

UNIVERSITY OF CALIFORNIA, SAN DIEGO SCRIPPS INSTITUTION OF OCEANOGRAPHY

data report

CalCOFI Cruise 1104
9 – 27 April 2011

CC Reference 12-03
10 September 2012

**UNIVERSITY OF CALIFORNIA, SAN DIEGO
SCRIPPS INSTITUTION OF OCEANOGRAPHY
LA JOLLA, CALIFORNIA 92093-0227**

PHYSICAL, CHEMICAL AND BIOLOGICAL DATA

**CalCOFI Cruise 1104
9 – 27 April 2011**

**CC Reference 12-02
14 August 2012**

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INTRODUCTION

The data presented in this report were collected during cruise 1104* of the California Cooperative Oceanic Fisheries Investigations (CalCOFI) program aboard the NOAA vessel FSV *Bell M. Shimada*. The CalCOFI program was organized in the late 1940's to study the causes of variations in population size of fishes of importance to the State of California. It is carried out by NOAA's National Marine Fisheries Service Southwest Fisheries Science Center, the California Department of Fish and Game, and the Integrative Oceanography Division (IOD) at Scripps Institution of Oceanography (SIO). IOD contributes to this program by investigations of the physical, chemical and biological structure of the California Current. Data from the cruises were collected and processed by personnel of the Integrative Oceanography Division and the Southwest Fisheries Science Center. SIO staff members from the Ocean Data Facility participate in the chemical analysis of nutrient samples at sea. CalCOFI data presented in this report and collected on previous cruises can be accessed at <http://www.calcofi.org>.

STANDARD PROCEDURES

CTD/Rosette Cast Data

A Sea-Bird Electronics, Inc., Conductivity-Temperature-Depth (CTD) instrument (Seabird 911, Serial number 1049) with a rosette was deployed at each station on these cruises. The rosette was equipped with 24 ten-liter plastic (PVC) bottles equipped with epoxy-coated springs and Viton O-rings. Each CTD/rosette cast usually sampled 20 depths to a maximum sampling depth of 525 meters, bottom depth permitting. Occasional stations have multiple bottles tripped at the same depth to provide more water for ancillary programs. The sample spacing was designed to sample depth intervals as close as 10 meters around the sharp upper thermocline features such as the chlorophyll, oxygen, nitrite maxima and the shallow salinity minimum. Salinity, oxygen and nutrients were determined at sea for all depths sampled. Chlorophyll-*a* and phaeopigments were determined at sea on samples from the top 200 meters, bottom depth permitting.

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

Salinity samples were collected from all rosette bottles and analyzed at sea using a Guildline model 8410 Portasal salinometer. Salinity samples were drawn into 200 ml Kimax high-alumina borosilicate bottles that were rinsed three times with sample prior to filling. The results were compared with the CTD salinity to verify that the rosette bottle did not mis-trip or leak. The salinometer was standardized before and after each group of samples with standardized seawater. Periodic checks on the conductivity of the standardized seawater were made by comparison with IAPSO Standard Seawater batch P149. Salinity values were calculated using the algorithms for the Practical Salinity Scale, 1978 (UNESCO, 1981a) and are reported to three decimal places, provided that accepted standards were met.

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

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

Nutrient samples were analyzed at sea by the Scripps Ocean Data Facility for dissolved silicate, phosphate, nitrate, nitrite, and ammonium using procedures similar to those described in Gordon et al. (1993) and Koroleff (1969, 1970). Samples were collected in 45 ml high-density polypropylene screw-capped tubes which were acid washed and rinsed with sample three times prior to filling. Daily standardizations and drift corrections were accomplished by running freshly prepared mid-range standards at the beginning and end of each group of samples. Samples not analyzed immediately after collection were refrigerated and run the following day. In addition to daily standardizations, periodic full calibrations were performed with sets of six different concentration standards.

Samples for chlorophyll-*a* and phaeopigments were collected in calibrated 138 ml polyethylene bottles and filtered onto Whatman GF/F filters. The pigments were extracted in cold 90% acetone (Venrick and Hayward, 1984) for a minimum of 24 hours. Chlorophyll *a* and phaeopigment concentrations were determined from fluorescence readings before and after acidification with a Turner Designs Fluorometer Model 10-AU-005-CE (Yentsch and Menzel, 1963; Holm-Hansen *et al.*, 1965).

Evaluation of the water sample data involved comparisons with the CTD data, adjacent stations and consideration of the variation of a property as a function of density or depth and the relationships with other properties (Klein, 1973). Precision estimates for routine analyses were made on CalCOFI cruise 9003 and are reported in SIO Ref. 91-4.

Primary Productivity Sampling

Primary productivity samples were taken each day shortly before local apparent noon (LAN). Primary production was estimated from ^{14}C uptake using a simulated *in situ* technique. Light penetration was estimated from the Secchi depth (assuming that the 1% light level is three times the Secchi depth). The depths with ambient light intensities corresponding to light levels simulated by the on-deck incubators were identified and sampled on the rosette upcast. Occasionally an extra bottle or two were tripped in addition to the usual 20 levels sampled in the combined rosette-productivity cast in order to maintain the normal sampling depth resolution. Triplicate samples (two light and one dark control) were drawn from each productivity sample depth into 250 ml polycarbonate incubation bottles. Samples were inoculated with 6.992 μCi of ^{14}C as NaHCO_3 (200 μl of stock solution) prepared in a 0.3 g/liter solution of sodium carbonate (Fitzwater *et al.*, 1982). Samples were incubated from LAN to civil twilight in seawater-cooled incubators with neutral-density screens which simulate *in situ* light levels. At the end of the incubation, the samples were filtered onto Millipore HA filters and placed in scintillation vials. One half ml of 10% HCl was added to each sample. The sample was then allowed to sit, without a cap, at room temperature for 12 hours (after Lean and Burnison, 1979). Following this, 10 ml of scintillation cocktail were added to each sample and the samples were returned to SIO where the radioactivity was determined with a scintillation counter. Salinity, oxygen, nutrients, chlorophyll-*a* and phaeopigments were determined from all rosette productivity bottles.

Macrozooplankton Net Tows

Macrozooplankton was sampled with a 71 cm mouth diameter paired net (bongo net) equipped with 0.505mm plankton mesh. Bottom depth permitting, the nets were towed obliquely from 210 meters to the surface. The tow time for a standard tow was 21.5 minutes. Volumes filtered were determined from flowmeter readings and the mouth area of the net. Only one sample of each pair was retained and preserved. The biomass, as wet displacement volume, after removal of large (>5 ml) organisms, was determined in the laboratory ashore. These procedures are summarized in greater detail in Kramer *et al.* (1972).

Ancillary Programs

Several ancillary programs produced data on these cruises that are not presented in this report. These programs include:

- 1) *Underway Data:* Continuous near surface measurements of temperature, salinity and *in vivo* chlorophyll fluorescence were recorded from seawater pumped through the ship's uncontaminated seawater system. Water was drawn from a depth of approximately 3 meters. The data were logged in one-minute averages using a Sea-Bird Electronics, Inc., SBE 45 MicroTSG Thermosalinograph and a Wetlabs Wetstar fluorometer.
- 2) *ADCP.* Continuous profiles of ocean currents and acoustic backscatter between 20 and 500 meters deep were measured along the shiptrack from a hull-mounted 150 kHz Acoustic Doppler Current Profiler (ADCP). The ADCP data were averaged over 3-minute intervals. Sixty 8-meter depth bins were recorded. (T. Chereskin, SIO)
- 3) *California Current Ecosystem Long Term Ecological Research Program:* The CCE-LTER program augments standard CalCOFI measurements to further characterize the lower trophic levels as well as the carbon system. These additional samples, taken at all CalCOFI stations, are for measurements of particulate organic carbon and nitrogen, dissolved organic carbon and nitrogen, taxon-specific phytoplankton pigments, flow-cytometric counts of bacteria and picoautotrophs, microscopic counts of nano- microplankton, determination of mesozooplankton size structure using a Laser Optical Plankton Counter, and mesozooplankton community structure. (M. Ohman, SIO)
- 4) *SCCOOS Nearshore Observations:* The objective of these observations is to extend CalCOFI time series to the nearshore. Nearshore observations consist of 9 stations at the ends and interspersed with current CalCOFI lines on the 20 m isobath with a standard set of CalCOFI observations. (R. Goericke, SIO)
- 5) *Inorganic Carbon System:* The CalCOFI group collected samples for the characterization of the inorganic carbon system at selected locations along the cruise track. Total inorganic carbon and alkalinity will be measured which will allow the calculation of pH and pCO₂. The objectives of these measurements are first the long-term characterization of the inorganic carbon system and its response to changing ocean climate and second measurements of pH in the coastal zone in order to monitor the impact of 'corrosive' waters on benthic ecosystems in the Southern California Bight. (R. Goericke, SIO)
- 6) *Marine mammal observations.* During daylight transits, visual line-transect surveys were conducted by marine mammal observers focusing on cetaceans. Acoustic line-transect surveys were performed using a towed hydrophone array which consists of multiple hydrophone elements that sample sounds up to 100 kHz allowing for localization of calling animals. Acoustic monitoring also takes place on individual stations using sonobuoys. (J. Hildebrand, SIO)
- 7) *Nitrate isotope:* Seawater samples are acquired using the CTD-rosette and shipped frozen to Princeton University. The nitrogen and oxygen isotopic composition of nitrate is measured using strains of denitrifying bacteria that reduce nitrate to N₂O. (P. Rafter, Princeton University).

TABULATED DATA

CTD/Rosette Cast Data

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

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

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

Primary Productivity Data

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

Macrozooplankton Data

Macrozooplankton biomass volumes are tabulated as total biomass volume ($\text{cm}^3/1000\text{m}^3$ 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:

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

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

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

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FIGURES

Cruise 1104

1. CalCOFI Cruise 1104 track and station positions.
2. Horizontal distribution of dynamic height anomaly (0 over 500m). In areas shallower than 500 m, the dynamic heights were extrapolated on the basis of the offshore deeper steric height as described in Reid and Mantyla (1976).
3. Horizontal distributions at 10 meters: A) chlorophyll-*a*; B) potential density; C) temperature; and D) salinity.
4. Horizontal distributions at 200 meters: A) dynamic height anomaly (200 over 500 m); B) potential density; C) temperature; and D) salinity.
5. Sections along CalCOFI line 90 (vertical exaggeration, 1000): A) potential density; B) temperature; C) salinity; D) silicate; E) nitrate; F) phosphate; G) chlorophyll-*a*; H) oxygen saturation; I) oxygen; J) nitrite; and K) phaeopigments.

