.1	0.00	0.07	0.02	51
1	60		15.08	15.07	33.506	24.806	315.1	0.197	5.89	102.8	2.4	0.32	0.0	0.00	0.08	0.03	60
1	70		14.97	14.96	33.510	24.833	312.8	0.228	5.90	102.7	2.4	0.32	0.0	0.00	0.11	0.04	70
	75	ISL	14.63	14.62	33.461	24.868	309.5	0.244	5.91	102.1	2.5	0.34	0.0	0.00	0.15	0.07	75
1	85		13.90	13.89	33.366	24.948	302.1	0.274	5.97	101.6	2.6	0.38	0.1	0.01	0.26	0.14	85
1	98		13.61	13.60	33.380	25.019	295.7	0.313	6.15	104.0	2.8	0.39	0.0	0.00	0.39	0.20	98
	100	ISL	13.44	13.43	33.358	25.036	294.1	0.319	6.13	103.3	2.9	0.41	0.2	0.01	0.38	0.20	100
1	119		11.58	11.57	33.176	25.254	273.5	0.373	5.71	92.4	4.8	0.67	4.3	0.08	0.23	0.17	120
	125	ISL	11.18	11.16	33.201	25.346	264.8	0.389	5.55	89.1	6.1	0.77	6.1	0.07	0.18	0.15	126
1	143		10.27	10.25	33.370	25.637	237.3	0.434	4.99	78.6	11.2	1.08	11.9	0.01	0.06	0.08	144
	150	ISL	10.00	9.98	33.446	25.742	227.4	0.450	4.71	73.8	13.7	1.21	14.2	0.01	0.05	0.06	151
1	173		9.32	9.30	33.690	26.045	199.0	0.500	3.92	60.6	21.9	1.58	20.5	0.00	0.01	0.03	174
	200	ISL	8.65	8.63	33.899	26.314	173.7	0.550	3.71	56.6	28.1	1.72	23.2	0.00	0.00	0.01	201
1	202		8.61	8.59	33.910	26.329	172.3	0.553	3.71	56.5	28.5	1.72	23.3	0.00	0.00	0.01	203
1	231		8.18	8.16	33.972	26.444	161.8	0.602	3.36	50.7	34.0	1.89	25.8	0.00			232
	250	ISL	7.90	7.87	34.004	26.510	155.7	0.632	3.03	45.4	38.4	2.03	27.6	0.00			251
1	271		7.60	7.57	34.029	26.574	149.9	0.664	2.68	39.9	43.5	2.19	29.6	0.00			272
	300	ISL	7.15	7.12	34.033	26.641	143.8	0.707	2.41	35.5	49.7	2.34	31.5	0.00			302
1	326		6.77	6.74	34.032	26.692	139.1	0.743	2.20	32.1	54.9	2.45	33.1	0.00			328
1	383		6.23	6.20	34.080	26.801	129.2	0.820	1.40	20.2	66.3	2.76	37.1	0.00			385
	400	ISL	6.09	6.06	34.094	26.830	126.5	0.842	1.22	17.5	69.5	2.83	38.0	0.00			402
1	447		5.78	5.74	34.142	26.907	119.6	0.899	0.81	11.6	77.0	2.99	39.8	0.00			450
	500	ISL	5.69	5.65	34.229	26.987	112.6	0.961	0.51	7.3	82.2	3.12	40.7	0.00			503
1	515		5.67	5.63	34.253	27.009	110.8	0.978	0.42	6.0	83.7	3.16	41.0	0.00			518

RV DAVID STARR JORDAN | CALCOFI CRUISE 9004 | STATION 93 IIO

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT TYPE
30 10.6 N	122 55.8 W	20/04/90	1209 UTC	3928 M	360	11 KT			1021.3 MB	17.0 C	15.9 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 D.BAR
	0	ISL	16.23	16.23	33.565	24.593	333.6	0.000	5.75	102.7	2.4	0.32	0.0	0.00	0.05	0.02	0
1	1		16.23	16.23	33.565	24.593	333.6	0.003	5.75	102.7	2.4	0.32	0.0	0.00	0.05	0.02	1
	10	ISL	16.22	16.22	33.564	24.594	333.7	0.033	5.76	102.8	2.4	0.32	0.0	0.00	0.05	0.01	10
1	17		16.22	16.22	33.564	24.595	333.9	0.057	5.76	102.8	2.4	0.32	0.0	0.00	0.05	0.01	17
	20	ISL	16.22	16.22	33.564	24.595	334.0	0.067	5.76	102.8	2.4	0.32	0.0	0.00	0.05	0.01	20
	30	ISL	16.22	16.22	33.565	24.596	334.2	0.100	5.76	102.8	2.4	0.32	0.0	0.00	0.06	0.01	30
1	31		16.22	16.22	33.565	24.596	334.2	0.104	5.76	102.8	2.4	0.32	0.0	0.00	0.06	0.01	31
1	40		15.90	15.89	33.562	24.667	327.8	0.133	5.82	103.3	2.4	0.32	0.0	0.00	0.06	0.02	40
1	50		15.65	15.64	33.563	24.724	322.7	0.166	5.87	103.6	2.4	0.32	0.0	0.00	0.06	0.02	50
1	60		15.42	15.41	33.521	24.743	321.1	0.198	5.89	103.5	2.3	0.33	0.0	0.00	0.08	0.02	60
1	70		15.23	15.22	33.511	24.777	318.2	0.230	5.88	102.9	2.3	0.33	0.0	0.00	0.10	0.04	70
	75	ISL	14.95	14.94	33.476	24.811	315.0	0.246	5.89	102.5	2.3	0.34	0.0	0.00	0.12	0.06	75
1	79		14.71	14.70	33.444	24.838	312.5	0.258	5.91	102.3	2.3	0.35	0.0	0.00	0.13 A	0.08 A	79
1	94		14.20	14.19	33.384	24.900	307.0	0.305	5.94	101.7	2.2	0.37	0.0	0.00	0.19	0.16	94
	100	ISL	14.02	14.01	33.382	24.936	303.7	0.323	5.91	100.8	2.4	0.38	0.2	0.07	0.22	0.20	100
1	109		13.69	13.67	33.379	25.002	297.6	0.350	5.84	98.9	2.9	0.42	0.4	0.16	0.25	0.24	109
1	124		12.70	12.68	33.320	25.154	283.4	0.394	5.75	95.4	3.8	0.55	2.5	0.08	0.15	0.14	125
	125	ISL	12.65	12.63	33.318	25.162	282.6	0.397	5.74	95.1	3.9	0.56	2.6	0.08	0.15	0 .'L 4	126
1	148		11.69	11.67	33.340	25.362	264.0	0.459	5.46	88.7	5.9	0.73	5.8	0.02	0.10	0.12	149
	150	ISL	11.63	11.61	33.347	25.378	262.4	0.465	5.44	88.2	6.0	0.74	6.0	0.02	0.10	0.12	151
1	173		10.95	10.93	33.465	25.593	242.4	0.523	5.11	81.7	9.1	0.92	9.5	0.01	0.05	0.07	174
	200	ISL	9.75	9.73	33.654	25.947	209.0	0.584	4.16	64.9	18.6	1.44	18.0	0.01	0.01	0.02	201
1	202		9.66	9.64	33.669	25.974	206.4	0.588	4.08	63.5	19.4	1.48	18.6	0.01	0.01	0.02	203
1	231		8.97	8.95	33.886	26.255	180.1	0.644	3.40	52.2	27.4	1.79	23.5	0.00			232
	250	ISL	8.68	8.65	33.998	26.388	167.7	0.677	2.87	43.8	33.1	2.00	26.2	0.00			251
1	270		8.46	8.43	34.084	26.490	158.4	0.710	2.38	36.2	38.5	2.19	28.4	0.00			271
	300	ISL	8.22	8.19	34.124	26.558	152.3	0.756	2.10	31.7	42.5	2.32	29.9	0.00			302
1	324		8.08	8.05	34.134	26.587	149.9	0.792	1.94	29.2	44.9	2.40	30.7	0.00			326
1	382		7.76	7.72	34.252	26.728	137.4	0.876	0.91	13.6	55.2	2.80	34.2	0.00			384
	400	ISL	7.59	7.55	34.270	26.766	134.0	0.900	0.74	11.0	58.0	2.88	35.0	0.00			402
1	447		7.11	7.07	34.297	26.856	125.9	0.961	0.49	7.2	64.8	3.02	36.8	0.00			450
	500	ISL	6.74	6.69	34.316	26.922	120.1	1.026	0.36	5.3	71.2	3.10	38.1	0.00			503
1	518		6.61	6.56	34.323	26.945	118.0	1.048	0.32	4.7	73.4	3.13	38.6	0.00			521

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

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD AMT	TYPE
29 50.7 N	123 35.8 W	20/04/90	1729 UTC	3833 M	350	13 KT	330 03 04	1	1022.4 MB	17.8 C	16.5 C	6/8	SC