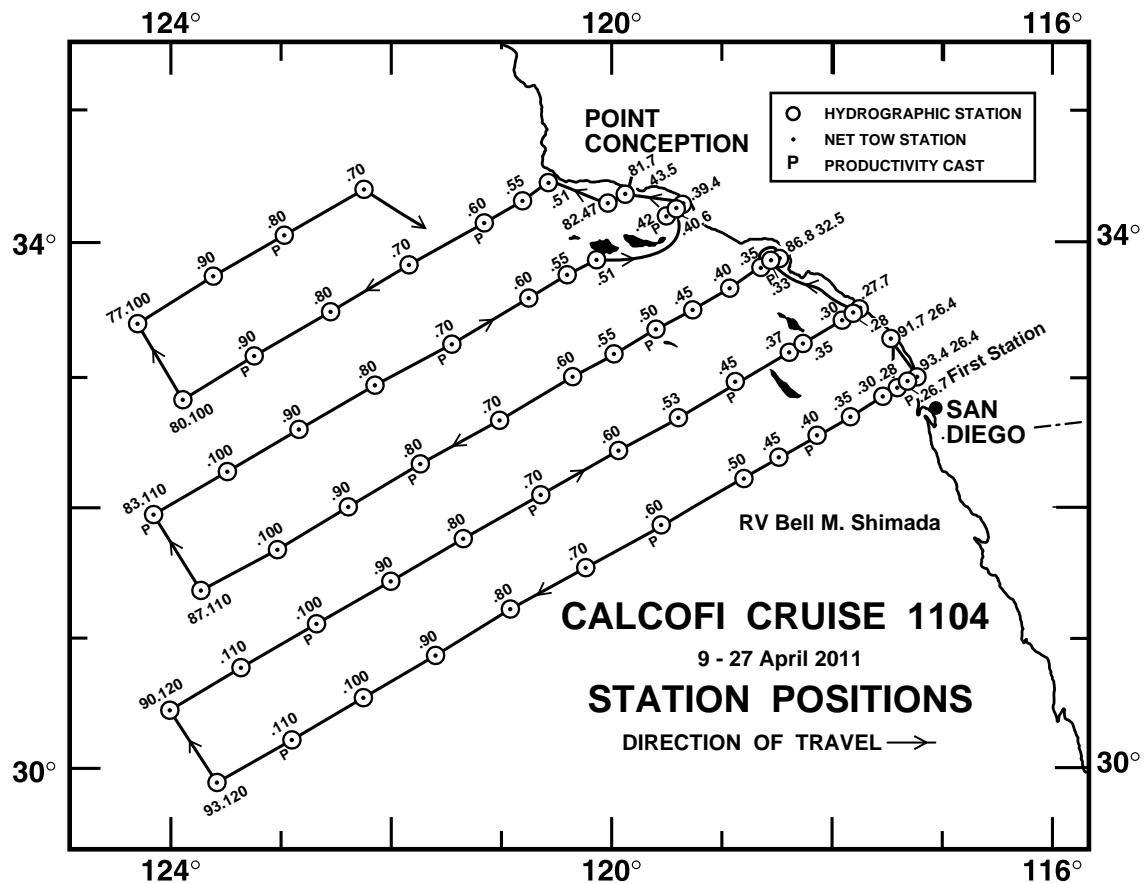


FIGURE 1

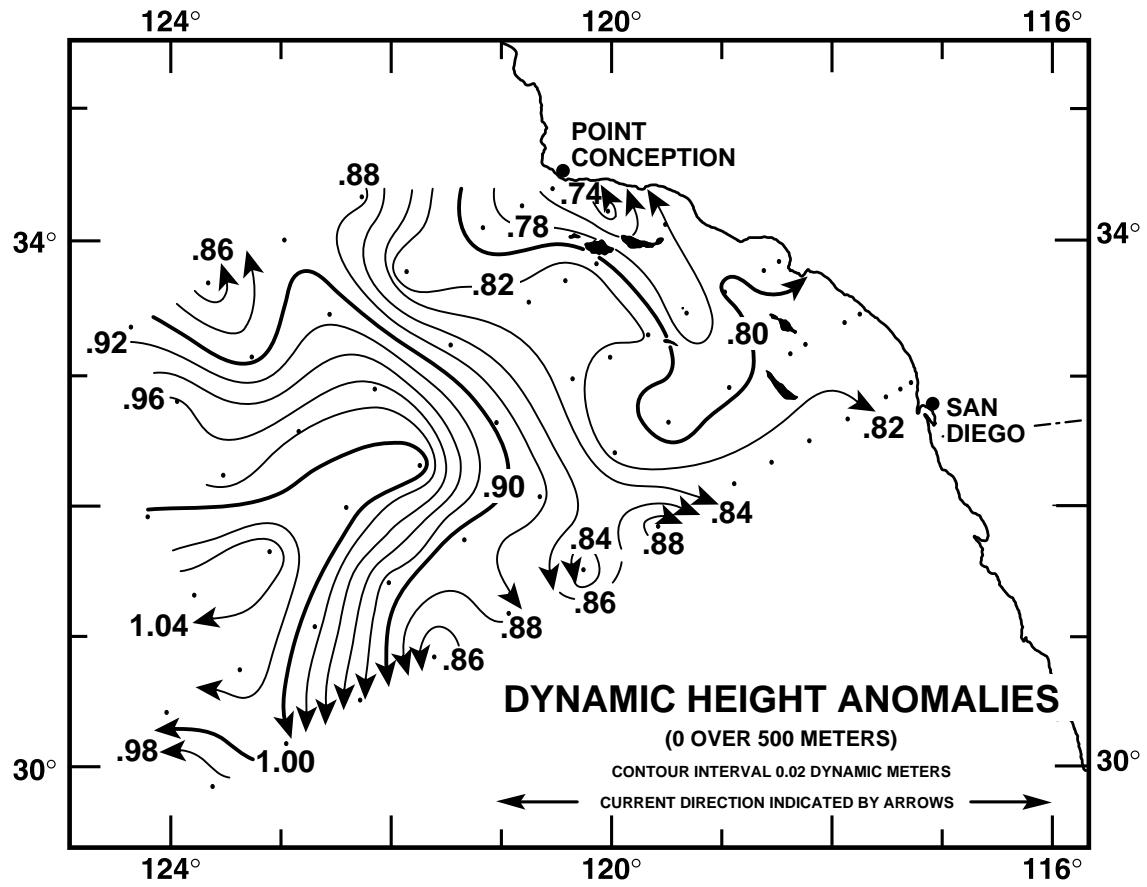


FIGURE 2

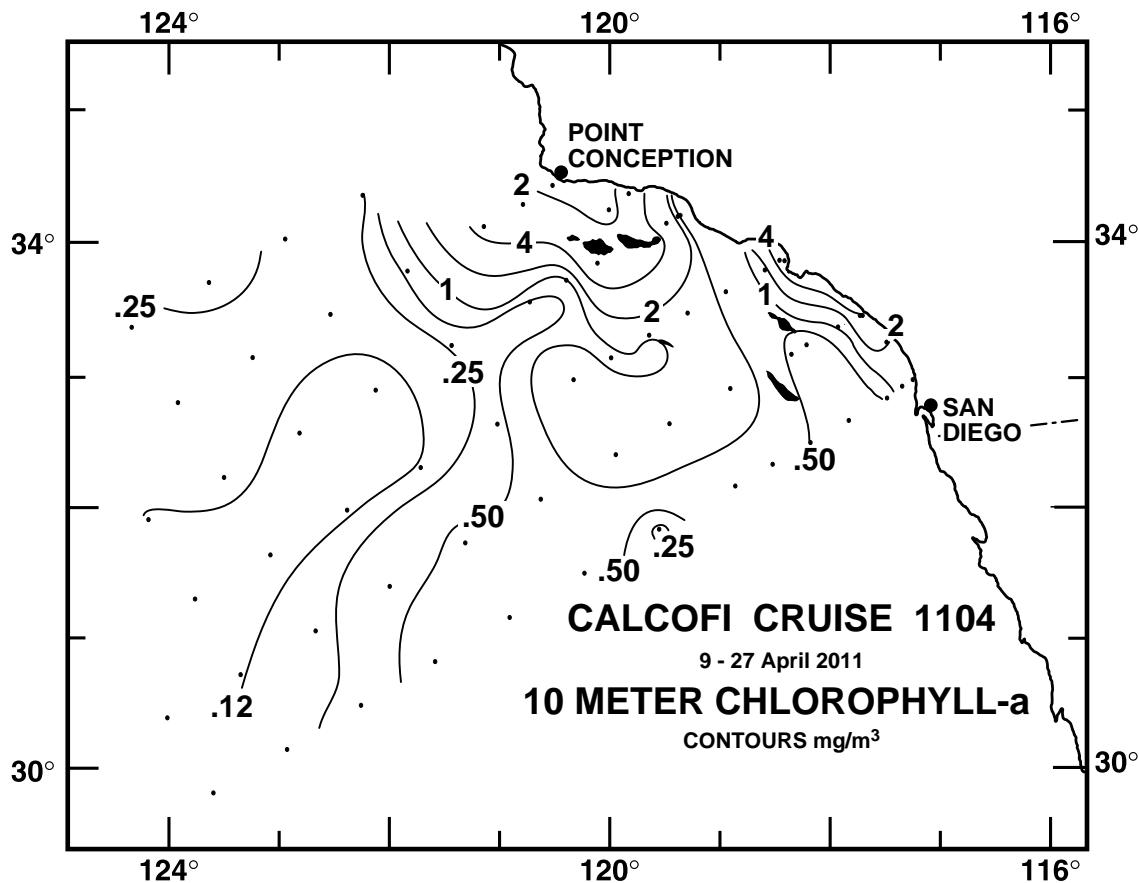


FIGURE 3A

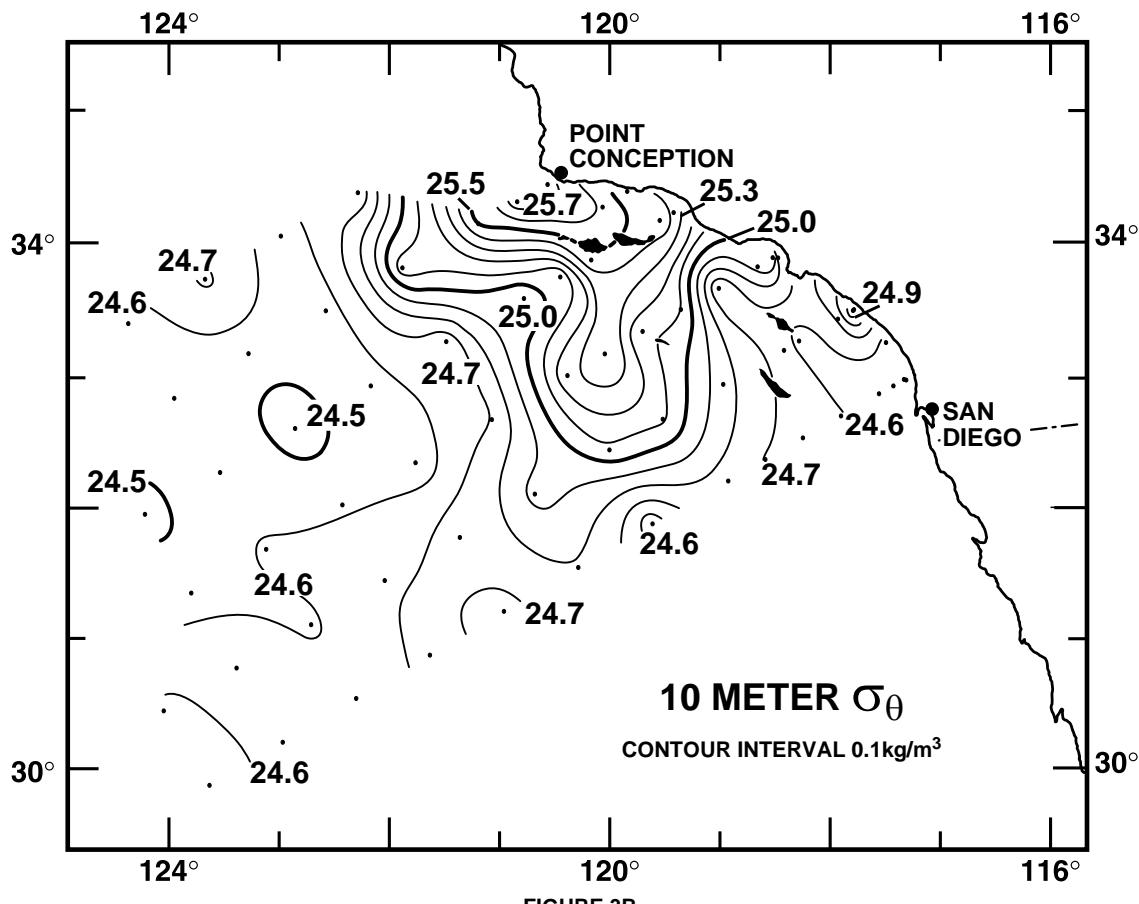


FIGURE 3B

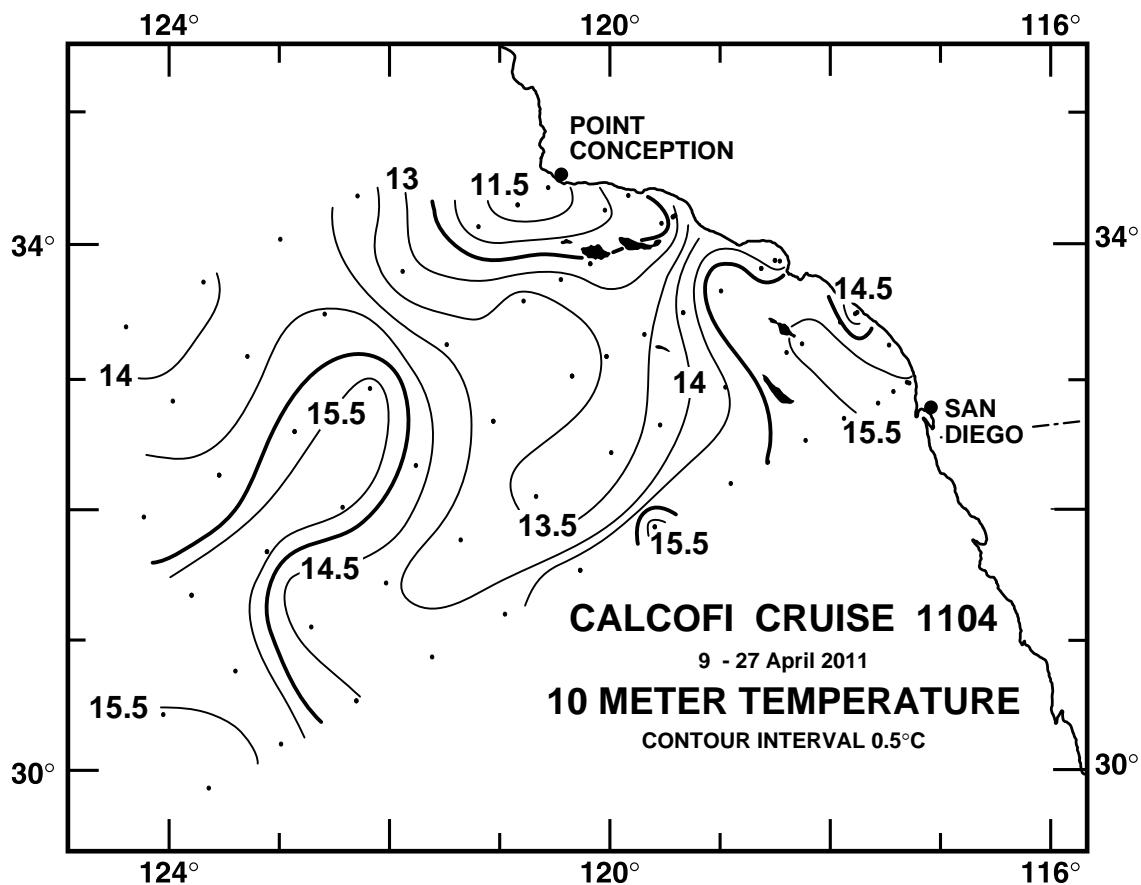


FIGURE 3C

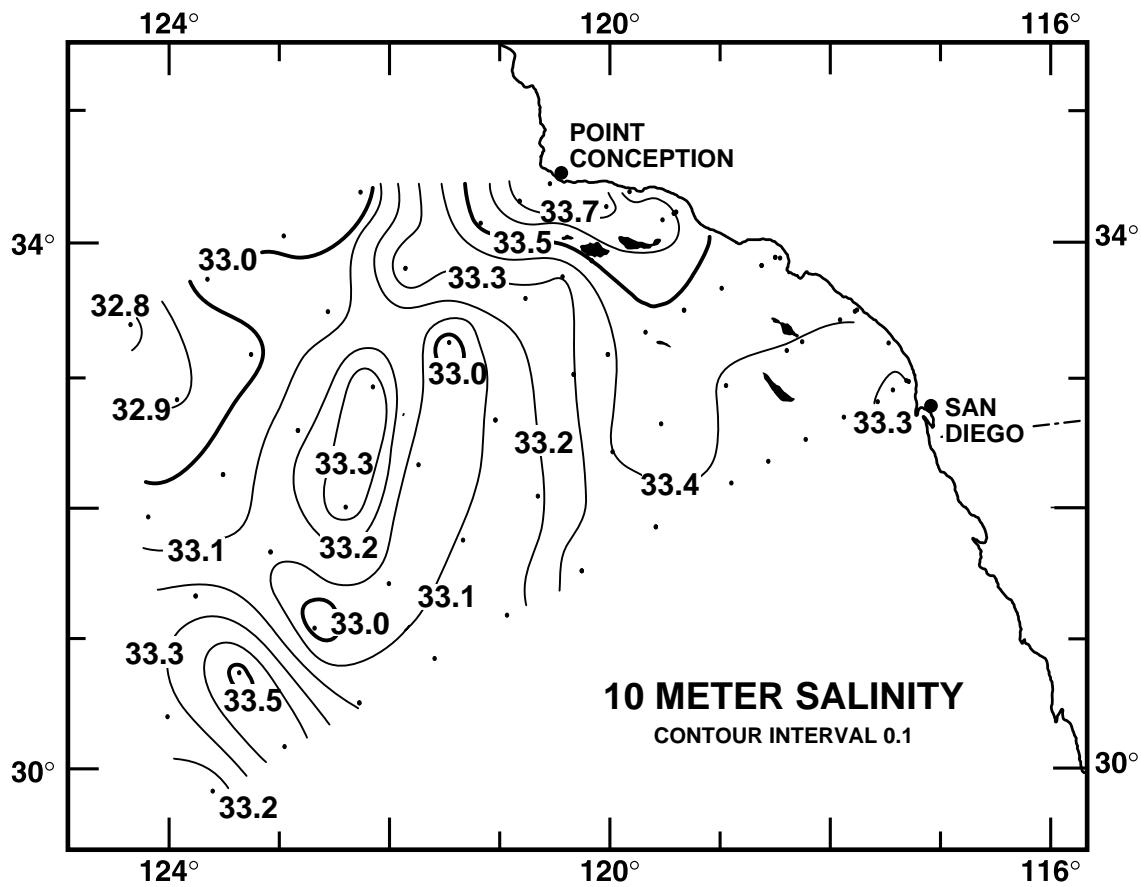
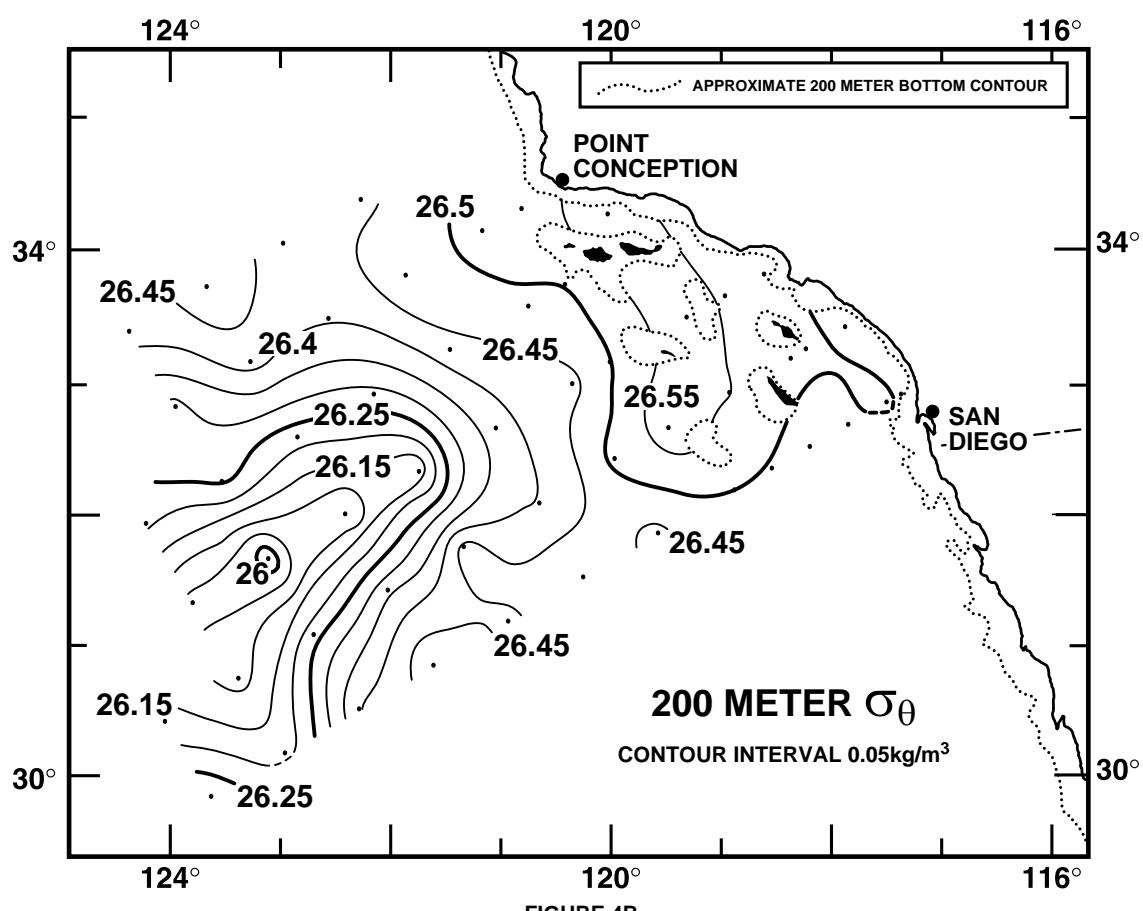
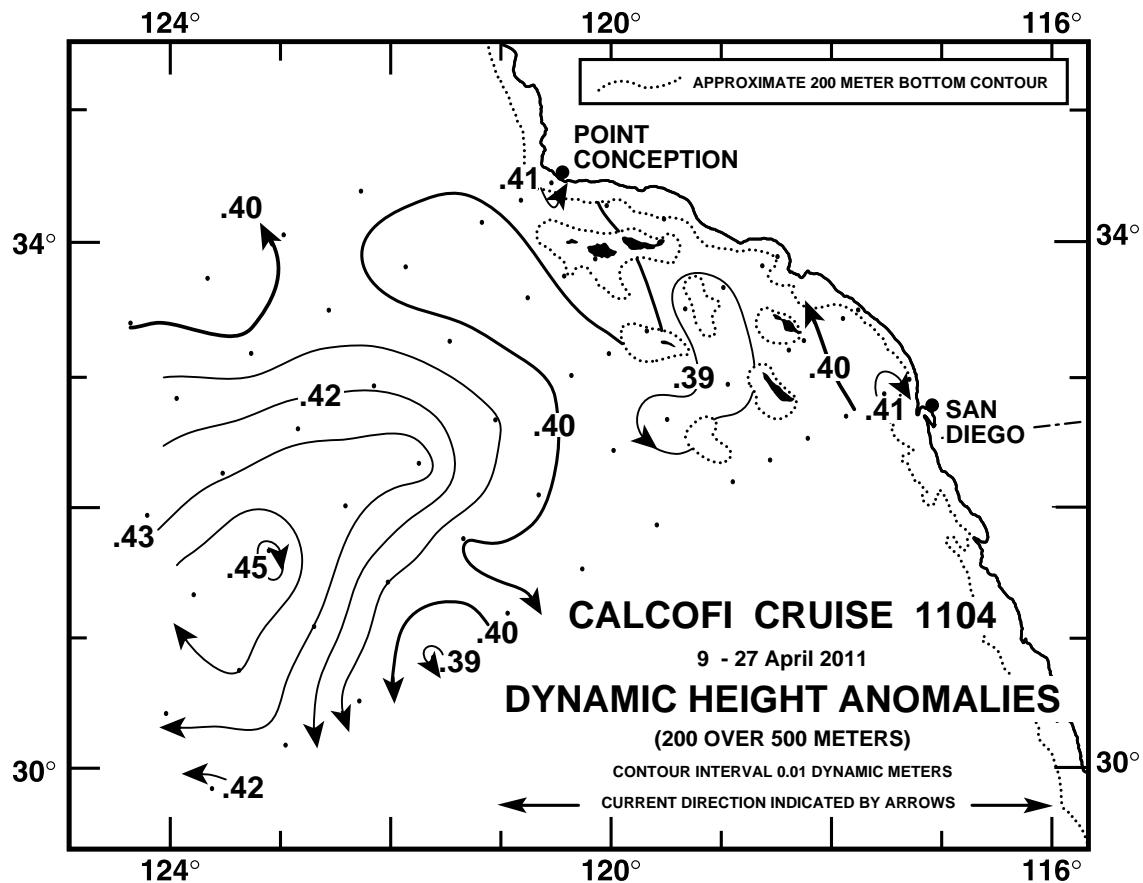


FIGURE 3D



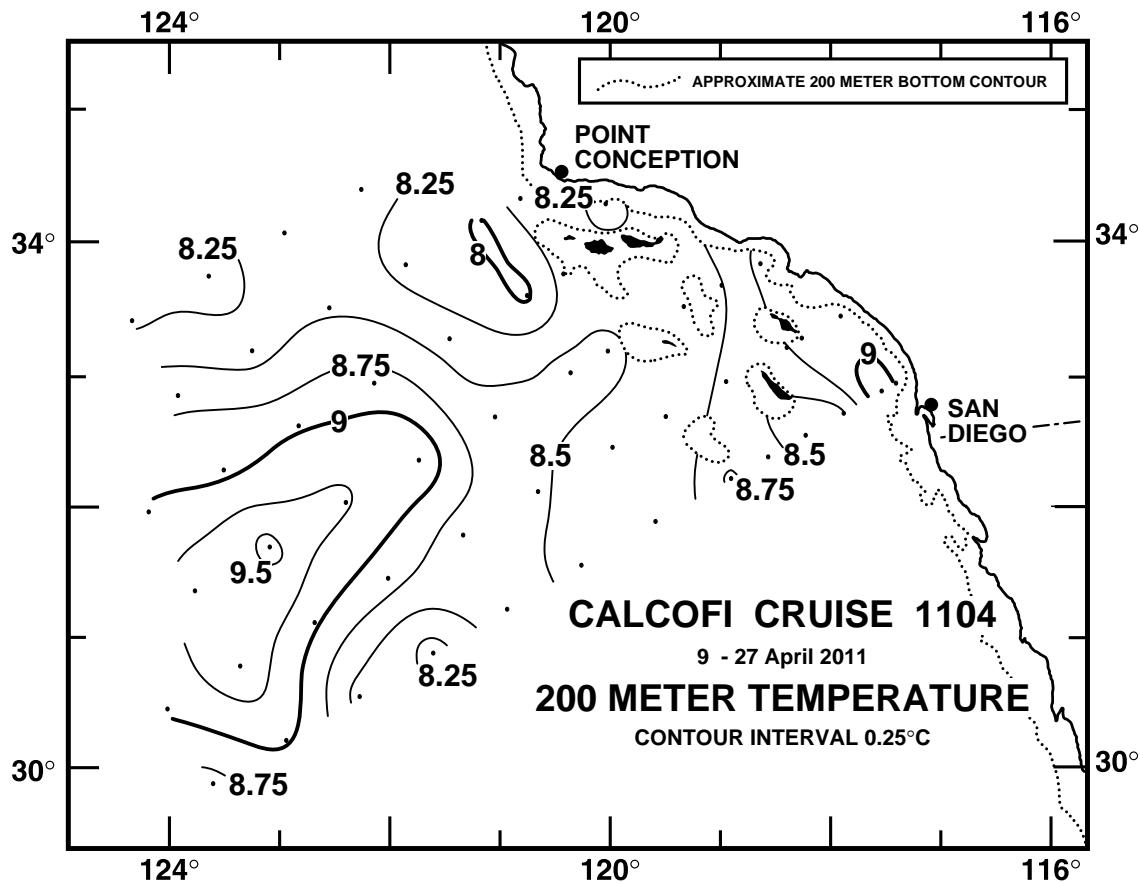


FIGURE 4C

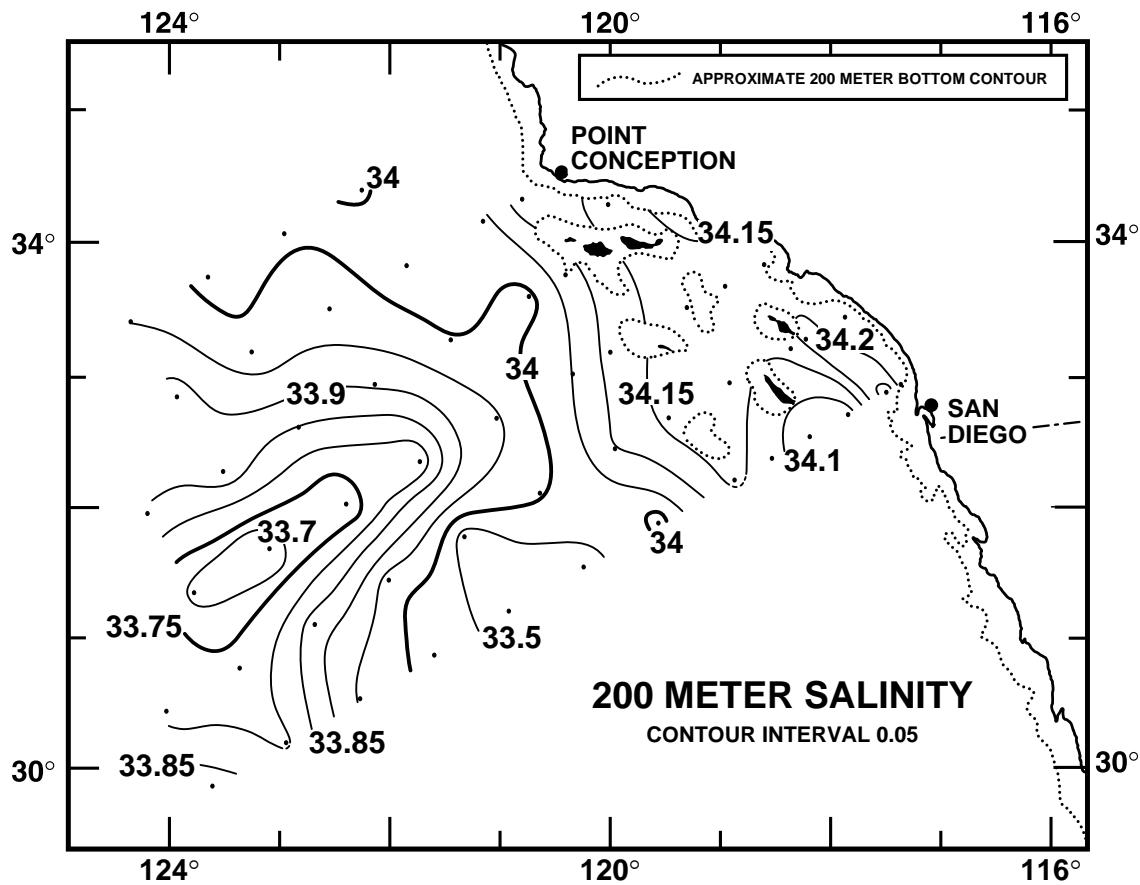


FIGURE 4D

CALCOFI CRUISE 1104

14 - 17 April 2011

POTENTIAL DENSITY (σ_0) ALONG CALCOFI LINE 90

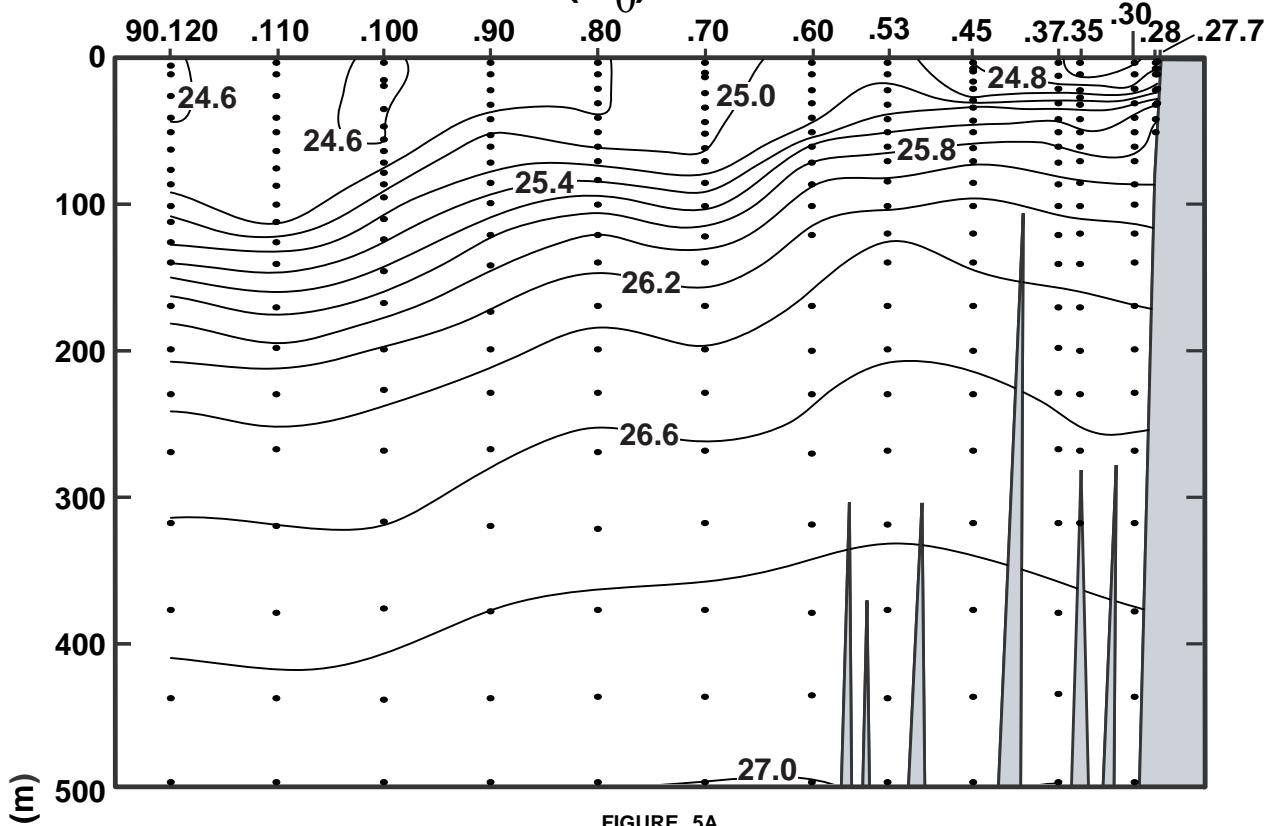


FIGURE 5A

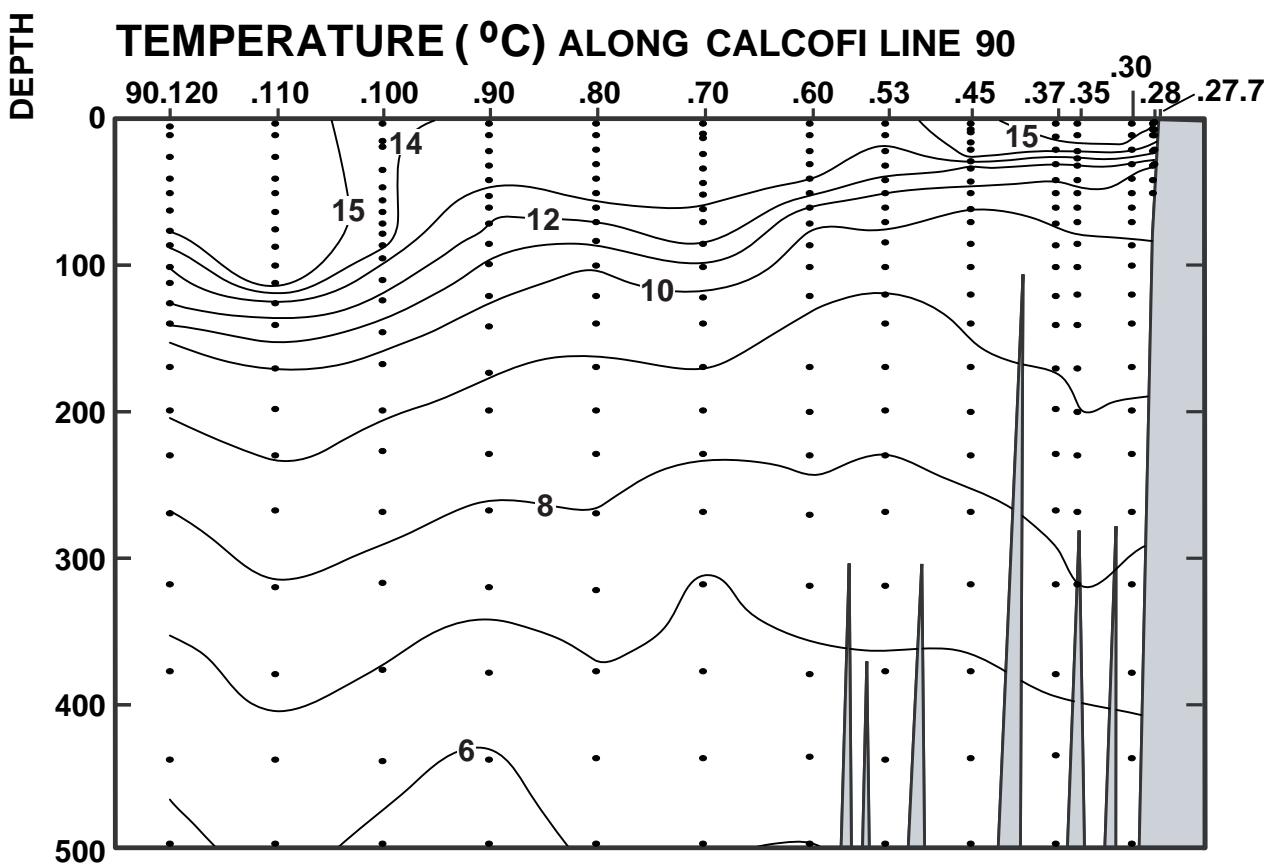


FIGURE 5B

CALCOFI CRUISE 1104

14 - 17 Month 2011

SALINITY ALONG CALCOFI LINE 90

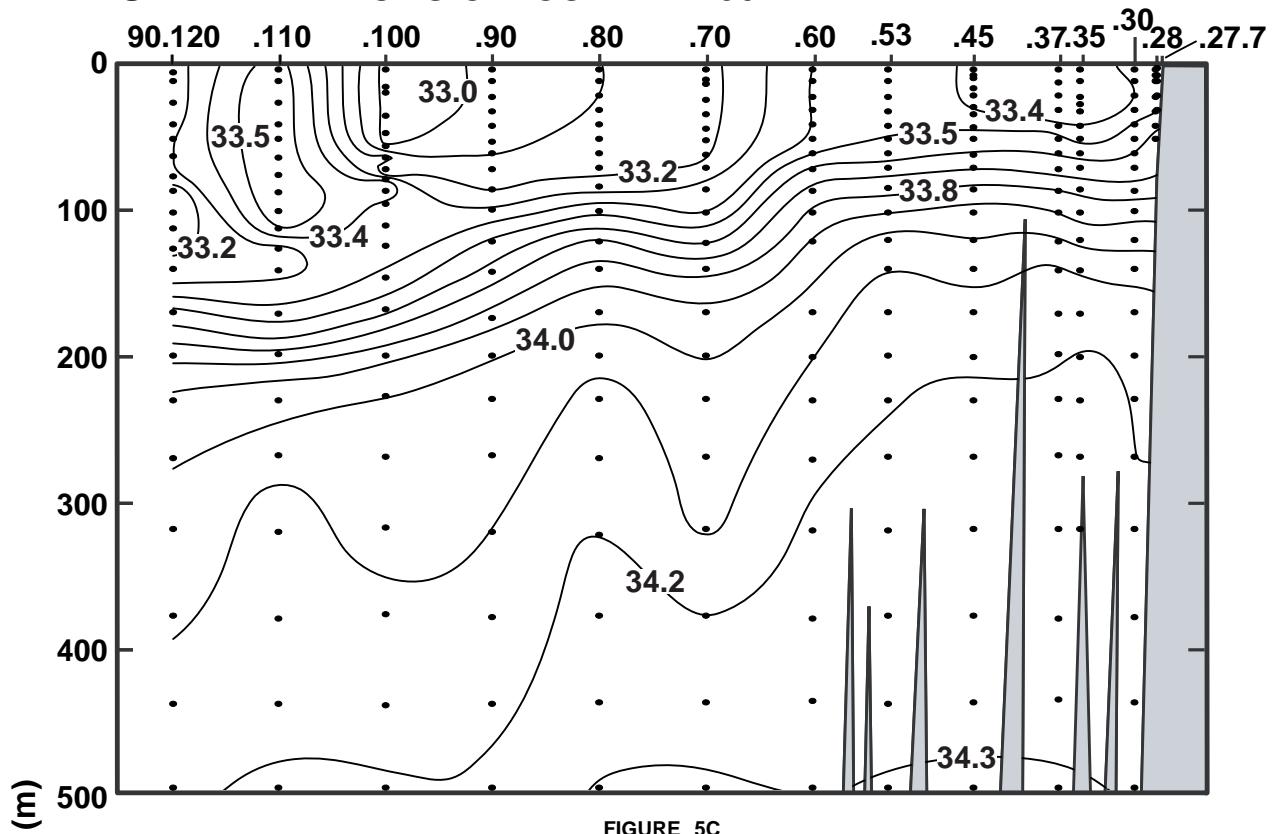


FIGURE 5C

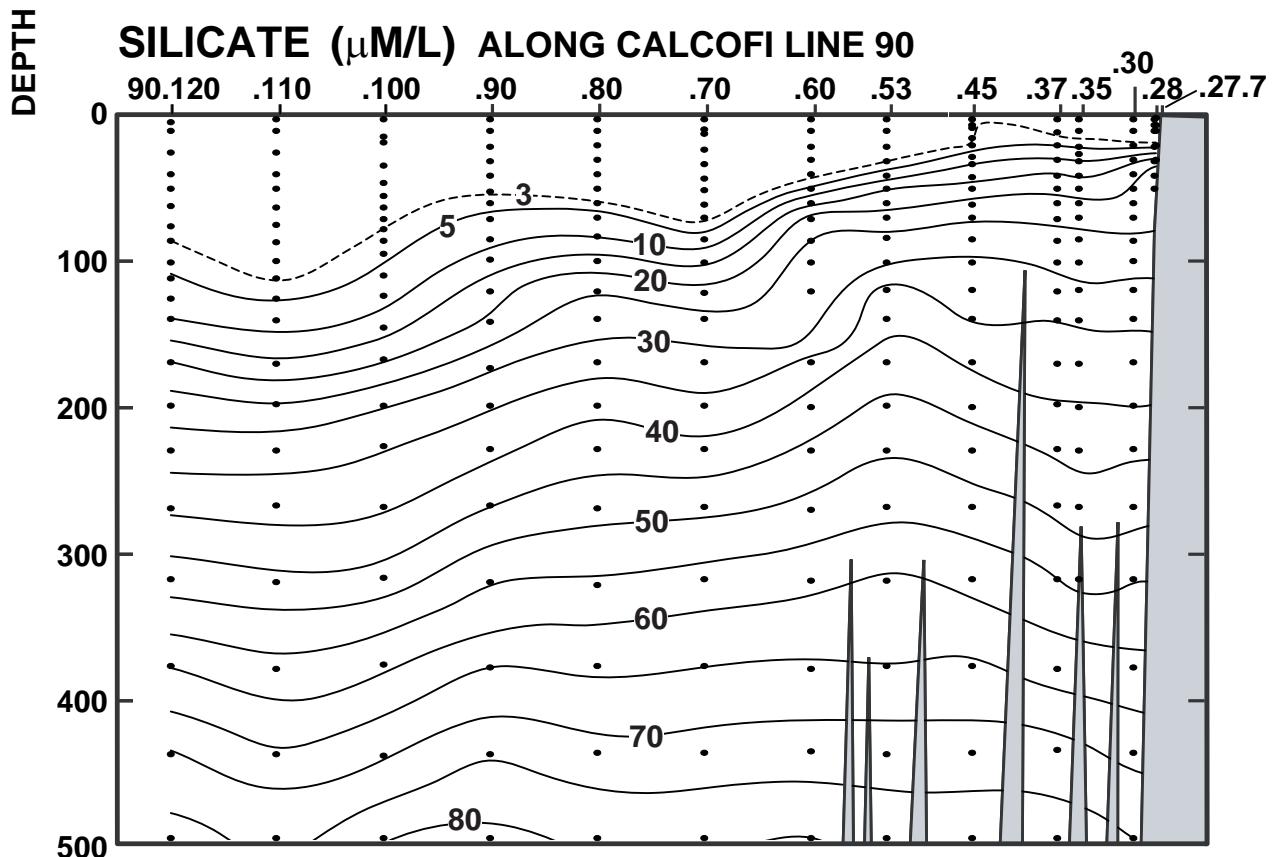
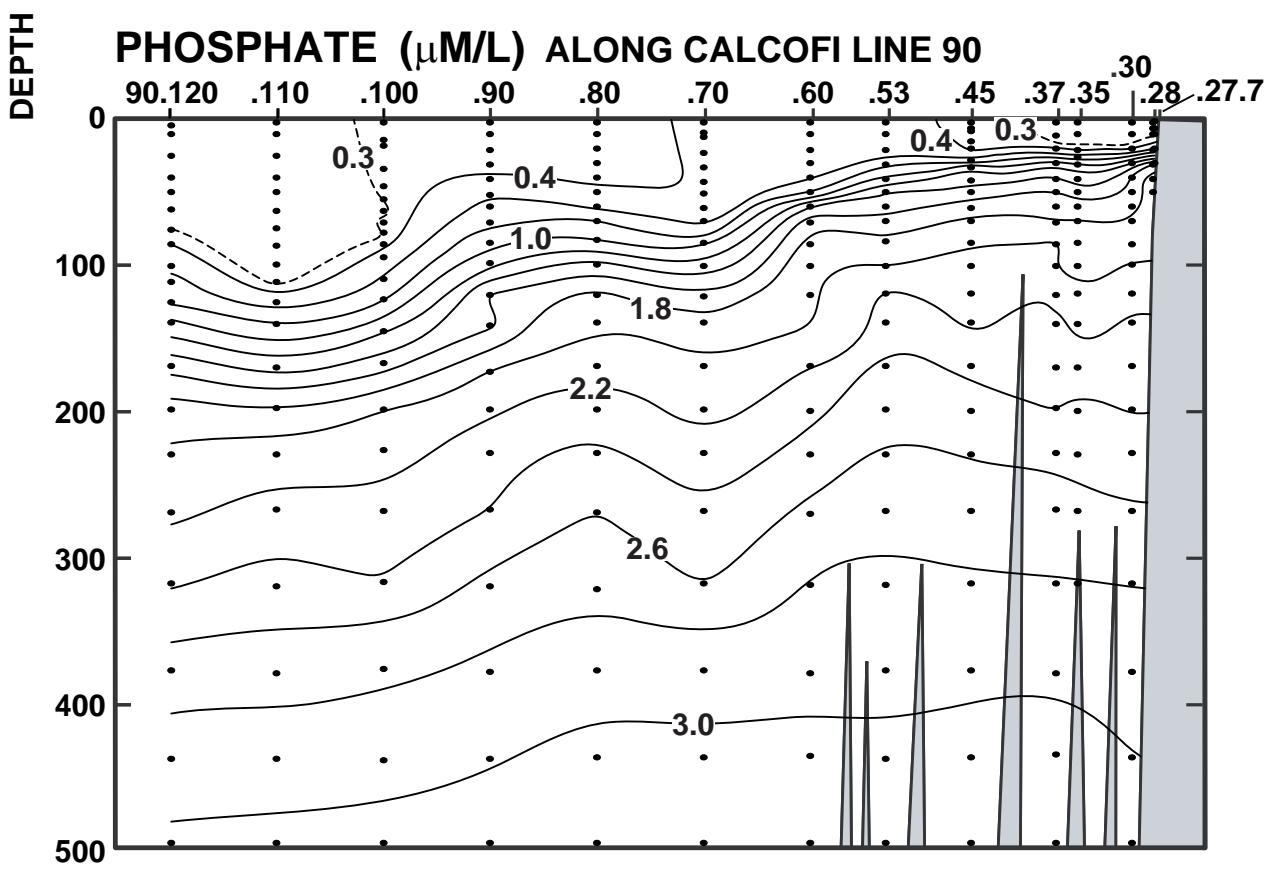
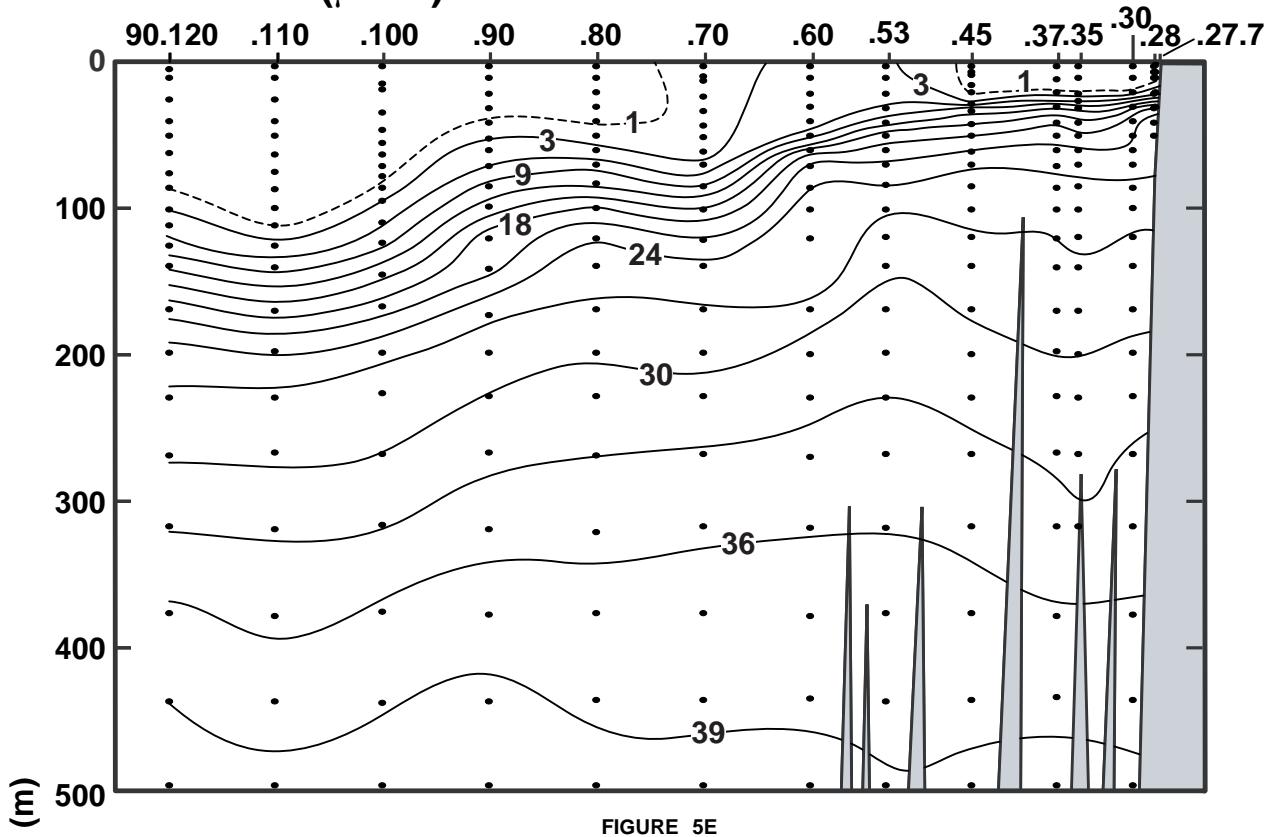