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 D.BAR
	0	ISL	16.35	16.35	33.543	24.548	337.8	0.000	5.75	102.9	2.2	0.33	0.0	0.00	0.05	0.01	0
1	1		16.35	16.35	33.543	24.548	337.8	0.003	5.75	102.9	2.2	0.33	0.0	0.00	0.05	0.01	1
	10	ISL	16.32	16.32	33.542	24.555	337.5	0.034	5.76	103.0	2.2	0.33	0.0	0.00	0.06	0.01	10
1	16		16.29	16.29	33.543	24.563	337.0	0.054	5.77	103.2	2.2	0.33	0.0	0.00	0.06	0.01	16
	20	ISL	16.27	16.27	33.544	24.568	336.6	0.067	5.77	103.1	2.2	0.33	0.0	0.00	0.06	0.01	20
	30	ISL	16.18	16.18	33.552	24.595	334.3	0.101	5.78	103.1	2.2	0.32	0.0	0.00	0.06	0.01	30
1	32		16.15	16.14	33.554	24.604	333.5	0.108	5.78	103.0	2.2	0.32	0.0	0.00	0.06	0.01	32
1	42		15.94	15.93	33.569	24.663	328.2	0.141	5.81	103.2	2.2	0.32	0.0	0.00	0.06	0.02	42
	50	ISL	15.76	15.75	33.582	24.714	323.6	0.167	5.83	103.2	2.2	0.32	0.0	0.00	0.07	0.02	50
1	51		15.74	15.73	33.583	24.719	323.1	0.170	5.83	103.1	2.2	0.32	0.0	0.00	0.07	0.02	51
1	61		15.65	15.64	33.574	24.732	322.1	0.202	5.84	103.1	2.2	0.32	0.0	0.00	0.07	0.02	61
1	70		15.56	15.55	33.571	24.751	320.7	0.231	5.85	103.1	2.1	0.31	0.0	0.00	0.08	0.03	70
	75	ISL	15.54	15.53	33.578	24.760	319.9	0.247	5.84	102.9	2.1	0.31	0.0	0.00	0.09	0.04	75
1	79		15.52	15.51	33.583	24.769	319.2	0.260	5.83	102.6	2.1	0.31	0.0	0.00	0.10	0.04	79
1	94		15.74	15.73	33.671	24.788	317.9	0.308	5.78	102.3	2.1	0.30	0.0	0.00	0.13	0.05	94
	100	ISL	15.54	15.52	33.631	24.802	316.7	0.327	5.80	102.2	2.1	0.31	0.0	0.00	0.16	0.07	100
1	109		14.88	14.86	33.524	24.864	311.0	0.355	5.84	101.5	2.1	0.33	0.0	0.00	0.20	0.12	109
1	124		12.76	12.74	33.320	25.143	284.5	0.400	5.78	96.0	3.6	0.52	2.0	0.14	0.27	0.23	125
	125	ISL	12.70	12.68	33.320	25.154	283.4	0.403	5.77	95.7	3.6	0.53	2.1	0.14	0.27	0.23	126
1	149		11.84	11.82	33.448	25.418	258.7	0.468	5.40	88.0	5.7	0.69	5.7	0.03	0.14	0.14	150
	150	ISL	11.78	11.76	33.452	25.432	257.4	0.470	5.38	87.6	5.9	0.70	6.0	0.03	0.13	0.14	151
1	173		10.44	10.42	33.556	25.753	227.0	0.526	4.83	76.4	11.9	1.08	12.4	0.01	0.03	0.05	174
	200	ISL	9.42	9.40	33.742	26.070	197.2	0.583	4.23	65.5	19.5	1.43	18.5	0.00	0.00	0.02	201
1	204		9.31	9.29	33.770	26.109	193.5	0.591	4.15	64.1	20.6	1.47	19.2	0.00	0.00	0.02	205
1	232		8.66	8.64	33.912	26.324	173.4	0.642	3.71	56.6	27.9	1.71	23.1	0.00			233
	250	ISL	8.38	8.35	33.955	26.400	166.4	0.673	3.53	53.5	31.0	1.81	24.6	0.00			251
1	272		8.08	8.05	33.980	26.465	160.5	0.709	3.34	50.3	34.5	1.92	26.1	0.00			273
	300	ISL	7.61	7.58	34.000	26.550	152.7	0.753	3.08	45.9	40.5	2.07	28.2	0.00			302
1	327		7.18	7.15	34.010	26.619	146.3	0.793	2.79	41.1	46.6	2.21	30.2	0.00			329
1	386		6.49	6.46	34.035	26.732	135.9	0.876	1.98	28.7	59.1	2.55	34.6	0.00			388
	400	ISL	6.40	6.36	34.053	26.758	133.6	0.895	1.75	25.3	61.7	2.63	35.5	0.00			402
1	451		6.15	6.11	34.129	26.851	125.4	0.961	1.00	14.4	70.3	2.91	38.4	0.00			454
	500	ISL	5.85	5.81	34.186	26.934	117.9	1.021	0.66	9.4	77.8	3.06	40.0	0.00			503
1	520		5.73	5.69	34.209	26.967	114.9	1.044	0.52	7.4	80.9	3.12	40.7	0.00			523

RV DAVID STARR JORDAN — CALCOFI CRUISE 9004 — STATION 83 42

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI	FOREL	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
34 10.6 N	119 30.3 W	28/ 4/90	1950 UTC	15 m	03	1208 - 1909 PST	1156 PST	1909 PST	752.7 mg C/m2

DEPTH m	TEMP DEG C	SALINITY PSS 78	SIGMA THETA	DISS O2 ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL ug/l	PHAEO ug/l	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
0	14.91	33.574	24.893	5.99	104.2	4.8	0.42	0.5	0.04	0.68	0.17	99.	20.1	21.1	20.6	0.19
9	13.77	33.597	25.151	5.51	93.7	6.9	0.66	3.8	0.15	1.12	0.33	34.	29.7	30.2	30.0	0.27
18	13.60	33.612	25.198	5.39	91.3	7.8	0.71	4.8	0.14	1.01	0.39	15.	19.7	20.4	20.1	0.22
30	13.51	33.616	25.220	5.34	90.3	8.1	0.74	5.2	0.13	0.84	0.37	4.3	9.1	10.1	9.6	0.13
46	12.54	33.645	25.435	4.67	77.4	11.8	1.06	9.5	0.20	0.50	0.29	1.1	2.4	2.5	2.4	0.13
66	11.09	33.768	25.802	3.38	54.3	19.9	1.63	18.5	0.09	0.14	0.16	0.16	0.11	0.14	0.13	0.07

RV DAVID STARR JORDAN — CALCOFI CRUISE 9004 — STATION 83 80

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI	FOREL	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
32 54.5 N	122 8.9 W	27/ 4/90	1901 UTC	19 m	02	1203 - 1911 PST	1206 PST	1911 PST	194.4 mg C/m2

DEPTH m	TEMP DEG C	SALINITY PSS 78	SIGMA THETA	DISS O2 ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL ug/l	PHAEO ug/l	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
0	14.88	33.420	24.781	5.92	102.8	2.7	0.34	0.0	0.00	0.15	0.06	99.	1.4	1.5	1.4	0.12
13	14.85	33.419	24.787	5.94	103.1	2.7	0.36	0.0	0.00	0.15	0.04	34.	3.4	3.5	3.5	0.11
23	14.83	33.422	24.794	5.95	103.2	2.7	0.33	0.0	0.00	0.15	0.04	15.	3.3	3.3	3.3	0.08
39	14.79	33.423	24.804	5.95	103.1	2.7	0.35	0.0	0.00	0.16	0.05	4.3	1.6	1.6	1.6	0.09
57	12.97	33.435	25.189	5.83	97.4	3.6	0.54	1.7	0.19	0.55	0.25	1.1	3.5	3.2	3.4	0.09
82	11.89	33.410	25.377	5.34	87.1	6.7	0.85	7.3	0.04	0.25	0.19	0.16	0.18	0.12	0.15	0.07

RV DAVID STARR JORDAN — CALCOFI CRUISE 9004 — STATION 87 50

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI	FOREL	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
33 20.2 N	119 39.4 W	24/ 4/90	1933 UTC	9m	04	1159 - 1903 PST	1157 PST	1903 PST	404.9 mg C/m2

DEPTH m	TEMP DEG C	SALINITY PSS 78	SIGMA THETA	DISS O2 ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL ug/l	PHAEO ug/l	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
1	13.00	33.551	25.271	5.73	95.8	8.0	0.70	5.0	0.12	0.97	0.34	99.	4.8	5.2	5.0	0.23
6	12.98	33.550	25.274	5.73	95.8	8.1	0.70	5.1	0.13	0.95	0.33	34.	22.3	23.6	23.0	0.15
11	12.98	33.548	25.273	5.73	95.8	8.1	0.70	5.2	0.13	0.94	0.35	15.	23.4	23.4	23.4	0.15
19	12.84	33.541	25.296	5.69	94.8	8.1	0.72	5.4	0.13	0.91	0.34	4.3	12.7	12.2	12.4	0.17
27	10.99	33.458	25.578	5.13	82.2	10.8	1.07	11.0	0.22	0.36	0.27	1.1	2.0	1.8	1.9	0.08
40	10.43	33.595	25.783	4.46	70.6	16.0	1.41	16.1	0.23	0.15	0.22	0.16	0.18	0.16	0.17	0.07

RV DAVID STARR JORDAN — CALCOFI CRUISE 9004 — STATION 87 90

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI	FOREL	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
32 0.5 N	122 25.1 W	26/ 4/90	1948 UTC	24 m	02	1209 - 1959 PST	1208 PST	1914 PST	106.3 mg C/m2