FIGURE 5D

CALCOFI CRUISE 1104

14 - 17 April 2011

NITRATE ($\mu\text{M/L}$) ALONG CALCOFI LINE 90



CALCOFI CRUISE 1104

14 - 17 April 2011

CHLOROPHYLL-a ($\mu\text{g/L}$) ALONG CALCOFI LINE 90

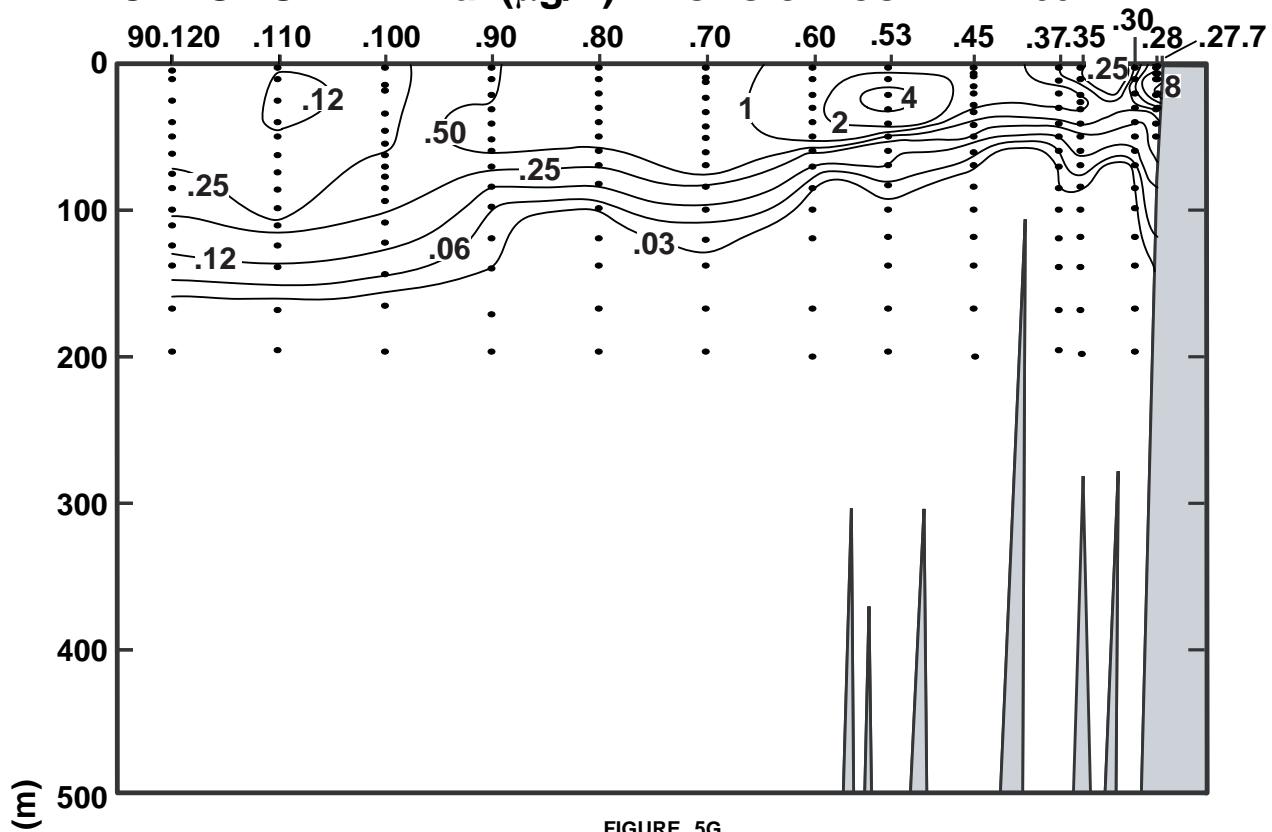


FIGURE 5G

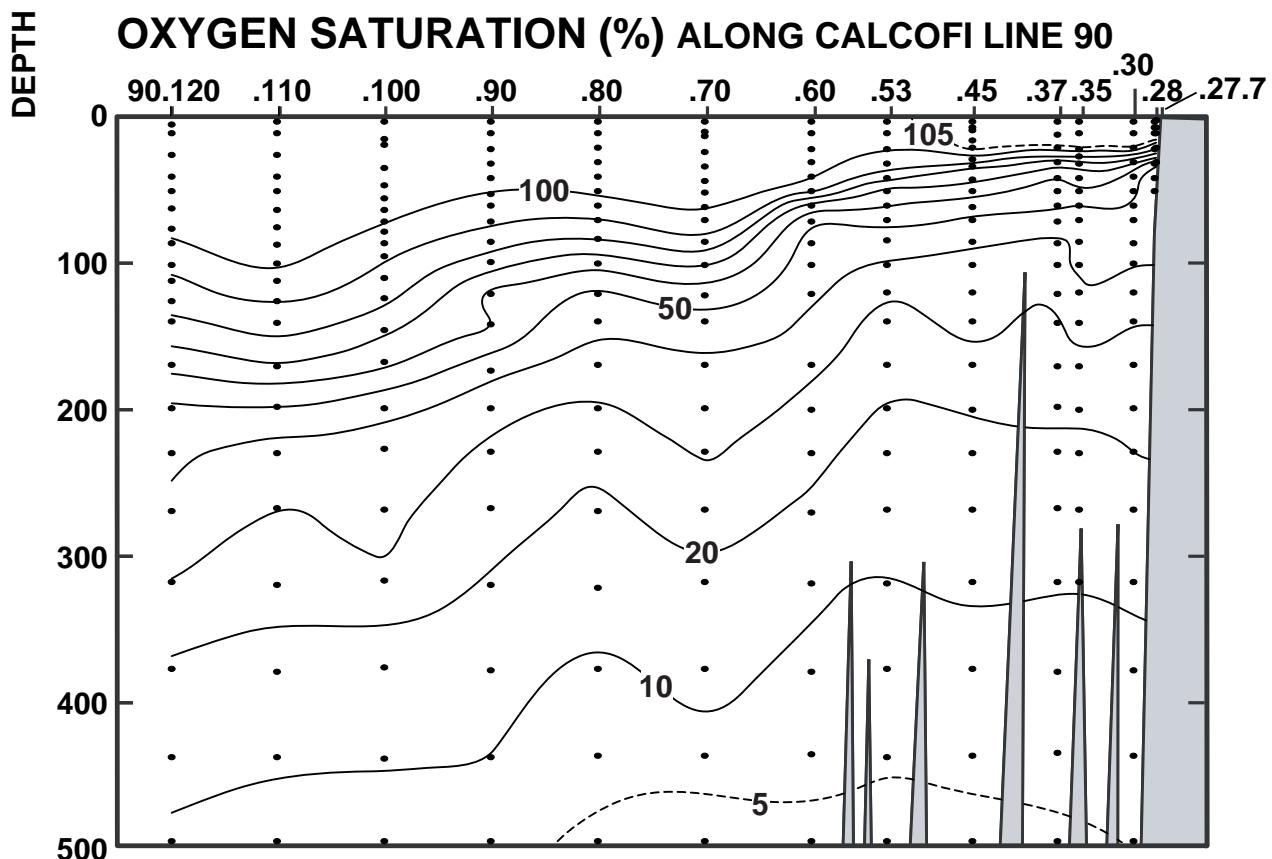
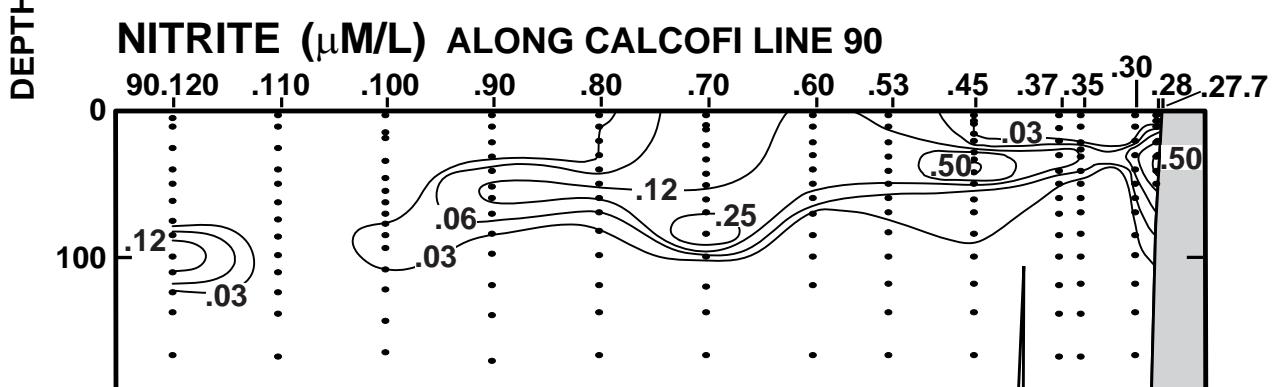
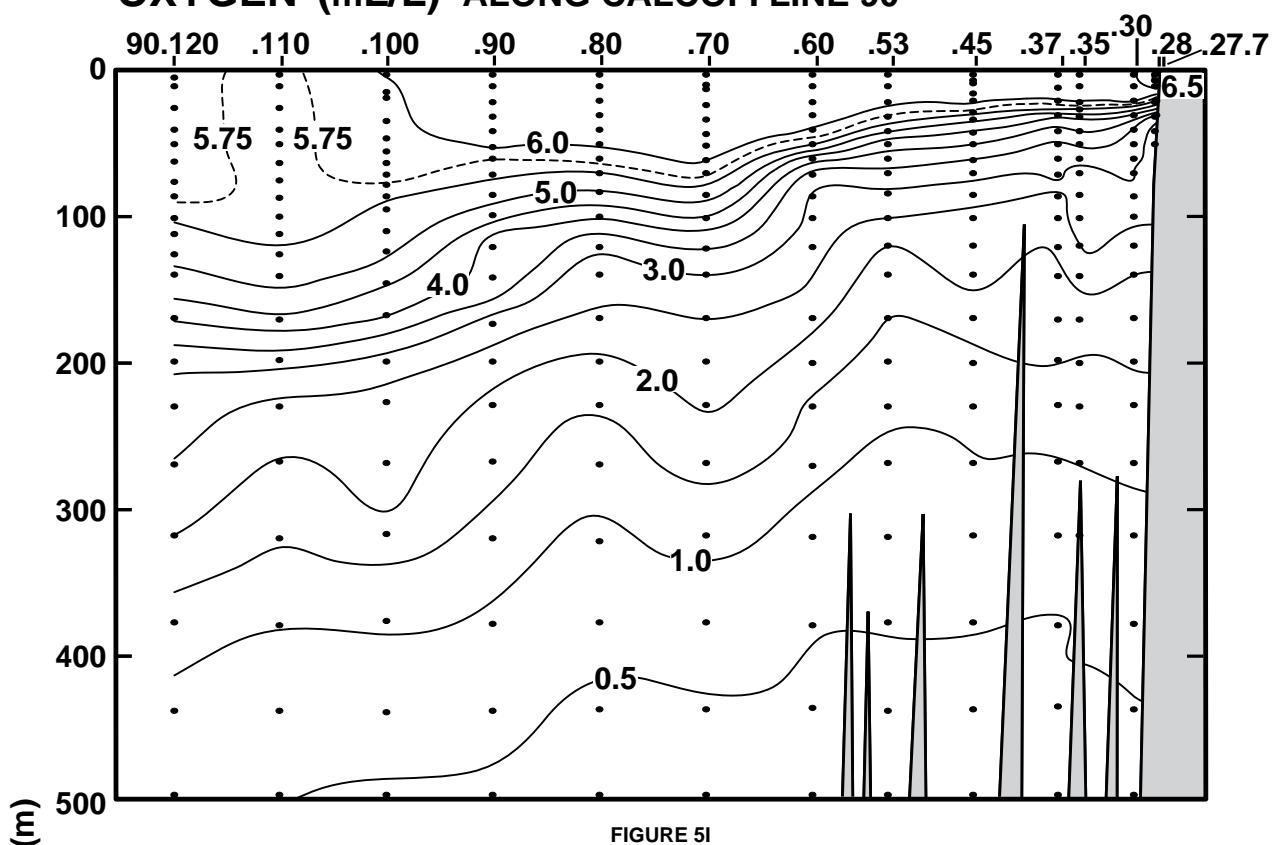


FIGURE 5H

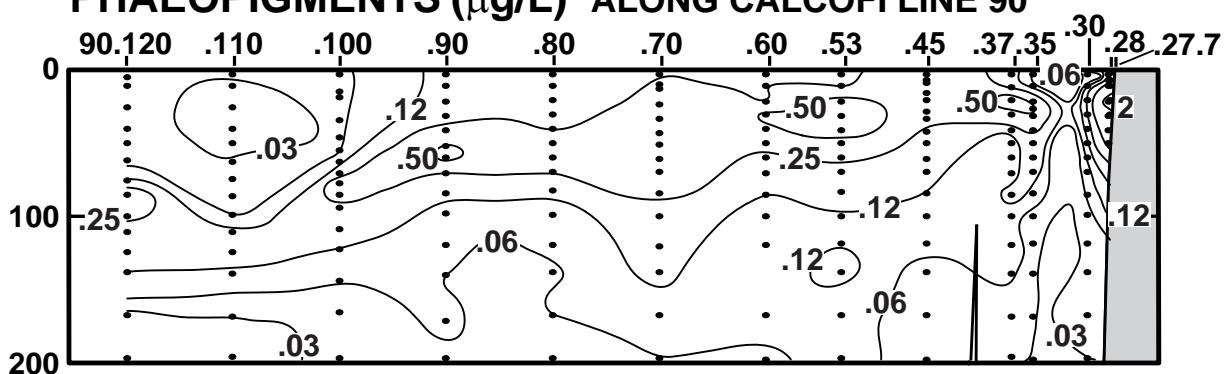
CALCOFI CRUISE 1104

14 - 17 April 2011

OXYGEN (mL/L) ALONG CALCOFI LINE 90



PHAEOPIGMENTS (μg/L) ALONG CALCOFI LINE 90



PERSONNEL

CalCOFI Cruise 1104

SHIP'S CAPTAIN

Todd Bridgeman, FSV Bell M. Shimada

PERSONNEL PARTICIPATING IN THE COLLECTION OF DATA

		Participating (Leg)
Griffith, David A (Chief Scientist)	Fishery Biologist, NMFS	3
Abramenkoff, Dimitry	Fishery Biologist, NMFS	3
Breese, Dawn	Bird Observer, FIAER	3
Dovel, Shonna	Staff Research Associate, SIO	3
Charter, Sherri	Fishery Biologist, NMFS	3
Cutter, Randy	Acoustic Technician, SWFSC	3
Faber, David	Staff Research Associate, SIO	3
Miller, Melissa	Staff Research Associate, SIO	3
Roadman, Megan	Staff Research Associate, SIO	3
Rodgers-Wolgast, Jennifer	Staff Research Associate, SIO	3
Simonis, Anne	Marine Mammal Acoustician, MPL	3
Will, Ian	Staff Research Associate, SIO	3
Wilkinson, James	Staff Research Associate, SIO	3
Whitaker, Katherine	Marine Mammal Observer, MPL	3
Wolgast, David	Staff Research Associate, SIO	3

San Diego to San Diego, California, 7 Apr. – 27 Apr., 2011

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 76.7 70.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	N03	N02	NH4	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C	THETA			ml/l	pct	um/l	um/l	um/l	um/l	um/l	um/l	ug/l	ug/l	db	
0 ISL	13.95	13.95	32.930	24.599	333.0	0.000	6.04	102.6	2.4	0.30	0.0	0.00	0.00	0.17	0.04	0	
2	13.95	13.95	32.930	24.599	333.0	0.007	6.04	102.6	2.4	0.30	0.0	0.00	0.00	0.17	0.04	2	221
10 ISL	13.92	D 13.92	32.933 D	24.608	332.4	0.033	6.11	D 103.8	2.4	0.30	0.0	0.00	0.00	0.17	0.04	10	
11	13.92	13.92	32.929	24.604	332.7	0.037	6.06	102.9	2.4	0.30	0.0	0.00	0.00	0.17	0.04	11	219
11	13.91	13.91	32.929	24.607	332.5	0.037										11	220
20	13.59	13.59	32.978	24.710	322.9	0.066	6.16	103.9	1.9	0.31	0.0	0.00	0.00	0.38	0.09	20	218
30	13.64	13.64	33.008	24.723	321.9	0.098	6.17	104.2	1.7	0.31	0.1	0.00	0.00	0.44	0.12	30	217
41	13.19	13.18	33.035	24.835	311.6	0.133	6.16	103.1	2.5	0.38	1.0	0.04	0.00	0.63	0.19	41	216
50 ISL	12.95	D 12.94	33.121 D	24.949	300.9	0.161	6.03	D 100.5	3.0	0.49	2.3	0.13	0.37	0.45	0.23	50	
51	12.95	12.94	33.118	24.947	301.2	0.164	6.00	100.0	3.0	0.50	2.5	0.14	0.41	0.42	0.23	51	215
60	12.71	12.70	33.117	24.993	297.0	0.191	5.85	97.0	3.6	0.57	3.3	0.27	0.42	0.38	0.20	60	214
71	11.24	11.23	33.053	25.219	275.6	0.222	5.48	88.0	6.7	0.82	7.5	0.17	0.00	0.23	0.13	71	213
75 ISL	10.73	D 10.72	33.078 D	25.329	265.2	0.233	5.36	D 85.1	8.8	0.97	10.0	0.12	0.00	0.18	0.12	75	
85	10.50	10.49	33.310	25.550	244.4	0.258	4.52	71.5	13.8	1.34	15.8	0.01	0.00	0.09	0.10	85	212
100 ISL	10.10	D 10.09	33.395 D	25.684	231.9	0.294	4.22	D 66.2	16.9	1.51	18.5	0.01	0.00	0.06	0.07	100	
101	10.10	10.09	33.392	25.682	232.1	0.296	4.12	64.7	17.0	1.51	18.6	0.01	0.00	0.06	0.07	101	211
121	9.37	9.36	33.582	25.951	206.8	0.340	3.44	53.2	23.5	1.81	23.3	0.00	0.00	0.03	0.05	122	210
125 ISL	9.31	D 9.30	33.628 D	25.997	202.5	0.349	3.36	D 51.9	24.4	1.84	23.8	0.00	0.00	0.03	0.05	126	
140	9.17	9.15	33.742	26.109	192.2	0.378	3.05	47.0	27.1	1.94	25.4	0.00	0.00	0.01	0.05	141	209
150 ISL	9.04	D 9.02	33.816 D	26.188	184.9	0.397	2.93	D 45.0	29.0	2.01	26.5	0.00	0.00	0.01	0.05	151	
170	8.80	8.78	33.905	26.295	175.0	0.433	2.45	37.5	32.7	2.13	28.3	0.00	0.00	0.00	0.06	171	208
200	8.36	8.34	33.994	26.433	162.3	0.484	2.13	32.3	37.6	2.26	30.2	0.00	0.00	0.01	0.07	201	207
230	8.06	8.04	34.022	26.501	156.4	0.531	1.97	29.7	41.1	2.33	31.3	0.00	0.00		231	206	
250 ISL	7.84	D 7.82	34.044 D	26.551	151.9	0.562	1.80	D 27.0	44.9	2.41	32.5	0.00	0.00		251		
270	7.45	7.42	34.060	26.619	145.5	0.592	1.57	23.3	49.0	2.51	33.7	0.00	0.00		272	205	
300 ISL	7.51	D 7.48	34.152 D	26.684	140.0	0.635	1.11	D 16.5	53.7	2.68	34.8	0.00	0.00		302		
321	7.43	7.40	34.182	26.719	137.0	0.664	0.87	12.9	56.6	2.78	35.3	0.00	0.00		323	204	
380	6.97	6.93	34.206	26.802	129.7	0.743	0.66	9.7	63.6	2.89	36.7	0.00	0.00		382	203	
400 ISL	6.73	D 6.69	34.195 D	26.827	127.5	0.768	0.67	D 9.8	66.9	2.92	37.6	0.00	0.00		403		
442	6.00	5.96	34.148	26.884	121.9	0.821	0.69	9.9	73.9	2.98	39.4	0.00	0.00		445	202	
500 ISL	5.51	D 5.47	34.163 D	26.957	115.3	0.889	0.60	D 8.5	80.3	3.08	40.5	0.00	0.00		503		
517	5.61	5.57	34.204	26.978	113.7	0.909	0.44	6.3	82.2	3.11	40.8	0.00	0.00		521	201	

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED S; CRUISE CORRECTED 1° 02';

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 76.7 80.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	N03	N02	NH4	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C	THETA			ml/l	pct	um/l	um/l	um/l	um/l	um/l	um/l	ug/l	ug/l	db	
0 ISL	14.34	14.34	32.950	24.533	339.2	0.000	6.02	D 103.1	2.3	0.30	0.0	0.00	0.03	0.16	0.04	0	
2 A	14.34	14.34	32.950	24.533	339.3	0.007	6.02	D 103.1	2.3	0.30	0.0	0.00	0.03	0.16	0.04	2	223
10 ISL	14.27	D 14.27	32.953 D	24.550	337.9	0.034	6.03	D 103.1	2.3	0.30	0.0	0.00	0.03	0.18	0.03	10	
11 A	14.26	14.26	32.950	24.550	337.9	0.037	5.99	102.4	2.3	0.30	0.0	0.00	0.03	0.18	0.03	11	222
16 A	14.25	14.25	32.949	24.552	337.9	0.054	6.01	102.8	2.3	0.29	0.0	0.00	0.00	0.17	0.06	16	221
20 ISL	14.24	D 14.24	32.952 D	24.556	337.6	0.068	6.03	D 103.1	2.3	0.29	0.0	0.00	0.00	0.18	0.05	20	
30 A	14.22	14.22	32.947	24.557	337.8	0.101	5.99	102.3	2.3	0.29	0.0	0.00	0.00	0.20	0.02	30	220
37	14.16	14.15	32.955	24.576	336.2	0.125	6.00	102.4	2.3	0.29	0.0	0.00	0.00	0.23	0.03	37	219
46	13.11	13.10	32.977	24.806	314.5	0.154	6.35	106.0	2.5	0.32	0.2	0.00	0.00	0.82	0.17	46	218
50 ISL	12.69	D 12.68	33.017 D	24.920	303.7	0.167	6.36	D 105.3	2.6	0.36	0.7	0.02	0.04	0.79	0.21	50	
55 A	12.74	12.73	33.033	24.922	303.6	0.182	6.18	102.4	2.8	0.42	1.5	0.05	0.08	0.67	0.24	55	217
61	12.53	12.52	33.033	24.963	299.9	0.200	6.04	99.7	3.1	0.48	2.2	0.09	0.36	0.67	0.25	61	216
67 A	12.29	12.28	33.017	24.997	296.8	0.218	5.95	97.7	3.5	0.53	2.7	0.14	0.49	0.48	0.21	67	215
75	12.25	12.24	33.047	25.028	294.0	0.241	5.95	97.6	3.6	0.56	3.1	0.13	0.51	0.49	0.16	75	214
85	10.81	10.80	33.036	25.282	269.8	0.270	5.34	84.9	7.7	0.85	8.3	0.06	0.00	0.21	0.10	85	213
96	10.48	10.47	33.175	25.448	254.3	0.298	4.87	77.0	11.3	1.12	12.7	0.01	0.00	0.15	0.08	96	212
100 ISL	10.33	D 10.32	33.247 D	25.530	246.6	0.309	4.81	D 75.8	13.4	1.25	14.8	0.01	0.00	0.11	0.07	100	
110	9.71	9.70	33.442	25.786	222.3	0.332	3.98	62.0	19.0	1.56	19.8	0.00	0.00	0.03	0.05	111	211
125 ISL	9.25	D 9.24	33.665 D	26.036	198.8	0.364	3.32	D 51.2	24.8	1.81	23.8	0.00	0.00	0.01	0.06	126	
126	9.25	9.24	33.655	26.028	199.6	0.366	3.34	51.5	25.1	1.82	24.0	0.00	0.00	0.01	0.06	127	210
145	9.05	9.03	33.758	26.141	189.2	0.402	2.98	45.8	28.3	1.95	26.1	0.00	0.00	0.01	0.06	146	209
150 ISL	9.02	D 9.00	33.784 D	26.166	186.9	0.412	2.94	D 45.2	29.3	1.99	26.7	0.00	0.00	0.01	0.06	151	
171	8.76	8.74	33.923	26.316	173.1	0.450	2.41	36.8	33.3	2.14	28.7	0.00	0.00	0.00	0.05	172	208
200	8.34	8.32	34.003	26.443	1												

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 76.7 90.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SV	DYN HT	OXYGEN	OXY	SIO3	P04	N03	N02	NH4	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C	THETA			ml/l	PCT	uM/l		uM/l	uM/l	uM/l	uM/l	ug/l	ug/l	db	
0 ISL	13.88	13.88	33.062	24.715	321.9	0.000	6.11	103.8	2.4	0.34	0.3	0.01	0.39	0.31	0.07	0	
2	13.88	13.88	33.062	24.715	321.9	0.006	6.11	103.8	2.4	0.34	0.3	0.01	0.39	0.31	0.07	2	220
10	13.88	13.88	33.062	24.715	322.1	0.032	6.13	104.1	2.4	0.33	0.3	0.01	0.21	0.30	0.06	10	219
20	13.88	13.88	33.062	24.716	322.4	0.064	6.11	103.7	2.3	0.33	0.3	0.01	0.22	0.32	0.09	20	218
30	13.63	13.63	33.036	24.747	319.7	0.097	6.19	104.5	2.4	0.35	0.4	0.01	0.34	0.36	0.09	30	217
40	12.27	12.26	32.983	24.974	298.3	0.127	6.20	101.7	3.5	0.49	2.2	0.07	0.08	0.51	0.18	40	216
50	12.38	12.37	33.227	25.142	282.5	0.156	6.01	99.0	3.6	0.65	4.7	0.14	0.56	0.58	0.28	50	215
60	11.92	11.91	33.202	25.210	276.3	0.184	5.75	93.8	4.8	0.75	6.1	0.22	0.46	0.42	0.19	60	214
70	10.83	10.82	33.205	25.410	257.4	0.211	5.09	81.1	9.9	1.08	11.5	0.14	0.07	0.23	0.14	70	213
75 ISL	10.43	D 10.42	33.356 D	25.597	239.6	0.224	4.63	D 73.2	13.4	1.31	15.1	0.09	0.05	0.19	0.13	75	
86	10.04	10.03	33.502	25.778	222.7	0.249	3.58	56.2	20.2	1.72	21.6	0.00	0.00	0.14	0.10	86	212
100	9.33	9.32	33.588	25.962	205.3	0.279	3.65	56.4	22.8	1.74	22.5	0.01	0.00	0.05	0.06	100	211
119	8.93	8.92	33.687	26.103	192.2	0.317	3.08	47.2	2.78	1.98	26.0	0.00	0.01	0.02	0.11	120	210
125 ISL	8.91	D 8.90	33.733 D	26.143	188.6	0.328	3.05	D 46.7	28.8	2.03	26.6	0.00	0.04	0.02	0.11	126	
140	8.89	8.88	33.833	26.224	181.2	0.356	2.59	39.7	31.0	2.11	27.7	0.00	0.12	0.01	0.10	141	209
150 ISL	8.70	D 8.68	33.891 D	26.300	174.2	0.374	2.57	D 39.2	32.7	2.16	28.4	0.00	0.10	0.01	0.09	151	
169	8.55	8.53	33.981	26.394	165.6	0.406	2.19	33.3	35.9	2.23	29.6	0.00	0.04	0.00	0.08	170	208
200	8.10	8.08	34.016	26.490	156.9	0.456	2.02	30.4	40.3	2.32	31.1	0.00	0.03	0.00	0.05	201	207
230	7.79	7.77	34.055	26.566	150.0	0.502	1.65	24.7	45.0	2.47	32.9	0.00	0.00			231	206
250 ISL	7.49	D 7.47	34.064 D	26.617	145.4	0.531	1.59	D 23.6	49.0	2.56	34.1	0.00	0.00			251	
270	7.28	7.25	34.083	26.661	141.4	0.560	1.30	19.2	53.1	2.64	35.2	0.00	0.00			272	205
300 ISL	6.96	D 6.93	34.105 D	26.723	135.8	0.602	1.13	D 16.6	58.0	2.74	36.5	0.00	0.00			302	
320	6.65	6.62	34.087	26.751	133.3	0.629	1.11	16.2	61.1	2.79	37.2	0.00	0.00			322	204
380	5.90	5.87	34.090	26.850	124.2	0.706	0.95	13.6	71.8	2.93	39.2	0.00	0.00			382	203
400 ISL	5.82	D 5.79	34.126 D	26.889	120.7	0.730	0.77	D 11.0	75.1	2.97	39.8	0.00	0.00			403	
440	5.49	5.45	34.137	26.938	116.3	0.778	0.64	9.1	81.2	3.05	40.8	0.00	0.00			443	202
500 ISL	5.21	D 5.17	34.182 D	27.007	110.2	0.846	0.49	D 6.9	88.0	3.14	41.7	0.00	0.00			503	
518	5.20	5.16	34.211	27.032	108.1	0.865	0.37	5.2	90.1	3.17	42.0	0.00	0.00			522	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED S; CRUISE CORRECTED 1° 02';