DEPTH a	TEMP DEG C	SALINITY PSS 78	SIGMA THETA	DISS O2 ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL ug/l	PHAEO ug/l	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
1	15.04	33.374	24.711	5.94	103.5	2.6	0.38	0.0	0.00	0.08	0.02	99.	0.34	0.39	0.36	0.13
16	15.05	33.373	24.708	5.90	102.8	2.6	0.38	0.1	0.00	0.08	0.02	34.	1.4	1.3	1.4	0.10
29	15.03	33.373	24.713	5.89	102.6	2.6	0.35	0.0	0.00	0.08	0.02	15.	1.3	1.2	1.2	0.09
50	14.98	33.370	24.722	5.89	102.5	2.5	0.35	0.0	0.00	0.08	0.02	4.3	0.53	0.48	0.51	0.11
72	12.95	33.244	25.045	6.08	101.4	3.3	0.45	0.6	0.10	0.45	0.23	1.1	1.9	1.8	1.9	0.13
102	11.91	33.274	25.269	5.74	93.6	5.1	0.69	4.7	0.07	0.27	0.20	0.16	0.18	0.19	0.19	0.07

RV DAVID STARR JORDAN — CALCOFI CRUISE 9004 — STATION 90 28

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI	FOREL	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
33 29.2 N	117 46.1 W	23/ 4/90	1847 UTC	14 m	03	1155 - 1857 PST	1155 PST	1857 PST	516.1 mg C/m2

DEPTH m	TEMP DEG C	SALINITY PSS 78	SIGMA THETA	DISS O2 ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL ug/l	PHAEO ug/l	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
0	17.06	33.569	24.403	6.04	109.6	3.5	0.27	0.0	0.00	0.42	0.10	99.	17.0	17.4	17.2	0.19
10	17.04	33.564	24.404	6.09	110.5	3.6	0.27	0.0	0.00	0.52	0.12	34.	18.0	19.5	18.7	0.21
18	14.67	33.562	24.936	6.81	117.9	4.2	0.26	0.0	0.00	1.33	0.28	15.	20.5	19.0	19.7	0.36
29	12.70	33.530	25.315	4.96	82.4	7.4	0.77	3.9	0.38	0.82	0.32	4.3	5.6	4.5	5.1	0.16
43	11.69	33.587	25.551	3.47	56.5	14.4	1.47	14.8	0.93	0.27	0.26	1.1	0.83	0.74	0.79	0.24
56	11.07	33.738	25.782	2.77	44.5	21.4	1.83	19.9	0.35	0.07	0.23	0.16	0.01	0.04	0.03	0.17

PRIMARY PRODUCTIVITY CASTS

RV DAVID STARR JORDAN — CALCOFI CRUISE 9004 — STATION 90 55

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI	FOREL	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
32 34.9 N	119 38.1 W	22/ 4/90	1922 UTC	12 m	04	1157 - 1158 PST	1158 PST	185 8 PST	164.5 mg C/m2

DEPTH m	TEMP DEG C	SALINITY PSS 78	SIGMA THETA	DISS O2 ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uH/l	NO2 uM/l	CHL ug/l	PHAEO ug/l	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
1	14.48	33.539	24.958	6.06	104.5	3.4	0.37	0.0	0.00	0.27	0.09	99.	7.2	7.3	7.2	0.21
9	14.50	33.539	24.954	6.05	104.3	3.4	0.37	0.0	0.00	0.26	0.09	34.	7.0	7.6	7.3	0.19
17	14.49	33.539	24.957	6.06	104.5	3.3	0.36	0.0	0.00	0.26	0.09	15.	5.1	4.9	5.0	0.21
27	14.46	33.536	24.961	6.05	104.3	3.4	0.36	0.0	0.00	0.25	0.10	4.3	1.7	1.7	1.7	0.21
37	14.44	33.534	24.964	6.06	104.4	3.4	0.36	0.0	0.00	0.27	0.11	1.1	0.42	0.58	0.50	0.19
53	12.30	33.563	25.418	4.86	80.1	9.2	0.95	8.6	0.12	0.53	0.37	0.16	0.16	0.24	0.20	0.06
61	11.56	33.551 A	25.548	4.51	73.2	11.8	1.14	11.9	0.06	0.36	0.27					
71	11.02	33.586	25.673	4.18	67.0	14.9	1.32	14.7	0.02	0.15	0.13					
85	10.32	33.702 A	25.886	3.53	55.8	20.0	1.61	19.5	0.01	0.05	0.08					
105	10.08	33.762	25.974	3.32	52.2	22.1	1.70	21.0	0.01	0.03	0.05					
125	9.59	33.933	26.190	2.82	43.9	27.7	1.93	24.4	0.01	0.00	0.03					
144	9.25	33.997	26.296	2.68	41.4	30.7	2.02	25.7	0.01	0.00	0.03					
173	8.82	34.090	26.437	2.30	35.2	35.7	2.19	28.0	0.01	0.00	0.03					
203	8.56	34.121	26.502	2.08	31.7	39.3	2.29	29.1	0.00	0.00	0.03					