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 76.7 100.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SV	DYN HT	OXYGEN	OXY	SIO3	P04	N03	N02	NH4	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C	THETA			ml/l	PCT	uM/l		uM/l	uM/l	uM/l	uM/l	ug/l	ug/l	db	
0 ISL	13.58	13.58	32.773	24.553	337.3	0.000	6.14	103.4	1.8	0.31	0.0	0.00	0.00	0.13	0.03	0	
3	13.58	13.58	32.773	24.553	337.4	0.010	6.14	103.4	1.8	0.31	0.0	0.00	0.00	0.13	0.03	3	220
10	13.59	13.59	32.773	24.551	337.8	0.034	6.13	103.3	1.8	0.31	0.0	0.00	0.04	0.13	0.03	10	219
20 ISL	13.47	D 13.47	32.771 D	24.574	335.9	0.067	6.23	D 104.7	1.6	0.31	0.0	0.00	0.05	0.16	0.04	20	
25	12.96	12.96	32.725	24.640	329.7	0.084	6.30	104.7	1.5	0.31	0.0	0.00	0.06	0.18	0.05	25	218
30 ISL	12.40	D 12.40	32.691 D	24.722	322.0	0.100	6.49	D 106.6	1.6	0.33	0.1	0.01	0.06	0.26	0.09	30	
41	12.43	12.42	32.814	24.812	313.7	0.135	6.27	103.1	1.8	0.38	0.2	0.02	0.09	0.48	0.16	41	217
50 ISL	12.10	D 12.09	32.776 D	24.845	310.7	0.163	6.42	D 104.8	1.8	0.38	0.3	0.02	0.15	0.65	0.16	50	
51	12.08	12.07	32.771	24.845	310.8	0.167	6.34	103.5	1.8	0.38	0.3	0.02	0.16	0.67	0.16	51	216
63	11.94	11.93	32.799	24.893	306.5	0.204	6.23	101.4	1.9	0.45	0.9	0.06	0.38	0.67	0.16	63	215
75	12.58	12.57	33.051	24.968	299.8	0.240	6.17	101.9	2.9	0.53	2.7	0.07	0.48	0.51	0.19	75	214
86	12.03	12.02	33.057	25.077	289.6	0.272	5.98	97.7	4.4	0.63	4.1	0.12	0.56	0.29	0.11	86	213
100	11.53	11.52	33.059	25.172	280.8	0.312	5.75	92.9	5.9	0.72	5.7	0.17	0.44	0.19	0.11	100	212
111	10.15	10.14	33.171	25.501	249.5	0.341	5.04	79.1	10.8	1.00	11.3	0.01	0.00	0.08	0.06	112	211
125	9.58	9.57	33.304	25.700	230.8	0.375	4.66	72.3	15.7	1.27	15.8	0.00	0.00	0.04	0.04	126	210
141	8.80	8.79	33.604	26.059	196.8	0.409	4.03	61.5	23.8	1.60	21.6	0.00	0.00	0.01	0.03	142	209
150 ISL	8.73	D 8.71	33.697 D	26.143	189.0	0.427	3.74	D 57.0	26.9	1.73	23.7	0.00	0.00	0.01	0.03	151	
170	8.49	8.47	33.843	26.295	174.9	0.463	3.09	66.9	31.7	1.93	26.6	0.00	0.00	0.01	0.04	171	208
200 ISL	8.18	D 8.16	33.951 D	26.427	162.9	0.514	2.73	D 41.2	36.0	2.06	28.6	0.00	0.00	0.01	0.03	201	
201	8.19	8.17	33.945	26.420	163.5	0.515	2.71	40.9	36.1	2.06	28.6	0.00	0.00	0.01	0.03	202	207
231	7.81	7.79	33.991	26.513	155.1	0.563	2.32	34.7	41.5	2.22	30.8	0.00	0.00			232	206
250 ISL	7.65	D 7.63	34.034 D	26.570	149.9	0.592	1.85	D 27.6	45.1	2.36	32.3	0.00	0.00			251	
270	7.59	7.56	34.076	26.612	146.3	0.622	1.53	22.8	49.0	2.51	33.8	0.00	0.00			272	205
300 ISL	6.96	D 6.93	34.062 D	26.689	139.0	0.665	1.43	D 21.0	54.8	2.61	35.4	0.00	0.00			302	
321	6.72	6.69	34.059	26.720	136.3	0.693	1.38	20.1	58.7	2.66	36.4	0.00	0.00			323	204
380	6.43	6.40	34.167	26.844	125.3	0.771	0.65	9.4	69.1	2.95	38.8	0.00	0.00			382	203
400 ISL	6.29	D 6.25	34.179 D	26.872	122.8	0.795	0.60	D 8.7	71.8	3.00	39.3	0.00	0.00			403	
441	6.01	5.97	34.195														

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 80.0 55.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE
34 19.1 N	120 48.2 W	23/04/11	1247	UTC	740 m	330	13 kn	340 07 08	1	1015.2 mb	12.3 C	10.9 C	4/8		AC	
0 ISL	11.06	11.06	33.721	25.769	221.6	0.000	5.22	83.9	15.3	1.28	13.5	0.21	0.31	7.48	1.31	0
2	11.06	11.06	33.721	25.769	221.6	0.004	5.22	83.9	15.3	1.28	13.5	0.21	0.31	7.48	1.31	2 221
10	11.06	11.06	33.721	25.770	221.8	0.022	5.19	83.4	15.3	1.32	13.6	0.21	0.33	7.48	1.44	10 219
10	11.06	11.06	33.722	25.770	221.7	0.022										10 220
20 ISL	11.01	11.01	33.722	D 25.780	221.1	0.044	4.95	D 79.4	16.0	1.34	14.3	0.21	0.39	6.71	1.47	20
21	11.03	11.03	33.719	25.774	221.7	0.047	4.95	79.5	16.1	1.34	14.4	0.21	0.40	6.58	1.47	21 218
29	10.96	10.96	33.722	D 25.789	220.5	0.064	4.83	77.4	16.5	1.40	15.0	0.22	0.53	5.17	1.21	29 217
30 ISL	10.73	D 10.73	33.725	D 25.832	216.4	0.066	4.58	D 73.1	16.9	1.43	15.4	0.22	0.59	4.70	1.13	30
40	10.29	10.29	33.717	25.902	209.9	0.088	4.09	64.6	21.8	1.76	19.9	0.23	1.09	0.31	0.39	40 216
50	9.90	9.89	33.790	26.025	198.4	0.108	3.25	50.9	25.5	1.92	22.9	0.18	0.68	0.22	0.45	50 215
60	9.61	9.60	33.861	26.129	188.7	0.127	2.60	40.5	29.3	2.06	25.4	0.18	0.18	0.18	0.45	60 214
70	9.31	9.30	33.985	26.275	175.0	0.146	1.97	30.5	33.9	2.23	27.9	0.08	0.00	0.12	0.38	70 213
75 ISL	9.28	D 9.27	33.999	D 26.291	173.6	0.154	1.97	D 30.5	34.2	2.24	28.0	0.06	0.00	0.10	0.36	75
85	9.23	9.22	34.014	26.311	171.9	0.172	1.89	29.2	34.8	2.26	28.2	0.04	0.00	0.08	0.35	85 212
100	9.06	9.05	34.052	26.368	166.8	0.197	1.62	25.0	37.9	2.36	29.5	0.02	0.00	0.05	0.34	101 211
120	9.03	9.02	34.069	26.387	165.4	0.230	1.58	24.3	38.2	2.37	29.6	0.02	0.00	0.05	0.25	121 210
125 ISL	9.03	D 9.02	34.076	D 26.392	165.0	0.239	1.58	D 24.3	38.5	2.38	29.7	0.02	0.00	0.05	0.25	126
140	8.94	8.92	34.092	26.419	162.7	0.263	1.48	22.7	39.7	2.41	30.1	0.03	0.00	0.05	0.25	141 209
150 ISL	8.84	D 8.82	34.122	D 26.459	159.1	0.279	1.43	D 21.9	41.2	2.45	30.5	0.03	0.00	0.05	0.27	151
170	8.70	8.68	34.132	26.489	156.7	0.311	1.24	19.0	43.8	2.53	31.1	0.02	0.00	0.04	0.29	171 208
200 ISL	8.41	D 8.39	34.137	D 26.538	152.5	0.357	1.40	D 21.3	44.0	2.51	31.5	0.01	0.00	0.03	0.19	201
201	8.41	8.39	34.133	26.535	152.8	0.359	1.39	21.1	44.0	2.51	31.5	0.01	0.00	0.03	0.19	202 207
230	8.18	8.16	34.181	26.608	146.3	0.402	1.12	16.9	47.9	2.62	32.7	0.00	0.00			231 206
250 ISL	8.09	D 8.06	34.200	D 26.636	143.9	0.431	1.03	D 15.5	49.6	2.66	33.1	0.00	0.00			252
269	7.99	7.96	34.201	26.652	142.7	0.458	0.97	14.6	51.0	2.69	33.4	0.00	0.00			271 205
300 ISL	7.80	D 7.77	34.221	D 26.696	139.0	0.502	0.85	D 12.7	53.6	2.74	34.0	0.00	0.00			302
320	7.69	7.66	34.222	26.713	137.7	0.530	0.78	11.7	55.3	2.77	34.4	0.00	0.00			322 204
379	7.39	7.35	34.235	26.767	133.4	0.610	0.66	9.8	59.7	2.85	35.5	0.00	0.00			382 203
400 ISL	7.23	D 7.19	34.248	D 26.800	130.5	0.637	0.62	D 9.2	61.8	2.89	36.0	0.00	0.00			403
440	6.85	6.81	34.247	26.852	125.9	0.689	0.53	7.8	66.7	2.98	37.2	0.00	0.00			443 202
500 ISL	5.74	D 5.70	34.161	D 26.927	118.4	0.762	0.63	D 9.0	77.1	3.05	39.6	0.00	0.00			504
517	5.72	5.68	34.180	26.945	116.9	0.782	0.55	7.8	80.0	3.07	40.3	0.00	0.00			521 201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED S; CRUISE CORRECTED 1° 02;

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 80.0 60.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE
34 9.0 N	121 9.3 W	23/04/11	1727	UTC	2162 m	300	04 kn	300 03 08	1	1016.8 mb	14.0 C	12.0 C	8m	4/8		AC
0 ISL	11.80	11.80	33.498	25.461	250.9	0.000	6.36	103.7	3.3	0.88	8.5	0.19	0.52	4.62	1.57	0
2 A	11.80	11.80	33.498	25.461	251.0	0.005	6.36	103.7	3.3	0.88	8.5	0.19	0.52	4.62	1.57	2 223
5 A	11.70	11.70	33.502	25.482	249.0	0.013	6.35	103.3	3.7	0.87	8.7	0.19	0.25	5.66	0.86	5 222
8 A	11.56	11.56	33.513	25.517	245.8	0.020	6.33	102.7	4.3	0.89	8.8	0.19	0.47	5.60	1.70	8 221
10 ISL	11.50 D 11.50	33.520	D 25.533	244.3	0.025	6.31	D 102.2	5.2	0.95	9.3	0.19	0.61	5.34	1.60	10	
14 A	11.44	11.44	33.542	25.562	241.7	0.035	6.03	97.6	7.3	1.08	10.4	0.20	0.85	4.66	1.41	14 219
14	11.44	11.44	33.536	25.557	242.1	0.035										14 220
20 ISL	11.45 D 11.45	33.566	D 25.578	240.2	0.049	5.91	D 95.7	7.9	1.12	10.8	0.21	0.95	3.99	1.75	20	
25 A	11.45	11.45	33.581	25.590	239.2	0.061	5.92	95.8	9.0	1.17	11.1	0.22	1.10	3.44	1.85	25 218
30 A	11.32	11.32	33.595	25.625	236.1	0.073	5.46	88.1	13.4	1.38	13.5	0.21	1.59	0.54	1.09	30 217
40	11.04	11.04	33.619	25.694	229.7	0.096	5.13	82.3	16.7	1.49	15.6	0.22	1.58	0.20	0.38	40 216
50	10.85	10.84	33.649	25.752	224.4	0.119	4.94	79.0	18.2	1.57	16.8	0.23	1.43	0.25	0.52	50 215
60	10.71	10.70	33.682	25.802	219.9	0.141	4.80	76.5	19.3	1.63	17.8	0.26	1.40	0.33	0.69	60 214
70	10.27	10.26	33.718	25.907	210.1	0.163	4.19	66.2	21.8	1.73	20.2	0.21	0.99	0.25	0.60	70 213
75 ISL	9.77 D 9.76	33.742	D 26.010	200.3	0.173	3.82	D 59.7	23.1	1.78	21.5	0.16	0.70	0.21	0.55	75	
85	9.49	9.48	33.752	26.064	195.4	0.193	3.24	50.3	25.6	1.86	23.7	0.08	0.20	0.15	0.45	85 212
100	9.20	9.19	33.837	26.178	184.9	0.221	2.79	43.0	28.8	1.98	25.8	0.05	0.01	0.13	0.34	101 211
120	8.94	8.93	33.942	26.302	173.5	0.257	2.46	37.8	32.7	2.10	27.6	0.02	0.00	0.06	0.25	121 210
125 ISL	8.90 D 8.89	33.954	D 26.317	172.1	0.266	2.47	D 37.9	33.6	2.12	28.0	0.02	0.00	0.05	0.26		
140	8.58	8.57	33.981	26.388	165.5	0.291	2.28	34.7	35.9	2.18	29.0	0.02	0.00	0.04	0.30	141 209
150 ISL	8.46 D 8.44	33.995	D 26.418	162.9	0.307	2.26	D 34.3	37.0	2.21	29.5	0.02	0.00	0.04	0.26		
170	8.24	8.22	34.005	26.459	159.2	0.340	2.18	32.9	38.8	2.25	30.2	0.01	0.00	0.03	0.16	171 208
200 ISL	7.96 D 7.94	34.038	D 26.527	153.2	0.386	2.01	D 30.2	42.2	2.34	31.3	0.01	0.00	0.02	0.18	201	
201	7.97	7.95	34.033	26.522	153.8	0.388	2.00	30.0	42.3	2.34	31.3	0.01	0.00			202 207
230	7.69	7.67	34.043	26.571	149.5	0.432	1.88	28.1	45.5	2.41	32.3	0.01	0.00			231 206
250 ISL	7.59 D 7.57	34.105	D 26.635	143.8	0.461	1.51	D 22.5	48.5	2.53	33.2	0.01	0.00			252	
270	7.65	7.62	34.153	26.664	141.4	0.490	1.18	17.6	51.6	2.66	34.1	0.00	0.00			272 205
300 ISL	7.36 D 7.33	34.163	D 26.714	137.0												

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 80.0 70.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SIO3	P04	N03	N02	NH4	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C	THETA			ml/l	PCT	uM/l	uM/l	uM/l	uM/l	uM/l	ug/l	ug/l	db		
0 ISL	13.08	13.08	33.401	25.139	281.5	0.000	6.10	102.1	5.4	0.80	6.1	0.13	0.65	0.62	0.18	0	
2	13.08	13.08	33.401	25.139	281.6	0.006	6.10	102.1	5.4	0.80	6.1	0.13	0.65	0.62	0.18	2 220	
10 ISL	12.98	D 12.98	33.405	D 25.162	279.6	0.028	6.14	D 102.5	5.3	0.79	6.1	0.13	0.58	0.62	0.28	10	
11	12.97	12.97	33.401	25.161	279.7	0.031	6.10	101.9	5.3	0.79	6.1	0.13	0.57	0.62	0.29	11 219	
20	12.43	12.43	33.443	25.299	266.8	0.055	5.81	95.9	7.8	0.99	8.3	0.15	1.25	0.56	0.29	20 218	
30 ISL	11.16	D 11.16	33.492	D 25.574	240.9	0.081	5.25	D 84.4	12.2	1.28	13.0	0.22	1.09	0.66	0.32	30	
31	11.15	11.15	33.488	25.573	241.0	0.083	5.11	82.1	12.6	1.31	13.5	0.23	1.07	0.68	0.32	31 217	
41	10.82	10.82	33.531	25.665	232.5	0.107	4.78	76.3	15.3	1.44	15.6	0.25	1.01	0.83	0.31	41 216	
50 ISL	10.63	D 10.62	33.617	D 25.766	223.1	0.127	4.64	D 73.8	17.2	1.54	16.8	0.23	1.20	0.47	0.31	50	
51	10.63	10.62	33.604	25.755	224.1	0.130	4.63	73.6	17.4	1.55	16.9	0.23	1.23	0.43	0.31	51 215	
61	10.58	10.57	33.634	25.788	221.3	0.152	4.50	71.5	18.4	1.60	17.5	0.23	1.39	0.44	0.38	61 214	
70	10.57	10.56	33.637	25.792	221.0	0.172	4.49	71.3	18.6	1.61	17.6	0.23	1.39	0.39	0.43	70 213	
75 ISL	10.56	D 10.55	33.645	D 25.800	220.4	0.183	4.49	D 71.3	20.2	1.68	18.8	0.23	1.22	0.36	0.43	75	
85	9.90	9.89	33.714	25.967	204.7	0.204	3.40	53.2	24.2	1.85	22.1	0.19	0.74	0.28	0.43	85 212	
100	9.33	9.32	33.818	26.142	188.3	0.234	2.71	41.9	28.7	2.01	25.8	0.05	0.00	0.10	0.31	101 211	
120	9.05	9.04	33.920	26.267	176.8	0.270	2.51	38.6	31.7	2.08	27.0	0.04	0.00	0.06	0.36	121 210	
125 ISL	8.97	D 8.96	33.933	D 26.290	174.7	0.279	2.58	D 39.6	32.7	2.13	27.5	0.04	0.00	0.06	0.38	126	
140	8.98	8.96	34.005	26.345	169.8	0.305	1.95	30.0	35.6	2.27	28.9	0.03	0.00	0.05	0.41	141 209	
150 ISL	8.87	D 8.85	34.056	D 26.402	164.5	0.321	1.83	D 28.1	36.9	2.30	29.4	0.02	0.00	0.05	0.37	151	
171	8.83	8.81	34.092	26.437	161.6	0.356	1.65	25.3	38.9	2.37	29.9	0.01	0.00	0.04	0.25	172 208	
200	8.12	8.10	34.039	26.505	155.5	0.402	2.07	31.2	41.0	2.28	30.3	0.00	0.00	0.03	0.19	201 207	
230	7.50	7.48	34.004	26.568	149.7	0.447	2.24	33.3	44.7	2.29	31.3	0.00	0.00			231 206	
250 ISL	7.34	D 7.32	34.032	D 26.613	145.7	0.477	1.87	D 27.7	48.9	2.42	32.9	0.00	0.00			252	
271	7.01	6.98	34.042	26.666	140.8	0.507	1.59	23.4	53.5	2.57	34.7	0.00	0.00			273 205	
300 ISL	6.73	D 6.70	34.056	D 26.716	136.4	0.547	1.42	D 20.7	58.0	2.68	36.0	0.00	0.00			302	
320	6.57	6.54	34.066	26.745	133.8	0.574	1.24	18.0	60.7	2.73	36.7	0.00	0.00			322 204	
381	6.06	6.03	34.095	26.834	125.8	0.653	0.94	13.5	69.6	2.90	38.7	0.00	0.00			384 203	
400 ISL	5.90	D 5.87	34.106	D 26.863	123.2	0.677	0.89	D 12.7	72.9	2.94	39.3	0.00	0.00			403	
441	5.53	5.49	34.121	26.921	118.0	0.727	0.76	10.8	79.4	3.01	40.3	0.00	0.00			444 202	
500 ISL	5.53	D 5.49	34.233	D 27.010	110.4	0.794	0.40	D 5.7	84.5	3.13	41.0	0.00	0.00			504	
519	5.51	5.47	34.252	27.028	108.9	0.815	0.32	4.5	86.2	3.17	41.2	0.00	0.00			523 201	

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED S; CRUISE CORRECTED 1° 02';

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 80.0 80.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SIO3	P04	N03	N02	NH4	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C	THETA			ml/l	PCT	uM/l	uM/l	uM/l	uM/l	uM/l	ug/l	ug/l	db		
0 ISL	14.52	14.52	33.009	24.541	338.5	0.000	5.92	101.8	2.4	0.30	0.0	0.00	0.16	0.14	0.04	0	
2	14.52	14.52	33.009	24.541	338.6	0.007	5.92	101.8	2.4	0.30	0.0	0.00	0.16	0.14	0.04	2 220	
10 ISL	14.52	D 14.52	33.012	D 24.543	338.5	0.034	5.95	D 102.3	2.5	0.28	0.0	0.00	0.20	0.14	0.02	10	
11	14.52	14.52	33.009	24.541	338.8	0.037	5.92	101.8	2.5	0.28	0.0	0.00	0.21	0.14	0.02	11 219	
20 ISL	14.52	D 14.52	33.011	D 24.543	338.9	0.068	5.96	D 102.5	2.4	0.27	0.0	0.00	0.14	0.14	0.02	20	
25	14.51	14.51	33.008	24.543	339.0	0.085	5.92	101.8	2.4	0.27	0.0	0.00	0.10	0.14	0.02	25 218	
30 ISL	14.49	D 14.49	33.013	D 24.551	338.4	0.102	5.96	D 102.4	2.4	0.28	0.0	0.00	0.12	0.14	0.03	30	
41	13.63	13.62	32.909	24.649	329.3	0.138	6.04	101.9	2.5	0.29	0.0	0.00	0.15	0.15	0.04	41 217	
50 ISL	13.23	D 13.22	32.873	D 24.702	324.5	0.168	6.11	D 102.2	2.5	0.29	0.0	0.00	0.04	0.23	0.08	50	
51	13.23	13.22	32.879	24.707	324.1	0.171	6.09	101.9	2.5	0.29	0.0	0.00	0.03	0.25	0.09	51 216	
62	12.52	12.51	32.857	24.829	312.7	0.206	6.06	99.9	3.0	0.38	0.7	0.08	0.18	0.55	0.22	62 215	
75 ISL	12.49	D 12.48	33.048	D 24.983	298.3	0.246	5.74	D 94.7	4.0	0.48	2.6	0.13	0.02	0.46	0.28	75	
76	12.50	12.49	33.044	24.978	298.8	0.249	5.70	94.0	4.1	0.49	2.8	0.13	0.01	0.45	0.29	76 214	
87	11.60	11.59	33.121	25.207	277.2	0.280	5.38	87.1	6.2	0.68	6.1	0.02	0.08	0.20	0.14	87 213	
100	10.71	10.70	32.340	25.459	253.4	0.315	4.85	77.1	11.7	1.17	13.5	0.00	0.00	0.09	0.07	100 212	
112	10.22	10.21	33.314	25.601	240.0	0.344	4.53	71.3	14.7	1.31	15.8	0.00	0.05	0.05	0.05	113 211	
125	9.68	9.67	33.473	25.816	219.8	0.374	4.14	64.4	18.8	1.49	18.9	0.00	0.08	0.01	0.03	126 210	
140	9.41	9.39	33.634	25.986	203.9	0.406	3.55	55.0	23.5	1.73	22.5	0.00	0.00	0.00	0.03	141 209	
150 ISL	9.18	D 9.16	33.764	D 26.125	190.9	0.426	3.41	D 52.6	26.6	1.87	24.5	0.00	0.00	0.00	0.03	151	
171	8.84	8.82	33.886	26.274	177.0	0.465	2.61	40.0	32.0	2.08	27.6	0.00	0.00	0.00	0.03	172 208	
199	8.48	8.46	33.970	26.396	165.9	0.513	2.40	36.5	35.5	2.16	28.9	0.00	0.00	0.00	0.03	200 207	
200 ISL	8.47	D 8.45	33.980	D 26.406	165.0	0.514	2.41	D 36.6	35.7	2.17	29.0	0.00	0.00			201	
231	8.01	7.99	34.045	26.526	154.0	0.564	1.85	27.8	42.7	2.39	31.6	0.00	0.00			232 206	
250 ISL	7.77	D 7.75	34.064	D 26.576	149.4	0.592	1.73	D 25.9	45.7	2.46	32.5	0.00	0.00			251	
272	7.48	7.45	34.054	26.610	146.4	0.625	1.66	24.7	48.8	2.51	33.4	0.00	0.00			274 205	
300 ISL	7.12	D 7.09	34.065	D 26.670	141.0	0.665</td											

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 80.0 90.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SIO3	P04	N03	N02	NH4	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C	THETA			ml/l	PCT	uM/l	uM/l	uM/l	uM/l	uM/l	ug/l	ug/l	db		
33	9.3 N	123 14.1 W	24/04/11	1700 UTC	4138 m	310	16 kn	310 08 05	2	1019.2 mb	14.5 C	13.0 C	17m	7/8	NS		
0	ISL	14.31	14.31	32.949	24.539	338.7	0.000	5.99	102.5	2.4	0.31	0.0	0.00	0.25	0.06	0	
3	A	14.31	14.31	32.949	24.539	338.8	0.010	5.99	102.5	2.4	0.31	0.0	0.00	0.25	0.06	3 221	
10	ISL	14.28	14.28	32.949	24.545	338.4	0.034	5.99	102.5	2.4	0.30	0.0	0.00	0.20	0.05	10	
11	A	14.27	14.27	32.949	24.547	338.2	0.037	5.99	102.5	2.4	0.30	0.0	0.00	0.19	0.05	11 220	
14	A	14.19	14.19	32.948	24.563	336.7	0.047	6.03	103.0	2.4	0.30	0.0	0.00	0.21	0.07	14 219	
20		13.72	13.72	32.953	24.664	327.3	0.067	6.17	104.3	2.4	0.31	0.0	0.00	0.31	0.08	20 218	
28	A	13.44	13.44	32.955	24.723	321.9	0.093	6.25	105.1	2.4	0.31	0.0	0.00	0.41	0.13	28 217	
30	ISL	13.34 D	13.34	32.958	24.745	319.8	0.100	6.30	D105.7	2.4	0.31	0.1	0.00	0.47	0.14	30	
39		12.86	12.85	32.950	24.834	311.6	0.128	6.31	104.8	2.6	0.35	0.4	0.01	0.70	0.22	39 216	
50	ISL	12.48 D	12.47	33.013 D	24.957	300.2	0.162	6.14	D101.2	3.0	0.47	2.0	0.07	0.27	0.47	0.34	50
51	A	12.43	12.42	33.013	24.967	299.3	0.165	6.08	100.1	3.0	0.48	2.2	0.08	0.30	0.44	B 0.35 B	51 215
64	A	12.24	12.23	33.084	25.058	290.9	0.203	5.87	96.3	3.8	0.59	3.7	0.16	0.55	0.37	0.18	64 214
74		11.25	11.24	33.028	25.198	277.7	0.232	5.61	90.1	5.5	0.70	5.7	0.18	0.11	0.20	0.11	74 213
75	ISL	10.78 D	10.77	33.043 D	25.293	268.6	0.234	5.60	D 89.0	5.8	0.72	6.0	0.17	0.10	0.19	0.11	75
85		10.35	10.34	33.097	25.409	257.7	0.261	5.24	82.5	9.0	0.91	9.3	0.03	0.00	0.12	0.07	85 212
100		9.66	9.65	33.304	25.686	231.5	0.297	4.54	70.5	15.6	1.33	16.2	0.00	0.00	0.05	0.05	100 211
120		9.33	9.32	33.567	25.946	207.3	0.341	3.91	60.4	21.3	1.60	20.8	0.00	0.00	0.01	0.04	121 210
125	ISL	9.33 D	9.32	33.621 D	25.988	203.4	0.351	3.51	D 54.2	22.4	1.66	21.7	0.00	0.00	0.01	0.04	126
140		9.26	9.24	33.674	26.041	198.6	0.382	3.27	50.5	25.5	1.84	24.2	0.00	0.00	0.01	0.06	141 209
150	ISL	9.02 D	9.00	33.792 D	26.172	186.4	0.401	2.91	D 44.7	27.8	1.94	25.7	0.00	0.00	0.01	0.06	151
171		8.84	8.82	33.903	26.287	175.8	0.439	2.52	38.6	32.3	2.10	28.0	0.00	0.01	0.00	0.04	172 208
200		8.36	8.34	33.990	26.430	162.6	0.488	2.30	34.9	36.9	2.19	29.4	0.00	0.00	0.00	0.04	201 207
230		7.99	7.97	34.031	26.518	154.7	0.535	1.96	29.5	41.9	2.35	31.3	0.00	0.00			231 206
250	ISL	7.56 D	7.54	34.018 D	26.570	149.8	0.566	2.11	D 31.4	44.9	2.39	32.2	0.00	0.00			251
270		7.38	7.35	34.028	26.604	146.9	0.596	1.88	27.9	47.9	2.43	33.0	0.00	0.00			272 205
300	ISL	6.99 D	6.96	34.051 D	26.677	140.3	0.639	1.55	D 22.8	53.5	2.56	34.6	0.00	0.00			302
320		6.90	6.87	34.071	26.705	137.8	0.666	1.32	19.3	57.2	2.66	35.7	0.00	0.00			322 204
380		6.46	6.43	34.120	26.803	129.2	0.747	0.89	12.9	65.5	2.86	37.9	0.00	0.00			382 203
400	ISL	6.38 D	6.34	34.149 D	26.836	126.2	0.772	0.76	D 11.0	67.9	2.92	38.3	0.00	0.00			403
441		6.11	6.07	34.180	26.896	120.9	0.823	0.59	8.5	73.4	3.02	39.2	0.00	0.00			444 202
500	ISL	5.41 D	5.37	34.179 D	26.981	112.9	0.892	0.48	D 6.8	84.7	3.10	41.1	0.00	0.00			503
520		5.15	5.11	34.168	27.003	110.7	0.914	0.51	7.2	88.5	3.13	41.7	0.00	0.00			524 201