A) THE SALINITY SAMPLED FROM 61 AND 85 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 9004 — STATION 90 90

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI	FOREL	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
31 25.5 N	121 59.6 W	21/ 4/90	1906 UTC	29 *a*	02	1209 - 1903 PST	1207 PST	1903 PST	237.9 mg C/m2

DEPTH *m*	TEMP DEG C	SALINITY PSS 78	SIGMA THETA	DISS O2 ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL ug/l	PHAEO ug/l	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
0	15.66	33.464	24.644	5.85	103.2	2.4	0.36	0.0	0.00	0.10	0.02	99.	1.5	1.4	1.4	0.06
20	15.51	33.456	24.671	5.90	103.8	2.4	0.36	0.0	0.00	0.11	0.03	34.	3.0	2.8	2.9	0.08
37	14.98	33.461	24.792	5.99	104.3	2.4	0.36	0.0	0.00	0.14	0.04	15.	3.0	2.9	2.9	0.06
62	12.89	33.387	25.167	5.92	98.7	3.8	0.51	1.5	0.13	0.37	0.19	4.3	3.2	3.4	3.3	0.08
89	11.24	33.415	25.501	5.00	80.5	9.4	1.01	10.1	0.03	0.19	0.19	1.1	0.76	0.70	0.73	0.07
126	9.92	33.631	25.899	3.84	60.1	19.8	1.58	19.7	0.01	0.02	0.06	0.16	0.00	0.01	0.01	0.02

RV DAVID STARR JORDAN — CALCOFI CRUISE 9004 — STATION 93 26.6

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI	FOREL	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
32 58.5 N	117 18.4 W	17/ 4/90	1914 UTC	16 m	04	1149 - 1847 PST	1149 PST	1847 PST	871.4 mg C/m2

DEPTH m	TEMP DEG C	SALINITY PSS 78	SIGMA THETA	DISS O2 ml/l	OXY PCT	SI03 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL ug/l	PHAEO ug/l	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
1	16.68	33.509	24.446	6.12	110.2	3.8	0.28	0.1	0.01	0.55	0.15	99.	9.2	9.5	9.3	0.22
11	16.62	33.526	24.473	6.14	110.5	3.6	0.30	0.1	0.01	0.63	0.17	34.	28.0	29.3	28.7	0.24
21	16.52	33.526	24.497	6.10	109.5	3.2	0.28	0.1	0.01	0.57	0.16	15.	24.0	28.0	26.0	0.20
35	12.42	33.552	25.386	4.51	74.5	9.6	0.98	6.5	0.39	1.00	0.50	4.3	14.3	10.4	12.3	0.09
50	12.28	33.553	25.414	4.44	73.1	10.6	1.04	8.1	0.34	0.80	0.50	1.1	5.2	4.9	5.1	0.11

RV DAVID STARR JORDAN — CALCOFI CRUISE 9004 — STATION 93 45

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI	FOREL	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
32 19.7 N	118 33.7 W	18/ 4/90	1840 UTC	19 m	02 .	1153 - 1853 PST	1153 PST	1853 PST	231.5 mg C/m2

DEPTH m	TEMP DEG C	SALINITY PSS 78	SIGMA THETA	DISS O2 ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL ug/l	PHAEO ug/l	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
1	15.76	33.573	24.705	5.89	104.2	2.5	0.37	0.1	0.01	0.14	0.04	99.	3.3	3.0	3.1	0.11
13	15.74	33.573	24.710	5.90	104.4	2.5	0.37	0.1	0.01	0.15	0.03	34.	3.6	3.7	3.7	0.12
23	15.31	33.566	24.800	6.00	105.2	2.5	0.37	0.1	0.01	0.23	0.06	15.	4.2	4.3'	4.3	0.17
38	13.96	33.541	25.070	6.01	102.5	3.5	0.43	0.1	0.01	0.67	0.35	4.3	4.9	4.3	4.6	0.40
56	12.63	33.587	25.373	4.20	69.7	11.3	1.11	10.1	0.09	0.50	0.41	1.1	2.0	1.8	1.9	0.04
78	12.03	33.700	25.576	3.03	49.7	18.2	1.58	16.9	0.02	0.16	0.17	0.16	0.12	0.13	0.13	0.02