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

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

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED S; CRUISE CORRECTED 1° 02';

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 80.0 100.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SIO3	P04	N03	N02	NH4	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C	THETA			ml/l	PCT	uM/l	uM/l	uM/l	uM/l	uM/l	ug/l	ug/l	db		
32	48.8 N	123 54.4 W	24/04/11	2154 UTC	4325 m	340	19 kn	320 04 06	1	1022.5 mb	14.5 C	13.0 C	16m	6/8	SC		
0	ISL	14.20	14.20	32.875	24.505	342.0	0.000	6.03	102.9	2.4	0.31	0.0	0.00	0.11	0.03	0	
1		14.20	14.20	32.875	24.505	342.0	0.003	6.03	102.9	2.4	0.31	0.0	0.00	0.11	0.03	1 220	
10		14.16	14.16	32.876	24.514	341.3	0.034	6.04	103.0	2.4	0.30	0.0	0.00	0.12	0.04	10 219	
20	ISL	14.02 D	14.02	32.884 D	24.549	338.2	0.068	6.09	D 103.6	2.3	0.29	0.0	0.00	0.12	0.03	20	
26		14.10	14.10	32.990	24.615	332.2	0.088	5.98	102.0	2.3	0.28	0.0	0.00	0.12	0.03	26 218	
30	ISL	13.98 D	13.98	32.979 D	24.631	330.7	0.102	6.04	D 102.7	2.3	0.28	0.0	0.00	0.13	0.03	30	
40		13.56	13.55	32.907	24.662	328.1	0.134	6.06	102.1	2.3	0.29	0.0	0.00	0.16	0.05	40 217	
50		13.62	13.61	32.959	24.690	325.6	0.167	6.02	101.6	2.3	0.28	0.0	0.00	0.21	0.06	50 216	
62		13.41	13.40	32.921	24.703	324.7	0.206	6.04	101.5	2.4	0.29	0.0	0.00	0.28	0.10	62 215	
75		13.24	13.23	32.911	24.730	322.5	0.248	6.01	100.6	2.4	0.30	0.0	0.00	0.42	0.20	75 214	
87		13.36	13.35	33.059	24.821	314.2	0.286	5.85	98.2	2.8	0.33	0.4	0.04	0.65	0.33	87 213	
100	ISL	13.24 D	13.23	33.334 D	25.058	292.0	0.326	5.49	D 92.1	3.6	0.38	1.8	0.08	0.29	0.23	100	
101		13.32	13.31	33.339	25.046	293.2	0.329	5.53	93.0	3.7	0.38	2.0	0.08	0.25	0.22	101 212	
113		11.42	11.41	33.064	25.196	278.8	0.363	5.50	88.7	5.8	0.66	5.6	0.01	0.14	0.11	113 211	
125		10.55	10.54	33.115	25.390	260.5	0.395	5.20	82.3	9.0	0.90	9.6	0.00	0.05	0.05	126 210	
141		9.52	9.50	33.337	25.736	227.7	0.434	4.59	71.1	15.9	1.30	16.3	0.00	0.01	0.03	142 209	
150	ISL	9.11 D	9.09	33.501 D	25.930	209.3	0.454	4.37	D 67.1	18.3	1.41	18.3	0.00	0.01	0.03	151	
171		9.15	9.13	33.686	26.069	196.6	0.497	4.02	61.9	22.4	2.24	20.9	0.00	0.00	0.02	172 208	
200	ISL	8.73 D	8.71	33.875 D	26.283	176.7	0.551	3.68	D 56.2	28.4	1.79	24.8	0.00				201
221		8.32	8.30	33.898	26.364	169.2	0.587	3.07	46.4	32.5	1.93	26.8	0.00				222 207
231		8.19	8.17	33.930	26.409	165.1	0.604	3.00	45.3	34.4	1.97	27.4	0.00				232 206
250	ISL	7.88 D	7.86	33.960 D	26.479	158.7	0.635	2.87	D 43.0	37.2	2.00	27.8	0.00				

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 81.7 43.5

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE
34 23.8 N	119 48.4 W	23/04/11	0051	UTC	43 m	140	01 kn	250 01 05	1	1014.0 mb	14.0 C	14.0 C	6/8	ST		
0 ISL	13.91	13.91	33.529	25.070	288.1	0.000	6.88	117.2	3.3	0.43	0.9	0.04	0.13	2.20	0.35	0
2	13.91	13.91	33.529	25.070	288.2	0.006	6.88	117.2	3.3	0.43	0.9	0.04	0.13	2.20	0.35	2 206
5	13.83	13.83	33.529	25.086	286.7	0.014	6.83	116.2	3.4	0.43	1.2	0.05	0.21	2.44	0.38	5 205
10 ISL	12.26	D 12.26	33.556	D 25.419	255.1	0.028	5.72	D 94.2	9.0	0.82	5.7	0.17	0.72	3.48	0.61	10
11	12.23	12.23	33.559	25.427	254.4	0.030	5.55	91.3	10.5	0.93	7.0	0.20	0.83	3.69	0.67	11 204
15	11.56	11.56	33.585	25.573	240.6	0.040	4.52	73.3	14.8	1.26	12.5	0.29	0.97	3.98	0.89	15 203
20 ISL	11.02	D 11.02	33.620	D 25.698	228.8	0.052	3.62	D 58.1	19.7	1.55	17.0	0.47	1.06	2.21	0.57	20
21	11.02	11.02	33.619	25.698	228.9	0.054	3.40	54.5	20.6	1.59	17.7	0.50	1.07	1.78	0.48	21 202
30 ISL	10.68	D 10.68	33.650	D 25.782	221.1	0.075	2.96	D 47.1	22.6	1.70	19.1	0.55	0.98	1.92	0.57	30
36	10.68	10.68	33.645	25.778	221.6	0.088	2.92	46.5	23.9	1.77	20.0	0.59	0.92	2.02	0.63	36 201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED S; CRUISE CORRECTED 1° 02;

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 81.8 46.9

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE
34 16.6 N	120 1.8 W	23/04/11	0256	UTC	573 m	300	18 kn			1013.6 mb	14.0 C	11.5 C	6/8	ST		
0 ISL	12.49	12.49	33.696	25.483	248.8	0.000	5.64	93.4	15.7	1.15	11.8	0.15	0.29	0.54	0.25	0
1 A	12.49	12.49	33.696	25.483	248.8	0.002	5.64	93.4	15.7	1.15	11.8	0.15	0.29	0.54	0.25	1 224
10 ISL	9.90	D 9.90	33.812	D 26.042	196.1	0.046	2.75	D 43.1	26.4	1.87	23.6	0.18	0.65	0.19	20	
21	9.89	9.89	33.814	26.045	195.8	0.048	2.67	41.8	27.2	1.93	24.5	0.18	0.65	0.17	21 222	
30	9.55	9.55	33.911	26.177	183.5	0.065	2.31	35.9	30.5	2.05	26.4	0.11	0.00	0.41	0.20	30 221
40	9.41	9.41	33.967	26.244	177.3	0.083	2.12	32.9	32.5	2.12	27.3	0.09	0.00	0.25	0.17	40 220
50	9.22	9.21	34.025	26.321	170.3	0.101	1.89	29.2	34.9	2.22	28.5	0.06	0.00	0.11	0.27	50 219
61	9.15	9.14	34.057	26.357	167.0	0.119	1.82	28.1	35.7	2.24	28.7	0.05	0.00	0.05	0.16	61 218
70	9.02	9.01	34.097	26.409	162.2	0.134	1.69	26.0	37.6	2.30	29.2	0.06	0.00	0.02	0.20	70 217
75 ISL	8.98	D 8.97	34.113	D 26.428	160.5	0.142	1.68	D 25.8	38.4	2.33	29.5	0.06	0.00	0.02	0.20	75
86	8.90	8.89	34.127	26.452	158.5	0.160	1.55	23.8	39.7	2.37	29.9	0.06	0.00	0.03	0.17	87 216
100 ISL	8.85	D 8.84	34.144	D 26.474	156.7	0.182	1.49	D 22.9	40.5	2.39	30.1	0.07	0.00	0.02	0.16	101
101	8.84	8.83	34.139	26.471	157.0	0.183	1.48	22.7	40.6	2.39	30.1	0.07	0.00	0.02	0.16	102 215
120	8.64	8.63	34.148	26.510	153.6	0.213	1.19	18.2	44.7	2.52	31.6	0.01	0.00	0.03	0.17	121 214
125 ISL	8.61	D 8.60	34.154	D 26.519	152.9	0.220	1.20	D 18.3	45.1	2.52	31.7	0.01	0.00	0.03	0.18	126
141	8.52	8.51	34.159	26.537	151.4	0.245	1.16	17.7	46.0	2.54	31.9	0.01	0.00	0.02	0.19	142 213
150 ISL	8.47	D 8.45	34.166	D 26.551	150.3	0.258	1.15	D 17.5	46.7	2.56	32.0	0.01	0.00	0.02	0.18	151
173	8.34	8.32	34.171	26.575	148.4	0.293	1.01	15.3	48.9	2.62	32.5	0.01	0.00	0.03	0.15	174 212
200	8.16	8.14	34.178	26.608	145.7	0.332	0.84	12.7	52.3	2.71	33.2	0.01	0.00	0.03	0.16	201 211
231	7.98	7.96	34.186	26.641	143.1	0.377	0.71	10.7	55.2	2.79	33.8	0.04	0.00		232 210	
250 ISL	7.91	D 7.88	34.196	D 26.660	141.6	0.404	0.71	D 10.7	56.1	2.81	34.0	0.03	0.00		252	
272	7.84	7.81	34.195	26.669	141.0	0.435	0.68	10.2	57.4	2.83	34.2	0.02	0.00		274 209	
300 ISL	7.63	D 7.60	34.214	D 26.715	137.1	0.474	0.66	D 9.8	60.7	2.90	34.7	0.01	0.00		302	
321	7.48	7.45	34.201	26.727	136.2	0.503	0.48	7.1	64.3	2.98	34.9	0.01	0.00		323 208	
379	6.89	6.85	34.213	26.819	128.0	0.580	0.19	2.8	79.4	3.25	34.0	0.00	0.00		382 207	
400 ISL	6.74	D 6.70	34.227	D 26.850	125.3	0.606	0.12	D 1.8	85.1	3.35	32.7	0.00	0.00		403	
441	6.59	6.55	34.238	26.880	123.0	0.657	0.05	0.7	94.1	3.51	30.2	0.00	0.00		444 206	
480	6.50	6.46	34.238	26.892	122.3	0.705	0.06	0.9	97.9	3.62	29.0	0.00	0.00		483 205	
500 ISL	6.47	D 6.42	34.244	D 26.901	121.8	0.729	0.08	D 1.2	9.8	3.65	28.8	0.00	0.00		504	
516	6.45	6.40	34.241	26.901	121.9	0.749	0.13	1.9	99.1	3.67	28.6	0.00	0.00		520 204	
539	6.41	6.36	34.241	26.907	121.7	0.777	0.00	0.0	107.0	3.94	25.0	0.00	0.03		543 203	
559	6.41	6.36	34.241	26.907	122.0	0.801	0.00	0.0	109.3	4.16	24.4	0.00	0.41		563 202	
569	6.41	6.36	34.242	26.908	122.0	0.813	0.02	0.3	108.9	4.17	24.4	0.00	0.44		573 201	

A) SANTA BARBARA BASIN STATION.

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED S; CRUISE CORRECTED 1° 02;

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 83.3 39.4

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE
34 14.1 N	119 23.2 W	22/04/11	2131	UTC	27 m	260	08 kn	280 01 05	1	1015.9 mb	15.0 C	14.0 C	3/8	ST		
0 ISL	13.40	13.40	33.627	25.250	271.0	0.000	5.59	94.3	11.6	1.03	9.4	0.16	0.90	0.34	0.06	0
1	13.40	13.40	33.627	25.250	271.0	0.003	5.59	94.3	11.6	1.03	9.4	0.16	0.90	0.34	0.06	1 206
5	13.38	13.38	33.627	25.254	270.7	0.014	5.61	94.6	11.5	1.03	9.4	0.16	0.90	0.33	0.06	5 205
10	12.71	12.71	33.615	25.378	259.1	0.027	5.42	90.1	11.4	1.05	9.6	0.16	1.03	0.31	0.08	10 203
10	12.72	12.72	33.612	25.374	259.5	0.027										10 204
15	12.53	12.53	33.605	25.405	256.6	0.040	5.33	88.3	11.3	1.06	9.8	0.18	1.10	0.28	0.16	15 202
20 ISL	11.87	D 11.87	33.607	D 25.533	244.6	0.052	4.79	D 78.2	12.6	1.19	11.5	0.25	1.34	0.23	0.20	20
21	11.89	11.89	33.603	25.526	245.3	0.055	4.68	76.5	12.8	1.21	11.8	0.26	1.39	0.22	0.21	21 201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED S; CRUISE CORRECTED 1° 02;

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 83.3 40.6

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE
34 13.6 N	119 24.6 W	22/04/11	1959	UTC	33 m	260	05 kn	270 02 06	1	1016.6 mb	12.9 C	12.9 C	20m	3/8	SC	
0 ISL	13.64	13.64	33.681	25.243	271.7	0.000	5.69	96.5	15.3	1.19	11.5	0.16	0.56	0.77	0.15	0
1	13.64	13.64	33.681	25.243	271.7	0.003	5.69	96.5	15.3	1.19	11.5	0.16	0.56	0.77	0.15	1 206
5	13.27	13.27	33.672	25.311	265.3	0.013	5.64	94.9	14.7	1.15	11.2	0.16	0.52	0.60	0.12	5 205
10	12.18	12.18	33.680	25.531	244.5	0.026	5.46	89.8	13.4	1.15	11.4	0.19	0.66	1.06	0.25	10 203
10	12.17	12.17	33.681	25.533	244.3	0.026										10 204
20	11.48	11.48	33.698	25.676	231.0	0.050	5.08	82.3	14.8	1.33	13.5	0.21	1.05	2.06	1.79	20 202
26	11.39	11.39	33.707	25.699	228.9	0.064	4.95	80.1	15.5	1.36	14.0	0.21	0.91	1.75	1.06	26 201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED S; CRUISE CORRECTED 1° 02;

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 83.3 42.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE
34 10.5 N	119 30.8 W	22/04/11	1846	UTC	170 m	260	05 kn	260 05 05	0	1016.9 mb	10m	10m	10m	0/8		
0 ISL	13.27	13.27	33.656	25.298	266.4	0.000	6.36	107.0	7.2	0.74	6.4	0.16	0.07	4.63	0.11	0
2 A	13.27	13.27	33.656	25.299	266.4	0.005	6.36	107.0	7.2	0.74	6.4	0.16	0.07	4.63	0.11	2 217
6 A	12.53	12.53	33.656	25.445	252.6	0.016	6.29	104.2	8.1	0.81	7.2	0.17	0.13	5.04	0.02	6 216
8 A	12.26	12.26	33.666	25.505	247.0	0.021	6.31	104.0	7.8	0.84	7.3	0.18	0.09	6.06	0.11	8 214
8	12.26	12.26	33.665	25.504	247.1	0.021										8 215
10 ISL	12.28	D 12.28	33.675 D	25.508	246.7	0.026	6.36	D 104.8	8.9	0.92	8.3	0.18	0.28	5.52	0.44	10
16 A	11.75	11.75	33.674	25.607	237.4	0.040	5.59	91.1	13.5	1.20	11.6	0.18	1.05	3.91	1.30	16 213
20 ISL	11.69	D 11.69	33.682 D	25.625	235.9	0.050	5.50	D 89.5	14.0	1.27	12.2	0.18	1.21	2.88	0.99	20
23	11.66	11.66	33.681	25.629	235.5	0.057	5.37	87.4	14.4	1.29	12.4	0.18	1.26	2.22	0.66	23 212
30 A	11.61	11.61	33.692	25.647	233.9	0.073	5.25	85.3	15.4	1.34	13.0	0.19	1.44	1.39	0.65	30 211
37 A	11.59	11.59	33.693	25.652	233.7	0.090	5.17	84.0	15.7	1.35	13.3	0.19	1.50	1.33	0.61	37 210
43	11.50	11.49	33.697	25.672	231.9	0.103	5.10	82.7	16.3	1.38	13.7	0.19	1.51	1.26	0.53	43 209
50 ISL	11.39	D 11.38	33.707 D	25.700	229.4	0.120	5.09	D 82.3	17.2	1.43	14.2	0.19	1.62	1.25	0.66	50
51	11.39	11.38	33.704	25.698	229.7	0.122	4.91	79.4	17.4	1.44	14.3	0.19	1.64	1.25	0.68	51 208
60	11.09	11.08	33.735	25.776	222.4	0.142	4.37	70.2	19.5	1.60	16.6	0.21	1.63	0.70	0.64	60 207
70	10.60	10.59	33.776	25.895	211.3	0.164	3.61	57.4	23.7	1.80	20.2	0.20	1.18	0.22	0.44	70 206
75 ISL	10.38	D 10.37	33.805 D	25.956	205.6	0.174	3.90	D 61.8	26.2	1.91	22.4	0.16	0.76	0.20	0.36	75
85	9.54	9.53	33.934	26.198	182.7	0.194	2.32	36.1	30.5	2.11	26.2	0.09	0.03	0.17	0.28	85 205
100	9.45	9.44	33.998	26.263	176.8	0.221	2.03	31.5	32.4	2.22	27.2	0.09	0.04	0.11	0.39	101 204
120	9.25	9.24	34.061	26.345	169.4	0.255	1.93	29.9	34.5	2.26	27.9	0.05	0.01	0.08	0.20	121 203
125 ISL	9.21	D 9.20	34.074 D	26.362	167.9	0.264	1.95	D 30.1	35.1	2.28	28.1	0.05	0.01	0.08	0.21	126
140	9.10	9.08	34.092	26.394	165.2	0.289	1.78	27.4	36.6	2.33	28.6	0.07	0.00	0.09	0.26	141 202
150 ISL	9.06	D 9.04	34.103 D	26.409	163.9	0.305	1.77	D 27.3	37.0	2.35	28.8	0.07	0.00	0.09	0.26	151
161	9.04	9.02	34.106	26.415	163.6	0.323	1.70	26.2	37.5	2.37	29.0	0.08	0.00	0.08	0.25	162 201

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED S; CRUISE CORRECTED 1° 02;

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 83.3 51.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE
33 52.3 N	120 8.0 W	22/04/11	1058	UTC	109 m	310	26 kn			1015.4 mb	11.8 C	11.6 C	20m	3/8	SC	
0 ISL	12.01	12.01	33.582	25.486	248.5	0.000	5.47	89.6	8.9	0.99	9.7	0.21	0.33	7.71	0.22	0
2	12.01	12.01	33.582	25.487	248.5	0.005	5.47	89.6	8.9	0.99	9.7	0.21	0.33	7.71	0.22	2 212
10	12.01	12.01	33.584	25.488	248.6	0.025	5.47	89.6	9.0	1.07	9.6	0.20	0.38	7.62	0.65	10 210
11	12.01	12.01	33.582	25.487	248.7	0.027										11 211
20 ISL	11.95	D 11.95	33.585 D	25.501	247.7	0.050	5.39	D 88.2	9.7	1.10	10.7	0.21	0.22	7.39	0.64	20
21	11.87	11.87	33.582	25.513	246.5	0.052	5.29	86.4	9.8	1.10	10.8	0.21	0.20	7.36 A	0.64 A	21 209
30	11.76	11.76	33.582	25.534	244.7	0.074	5.18	84.4	10.3	1.14	11.2	0.21	0.23	6.88	0.63	30 208
42	11.02	11.01	33.609	25.690	230.1	0.103	4.15	66.6	16.2	1.47	16.8	0.14	0.07	3.83	0.40	42 207
50 ISL	10.75	D 10.74	33.629 D	25.754	224.2	0.121	3.87	D 61.7	18.6	1.60	18.9	0.13	0.04	2.77	0.12	50
51	10.65	10.64	33.649	25.787	221.1	0.123	3.72	59.2	18.7	1.61	19.0	0.13	0.04	2.71	0.09	51 206
60	10.85	10.84	33.612	25.723	227.4	0.143	3.99	63.8	17.0	1.51	17.5	0.14	0.07	3.04	0.20	60 205
70	10.39	10.38	33.678	25.855	215.0	0.165	3.42	54.1	21.1	1.67	20.6	0.10	0.02	1.56	0.21	70 204
75 ISL	10.16	D 10.15	33.717 D	25.925	208.5	0.176	3.16	D 49.8	22.7	1.76	22.1	0.08	0.03	0.93	0.18	75
80	10.01	10.00	33.737	25.966	204.7	0.186	2.96	46.5	24.2	1.84	23.3	0.06	0.04	0.47	0.17	80 203
91	9.79	9.78	33.818	26.066	195.4	0.208	2.68	41.9	27.5	1.97	24.7	0.07	0.09	0.44	0.30	91 202
100 ISL	9.70	D 9.69	33.850 D	26.106	191.7	0.226	2.59	D 40.4	28.7	2.01	25.3	0.06	0.06	0.26	0.31	101
101	9.69	9.68	33.848	26.107	191.7	0.228	2.55	39.8	28.8	2.02	25.4	0.06	0.06	0.24	0.31	102 201

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

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED S; CRUISE CORRECTED 1° 02;

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 83.3 55.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	N03	N02	NH4	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C	THETA			ml/l	pct	um/l	um/l	um/l	um/l	um/l	um/l	ug/l	ug/l	db	
0 ISL	13.31	13.31	33.278	24.998	295.0	0.000	6.11	102.7	1.8	0.59	3.9	0.11	0.38	0.36	0.07	0	
2	13.31	13.31	33.278	24.998	295.0	0.006	6.11	102.7	1.8	0.59	3.9	0.11	0.38	0.36	0.07	2 221	
10 ISL	13.31	D 13.31	33.281	D 25.001	295.0	0.030	6.16	D 103.5	1.7	0.58	3.8	0.11	0.41	0.38	0.08	10	
11	13.31	13.31	33.278	24.998	295.2	0.032	6.12	102.8	1.7	0.58	3.8	0.11	0.42	0.38	0.08	11 219	
11	13.31	13.31	33.279	24.999	295.2	0.032										11 220	
20	13.29	13.29	33.282	25.006	294.8	0.059	6.12	102.8	1.7	0.59	4.1	0.11	0.48	0.38	0.07	20 218	
30	13.19	13.19	33.279	25.024	293.3	0.088	6.14	102.9	1.6	0.60	4.2	0.11	0.52	0.38	0.08	30 217	
40	12.66	12.65	33.289	25.136	282.9	0.117	6.17	102.3	1.8	0.62	4.3	0.11	0.48	0.41	0.08	40 216	
50 ISL	12.20	D 12.19	33.305	D 25.237	273.5	0.145	6.03	D 99.0	5.1	0.87	7.7	0.13	0.75	0.86	0.25	50	
51	11.89	11.88	33.343	25.325	265.1	0.148	5.59	91.2	5.7	0.91	8.2	0.13	0.78	0.90	0.27	51 215	
61	10.92	10.91	33.524	25.642	235.1	0.173	4.86	77.7	14.3	1.37	14.6	0.16	1.02	0.60	0.25	61 214	
70	10.85	10.84	33.648	25.751	224.9	0.193	4.84	77.4	17.9	1.51	16.6	0.19	1.21	0.34	0.27	70 213	
75 ISL	10.74	D 10.73	33.639	D 25.764	223.9	0.205	4.67	D 74.5	18.4	1.53	17.0	0.19	1.16	0.36	0.30	75	
86	10.63	10.62	33.655	25.796	221.1	0.229	4.50	71.6	19.1	1.58	17.8	0.18	0.88	0.54	0.38	86 212	
100	10.20	10.19	33.766	25.957	206.0	0.259	3.48	54.9	23.9	1.80	21.7	0.15	0.52	0.67	0.44	101 211	
121	9.61	9.60	33.770	26.059	196.6	0.301	3.14	48.9	26.0	1.89	23.8	0.09	0.13	0.33	0.28	122 210	
125 ISL	9.56	D 9.55	33.829	D 26.114	191.5	0.309	3.00	D 46.7	26.7	1.91	24.3	0.08	0.09	0.29	0.28	126	
139	9.16	9.14	33.877	26.216	182.0	0.335	2.73	42.1	29.7	2.00	26.0	0.03	0.00	0.17	0.27	140 209	
150 ISL	9.02	D 9.00	33.944	D 26.291	175.1	0.355	2.39	D 36.7	32.1	2.07	27.2	0.02	0.00	0.11	0.27	151	
170	8.57	8.55	33.995	26.401	164.9	0.389	2.26	34.4	36.3	2.19	29.1	0.00	0.00	0.05	0.27	171 208	
200 ISL	8.32	D 8.30	34.077	D 26.504	155.6	0.437	1.85	D 28.0	40.8	2.34	30.7	0.00	0.00	0.04	0.16	201	
201	8.32	8.30	34.072	26.500	156.0	0.438	1.84	27.9	40.9	2.34	30.7	0.00	0.00	0.04	0.16	202 207	
230	8.06	8.04	34.083	26.548	151.8	0.483	1.76	26.5	43.9	2.39	31.7	0.00	0.00			231 206	
250 ISL	8.01	D 7.98	34.123	D 26.588	148.5	0.513	1.53	D 23.0	45.1	2.42	32.1	0.00	0.00			252	
270	7.91	7.88	34.113	26.595	148.1	0.543	1.54	23.1	46.5	2.47	32.5	0.00	0.00			272 205	
300 ISL	7.71	D 7.68	34.197	D 26.690	139.5	0.586	1.00	D 14.9	51.1	2.63	33.8	0.00	0.00			302	
320	7.59	7.56	34.203	26.713	137.7	0.614	0.89	13.3	54.6	2.75	34.7	0.00	0.00			322 204	
381	7.07	7.03	34.238	26.814	128.7	0.695	0.61	9.0	62.8	2.90	36.6	0.00	0.00			383 203	
400 ISL	6.91	D 6.87	34.249	D 26.845	126.0	0.719	0.54	D 7.9	65.2	2.94	37.1	0.00	0.00			403	
442	6.64	6.60	34.264	26.893	121.8	0.771	0.44	6.4	69.9	3.02	38.1	0.00	0.00			445 202	
500 ISL	6.31	D 6.26	34.288	D 26.956	116.4	0.840	0.36	D 5.2	74.8	3.08	39.0	0.00	0.00			503	
515	6.26	6.21	34.290	26.964	115.7	0.858	0.33	4.8	76.1	3.10	39.2	0.00	0.00			519 201	

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED S; CRUISE CORRECTED 1° 02;