RV DAVID STARR JORDAN | CALCOFI CRUISE 9004 | STATION 93 80

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI	FOREL	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
31 10.1 N	120 56.2 W	19/ 4/90	1907 UTC	25 m	02	1200 - 1857 PST	1203 PST	1856 PST	442.7 mg C/m2

DEPTH m	TEMP DEG C	SALINITY PSS 78	SIGMA THETA	DISS O2 ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL ug/l	PHAEO ug/l	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
0	15.00	33.337	24.691	5.96	103.7	2.5	0.38	0.0	0.01	0.10	0.02	99.	2.4	2.3	2.4	0.08
18	14.86	33.329	24.716	5.98	103.8	2.5	0.38	0.0	0.00	0.11	0.03	34.	3.8	3.9	3.9	0.09
32	14.10	33.315	24.866	6.14	104.9	2.7	0.38	0.0	0.00	0.15	0.05	15.	3.1	3.0	3.0	0.14
53	12.77	33.280	25.108	6.31	104.8	3.5	0.45	0.4	0.04	1.22	0.46	4.3	12.2	11.9	12.1	0.14
77	11.78	33.412	25.399	5.75	93.6	5.2	0.77	5.2	0.56	0.30	0.22	1.1	1.1	1.2	1.2	0.07
109	10.56	33.574	25.745	4.44	70.5	15.4	1.37	15.9	0.03	0.04	0.12	0.16	0.03	0.01	0.02	0.04

RV DAVID STARR JORDAN | CALCOFI CRUISE 9004 | STATION 93 120

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI	FOREL	INCUBATION TIME	LAN	CIVIL TVILIGHT	INTEGRATED VALUE
29 51.2 N	123 35.4 W	20/ 4/90	1919 UTC	35 m	01	1201 - 1911 PST	1213 PST	1910 PST	145.1 mg C/o2

DEPTH m	TEMP DEG C	SALINITY PSS 78	SIGMA THETA	DISS O2 ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL ug/l	PHAEO ug/l	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
1	16.44	33.541	24.526	5.76	103.3	2.5	0.33	0.0	0.00	0.05	0.01	99.	1.0	0.94	0.98	0.05
24	16.30	33.542	24.560	5.76	103.0	2.5	0.33	0.0	0.00	0.06	0.01	34.	1.4	1.4	1.4	0.08
43	15.90	33.574	24.676	5.82	103.3	2.5	0.32	0.0	0.00	0.06	0.01	15.	1.1	1.1	1.1	0.09
74	15.53	33.581	24.765	5.84	102.8	2.5	0.31	0.0	0.00	0.09	0.03	4.3	0.64	0.61	0.63	0.09
106	14.15	33.422	24.941	5.89	100.8	2.7	0.37	0.0	0.01	0.30	0.25	1.1	1.4	1.3	1.4	0.04
151	11.47	33.449	25.487	5.23	84.6	7.6	0.84	8.0	0.02	0.10	0.11	0.16	0.10	0.10	0.10	0.01

Secchi Disk Observations

CalCOFI Cruise 9004

Line	Sta.	Day	Mo	Local Time (+8: PST)	Secchi Depth (m)	Forel Water Color	Weather	Clouds Type/Amt	
80	*55*	29	04	0529	4	5	1	CI	1/8
83	40.6	28	04	1447	8	4	2	sc	8/8
83	42	28	04	1139	15	3	2	ST	8/8
83	51	28	04	0634	14	4	2	SC	8/8
83	70	27	04	1630	24	1	2	sc	8/8
83	80	27	04	1050	19	2	0	-	0
87	45	24	04	0721	10	4	1	cc	1/8
87	50	24	04	1121	9	4	1	cs	1/8
87	*55*	24	04	1500	11	4	1	cs	3/8
87	60	25	04	0730	14	2	1	cc	1/8
87	70	25	04	1830	21	1	1	CI	4/8
87	90	26	04	1137	24	2	1	CI	2/8
90	28	23	04	1025	14	3	1	cu	6/8
90	30	23	04	0720	23	3	1	cu	5/8
90	53	22	04	1300	10	4	2	sc	8/8
90	*55*	22	04	1103	12	4	2	sc	8/8
90	60	22	04	0730	19	3	2	sc	8/8
90	80	21	04	1655	27	2	2	sc	8/8
90	90	21	04	1025	29	2	1	sc	4/8
90	120	20	04	1550	37	1	1	sc	5/8
93	26.6	17	04	1039	16	4	1	sc	3/8
93	28	17	04	1400	16	3	1	sc	3/8
93	30	17	04	1752	20	2	1	sc	2/8
93	45	18	04	0840	18	2	2	sc	8/8
93	45	18	04	1020	19	2	2	sc	8/8
93	50	18	04	1330	19	2	2	sc	8/8
93	80	19	04	1054	25	2	1	sc	*6/8*
93	90	19	04	1620	21	1	1	sc	6/8
93	120	20	04	1037	35	1	1	sc	6/8