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 83.3 60.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	N03	N02	NH4	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C	THETA			ml/l	pct	um/l	um/l	um/l	um/l	um/l	um/l	ug/l	ug/l	db	
0 ISL	14.04	14.04	33.243	24.822	311.7	0.000	6.07	103.5	1.6	0.50	2.5	0.07	0.57	0.26	0.07	0	
2	14.04	14.04	33.243	24.822	311.8	0.006	6.07	103.5	1.6	0.50	2.5	0.07	0.57	0.26	0.07	2 221	
10 ISL	13.69	D 13.69	33.243	D 24.894	305.1	0.031	6.15	D 104.1	1.6	0.49	2.4	0.08	0.61	0.30	0.09	10	
11	13.70	13.70	33.246	24.895	305.1	0.034	6.11	103.5	1.6	0.49	2.4	0.08	0.62	0.31	0.09	11 219	
11	13.71	13.71	33.238	24.886	305.9	0.034										11 220	
20 ISL	13.28	D 13.28	33.278	D 25.005	294.9	0.061	6.16	D 103.4	1.6	0.54	3.1	0.10	0.73	0.31	0.10	20	
21	13.31	13.31	33.266	24.989	296.4	0.064	6.10	102.5	1.6	0.55	3.2	0.10	0.74	0.31	0.10	21 218	
30 ISL	12.98	D 12.98	33.377	D 25.141	282.2	0.090	6.16	D 102.9	1.4	0.57	3.8	0.10	0.82	0.47	0.20	30	
31	12.98	12.98	33.374	25.139	282.4	0.093	6.13	102.4	1.4	0.57	3.8	0.10	0.83	0.49	0.21	31 217	
41	12.79	12.78	33.385	25.185	278.3	0.121	6.04	100.5	1.6	0.61	4.1	0.11	1.08	0.62	0.21	41 216	
50	11.90	11.89	33.417	25.380	259.9	0.145	5.84	95.3	3.9	0.85	6.8	0.12	1.72	0.60	0.32	50 215	
61	11.43	11.42	33.482	25.518	247.0	0.173	5.59	90.4	5.8	1.03	8.6	0.16	2.51	0.52	0.56	61 214	
70	11.26	11.25	33.506	25.568	242.5	0.195	5.55	89.4	6.9	1.05	9.3	0.17	2.52	0.38	0.50	70 213	
75 ISL	10.46	D 10.45	33.502	D 25.706	229.3	0.207	4.85	D 76.8	10.8	1.23	12.7	0.14	1.80	0.29	0.40	75	
85	9.94	9.93	33.493	25.787	221.7	0.229	3.86	60.4	19.2	1.62	20.2	0.06	0.23	0.15	0.19	85 212	
100	9.50	9.49	33.611	25.952	206.3	0.261	3.54	54.9	22.6	1.73	22.5	0.03	0.00	0.16	0.17	101 211	
121	9.09	9.08	33.768	26.141	188.7	0.303	3.02	46.5	27.7	1.93	25.7	0.00	0.00	0.04	0.14	122 210	
125 ISL	9.08	D 9.07	33.782	D 26.154	187.5	0.310	3.03	D 46.6	28.1	1.94	25.8	0.00	0.00	0.04	0.14	126	
140	8.99	8.97	33.823	26.201	183.4	0.338	2.92	44.8	29.1	1.96	26.2	0.00	0.00	0.04	0.15	141 209	
150 ISL	8.85	D 8.83	33.883	D 26.270	177.0	0.356	2.86	D 43.8	30.4	1.97	26.5	0.00	0.01	0.04	0.17	151	
170	8.40	8.38	33.944	26.387	166.1	0.391	2.86	43.4	33.6	2.01	27.4	0.00	0.03	0.05	0.20	171 208	
200	7.94	7.92	33.987	26.490	156.7	0.439	2.63	39.5	38.7	2.12	29.1	0.00	0.00	0.04	0.15	201 207	
230	7.91	7.89	34.091	26.577	149.1	0.485	1.66	24.9	45.5	2.44	32.1	0.00	0.00			231 206	
250 ISL	8.06	D 8.03	34.180	D 26.625	145.0	0.514	1.17	D 17.6	48.7	2.56	33.2	0.00	0.00			251	
270	7.72	7.69	34.166	26.664	141.4	0.543	1.13	16.9	51.3	2.65	33.9	0.00	0.00		</td		

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 83.3 70.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE		
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SV	DYN	HT	OXYGEN	OXY	S103	P04	N03	N02	NH4	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C	THETA		ml/l	PCT		uM/l	uM/l	uM/l	uM/l	uM/l	uM/l	ug/l	ug/l	db		
0 ISL	14.18	14.18	32.940	24.559	336.8	0.000	6.35	108.4	2.5	0.30	0.0	0.00	0.00	0.19	0.05	0		
2 A	14.18	14.18	32.940	24.559	336.8	0.007	6.35	108.4	2.5	0.30	0.0	0.00	0.00	0.19	0.05	2	224	
10 ISL	13.89	D 13.89	32.952	D 24.628	330.4	0.033	6.08	D 103.2	2.4	0.30	0.0	0.00	0.04	0.23	0.05	10		
11 A	13.87	13.87	32.951	24.632	330.1	0.037	6.03	102.3	2.4	0.30	0.0	0.00	0.05	0.23	0.05	11	222	
11	13.88	13.88	32.951	24.630	330.3	0.037										11	223	
16 A	13.70	13.70	32.998	24.703	323.5	0.053	6.13	103.7	1.7	0.30	0.1	0.01	0.06	0.38	0.08	16	221	
20 ISL	13.67	D 13.67	33.022	D 24.728	321.2	0.066	6.15	D 103.9	1.4	0.29	0.1	0.00	0.08	0.43	0.12	20		
22	13.66	13.66	33.024	24.731	320.9	0.072	6.09	102.9	1.3	0.29	0.1	0.00	0.09	0.45	0.14	22	220	
30 A	13.62	13.62	33.050	24.760	318.5	0.098	6.09	102.8	1.2	0.32	0.3	0.02	0.13	0.67	0.27	30	219	
38	13.32	13.31	33.035	24.809	314.0	0.123	6.03	101.2	1.9	0.37	0.9	0.07	0.20	0.78	0.35	38	218	
45	13.08	13.07	33.137	24.936	302.1	0.145	6.01	100.4	1.5	0.47	2.3	0.11	0.46	0.80	0.47	45	217	
50 ISL	12.70	D 12.69	33.117	D 24.995	296.6	0.160	5.99	D 99.3	1.9	0.53	3.0	0.14	0.50	0.86	0.47	50		
55 A	12.64	12.63	33.222	25.088	287.8	0.174	5.99	99.2	2.3	0.60	3.9	0.15	0.53	0.94	0.46	55	216	
61	12.19	12.18	33.223	25.175	279.6	0.191	5.87	96.3	3.6	0.69	5.5	0.14	0.57	1.05	0.45	61	215	
67 A	11.79	11.78	33.238	25.262	271.5	0.208	5.67	92.2	5.0	0.80	7.2	0.12	0.66	1.01	0.43	67	214	
75 ISL	11.40	D 11.39	33.323	D 25.400	258.5	0.229	5.52	D 89.1	6.8	0.96	9.3	0.09	0.86	1.17	0.59	75		
76	11.39	11.38	33.318	25.398	258.7	0.232	5.44	87.8	7.1	0.98	9.7	0.09	0.86	1.19	0.62	76	213	
85	10.47	10.46	33.329	25.569	242.5	0.254	4.59	72.6	13.6	1.33	15.4	0.05	0.22	0.11	0.91	85	212	
100	9.72	9.71	33.487	25.819	218.9	0.289	3.74	58.2	20.5	1.66	21.3	0.02	0.00	0.12	0.27	100	211	
120	9.74	9.73	33.738	26.013	201.0	0.331	2.91	45.4	25.7	1.93	24.2	0.20	0.04	0.12	0.28	121	210	
125 ISL	9.58	D 9.57	33.807	D 26.093	193.5	0.341	2.66	D 41.4	27.4	2.00	25.2	0.17	0.03	0.12	0.32	126		
140	9.26	9.24	33.915	26.230	180.8	0.369	2.26	34.9	31.8	2.15	27.7	0.05	0.00	0.10	0.42	141	209	
150 ISL	9.17	D 9.15	33.926	D 26.253	178.7	0.387	2.27	D 35.0	32.8	2.15	27.9	0.05	0.05	0.08	0.40	151		
170	8.96	8.94	33.971	26.322	172.5	0.422	2.29	35.2	33.8	2.14	28.2	0.04	0.16	0.04	0.29	171	208	
200	8.39	8.37	34.000	26.433	162.3	0.472	2.16	32.8	37.7	2.23	30.1	0.00	0.05	0.05	0.21	201	207	
231	7.91	7.89	34.018	26.520	154.5	0.521	2.17	32.5	41.5	2.25	30.8	0.00	0.00			232	206	
250 ISL	7.63	D 7.61	34.007	D 26.552	151.6	0.550	2.36	D 35.2	43.6	2.28	31.3	0.00	0.00			251		
270	7.41	7.38	34.014	26.589	148.4	0.580	2.12	31.4	46.2	2.34	32.1	0.00	0.00			272	205	
300 ISL	6.97	D 6.94	34.045	D 26.675	140.4	0.624	1.63	D 23.9	52.4	2.50	34.2	0.00	0.00			302		
320	6.79	6.76	34.052	26.705	137.8	0.652	1.44	21.0	56.8	2.62	35.7	0.00	0.00			322	204	
381	6.24	6.21	34.077	26.797	129.5	0.733	1.11	16.0	65.5	2.83	38.0	0.00	0.00			383	203	
400 ISL	6.02	D 5.99	34.104	D 26.847	124.9	0.757	0.90	D 12.9	69.1	2.90	38.7	0.00	0.00			403		
440	5.81	5.77	34.149	26.909	119.4	0.806	0.66	9.4	76.6	3.02	40.1	0.00	0.00			443	202	
500 ISL	5.54	D 5.50	34.201	D 26.983	112.9	0.876	0.48	D 6.8	83.3	3.10	41.0	0.00	0.00			503		
518	5.49	5.45	34.212	26.998	111.6	0.896	0.40	5.7	85.3	3.12	41.3	0.00	0.00			522	201	

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED S; CRUISE CORRECTED 1° 02';

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 83.3 80.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE		
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SV	DYN	HT	OXYGEN	OXY	S103	P04	N03	N02	NH4	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C	THETA		ml/l	PCT		uM/l	uM/l	uM/l	uM/l	uM/l	uM/l	ug/l	ug/l	db		
0 ISL	15.59	15.59	33.353	24.574	335.4	0.000	5.74	101.1	2.1	0.25	0.0	0.00	0.01	0.08	0.05	0		
2	15.59	15.59	33.353	24.574	335.4	0.007	5.74	101.1	2.1	0.25	0.0	0.00	0.01	0.08	0.05	2	221	
10 ISL	15.59	D 15.59	33.357	D 24.577	335.4	0.034	5.78	D 101.8	2.1	0.25	0.1	0.00	0.05	0.08	0.02	10		
11	15.59	15.59	33.363	24.582	334.9	0.037	5.75	101.3	2.1	0.25	0.1	0.00	0.06	0.08	0.01	11	219	
11	15.59	15.59	33.355	24.576	335.5	0.037										11	220	
20 ISL	15.59	D 15.59	33.375	D 24.591	334.3	0.067	5.78	D 101.8	2.1	0.24	0.0	0.00	0.03	0.09	0.02	20		
25	15.54	15.54	33.375	24.603	333.4	0.084	5.76	101.3	2.1	0.24	0.0	0.00	0.00	0.09	0.02	25	218	
30 ISL	15.48	D 15.48	33.371	D 24.613	332.6	0.100	5.78	D 101.6	2.1	0.24	0.0	0.00	0.00	0.09	0.02	30		
40	15.37	15.36	33.371	24.638	330.5	0.134	5.77	101.2	2.1	0.24	0.0	0.00	0.00	0.10	0.03	40	217	
50	15.32	15.31	33.355	24.637	330.9	0.167	5.78	101.2	2.1	0.25	0.2	0.00	0.07	0.15	0.05	50	216	
62	15.34	15.33	33.364	24.640	331.0	0.206	5.78	101.3	2.0	0.24	0.1	0.00	0.01	0.16	0.04	62	215	
75	15.33	15.32	33.444	24.704	325.3	0.249	5.73	100.4	2.2	0.23	0.0	0.00	0.00	0.29	0.14	75	214	
88	15.17	15.16	33.598	24.858	311.0	0.290	5.65	98.8	2.4	0.22	0.2	0.00	0.02	0.40	0.26	88	213	
100	14.17	14.16	33.535	25.023	295.5	0.327	5.54	94.9	3.1	0.31	1.3	0.08	0.06	0.36	0.28	100	212	
112	12.82	12.80	33.465	25.243	274.6	0.361	5.33	88.7	4.8	0.50	4.4	0.04	0.06	0.21	0.16	112	211	
125	11.69	11.67	33.374	25.388	261.0	0.396	5.18	84.1	7.0	0.72	7.4	0.02	0.00	0.10	0.08	126	210	
140	10.49	10.47	33.425	25.642	236.8	0.433	4.58	72.5	13.1	1.17	14.2	0.00	0.01	0.03	0.03	141	209	
150 ISL	9.84	D 9.82	33.486	D 25.800	221.9	0.456	3.99	D 62.3	17.1	1.40	17.9	0.00	0.05	0.02	0.03	151		
171	9.34	9.32	33.721	26.066	197.0	0.500	3.49	54.0	23.8	1.72	23.1	0.00	0.14	0.00	0.02	172	208	
200	8.87	8.85	33.911	26.290	176.1	0.554	3.41	52.2	27.5	1.76	24.2	0.00	0.12	0.00	0.0			

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 83.3 90.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SIO3	P04	N03	N02	NH4	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C	THETA			ml/l	PCT	uM/l	uM/l	uM/l	uM/l	uM/l	ug/l	ug/l	db		
0 ISL	15.41	15.41	33.107	24.424	349.6	0.000	5.82	102.0	2.2	0.28	0.0	0.00	0.10	0.06	0.01	0	
3	15.41	15.41	33.107	24.424	349.7	0.010	5.82	102.0	2.2	0.28	0.0	0.00	0.10	0.06	0.01	3 221	
10	15.41	15.41	33.124	24.438	348.6	0.035	5.82	102.0	2.2	0.27	0.0	0.00	0.00	0.07	0.01	10 219	
10	15.41	15.41	33.120	24.435	348.9	0.035										10 220	
20 ISL	14.86	14.86	33.136	24.567	336.6	0.069	5.84	101.2	2.1	0.27	0.0	0.00	0.01	0.08	0.02	20	
26	14.93	14.93	33.140	24.555	337.9	0.089	5.85	101.5	2.1	0.27	0.0	0.00	0.02	0.09	0.02	26 218	
30 ISL	15.00 D	15.00	33.179 D	24.570	336.6	0.103	5.87	102.0	2.1	0.27	0.0	0.00	0.05	0.10	0.02	30	
41	14.84	14.83	33.157	24.588	335.2	0.140	5.87	101.7	2.1	0.28	0.0	0.00	0.08	0.13	0.02	41 217	
50	14.28	14.27	33.044	24.620	332.4	0.170	5.95	101.8	2.1	0.30	0.0	0.00	0.00	0.16	0.04	50 216	
62	13.59	13.58	32.969	24.704	324.6	0.209	6.07	102.4	2.4	0.33	0.0	0.00	0.00	0.31	0.14	62 215	
75	12.93	12.92	32.965	24.833	312.6	0.251	5.96	99.1	2.8	0.40	0.5	0.09	0.00	0.73	0.41	75 214	
87	12.53	12.52	33.023	24.956	301.2	0.288	5.75	94.9	3.7	0.52	2.6	0.10	0.00	0.37	0.29	87 213	
100	12.02	12.01	33.080	25.097	288.0	0.326	5.60	91.4	5.0	0.66	4.9	0.01	0.00	0.22	0.17	100 212	
112	11.42	11.41	33.166	25.275	271.3	0.359	5.33	86.0	6.9	0.82	7.6	0.00	0.00	0.12	0.09	112 211	
125	10.76	10.75	33.304	25.500	250.0	0.393	4.88	77.7	10.4	1.05	11.6	0.00	0.00	0.04	0.04	126 210	
140	10.12	10.10	33.429	25.708	230.4	0.429	4.40	69.1	15.2	1.35	16.4	0.00	0.00	0.01	0.02	141 209	
150 ISL	10.03 D	10.01	33.559 D	25.825	219.6	0.452	4.42	69.3	18.1	1.52	18.9	0.00	0.00	0.01	0.02	151	
170	9.45	9.43	33.642	25.986	204.5	0.494	3.62	56.1	22.6	1.74	22.2	0.00	0.00	0.00	0.02	171 208	
200	9.00	8.98	33.847	26.219	182.9	0.552	3.64	55.9	25.6	1.72	22.9	0.00	0.00	0.00	0.01	201 207	
231	8.62	8.60	33.938	26.350	170.9	0.607	3.29	50.1	30.1	1.87	25.2	0.00	0.00	0.00	0.00	232 206	
250 ISL	8.28 D	8.25	33.981 D	26.436	163.0	0.639	2.95	44.6	34.5	2.02	27.2	0.00	0.00			251	
271	7.97	7.94	34.014	26.508	156.3	0.672	2.46	36.9	39.6	2.20	29.5	0.00	0.00			272 205	
300 ISL	7.60 D	7.57	34.046 D	26.588	149.1	0.717	2.10	31.3	44.9	2.36	31.7	0.00	0.00			302	
320	7.36	7.33	34.048	26.623	145.9	0.746	1.88	27.8	48.3	2.45	32.9	0.00	0.00			322 204	
380	6.79	6.75	34.098	26.742	135.2	0.831	1.24	18.1	59.0	2.73	36.2	0.00	0.00			382 203	
400 ISL	6.56 D	6.52	34.118 D	26.788	130.9	0.857	1.09	15.9	62.2	2.80	37.1	0.00	0.00			402	
442	6.27	6.23	34.139	26.843	126.1	0.911	0.85	12.3	68.6	2.93	38.6	0.00	0.00			445 202	
500 ISL	5.82 D	5.78	34.196 D	26.945	116.8	0.982	0.56	8.0	77.5	3.09	40.2	0.00	0.00			503	
516	5.73	5.69	34.199	26.959	115.6	1.000	0.50	7.1	79.9	3.13	40.7	0.00	0.00			519 201	

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED S; CRUISE CORRECTED 1° 02;

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 83.3 100.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SIO3	P04	N03	N02	NH4	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C	THETA			ml/l	PCT	uM/l	uM/l	uM/l	uM/l	uM/l	ug/l	ug/l	db		
0 ISL	14.28	14.28	32.899	24.506	341.8	0.000	5.98	102.3	2.1	0.30	0.0	0.00	0.00	0.10	0.02	0	
2	14.28	14.28	32.899	24.506	341.8	0.007	5.98	102.3	2.1	0.30	0.0	0.00	0.00	0.10	0.02	2 221	
10	13.95	13.95	32.899	24.575	335.5	0.034	6.03	102.4	2.1	0.31	0.0	0.00	0.00	0.16	0.03	10 219	
10	13.96	13.96	32.896	24.571	335.9	0.034										10 220	
20 ISL	13.47 D	13.47	32.898 D	24.672	326.5	0.067	6.11	102.8	2.0	0.30	0.0	0.00	0.00	0.14	0.03	20	
21	13.47	13.47	32.896	24.671	326.7	0.070	6.05	101.8	2.0	0.30	0.0	0.00	0.00	0.14	0.03	21 218	
30	13.29	13.29	32.882 D	24.696	324.5	0.100	6.17	103.4								30 217	
40	12.91	12.90	32.847	24.745	320.1	0.132	6.23	103.5	2.3	0.32	0.0	0.00	0.00	0.44	0.15	40 216	
50	12.83	12.82	32.862	24.772	317.8	0.164	6.24	103.5	2.3	0.34	0.1	0.00	0.00	0.65	0.22	50 215	
60	12.68	12.67	32.848	24.791	316.2	0.195	6.20	102.5	2.3	0.35	0.3	0.01	0.00	0.57	0.21	60 214	
70	12.30	12.29	32.879	24.888	307.2	0.227	5.98	98.1	2.8	0.43	1.4	0.11	0.15	0.34	0.18	70 213	
75 ISL	12.29 D	12.28	32.912 D	24.916	304.7	0.242	6.07	99.6	2.8	0.45	1.7	0.11	0.25	0.29	0.16	75	
85	12.26	12.25	32.979	24.973	299.4	0.272	5.96	97.8	3.2	0.51	2.5	0.11	0.37	0.23	0.11	85 212	
100 ISL	11.39 D	11.38	33.057 D	25.195	278.5	0.315	5.47	88.1	5.6	0.68	5.8	0.06	0.03	0.14	0.10	100	
101	11.41	11.40	33.055	25.190	279.0	0.318	5.44	87.7	5.8	0.70	6.1	0.06	0.00	0.14	0.10	101 211	
121	10.50	10.49	33.187	25.454	254.2	0.372	4.86	76.9	11.2	1.11	12.7	0.01	0.00	0.07	0.07	122 210	
125 ISL	10.31 D	10.30	33.238 D	25.527	247.4	0.382	4.77	75.1	12.1	1.16	13.6	0.01	0.00	0.06	0.06	126	
140	10.01	9.99	33.364	25.676	233.5	0.418	4.48	70.2	15.2	1.31	16.3	0.00	0.00	0.03	0.04	141 209	
150 ISL	9.61 D	9.59	33.485 D	25.837	218.3	0.440	4.51	70.1	17.5	1.40	18.0	0.00	0.00	0.02	0.04	151	
170	9.19	9.17	33.674	26.053	198.1	0.482	3.81	58.7	22.7	1.62	21.6	0.00	0.00	0.00	0.03	171 208	
200 ISL	8.88 D	8.86	33.900 D	26.279	177.1	0.538	2.52	38.6	32.1	2.10	28.1	0.00	0.00	0.00	0.05	201	
201	8.87	8.85	33.902	26.283	176.8	0.540	2.45	37.5	32.4	2.11	28.3	0.00	0.00	0.00	0.05	202 207	
230	8.38	8.36	33.960	26.404	165.7	0.590	2.69	40.8	34.5	2.05	28.0	0.00	0.00			231 206	
250 ISL	8.08 D	8.05	33.990 D	26.473	159.4	0.622	2.52	37.9	37.8	2.13	29.2	0.00	0.00			251	
271	7.80	7.77	34.007	26.528	154.4	0.655	2.24	33.5	41.9	2.25	30.9	0.00	0.00			273 205	
300 ISL	7.40 D	7.37	34.019 D	26.595	148.3	0.699	2.02	29.9	46.8	2.37	32.5	0.00	0.00			302	
321	7.20	7.17	34.026	26.628	145.3	0.730	1.80	26.6	50.2	2.45	33.6	0.00	0.00			323 204	
380	6.74	6.70	34.075	26.730	136.3	0.813	1.24	18.1	59.4	2.70	36.5	0.00	0.00			382 203	
400 ISL	6.66 D	6.62	34.115 D	26.773													

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 83.3 110.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	
31 55.5 N	124 10.3 W	20/04/11	1632	UTC	4121 m	260	10 kn	260 06 05	2	1019.9 mb	16.0 C	16.0 C	25m	8/8		SC	
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SIO3	P04	N03	N02	NH4	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C	THETA				ml/l	pct	uM/l	uM/l	uM/l	uM/l	uM/l	ug/l	ug/l	db	
0 ISL	14.96	14.96	32.992	24.434	348.7	0.000	5.87	101.9	2.2	0.32	0.1	0.00	0.20	0.08	0.02	0	
2 A	14.96	14.96	32.992	24.434	348.8	0.007	5.87	101.9	2.2	0.32	0.1	0.00	0.20	0.08	0.02	2	223
8	14.94	14.94	32.992	24.438	348.5	0.028	5.87	101.8	2.2	0.31	0.0	0.00	0.00	0.09	0.02	8	221
8	14.94	14.94	32.990	24.437	348.7	0.028										8	222
10 ISL	14.92	14.92	32.994	D 24.444	348.0	0.035	5.91	D 102.5	2.2	0.31	0.0	0.00	0.00	0.09	0.02	10	
16 A	14.92	14.92	32.989	24.440	348.5	0.056	5.89	102.1	2.1	0.31	0.1	0.00	0.01	0.08	0.02	16	220
20 ISL	14.83	D 14.83	32.994	D 24.464	346.4	0.070	5.92	D 102.4	2.1	0.31	0.0	0.00	0.00	0.09	0.01	20	
22 A	14.84	14.84	32.989	24.458	347.1	0.077	5.88	101.8	2.1	0.31	0.0	0.00	0.00	0.10	0.00	22	219
30 ISL	14.61	D 14.61	32.990	D 24.508	342.5	0.104	5.94	D 102.3	2.1	0.30	0.0	0.00	0.00	0.11	0.01	30	
31	14.61	14.61	32.988	24.506	342.7	0.108	5.91	101.8	2.1	0.30	0.0	0.00	0.00	0.11	0.01	31	218
40 A	14.59	14.58	32.987	24.510	342.6	0.138	5.90	101.6	2.1	0.31	0.0	0.00	0.00	0.11	0.02	40	217
50 ISL	14.58	D 14.57	32.990	D 24.515	342.4	0.173	5.94	D 102.3	2.0	0.31	0.0	0.00	0.00	0.13	0.03	50	
52	14.58	14.57	32.987	24.513	342.7	0.180	5.90	101.6	2.0	0.31	0.0	0.00	0.00	0.13	0.03	52	216
64	14.48	14.47	32.989	24.536	340.8	0.221	5.91	101.5	2.1	0.30	0.0	0.00	0.00	0.21	0.04	64	215
75 A	13.80	13.79	32.963	24.657	329.5	0.257	6.01	101.8	2.2	0.32	0.0	0.00	0.00	0.29	0.13	75	214
85	13.12	13.11	33.043	24.856	310.7	0.289	5.84	97.6	2.9	0.41	0.9	0.08	0.00	0.78	0.28	85	213
93 A	12.52	12.51	32.999	24.939	302.9	0.314	5.78	95.3	3.5	0.51	2.3	0.13	0.00	0.51	0.28	93	212
100 ISL	12.15	D 12.14	33.019	D 25.026	294.8	0.335	5.72	D 93.6	4.0	0.58	3.5	0.07	0.00	0.35	0.23	100	
106	12.07	12.06	33.040	25.057	292.0	0.352	5.62	91.8	4.6	0.63	4.6	0.01	0.00	0.26	0.18	106	211
120	11.56	11.54	33.114	25.209	277.7	0.392	5.50	88.9	6.6	0.79	7.3	0.00	0.00	0.11	0.07	121	210
125 ISL	11.56	D 11.54	33.217	D 25.289	270.2	0.406	5.41	D 87.5	7.1	0.82	7.9	0.00	0.00	0.08	0.06	126	
139	10.93	10.91	33.267	25.442	255.9	0.443	5.06	80.8	9.0	0.93	9.9	0.00	0.00	0.05	0.04	140	209
150 ISL	10.36	D 10.34	33.402	D 25.647	236.6	0.470	4.77	D 75.3	12.1	1.13	13.1	0.00	0.00	0.03	0.03	151	
170	9.81	9.79	33.528	25.838	218.7	0.516	4.06	63.4	18.5	1.50	19.1	0.00	0.00	0.01	0.02	171	208
200 ISL	9.05	D 9.03	33.845	D 26.209	183.8	0.576	3.45	D 53.0	26.0	1.75	23.5	0.00	0.00	0.00	0.01	201	
201	9.04	9.02	33.844	26.210	183.7	0.578	3.46	53.2	26.2	1.76	23.6	0.00	0.00	0.00	0.01	202	207
231	8.60	8.58	33.950	26.363	169.7	0.631	3.08	46.9	31.4	1.91	26.0	0.00	0.00			232	206
250 ISL	8.21	D 8.18	33.976	D 26.443	162.3	0.662	3.31	D 50.0	34.8	2.00	27.4	0.00	0.00			251	
271	7.98	7.95	34.005	26.500	157.1	0.696	2.62	39.4	38.8	2.12	28.9	0.00	0.00			272	205
300 ISL	7.58	D 7.55	34.046	D 26.590	148.8	0.740	2.14	D 31.9	45.5	2.33	31.6	0.00	0.00			302	
321	7.27	7.24	34.056	26.642	144.1	0.771	1.77	26.2	50.5	2.48	33.5	0.00	0.00			323	204
379	6.44	6.41	34.063	26.760	133.1	0.851	1.37	19.9	62.0	2.71	36.8	0.00	0.00			381	203
400 ISL	6.23	D 6.19	34.082	D 26.803	129.3	0.879	1.21	D 17.5	65.8	2.79	37.7	0.00	0.00			402	
440	5.89	5.85	34.099	26.859	124.1	0.930	0.95	13.6	72.5	2.92	39.2	0.00	0.00			443	202
500 ISL	5.56	D 5.52	34.162	D 26.950	116.0	1.002	0.64	D 9.1	80.5	3.04	40.6	0.00	0.00			503	
517	5.49	5.45	34.171	26.966	114.7	1.021	0.57	8.1	82.8	3.08	41.0	0.00	0.00			520	201

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED S; CRUISE CORRECTED 1° 02';

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 86.7 33.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	
33 53.4 N	118 29.4 W	17/04/11	2149	UTC	56 m	220	07 kn	320 01 07	1	1011.6 mb	16.5 C	16.5 C	6m	7/8		AS	
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SIO3	P04	N03	N02	NH4	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C	THETA				ml/l	pct	uM/l	uM/l	uM/l	uM/l	uM/l	ug/l	ug/l	db	
0 ISL	14.14	14.14	33.483	24.986	296.1	0.000	7.37	126.1	0.4	0.37	0.4	0.10	0.00	10.22	0.22	0	
2 A	14.14	14.14	33.483	24.986	296.1	0.006	7.37	126.1	0.4	0.37	0.4	0.10	0.00	10.22	0.22	2	210
4 A	14.15	14.15	33.484	24.985	296.3	0.012	7.39	126.5	0.3	0.34	0.3	0.09	0.00	13.38	0.26	4	209
5 A	14.01	14.01	33.485	25.015	293.5	0.015	7.18	122.6	0.8	0.37	1.1	0.17	0.00	10.29	0.32	5	208
10 A	13.65	13.65	33.493	25.096	285.9	0.029	6.42	108.8	2.8	0.62	4.1	0.36	0.19	5.79	0.18	10	207
10	13.70	13.70	33.494	25.086	286.8	0.029										10	207
19 A	13.34	13.34	33.493	25.159	280.2	0.055	5.78	97.3	5.0	0.72	6.5	0.47	0.91	1.25	0.48	19	205
20 ISL	13.30	D 13.30	33.496	D 25.169	279.2	0.058	5.81	D 97.7	5.0	0.72	6.5	0.48	0.95	1.26	0.43	20	
22 A	13.20	13.20	33.492	25.186	277.7	0.063	5.75	96.5	5.0	0.72	6.5	0.49	1.08	1.29	0.35	22	204
30	10.72	10.72	33.517	25.671	231.6	0.084	3.27	52.1	19.5	1.66	20.1	0.65	2.91	0.76	0.92	30	203
40	10.36	10.36	33.581	25.784	221.1	0.106	2.84	44.9	23.3	1.82	22.6	0.69	3.71	0.39	0.93	40	202
46	10.37	10.36	33.595	25.793	220.4	0.119	2.75	43.5	24.3	1.87	22.3	0.67	3.60	0.33	1.27	46	201

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED S; CRUISE CORRECTED 1° 02';