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 Strained Total (cm)	Small (cm)
80	51	34 26.6N	120 32.5W	4/29	0247	0255	161	71	695	695
80	55	34 19.1N	120 49.0W	4/29	0550	0612	470	210	102	102
82	47	34 16.3N	120 02.2W	4/28	2027	2049	427	214	227	227
83	40.6	34 13.2N	119 25.4W	4/28	1510	1514	62	27	113	113
83	42	34 1L7N	119 30.6W	4/28	1310	1320	188	91	96	96
83	51	33 52.6N	120 08.3W	4/28	0708	0718	185	94	60	60
83	55	33 44.8N	120 24.6W	4/28	0359	0421	410	215	263	212
83	60	33 34.8N	120 46.8W	4/27	2349	0011	441	201	175	175
83	70	33 15.0N	12125.7W	4/27	1743	1805	413	216	34	34
83	80	32 54.7N	122 08.4W	4/27	1018	1040	454	210	44	44
83	90	32 34.5N	122 50.1W	4/27	0346	0409	534	200	28	28
87	33	33 53.4N	118 29.8W	4/23	2013	2020	135	62	193	193
87	35	33 49.4N	118 37.7W	4/23	2255	2317	443	211	50	50
87	40	33 37.9N	118 58.9W	4/24	0325	0347	463	205	56	56
87	45	33 2&5N	119 *2OAW*	4/24	0748	0810	444	213	176	95
87	50	33 18.4N	119 40.8W	4/24	1157	1203	133	47	1 %	1 %
87	55	33 09.0N	120 00.0W	4/24	1605	1627	528	197	47	47
87	60	32 58.6N	120 21.1W	4/25	0738	0800	453	214	33	33
87	70	32 39.7N	12102.6W	4/25	2056	2118	441	217	32	32
87	80	32 18.4N	12143.3W	4/26	0247	0310	550	180	33	33
87	90	3159.9N	122 24.1W	4/26	1445	1508	560	203	14	14
90	28	33 29.0N	117 46.4W	4/23	0948	0957	167	70	114	114
90	30	33 25. IN	117 53.3W	4/23	0743	0804	420	208	188	145
90	35	33 14.8N	118 16.3W	4/23	0348	0410	431	210	93	93
90	37	33 1L0N	118 23.3W	4/23	0111	0133	423	211	78	78
90	45	32 55.5N	118 54.6W	4/22	2000	2022	427	210	164	164
90	53	32 38.4N	119 29.1W	4/22	1413	1435	449	212	33	33
90	60	32 24.6N	119 57.8W	4/22	0800	0822	457	211	20	20
90	70	32 04.7N	120 39.2W	4/22	0113	0135	481	204	77	56
90	80	3144.2N	121 20.4W	4/21	1808	1830	460	208	15	15
90	90	3125.7N	121 59.9W	4/21	1132	1154	427	221	52	52
90	100	31 05.0N	122 39.8W	4/21	0453	0515	423	214	52	52
90	110	30 44.9N	123 19.7W	4/20	2251	2313	441	214	63	36
90	120	30 24.6N	124 0L2W	4/20	1700	1722	435	212	23	23
93	26.7	32 57.3N	117 18.8W	4/17	1255	1300	100	45	290	290
93	28	32 54.4N	117 24.2W	4/17	1552	1614	447	214	87	87
93	30	32 49.9N	117 32.7W	4/17	1910	1932	450	211	80	80
93	35	32 4L2N	117 S3.6W	4/18	0006	0028	439	211	100	100
93	40	32 30.0N	118 13.3W	4/18	0423	0445	434	213	58	58
93	45	32 20.8N	118 33.7W	4/18	0902	0924	445	215	36	36
93	50	32 10.6N	118 54.3W	4/18	1450	1512	447	209	20	20
93	55	32 00.dVl	119 15.9W	4/18	1910	1932	434	213	81	81
93	60	3150.1N	119 34.9W	4/18	2315	2337	421	221	102	102
93	70	31 3L6N	120 15.9W	4/19	0532	0554	422	215	31	31
93	80	3109.6N	120 57.4W	4/19	1200	1222	430	213	23	23
93	90	30 50.7N	1213.6W	4/19	1717	1739	424	215	31	31
93	100	30 29.5N	122 16.8W	4/19	2323	2345	429	212	35	35
93	110	30 10.9N	122 56.4W	4/20	0446	0508	430	215	42	42
93	120	29 5L1N	123 35.9W	4/20	1009	1031	441	216	23	23