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 86.7 35.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE		
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SV	DYN	HT	OXYGEN	OXY	S103	P04	N03	N02	NH4	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C	THETA		ml/l	PCT		uM/l	uM/l	uM/l	uM/l	uM/l	uM/l	ug/l	ug/l	db		
0 ISL	15.23	15.23	33.456	24.732	320.2	0.000	5.98	104.6	3.9	0.53	3.6	0.18	0.44	0.58	0.19	0		
2 A	15.23	15.23	33.456	24.733	320.3	0.006	5.98	104.6	3.9	0.53	3.6	0.18	0.44	0.58	0.19	2	221	
10	14.29	14.29	33.455	24.934	301.4	0.031	6.15	105.6	3.4	0.48	3.1	0.23	0.27	1.21	0.23	10	219	
11	14.31	14.31	33.454	24.929	301.9	0.034										11	220	
20	13.35	13.35	33.450	25.124	283.6	0.061	5.80	97.6	4.1	0.61	4.6	0.33	0.57	1.71	0.38	20	218	
30	11.18	11.18	33.506	25.581	240.2	0.087	3.79	61.0	15.6	1.43	16.9	0.43	1.27	0.70	0.35	30	217	
41	10.86	10.86	33.524	25.652	233.7	0.113	3.54	56.6	17.4	1.55	18.8	0.24	0.21	0.62	0.31	41	216	
50 ISL	10.30	D 10.29	33.604	D 25.812	218.6	0.133	3.26	D 51.5	20.6	1.69	21.2	0.15	0.03	0.18	0.16	50		
51	10.31	10.30	33.600	25.808	219.1	0.135	3.23	51.0	21.0	1.71	21.5	0.14	0.01	0.13	0.15	51	215	
60	10.04	10.03	33.687	25.922	208.4	0.155	2.94	46.2	23.7	1.83	23.2	0.06	0.00	0.07	0.24	60	214	
70	9.77	9.76	33.802	26.057	195.8	0.175	2.70	42.2	26.6	1.94	24.8	0.02	0.00	0.04	0.18	70	213	
75 ISL	9.68	D 9.67	33.846	D 26.106	191.2	0.185	2.64	D 41.2	27.9	2.00	25.5	0.02	0.00	0.04	0.19	75		
85	9.65	9.64	33.907	26.159	186.4	0.203	2.20	34.3	29.8	2.09	26.7	0.01	0.00	0.05	0.21	85	212	
100 ISL	9.61	D 9.60	33.953	D 26.202	182.7	0.231	2.11	D 32.9	30.7	2.13	27.1	0.00	0.00	0.03	0.16	101		
101	9.60	9.59	33.949	26.200	182.8	0.233	2.09	32.6	30.7	2.13	27.1	0.00	0.00	0.03	0.16	102	211	
121	9.42	9.41	34.034	26.297	174.1	0.269	1.87	29.0	33.7	2.22	27.8	0.06	0.00	0.03	0.17	122	210	
125 ISL	9.35	D 9.34	34.065	D 26.332	170.7	0.276	1.86	D 28.8	34.3	2.24	28.0	0.06	0.00	0.03	0.16	126		
143	9.19	9.17	34.113	26.396	165.1	0.306	1.69	26.1	36.5	2.30	28.6	0.06	0.00	0.02	0.11	144	209	
150 ISL	9.16	D 9.14	34.120	D 26.406	164.2	0.317	1.70	D 26.3	36.7	2.31	28.7	0.06	0.00	0.02	0.12	151		
172	9.10	9.08	34.132	26.426	162.8	0.353	1.61	24.8	37.4	2.34	29.1	0.07	0.00	0.02	0.15	173	208	
200 ISL	8.82	D 8.80	34.192	D 26.518	154.6	0.398	1.31	D 20.1	41.4	2.47	30.3	0.06	0.00	0.01	0.08	201		
201	8.81	8.79	34.188	26.516	154.7	0.399	1.29	19.8	41.6	2.47	30.3	0.06	0.00	0.01	0.08	202	207	
230	8.66	8.64	34.230	26.573	149.9	0.443	1.07	16.3	44.7	2.56	31.2	0.03	0.00			231	206	
250 ISL	8.32	D 8.29	34.247	D 26.639	143.8	0.473	0.98	D 14.9	47.7	2.64	32.1	0.01	0.00			252		
270	8.09	8.06	34.241	26.669	141.2	0.501	0.88	13.3	50.8	2.71	33.1	0.00	0.00			272	205	
300 ISL	7.65	D 7.62	34.223	D 26.719	136.7	0.543	0.86	D 12.8	54.6	2.77	34.3	0.00	0.00			302		
319	7.51	7.48	34.229	26.745	134.6	0.569	0.78	11.6	56.9	2.80	34.9	0.00	0.00			321	204	
380	6.95	6.91	34.239	26.831	126.9	0.648	0.62	9.1	64.1	2.92	36.6	0.00	0.00			383	203	
400 ISL	6.80	D 6.76	34.250	D 26.860	124.4	0.674	0.56	D 8.2	65.9	2.95	37.1	0.00	0.00			403		
441	6.63	6.59	34.264	26.895	121.6	0.724	0.46	6.7	69.3	3.01	37.9	0.00	0.00			444	202	
500 ISL	6.30	D 6.25	34.298	D 26.965	115.5	0.794	0.32	D 4.6	75.4	3.10	38.7	0.00	0.00			504		
517	6.28	6.23	34.298	26.968	115.4	0.814	0.30	4.3	77.2	3.13	38.9	0.00	0.00			521	201	

A) UNUSUAL PROFILES AND ODD N03/P04 RATIOS MAY BE DUE TO THE PROXIMITY OF THIS STATION TO THE HYPERION WASTE-WATER OUTFALL.

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED S; CRUISE CORRECTED 1° 02';

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 86.7 40.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE		
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SV	DYN	HT	OXYGEN	OXY	S103	P04	N03	N02	NH4	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C	THETA		ml/l	PCT		uM/l	uM/l	uM/l	uM/l	uM/l	uM/l	ug/l	ug/l	db		
0 ISL	16.26	16.26	33.428	24.480	344.2	0.000	6.22	111.1	2.0	0.23	0.0	0.00	0.00	0.46	0.11	0		
2	16.26	16.26	33.428	24.480	344.3	0.007	6.22	111.1	2.0	0.23	0.0	0.00	0.00	0.46	0.11	2	224	
10 ISL	15.78	D 15.78	33.417	D 24.581	335.0	0.034	6.51	D 115.1	1.8	0.22	0.0	0.03	0.22	0.50	0.14	10		
11	15.75	15.75	33.416	24.587	334.4	0.037	6.46	114.2	1.8	0.22	0.0	0.03	0.25	0.51	0.14	11	223	
20 ISL	14.58	D 14.58	33.416	D 24.843	310.4	0.066	6.71	D 115.8	1.6	0.27	0.0	0.03	0.28	1.79	0.54	20		
21	14.60	14.60	33.419	24.841	310.6	0.070	6.62	114.3	1.6	0.28	0.0	0.03	0.28	1.92	0.58	21	222	
30	12.61	12.61	33.447	25.268	270.1	0.096	5.12	84.9	6.9	0.84	7.3	0.54	0.08	1.72	0.64	30	221	
41	10.88	10.88	33.446	25.588	239.8	0.124	3.79	60.5	16.6	1.50	17.6	0.07	0.18	0.30	0.18	41	220	
50 ISL	10.32	D 10.31	33.616	D 25.818	218.1	0.144	3.23	D 51.0	21.4	1.75	21.2	0.04	0.12	0.08	0.10	50		
51	10.31	10.30	33.614	25.818	218.1	0.146	3.19	50.4	21.8	1.77	21.4	0.04	0.11	0.05	0.09	51	219	
61	10.11	10.10	33.687	25.910	209.6	0.168	3.01	47.3	23.6	1.85	22.6	0.04	0.01	0.03	0.09	61	218	
70	9.94	9.93	33.727	25.970	204.1	0.186	2.93	45.9	24.7	1.89	23.3	0.04	0.03	0.02	0.06	70	217	
75 ISL	9.85	D 9.84	33.788	D 26.033	198.2	0.197	2.87	D 44.9	25.4	1.92	23.7	0.04	0.02	0.02	0.06	75		
85	9.70	9.69	33.822	26.084	193.5	0.216	2.73	42.6	26.9	1.97	24.6	0.03	0.00	0.02	0.06	85	216	
100	9.55	9.54	33.910	26.178	184.9	0.245	2.50	38.9	29.2	2.06	25.6	0.03	0.01	0.01	0.04	101	215	
119	9.44	9.43	33.936	26.217	181.6	0.279	2.48	38.5	29.9	2.08	26.0	0.03	0.00	0.01	0.05	120	214	
125 ISL	9.43	D 9.42	33.984	D 26.256	178.0	0.290	2.34	D 36.3	30.7	2.11	26.3	0.03	0.02	0.01	0.05	126		
140	9.22	9.20	34.021	26.319	172.3	0.316	2.14	33.1	33.2	2.20	27.3	0.03	0.08	0.01	0.06	141	213	
150 ISL	9.15	D 9.13	34.046	D 26.350	169.5	0.333	2.09	D 32.3	34.7	2.25	27.9	0.03	0.06	0.01	0.06	151		
171	8.89	8.87	34.114	26.445	160.9	0.368	1.76	27.0	37.8	2.36	29.2	0.02	0.00	0.01	0.05	172	212	
200 ISL	8.48	D 8.46	34.161	D 26.546	151.7	0.413	1.44	D 21.9	42.8	2.52	30.9	0.02	0.10	0.01	0.04	201		
201	8.47	8.45	34.158	26.545	151.8	0.415	1.43	21.7	43.0	2.52	31.0	0.02	0.10	0.01	0.04	202	211	
231	8.14	8.12	34.177	26.610	146.1	0.46												

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 86.7 45.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	N03	N02	NH4	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C	THETA			ml/l	PCT	uM/l	uM/l	uM/l	uM/l	uM/l	ug/l	ug/l	db		
0 ISL	14.16	14.16	33.454	24.960	298.6	0.000	5.92	101.3	2.3	0.59	3.5	0.10	1.11	0.47	0.23	0	
2	14.16	14.16	33.454	24.960	298.6	0.006	5.92	101.3	2.3	0.59	3.5	0.10	1.11	0.47	0.23	2 221	
10	13.55	13.55	33.499	25.121	283.6	0.029	6.01	101.6	1.4	0.57	4.6	0.14	0.45	1.35	0.23	10 219	
10	13.57	13.57	33.496	25.114	284.2	0.029										10 220	
20 ISL	12.79	33.540	D 25.304	266.3	0.057	6.11	D 101.7	1.8	0.65	6.5	0.22	0.43	3.34	0.81	0.23	20	
21	12.71	33.541	25.321	264.8	0.059	5.91	98.2	1.8	0.66	6.7	0.23	0.43	3.42	0.85	0.21	21 218	
30	10.55	10.55	33.665	25.816	217.8	0.081	3.35	53.2	20.1	1.71	21.0	0.29	0.02	0.58	0.34	30 217	
40	10.02	10.02	33.728	25.957	204.7	0.102	2.86	44.9	24.4	1.88	23.9	0.03	0.00	0.24	0.14	40 216	
49	9.74	9.73	33.815	26.071	193.9	0.120	2.58	40.3	27.3	1.99	25.5	0.02	0.00	0.05	0.13	49 215	
50 ISL	9.73	D 9.72	33.822	D 26.079	193.3	0.122	2.59	D 40.4	27.5	2.00	25.6	0.02	0.00	0.05	0.13	50	
60	9.59	9.58	33.879	26.146	187.0	0.141	2.34	36.4	29.4	2.07	26.6	0.01	0.00	0.02	0.19	60 214	
70	9.47	9.46	33.939	26.213	180.9	0.160	2.18	33.9	30.9	2.13	27.3	0.01	0.07	0.03	0.20	70 213	
75 ISL	9.43	D 9.42	33.956	D 26.233	179.1	0.169	2.18	D 33.8	31.3	2.14	27.5	0.01	0.07	0.03	0.19	75	
85	9.40	9.39	33.967	26.247	178.0	0.186	2.12	32.9	31.8	2.16	27.7	0.02	0.06	0.02	0.18	85 212	
100	9.28	9.27	34.009	26.299	173.3	0.213	2.02	31.3	33.3	2.20	28.2	0.02	0.02	0.02	0.18	101 211	
120	9.07	9.06	34.068	26.380	166.1	0.247	1.83	28.2	35.7	2.27	29.0	0.02	0.00	0.01	0.17	121 210	
125 ISL	8.99	D 8.98	34.091	D 26.410	163.3	0.255	1.79	D 27.5	36.4	2.29	29.2	0.02	0.01	0.01	0.17	126	
140	8.87	8.86	34.111	26.445	160.2	0.279	1.65	25.3	38.3	2.34	29.9	0.01	0.03	0.01	0.16	141 209	
150 ISL	8.72	D 8.70	34.135	D 26.488	156.4	0.295	1.57	D 24.0	39.3	2.37	30.2	0.01	0.11	0.01	0.16	151	
170	8.63	8.61	34.144	26.509	154.7	0.326	1.45	22.1	41.4	2.44	30.9	0.01	0.23	0.01	0.17	171 208	
200 ISL	8.40	D 8.38	34.178	D 26.572	149.3	0.372	1.20	D 18.2	45.2	2.55	32.2	0.00	0.09	0.01	0.12	201	
201	8.40	8.38	34.177	26.571	149.4	0.373	1.19	18.1	45.3	2.55	32.2	0.00	0.08	0.01	0.12	202 207	
229	8.08	8.06	34.204	26.641	143.1	0.414	0.98	14.8	49.4	2.65	33.4	0.00	0.00			230 206	
250 ISL	7.88	D 7.85	34.222	D 26.685	139.3	0.444	0.86	D 12.9	52.7	2.73	34.3	0.00	0.00			252	
270	7.67	7.64	34.231	26.722	135.9	0.471	0.74	11.1	55.6	2.79	35.0	0.00	0.00			272 205	
300 ISL	7.44	D 7.41	34.248	D 26.769	131.9	0.512	0.63	D 9.4	58.8	2.85	35.8	0.00	0.00			302	
320	7.30	7.27	34.250	26.791	130.1	0.538	0.58	8.6	60.7	2.88	36.2	0.00	0.00			322 204	
380	6.92	6.88	34.267	26.857	124.4	0.614	0.44	6.5	66.9	2.98	37.5	0.00	0.00			383 203	
400 ISL	6.70	D 6.66	34.281	D 26.898	120.7	0.639	0.39	D 5.7	69.1	3.01	37.9	0.00	0.00			403	
441	6.50	6.46	34.288	26.931	118.1	0.688	0.33	4.8	73.7	3.07	38.6	0.00	0.00			444 202	
500 ISL	6.18	D 6.14	34.313	D 26.993	112.8	0.756	0.27	D 3.9	80.1	3.15	39.1	0.00	0.00			504	
518	6.09	6.04	34.316	27.007	111.6	0.776	0.23	3.3	82.0	3.17	39.3	0.00	0.00			522 201	

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED S; CRUISE CORRECTED 1° 02;

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 86.7 50.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	N03	N02	NH4	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C	THETA			ml/l	PCT	uM/l	uM/l	uM/l	uM/l	uM/l	ug/l	ug/l	db		
0 ISL	13.49	13.49	33.468	25.109	284.4	0.000	5.57	94.1	7.7	0.78	6.8	0.14	0.00	1.09	0.26	0	
2 A	13.49	13.49	33.468	25.109	284.5	0.006	5.57	94.1	7.7	0.78	6.8	0.14	0.00	1.09	0.26	2 212	
6 A	13.47	13.47	33.472	25.116	283.9	0.017	5.55	93.7	7.6	0.77	6.9	0.14	0.00	1.01	0.36	6 211	
8 A	13.47	13.47	33.467	25.112	284.3	0.023	5.56	93.8	7.7	0.76	6.9	0.13	0.00	1.01	0.25	8 209	
8 ISL	13.48	13.48	33.467	25.110	284.5	0.023										8 210	
10 ISL	13.46	D 13.46	33.472	D 25.118	283.8	0.028	5.57	D 94.0	7.8	0.77	7.0	0.13	0.00	1.00	0.27	10	
16 A	12.92	12.92	33.474	25.228	273.5	0.045	5.48	91.4	7.9	0.79	7.3	0.14	0.00	0.95	0.34	16 208	
20 ISL	12.28	D 12.28	33.566	D 25.423	255.0	0.056	4.92	D 81.0	10.7	1.00	10.4	0.16	0.09	0.75	0.31	20	
23	11.92	11.92	33.571	25.495	248.2	0.063	4.59	75.0	13.4	1.20	13.3	0.17	0.15	0.60	B 0.28	B 23 207	
30 A	10.89	10.89	33.655	25.749	224.3	0.080	3.62	57.9	19.2	1.58	19.3	0.18	0.09	0.47	0.24	30 206	
37 A	10.19	10.19	33.699	25.905	209.5	0.095	3.11	49.0	22.7	1.78	22.4	0.13	0.00	0.39	0.17	37 205	
45	9.86	9.85	33.777	26.022	198.6	0.111	2.77	43.4	26.9	1.93	24.6	0.10	0.01	0.21	0.21	45 204	
50	9.57	9.56	33.850	26.127	188.7	0.121	2.54	39.5	30.0	2.02	25.9	0.12	0.03	0.10	0.25	50 203	
60	9.39	9.38	33.885	26.184	183.5	0.140	2.43	37.7	31.4	2.08	26.5	0.12	0.04	0.06	0.28	60 202	
71	9.31	9.30	33.896	26.206	181.6	0.160	2.36	36.5	32.0	2.11	26.9	0.12	0.05	0.08	0.31	71 201	

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

B) FIRST FLUOROMETER READING NOT RECORDED, CHLOROPHYLL AND PHAEOPIGMENT CALCULATED WITH ASSUMED ACID RATIO

INTERPOLATED FROM ADJACENT LEVELS.

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED S; CRUISE CORRECTED 1° 02;

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 86.7 55.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE
33 9.2 N	120 0.6 W	18/04/11	2107	UTC	1194 m	300	17 kn	320 04 05	2	1016.9 mb	13.4 C	13.4 C	15m	8/8	ST	
0 ISL	12.16	12.16	33.516	25.407	256.1	0.000	5.81	95.4	8.0	0.97	9.1	0.16	0.66	0.78	0.19	0
2	12.16	12.16	33.516	25.407	256.1	0.005	5.81	95.4	8.0	0.97	9.1	0.16	0.66	0.78	0.19	2 221
10	12.33	12.33	33.568	25.415	255.5	0.026	5.82	96.0	8.0	0.97	9.0	0.14	0.72	0.88	0.41	10 219
10	12.35	12.35	33.572	25.414	255.6	0.026										10 220
20	12.29	12.29	33.557	25.414	255.9	0.051	5.82	95.9	8.0	0.97	9.0	0.15	0.73	0.93	0.45	20 218
30 ISL	12.34 D	12.34	33.575 D	25.419	255.7	0.077	5.85 D	96.5	7.9	0.97	8.9	0.14	0.73	1.02	0.48	30
31	12.34	12.34	33.572	25.417	255.9	0.079	5.82	96.0	7.9	0.97	8.9	0.14	0.73	1.03	0.49	31 217
41	12.29	12.28	33.572	25.427	255.2	0.105	5.90	97.2	6.2	0.90	8.1	0.14	0.72	2.09	0.63	41 216
50 ISL	12.17 D	12.16	33.574 D	25.451	253.1	0.128	5.85 D	96.1	5.2	0.90	7.8	0.14	0.98	1.99	0.89	50
51	12.17	12.16	33.572	25.450	253.3	0.130	5.84	96.0	5.2	0.90	7.8	0.14	1.02	1.98	0.93	51 215
60	11.80	11.79	33.570	25.518	247.0	0.153	5.51	89.8	6.1	1.03	9.0	0.15	1.41	1.03	1.28	60 214
70	11.54	11.53	33.581	25.575	241.8	0.177	5.16	83.7	9.3	1.17	11.0	0.16	1.26	0.86	0.69	70 213
75 ISL	11.38 D	11.37	33.590 D	25.611	238.5	0.189	5.06 D	81.8	11.5	1.28	12.8	0.16	1.10	0.84	0.70	75
85	10.66	10.65	33.623	25.766	223.9	0.212	4.24	67.5	16.1	1.50	16.7	0.17	0.73	0.80	0.72	85 212
99	9.90	9.89	33.633	25.904	211.0	0.243	3.72	58.2	20.7	1.70	20.6	0.16	0.25	0.46	0.48	100 211
100 ISL	9.76 D	9.75	33.638 D	25.931	208.4	0.245	3.71 D	57.9	21.1	1.72	20.9	0.15	0.23	0.44	0.47	101
120	9.27	9.26	33.834	26.164	186.5	0.284	2.68	41.4	29.5	2.03	26.3	0.01	0.00	0.07	0.36	121 210
125 ISL	9.23 D	9.22	33.845 D	26.180	185.2	0.294	2.68 D	41.4	30.7	2.07	26.9	0.01	0.00	0.07	0.34	126
141	9.01	8.99	33.950	26.297	174.3	0.322	2.32	35.7	33.4	2.16	27.8	0.01	0.00	0.06	0.30	142 209
150 ISL	9.01 D	8.99	33.974 D	26.316	172.7	0.338	2.23 D	34.3	34.7	2.20	28.3	0.01	0.00	0.05	0.27	151
170	8.80	8.78	34.044	26.404	164.7	0.372	1.93	29.5	37.3	2.29	29.3	0.00	0.00	0.03	0.22	171 208
200	8.59	8.57	34.119	26.496	156.5	0.420	1.59	24.2	41.2	2.42	30.6	0.00	0.00	0.04	0.25	201 207
229	8.33	8.31	34.150	26.561	150.8	0.465	1.37	20.8	44.6	2.52	31.7	0.00	0.00		230 206	
250 ISL	8.19 D	8.16	34.179 D	26.605	147.0	0.496	1.22 D	18.4	47.6	2.60	32.6	0.00	0.00		252	
271	7.93	7.90	34.195	26.656	142.3	0.526	1.01	15.2	50.9	2.68	33.6	0.00	0.00		273 205	
300 ISL	7.64 D	7.61	34.216 D	26.715	137.1	0.567	0.89 D	13.3	55.5	2.78	34.9	0.00	0.00		302	
321	7.38	7.35	34.232	26.765	132.5	0.595	0.73	10.8	58.6	2.84	35.7	0.00	0.00		323 204	
381	6.93	6.89	34.251	26.843	125.8	0.672	0.55	8.1	64.9	2.96	37.2	0.00	0.00		383 203	
400 ISL	6.79 D	6.75	34.261 D	26.870	123.4	0.696	0.50 D	7.3	66.8	2.99	37.5	0.00	0.00		403	
439	6.58	6.54	34.274	26.909	120.2	0.744	0.43	6.3	70.8	3.04	38.2	0.00	0.00		442 202	
500 ISL	6.24 D	6.20	34.301 D	26.976	114.5	0.815	0.32 D	4.6	77.2	3.12	39.4	0.00	0.00		503	
517	6.12	6.07	34.307	26.996	112.6	0.835	0.28	4.0	79.0	3.14	39.7	0.00	0.00		521 201	

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED S; CRUISE CORRECTED 1° 02;

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 86.7 60.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE
32 59.2 N	120 20.9 W	19/04/11	0121	UTC	713 m	300	17 kn	320 05 05	0	1016.1 mb	13.9 C	13.7 C	10/8	0/8		
0 ISL	12.79	12.79	33.519	25.288	267.4	0.000	6.27	104.4	0.4	0.60	4.7	0.15	0.83	2.23	0.32	0
2	12.79	12.79	33.519	25.288	267.5	0.005	6.27	104.4	0.4	0.60	4.7	0.15	0.83	2.23	0.32	2 221
10	12.78	12.78	33.507	25.281	268.3	0.027	6.27	104.3	0.4	0.60	4.7	0.15	0.84	2.18	0.28	10 219
10	12.78	12.78	33.518	25.289	267.5	0.027										10 220
20	12.68	12.68	33.507	25.300	266.7	0.053	6.20	103.0	0.6	0.62	4.9	0.16	0.95	1.81	0.32	20 218
30 ISL	12.63 D	12.63	33.499 D	25.304	266.6	0.080	6.19 D	102.7	0.7	0.64	5.1	0.16	1.04	1.69	0.41	30
31	12.64	12.64	33.498	25.302	266.9	0.083	6.18	102.5	0.7	0.64	5.1	0.16	1.05	1.68	0.42	31 217
41	12.44	12.43	33.469	25.318	265.6	0.109	6.01	99.3	1.3	0.72	5.7	0.16	1.21	0.81	0.37	41 216
50 ISL	12.30 D	12.29	33.505 D	25.373	260.6	0.133	5.88 D	96.9	1.8	0.77	6.1	0.16	1.49	1.07	0.43	50
51	12.30	12.29	33.502	25.371	260.8	0.136	5.85	96.4	1.9	0.78	6.2	0.16	1.52	1.11	0.44	51 215
61	11.53	11.52	33.520	25.529	245.9	0.161	5.07	82.2	7.4	1.13	10.4	0.17	1.77	0.47	0.68	61 214
71	10.22	10.21	33.522	25.762	223.8	0.185	4.04	63.6	17.5	1.54	18.5	0.17	0.25	0.44	0.44	71 213
75 ISL	10.03 D	10.02	33.556 D	25.821	218.3	0.193	3.92 D	61.5	19.0	1.60	19.7	0.16	0.18	0.21	0.44	75
84	9.93	9.92	33.579	25.856	215.2	0.213	3.67	57.5	20.6	1.66	20.9	0.12	0.03	0.18	0.44	84 212
100	9.62	9.61	33.706	26.007	201.1	0.246	3.13	48.7	25.2	1.85	24.0	0.05	0.00	0.14	0.33	101 211
121	9.16	9.15	33.794	26.151	187.8	0.287	3.34	51.5	26.0	1.78	24.0	0.04	0.00	0.09	0.30	122 210
125 ISL	9.11 D	9.10	33.819 D	26.178	185.3	0.295	3.27 D	50.3	26.6	1.80	24.3	0.04	0.00	0.09	0.30	126
141	8.96	8.94	33.884	26.253	178.5	0.324	2.97	45.6	29.5	1.92	25.9	0.02	0.00	0.08	0.30	142 209
150 ISL	8.93 D	8.91	33.968 D	26.324	171.9	0.339	2.66 D	40.8	31.2	2.00	26.8	0.01	0.00	0.07	0.27	151
173	8.80	8.78	34.011	26.378	167.2	0.378	2.19	33.5	35.0	2.17	28.9	0.00	0.00	0.05	0.19	174 208
200 ISL	8.64 D	8.62	34.051 D	26.435	162.3	0.423	1.99 D	30.4	37.7	2.26	30.0	0.00	0.00	0.08	0.27	201 207
201	8.63	8.61	34.050	26.436	162.2	0.424	1.96	29.9	37.8	2.26	30.0	0.00	0.00	0.08	0.27	202 207
230	8.34	8.32	34.118	26.534	153.4	0.470	1.56	23.6	42.8	2.42	31.7	0.00	0.00		231 206	
250 ISL	8.17 D	8.14	34.154 D	26.588	148.5	0.500	1.37 D	20.7	46.0	2.51	32.7	0.00	0.00		251	
270	7.96	7.93	34.173	26.635	144.4	0.530	1.15	17.3	49.1	2.60	33.6	0.00	0.00		272 205	
300 ISL	7.69 D	7.66	34.206 D	26.700	138.5	0.572	0.96 D	14.3	54.2	2.73	35.0	0.00	0.00		302	
320	7.42	7.39	34.221	26.751	133.9	0.599	0.75	11.1	57.4	2.80	35.8	0.00	0.00		322 204	
379	6.98	6.94	34.254	26.839	126.2	0.676	0.53	7.8	64.3	2						

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 86.7 70.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	N03	N02	NH4	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C	THETA			ml/l	PCT	uM/l	uM/l	uM/l	uM/l	uM/l	uM/l	ug/l	ug/l	db	
0 ISL	13.58	13.58	32.960	24.698	323.6	0.000	6.03	101.7	2.6	0.34	0.1	0.00	0.08	0.30	0.09	0	
1	13.58	13.58	32.960	24.698	323.6	0.003	6.03	101.7	2.6	0.34	0.1	0.00	0.08	0.30	0.09	1	221
10	13.58	13.58	32.963	24.700	323.6	0.032	6.05	102.0	2.6	0.34	0.1	0.00	0.13	0.32	0.10	10	219
10	13.57	13.57	32.961	24.701	323.6	0.032											10 220
20	13.50	13.50	32.966	24.719	322.1	0.065	6.05	101.9	2.5	0.34	0.1	0.00	0.01	0.34	0.13	20	218
30	13.48	13.48	32.961	24.719	322.3	0.097	6.04	101.6	2.5	0.35	0.1	0.00	0.15	0.37	0.13	30	217
40	13.41	13.40	32.960	24.733	321.3	0.129	6.02	101.2	2.7	0.35	0.2	0.01	0.06	0.36	0.15	40	216
50	12.38	12.37	33.024	24.985	297.5	0.160	5.80	95.4	4.3	0.57	3.2	0.20	0.13	0.38	0.25	50	215
61	11.77	11.76	33.088	25.149	282.1	0.192	5.64	91.6	5.5	0.75	6.1	0.14	0.11	0.36	0.29	61	214
70	12.10	12.09	33.262	25.223	275.3	0.217	5.76	94.3	3.9	0.80	6.1	0.12	0.90	0.37	0.38	70	213
75 ISL	11.94	D 11.93	33.279	D 25.266	271.3	0.231	5.74	D 93.7	5.8	0.91	8.0	0.10	0.78	0.40	0.36	75	
84	10.95	10.94	33.268	25.438	255.0	0.254	4.96	79.3	10.6	1.15	12.3	0.07	0.29	0.44	0.29	84	212
100 ISL	10.43	D 10.42	33.358	D 25.599	240.0	0.294	4.35	D 68.8	15.0	1.39	16.6	0.05	0.20	0.37	0.28	100	
101	10.43	10.42	33.355	25.597	240.2	0.296	4.34	68.6	15.3	1.40	16.8	0.05	0.19	0.37	0.28	101	211
120	9.45	9.44	33.642	25.985	203.6	0.338	3.62	56.1	23.1	1.70	22.3	0.00	0.00	0.05	0.10	121	210
125 ISL	9.41	D 9.40	33.665	D 26.010	201.3	0.349	3.56	D 55.1	24.4	1.77	23.3	0.00	0.00	0.05	0.11	126	
140	9.30	9.28	33.759	26.101	192.9	0.378	3.03	46.8	27.1	1.92	25.3	0.00	0.00	0.03	0.12	141	209
150 ISL	9.19	D 9.17	33.801	D 26.152	188.3	0.397	2.91	D 44.9	28.4	1.95	25.8	0.00	0.00	0.03	0.13	151	
170	8.99	8.97	33.855	26.226	181.6	0.434	2.83	43.5	30.1	2.00	26.7	0.00	0.00	0.04	0.15	171	208
200 ISL	8.49	D 8.47	33.940	D 26.371	168.3	0.487	3.28	D 49.8	31.4	1.86	25.7	0.00	0.00	0.02	0.14	201	
201	8.51	8.49	33.935	26.364	168.9	0.488	3.29	50.0	31.5	1.86	25.7	0.00	0.00	0.02	0.14	202	207
231	7.97	7.95	33.999	26.496	156.8	0.537	2.52	37.8	39.7	2.16	29.7	0.00	0.00			232	206
250 ISL	7.71	D 7.69	34.028	D 26.557	151.2	0.566	2.10	D 31.4	43.6	2.29	31.3	0.00	0.00			251	
273	7.47	7.44	34.031	26.594	148.0	0.601	1.93	28.7	47.4	2.41	32.7	0.00	0.00			275	205
300 ISL	7.70	D 7.67	34.154	D 26.658	142.5	0.640	1.22	D 18.2	51.4	2.58	34.1	0.00	0.00			302	
323	7.51	7.48	34.167	26.696	139.2	0.673	1.04	15.5	54.5	2.70	35.0	0.00	0.00			325	204
381	7.04	7.00	34.203	26.791	130.9	0.751	0.74	10.9	61.6	2.86	36.8	0.00	0.00			383	203
400 ISL	6.95	D 6.91	34.224	D 26.820	128.3	0.775	0.64	D 9.4	64.0	2.90	37.3	0.00	0.00			403	
442	6.58	6.54	34.231	26.875	123.4	0.828	0.53	7.7	69.4	2.99	38.4	0.00	0.00			445	202
500 ISL	6.16	D 6.12	34.266	D 26.958	116.0	0.898	0.38	D 5.5	77.5	3.08	40.0	0.00	0.00			503	
516	5.95	5.90	34.252	26.974	114.5	0.916	0.38	5.5	79.7	3.11	40.4	0.00	0.00			520	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED S; CRUISE CORRECTED 1° 02';

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 86.7 80.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	N03	N02	NH4	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C	THETA			ml/l	PCT	uM/l	uM/l	uM/l	uM/l	uM/l	uM/l	ug/l	ug/l	db	
0 ISL	14.74	14.74	33.031	24.511	341.3	0.000	5.88	101.6	2.4	0.30	0.0	0.00	0.00	0.13	0.04	0	
1 A	14.74	14.74	33.031	24.511	341.4	0.003	5.88	101.6	2.4	0.30	0.0	0.00	0.00	0.13	0.04	1	223
10 ISL	14.71	D 14.71	33.035	D 24.521	340.7	0.034	5.91	D 102.1	2.3	0.29	0.0	0.00	0.00	0.11	0.05	10	
15 A	14.68	14.68	33.032	24.525	340.5	0.051	5.88	101.5	2.3	0.29	0.0	0.00	0.00	0.10	0.06	15	221
15	14.68	14.68	33.032	24.525	340.5	0.051										15	222
19 A	14.67	14.67	33.033	24.528	340.3	0.065	5.91	102.0	2.4	0.29	0.0	0.00	0.00	0.10	0.03	19	220
20 ISL	14.66	D 14.66	33.041	D 24.536	339.5	0.068	5.91	D 102.0	2.4	0.29	0.0	0.00	0.00	0.10	0.03	20	
28	14.60	14.60	33.072	24.573	336.2	0.095	5.87	101.2	2.3	0.29	0.0	0.00	0.00	0.10	0.03	28	219
30 ISL	14.60	D 14.60	33.069	D 24.571	336.5	0.102	5.90	D 101.7	2.3	0.29	0.0	0.00	0.00	0.10	0.03	30	
36 A	14.58	14.57	33.063	24.571	336.7	0.122	5.88	101.3	2.3	0.29	0.0	0.00	0.00	0.11	0.03	36	218
48	14.60	14.59	33.074	24.575	336.6	0.162	5.87	101.1	2.3	0.29	0.0	0.00	0.00	0.12	0.03	48	217
50 ISL	14.61	D 14.60	33.076	D 24.575	336.7	0.169	5.90	D 101.7	2.3	0.29	0.0	0.00	0.00	0.13	0.03	50	
59	15.12	15.11	33.294	24.634	331.5	0.199	5.79	101.0	2.3	0.26	0.0	0.00	0.00	0.17	0.05	59	216
69 A	15.38	15.37	33.414	24.669	328.4	0.232	5.76	101.0	2.3	0.24	0.0	0.00	0.00	0.22	0.09	69	215
75 ISL	14.90	D 14.89	33.329	D 24.709	324.8	0.252	5.88	D 102.1	2.4	0.26	0.0	0.00	0.03	0.38	0.15	75	
77	14.86	14.85	33.316	24.707	324.9	0.258	5.89	102.2	2.5	0.27	0.0	0.00	0.04	0.42	0.20	77	214
85 A	13.81	13.80	33.112	24.771	319.0	0.284	6.03	102.3	2.8	0.33	0.3	0.03	0.00	0.34	0.65	85	213
96	12.80	12.79	33.077	24.946	302.4	0.318	5.81	96.5	3.9	0.48	2.4	0.10	0.00	0.43	0.29	96	212
100 ISL	12.55	D 12.54	33.074	D 24.992	298.1	0.330	5.80	D 95.8	4.1	0.52	2.9	0.08	0.00	0.40	0.26	100	
110	12.26	12.25	33.068	25.043	293.5	0.360	5.68	93.2	4.6	0.58	4.0	0.02	0.00	0.28	0.20	110	211
125	12.13	12.11	33.297	25.246	274.6	0.403	5.36	87.8	5.8	0.63	5.5	0.01	0.00	0.15	0.12	126	210
145	10.90	10.88	33.391	25.544	246.4	0.455	4.84	77.3	10.5	0.98	11.1	0.00	0.00	0.09	0.09	146	209
150 ISL	10.74	D 10.72	33.428	D 25.601	241.0	0.467	4.77	D 75.9	11.9	1.07	12.5	0.00	0.00	0.07	0.08	151	
170	9.84	9.82	33.565	25.862	216.4	0.513	4.24	66.2	17.4	1.37	17.5	0.00	0.00	0.02	0.04	171	208
200	9.25	9.23	33														

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 86.7 90.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	
31 59.8 N	122 23.1 W	19/04/11	2251	UTC	4019 m	300	12 kn	290 03 05	2	1018.5 mb	14.0 C	13.7 C	28m	8/8		ST	
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SIO3	P04	N03	N02	NH4	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C	THETA			ml/l	pct	um/l	um/l	um/l	um/l	um/l	um/l	ug/l	ug/l	db	
0 ISL	15.66	15.66	33.390	24.587	334.1	0.000	5.74	101.3	2.4	0.26	0.0	0.00	0.00	0.09	0.02	0	
2	15.66	15.66	33.390	24.587	334.2	0.007	5.74	101.3	2.4	0.26	0.0	0.00	0.00	0.09	0.02	2	221
10	15.64	15.64	33.404	24.602	333.0	0.033	5.74	101.2	2.4	0.24	0.0	0.00	0.00	0.08	0.02	10	219
11	15.64	15.64	33.388	24.590	334.2	0.037										11	220
20 ISL	15.49	D 15.49	33.382	D 24.619	331.7	0.067	5.77	D 101.4	2.4	0.24	0.0	0.00	0.00	0.09	0.03	20	
26	15.45	15.45	33.380	24.626	331.2	0.087	5.75	101.0	2.4	0.24	0.0	0.00	0.00	0.10	0.03	26	218
30 ISL	15.43	D 15.43	33.387	D 24.636	330.3	0.100	5.78	D 101.5	2.4	0.24	0.0	0.00	0.00	0.10	0.03	30	
40	15.41	15.40	33.385	24.640	330.3	0.133	5.75	100.9	2.3	0.24	0.0	0.00	0.00	0.11	0.02	40	217
50 ISL	15.42	D 15.41	33.390	D 24.641	330.4	0.166	5.77	D 101.3	2.3	0.24	0.0	0.00	0.00	0.12	0.04	50	
51	15.41	15.40	33.386	24.641	330.6	0.169	5.75	100.9	2.3	0.24	0.0	0.00	0.00	0.12	0.04	51	216
63	15.42	15.41	33.388	24.640	331.0	0.209	5.77	101.3	2.3	0.23	0.0	0.00	0.00	0.13	0.05	63	215
75	15.42	15.41	33.389	24.642	331.2	0.249	5.75	100.9	2.2	0.23	0.0	0.00	0.00	0.16	0.05	75	214
88	15.43	15.42	33.402	24.650	330.8	0.292	5.74	100.8	2.3	0.23	0.0	0.00	0.00	0.21	0.06	88	213
100	15.41	15.39	33.406	24.658	330.5	0.331	5.72	100.4	2.3	0.23	0.0	0.00	0.00	0.26	0.09	100	212
113	13.67	13.65	33.406	25.027	295.4	0.372	5.48	92.8	3.8	0.38	2.0	0.09	0.00	0.28	0.21	113	211
125	13.36	13.34	33.416	25.098	288.9	0.407	5.41	91.0	4.3	0.43	2.8	0.08	0.00	0.22	0.17	126	210
142	12.10	12.08	33.383	25.318	268.0	0.454	5.16	84.6	6.7	0.67	6.6	0.01	0.00	0.13	0.12	143	209
150 ISL	11.00	D 10.98	33.382	D 25.519	248.8	0.475	4.89	D 78.3	9.1	0.84	9.4	0.01	0.00	0.09	0.09	151	
172	9.93	9.91	33.524	25.815	221.0	0.527	4.36	68.2	16.5	1.31	16.8	0.00	0.00	0.02	0.03	173	208
200 ISL	9.31	D 9.29	33.691	D 26.047	199.3	0.586	3.84	D 59.3	22.5	1.60	21.3	0.00	0.00	0.00	0.01	201	
201	9.31	9.29	33.686	26.044	199.6	0.588	3.80	58.7	22.7	1.61	21.4	0.00	0.00	0.00	0.01	202	207
232	8.72	8.70	33.888	26.295	176.1	0.646	3.20	48.8	29.9	1.87	25.6	0.00	0.00			233	206
250 ISL	8.42	D 8.39	33.942	D 26.384	168.0	0.677	3.07	D 46.6	33.3	1.97	27.1	0.00	0.00			251	
272	8.07	8.04	33.975	26.463	160.7	0.713	2.69	40.5	37.3	2.09	28.7	0.00	0.00			273	205
300 ISL	7.72	D 7.69	33.999	D 26.533	154.3	0.757	2.38	D 35.5	43.2	2.27	31.2	0.00	0.00			302	
322	7.39	7.36	34.026	26.602	148.0	0.790	1.89	28.0	47.9	2.42	33.0	0.00	0.00			324	204
381	6.87	6.83	34.115	26.744	135.1	0.874	1.09	16.0	59.3	2.75	36.5	0.00	0.00			383	203
400 ISL	6.56	D 6.52	34.109	D 26.781	131.6	0.899	1.03	D 15.0	62.3	2.83	37.1	0.00	0.00			402	
441	6.64	6.60	34.223	26.861	124.8	0.952	0.57	8.3	67.8	2.98	37.9	0.00	0.00			444	202
500 ISL	6.06	D 6.02	34.221	D 26.935	118.0	1.023	0.48	D 6.9	74.2	3.08	39.1	0.00	0.00			503	
515	6.23	6.18	34.276	26.957	116.4	1.041	0.35	5.1	75.8	3.11	39.4	0.00	0.00			518	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED S; CRUISE CORRECTED 1° 02;

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 86.7 100.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	
31 39.4 N	123 4.5 W	20/04/11	0434	UTC	4058 m	320	15 kn			1018.7 mb	13.5 C	13.5 C	28m	8/8		ST	
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SIO3	P04	N03	N02	NH4	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C	THETA			ml/l	pct	um/l	um/l	um/l	um/l	um/l	um/l	ug/l	ug/l	db	
0 ISL	15.98	15.98	33.511	24.608	332.1	0.000	5.68	100.9	2.4	0.24	0.0	0.00	0.00	0.07	0.01	0	
2	15.98	15.98	33.511	24.608	332.2	0.007	5.68	100.9	2.4	0.24	0.0	0.00	0.00	0.07	0.01	2	221
10	15.98	15.98	33.510	24.607	332.5	0.033	5.68	100.9	2.4	0.24	0.0	0.00	0.00	0.07	0.01	10	219
11	15.98	15.98	33.510	24.607	332.5	0.037										11	220
20 ISL	15.98	D 15.98	33.513	D 24.610	332.5	0.066	5.70	D 101.3	2.4	0.24	0.0	0.00	0.00	0.08	0.01	20	
25	15.96	15.96	33.510	24.612	332.5	0.083	5.68	100.9	2.4	0.24	0.0	0.00	0.00	0.08	0.01	25	218
30 ISL	15.89	D 15.89	33.524	D 24.639	330.1	0.100	5.71	D 101.3	2.4	0.24	0.0	0.00	0.00	0.08	0.01	30	
40	15.85	15.84	33.530	24.653	329.1	0.133	5.69	100.8	2.4	0.23	0.0	0.00	0.00	0.08	0.01	40	217
50	15.84	15.83	33.525	24.652	329.5	0.166	5.69	100.8	2.4	0.23	0.0	0.00	0.00	0.09	0.02	50	216
62	15.84	15.83	33.527	24.654	329.7	0.205	5.68	100.6	2.4	0.23	0.0	0.00	0.00	0.11	0.02	62	215
75 ISL	15.85	D 15.84	33.535	D 24.658	329.7	0.248	5.69	D 100.8	2.3	0.23	0.0	0.00	0.01	0.13	0.03	75	
76	15.85	15.84	33.531	24.655	330.0	0.251	5.66	100.3	2.3	0.23	0.0	0.00	0.01	0.13	0.03	76	214
87	15.85	15.84	33.537	24.660	329.9	0.288	5.67	100.5	2.4	0.24	0.1	0.00	0.15	0.17	0.04	87	213
100 ISL	15.85	D 15.83	33.539	D 24.662	330.1	0.330	5.68	D 100.6	2.4	0.23	0.0	0.00	0.01	0.19	0.05	100	
101	15.85	15.83	33.538	24.661	330.2	0.334	5.67	100.5	2.4	0.23	0.0	0.00	0.00	0.19	0.05	101	212
112	15.80	15.78	33.528	24.665	330.2	0.370	5.67	100.3	2.4	0.23	0.0	0.00	0.02	0.22	0.06	112	211
125 ISL	14.04	D 14.02	33.380	D 24.932	304.9	0.411	5.54	D 94.5	3.4	0.36	1.3	0.06	0.02	0.29	0.17	126	
126	14.09	14.07	33.382	24.923	305.8	0.414	5.51	94.1	3.5	0.37	1.4	0.07	0.02	0.29	0.18	127	210
140	13.06	13.04	33.353	D 25.110	288.1	0.456	5.41	D 90.4	3.6	0.36	1.3	0.07	0.00	0.29	0.18	141	209
150 ISL	12.10	D 12.08	33.353	D 25.295	270.5	0.484	5.23	D 85.7	5.1	0.51	3.6	0.05	0.00	0.23	0.16	151	
170	11.19	11.17	33.360	25.469	254.2	0.536	4.92	79.1	9.9	0.92	10.2	0.00	0.00	0.09	0.09	171	208
200 ISL	9.62	D 9.60	33.634	D 25.953	208.4	0.606	4.08	D 63.4	19.0	1.43	18.5	0.00	0.00	0.01	0.03	201	
201</																	

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 86.7 110.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	
31 19.3 N	123 45.2 W	20/04/11	0949	UTC	3815 m	310	15 kn			1019.3 mb	15.0 C	15.0 C					
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SIO3	P04	N03	N02	NH4	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C	THETA				ml/l	pct	uM/l	uM/l	uM/l	uM/l	uM/l	ug/l	ug/l	db	
0 ISL	15.96	15.96	33.460	24.573	335.4	0.000	5.70	101.2	2.2	0.25	0.0	0.00	0.02	0.08	0.02	0	
2	15.96	15.96	33.460	24.573	335.5	0.007	5.70	101.2	2.2	0.25	0.0	0.00	0.02	0.08	0.02	2	221
10	15.97	15.97	33.462	24.573	335.8	0.034	5.71	101.4	2.2	0.24	0.0	0.00	0.01	0.08	0.03	10	219
10	15.97	15.97	33.460	24.571	335.9	0.034											10 220
20 ISL	15.97	15.97	33.464 D	24.575	335.9	0.067	5.71	101.4	2.2	0.24	0.0	0.00	0.04	0.08	0.02	20	
25	15.94	15.94	33.457	24.576	335.9	0.084	5.69	101.0	2.2	0.24	0.0	0.00	0.05	0.08	0.02	25	218
30 ISL	15.43	15.43	33.353 D	24.610	332.8	0.101	5.79	101.6	2.2	0.24	0.0	0.00	0.04	0.10	0.03	30	
41	15.29	15.28	33.314	24.611	333.0	0.137	5.78	101.1	2.3	0.25	0.0	0.00	0.00	0.16	0.06	41	217
50	15.47	15.46	33.380	24.623	332.2	0.167	5.75	101.0	2.3	0.24	0.0	0.00	0.00	0.20	0.07	50	216
62	15.64	15.63	33.446	24.636	331.4	0.207	5.74	101.2	2.2	0.23	0.0	0.00	0.00	0.19	0.07	62	215
75	15.72	15.71	33.470	24.637	331.7	0.250	5.71	100.9	2.1	0.22	0.0	0.00	0.05	0.17	0.05	75	214
87	15.84	15.83	33.518	24.648	331.1	0.290	5.68	100.6	2.1	0.21	0.0	0.00	0.01	0.15	0.04	87	213
100	15.79	15.77	33.518	24.660	330.4	0.333	5.69	100.7	2.1	0.22	0.0	0.00	0.17	0.23	0.07	100	212
113	14.44	14.42	33.453	24.904	307.3	0.374	5.54	95.4	3.1	0.31	0.8	0.08	0.00	0.33	0.29	113	211
125 ISL	12.95 D	12.93	33.391 D	25.160	282.9	0.410	5.37	89.6	4.7	0.49	3.8	0.04	0.02	0.23	0.18	126	
126	12.90	12.88	33.388	25.168	282.2	0.413	5.34	89.0	4.8	0.51	4.1	0.04	0.02	0.22	0.17	127	210
140	12.35	12.33	33.364	25.256	274.0	0.452	5.22	86.0	6.0	0.62	5.8	0.02	0.01	0.14	0.17	141	209
150 ISL	11.38 D	11.36	33.365 D	25.438	256.7	0.478	5.00	80.7	8.4	0.80	8.6	0.01	0.01	0.10	0.13	151	
171	10.22	10.20	33.447	25.706	231.4	0.529	4.53	71.3	14.7	1.22	15.4	0.00	0.01	0.03	0.03	172	208
200 ISL	9.41 D	9.39	33.680 D	26.023	201.6	0.592	3.80	58.8	22.1	1.61	21.5	0.00	0.04	0.00	0.01	201	
202	9.41	9.39	33.680	26.023	201.7	0.596	3.77	58.4	22.6	1.63	21.8	0.00	0.04	0.00	0.01	203	207
232	8.93	8.91	33.875	26.253	180.3	0.653	3.19	48.9	28.8	1.86	25.4	0.00	0.03			233	206
250 ISL	8.62 D	8.59	33.944 D	26.355	170.8	0.685	2.97	45.2	32.0	1.96	26.9	0.00	0.02			251	
269	8.33	8.30	33.974	26.423	164.6	0.717	2.71	41.0	35.2	2.04	28.1	0.00	0.00			270	205
300 ISL	7.88 D	7.85	34.003 D	26.513	156.3	0.767	2.50	37.5	40.2	2.17	30.0	0.00	0.00			302	
322	7.64	7.61	34.015	26.558	152.3	0.801	2.19	32.6	43.8	2.27	31.3	0.00	0.00			324	204
382	6.93	6.89	34.063	26.695	139.8	0.888	1.49	21.8	55.0	2.58	35.2	0.00	0.00			384	203
400 ISL	6.72 D	6.68	34.064 D	26.725	137.1	0.913	1.39	20.3	58.0	2.66	36.0	0.00	0.00			402	
439	6.47	6.43	34.112	26.796	130.7	0.965	1.05	15.2	64.1	2.80	37.3	0.00	0.00			442	202
500 ISL	5.89 D	5.85	34.153 D	26.903	120.9	1.042	0.73	10.4	73.4	2.96	39.2	0.00	0.00			503	
522	5.78	5.74	34.164	26.925	118.9	1.068	0.64	9.1	76.8	3.02	39.9	0.00	0.00			525	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED S; CRUISE CORRECTED 1° 02;

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 86.8 32.5

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	
33 53.3 N	118 26.5 W	17/04/11	2342	UTC	26 m	240	06 kn	320 01 07	2	1010.9 mb	16.0 C	16.0 C		8/8		AS	
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SIO3	P04	N03	N02	NH4	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C	THETA				ml/l	pct	uM/l	uM/l	uM/l	uM/l	uM/l	ug/l	ug/l	db	
0 ISL	15.96	15.96	33.460	24.573	335.4	0.000	6.96	123.6	2.1	0.31	1.8	0.18	0.72	6.75	0.79	0	
2	15.96	15.96	33.460	24.573	335.5	0.007	6.96	123.6	2.1	0.31	1.8	0.18	0.72	6.75	0.79	2	205
5	15.87	15.87	33.455	24.590	334.0	0.017	6.67	118.2	2.4	0.32	2.5	0.21	1.03	4.78	0.82	5	204
10	15.79	15.79	33.450	24.604	332.8	0.033	6.48	114.6	3.2	0.37	3.4	0.24	1.47	6.41	1.22	10	203
15	13.28	13.28	33.465	25.149	281.0	0.049	5.73	96.3	6.2	0.66	7.2	0.39	1.64	6.94	1.33	15	202
19	11.34	11.34	33.508	25.553	242.6	0.059	3.45	55.7	17.5	1.57	17.6	0.68	4.11	3.01	1.10	19	201
20 CSL	11.36	11.36	33.511	25.552	242.7	0.062	3.57	57.6								20	200

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED S; CRUISE CORRECTED 1° 02;

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 90.0 27.7

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	
33 29.5 N	117 45.3 W	17/04/11	1614	UTC	37 m	140	14 kn	140 02 05	4	1011.5 mb	16.0 C	16.0 C		8/8			
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SIO3	P04	N03	N02	NH4	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C	THETA				ml/l	pct	uM/l	uM/l	uM/l	uM/l	uM/l	ug/l	ug/l	db	
0 ISL	14.80	14.80	33.417	24.796	314.2	0.000	7.05	122.3	0.4	0.19	0.1	0.01	0.00	5.69	0.53	0	
1	14.80	14.80	33.417	24.796	314.2	0.003	7.05	122.2	0.4	0.19	0.1	0.01	0.00	5.69	0.53	1	205
6	14.80	14.80	33.414	24.793	314.6	0.019	7.02	121.7	0.3	0.20	0.1	0.01	0.12	4.65	1.24	6	204
10 ISL	14.74 D	14.74	33.414 D	24.807	313.5	0.031	6.99	121.1	0.4	0.22	0.1	0.01	0.25	4.87	1.16	10	
11	14.70	14.70	33.410	24.812	313.0	0.035	6.94	120.1	0.4	0.23	0.1	0.01	0.29	4.92	1.12	11	203
20 ISL	13.50 D	13.50	33.417 D	25.068	288.9	0.062	5.34	90.2	2.7	0.46	3.2	0.20	0.54	10.69	2.29	20	
21	13.56	13.56	33.414	25.053	290.3	0.065	5.33	90.1	3.0	0.51	3.9	0.24	0.57	11.07	2.40	21	202
30	11.59	11.59	33.487	25.492</td													

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 90.0 28.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE
			1415	UTC	59 m	120	07 kn	120 02 05	4	1011.1 mb	15.3 C	15.3 C				8/8
33 29.1 N	117 45.8 W	17/04/11														
0 ISL	15.14	15.14	33.424	24.727	320.7	0.000	7.22	126.1	0.0	0.16	0.0	0.00	0.02	3.28	0.39	0
2	15.14	15.14	33.424	24.728	320.8	0.006	7.22	126.1	0.0	0.16	0.0	0.00	0.02	3.28	0.39	2 207
6	15.07	15.07	33.420	24.740	319.7	0.019	7.21	125.7	0.0	0.16	0.0	0.00	0.07	4.03	0.02	6 206
10 ISL	13.80 D	13.80	33.427 D	25.014	293.7	0.031	6.18	D105.0	0.5	0.29	1.3	0.07	0.23	8.63	1.20	10
11	13.79	13.79	33.427	25.016	293.5	0.034	6.12	104.0	0.7	0.33	1.7	0.09	0.29	9.78	1.57	11 205
20	13.23	13.23	33.454	25.151	281.0	0.060	5.42	91.0	4.2	0.69	5.4	0.25	1.46	6.84	2.78	20 204
30 ISL	10.95 D	10.95	33.501 D	25.618	236.7	0.086	3.77	D 60.3	17.2	1.57	18.3	0.52	2.72	1.14	2.14	30
31	10.93	10.93	33.499	25.620	236.5	0.089	3.27	52.3	18.5	1.66	19.6	0.54	2.80	0.64	2.03	31 203
41	10.33	10.33	33.580	25.788	220.7	0.111	2.67	42.2	23.4	1.94	23.6	0.61	2.51	0.30	1.54	41 202
50	10.19	10.18	33.649	25.866	213.5	0.131	2.70	42.5	23.6	1.93	23.4	0.34	0.21	0.29	1.28	50 201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED S; CRUISE CORRECTED 1° 02;

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 90.0 30.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE
			1108	UTC	595 m	150	09 kn			1009.9 mb	16.0 C	15.8 C				8/8
33 25.2 N	117 54.0 W	17/04/11														
0 ISL	15.86	15.86	33.408	24.556	337.1	0.000	6.22	110.2	2.1	0.27	0.0	0.00	0.04	0.58	0.12	0
2	15.86	15.86	33.408	24.556	337.1	0.007	6.22	110.2	2.1	0.27	0.0	0.00	0.04	0.58	0.12	2 221
10	15.23	15.23	33.403	24.692	324.4	0.033	6.38	111.6	2.1	0.24	0.0	0.00	0.00	0.60	0.13	10 220
10	15.21	15.21	33.406	24.699	323.8	0.033										10 220
20	14.78	14.78	33.391	24.781	316.3	0.065	6.35	110.0	2.6	0.27	0.0	0.01	0.00	1.09	0.28	20 218
30	11.89	11.89	33.424	25.387	258.7	0.094	4.31	70.4	12.7	1.23	13.8	0.20	0.08	0.68	0.31	30 217
40	10.91	10.91	33.515	25.637	235.2	0.119	3.45	55.2	18.6	1.59	19.4	0.06	0.03	0.30	0.15	40 216
50	10.79	10.78	33.541	25.678	231.4	0.142	3.34	53.3	19.7	1.65	20.2	0.05	0.01	0.21	0.11	50 215
60	10.60	10.59	33.603	25.760	223.9	0.165	3.09	49.1	21.7	1.76	21.7	0.04	0.00	0.10	0.09	60 214
70	10.30	10.29	33.654	25.852	215.3	0.187	3.00	47.4	23.4	1.82	23.0	0.04	0.00	0.05	0.08	70 213
75 ISL	10.17 D	10.16	33.660 D	25.879	212.9	0.197	3.05	D 48.0	24.1	1.85	23.5	0.03	0.00	0.04	0.07	75
86	9.89	9.88	33.760	26.004	201.2	0.220	2.87	44.9	25.7	1.91	24.5	0.02	0.00	0.02	0.05	86 212
100	9.68	9.67	33.863	26.120	190.4	0.248	2.59	40.4	28.3	2.01	26.1	0.02	0.01	0.01	0.05	101 211
120	9.51	9.50	33.983	26.242	179.2	0.285	2.26	35.1	31.5	2.12	27.4	0.01	0.01	0.01	0.04	121 210
125 ISL	9.37 D	9.36	33.985 D	26.266	177.0	0.293	2.23	D 34.6	32.3	2.15	27.7	0.01	0.02	0.01	0.04	126
141	9.33	9.31	34.070	26.340	170.4	0.321	1.99	30.8	34.4	2.23	28.4	0.01	0.05	0.01	0.05	142 209
150 ISL	9.33 D	9.31	34.098 D	26.362	168.5	0.336	1.83	D 28.4	35.2	2.27	28.7	0.01	0.04	0.01	0.05	151
171	9.29	9.27	34.139	26.401	165.2	0.372	1.66	25.7	36.9	2.33	29.3	0.01	0.00	0.01	0.05	172 208
200	8.85	8.83	34.164	26.491	157.1	0.418	1.57	24.1	40.0	2.39	30.6	0.01	0.03	0.00	0.03	201 207
230	8.55	8.53	34.193	26.561	150.9	0.464	1.31	20.0	44.2	2.51	32.0	0.01	0.00			231 206
250 ISL	8.35 D	8.32	34.199 D	26.596	147.9	0.494	1.23	D 18.7	46.4	2.57	32.7	0.01	0.00			252
270	8.16	8.13	34.199	26.625	145.4	0.524	1.12	16.9	48.5	2.62	33.4	0.00	0.00			272 205
300 ISL	7.95 D	7.92	34.234 D	26.684	140.2	0.567	0.92	D 13.8	52.3	2.73	34.3	0.00	0.02			302
320	7.82	7.79	34.256	26.721	137.0	0.594	0.75	11.2	54.9	2.80	34.8	0.00	0.03			322 204
381	7.31	7.27	34.265	26.802	130.0	0.676	0.58	8.6	61.5	2.92	36.4	0.00	0.00			384 203
400 ISL	7.08 D	7.04	34.269 D	26.837	126.8	0.700	0.54	D 8.0	63.6	2.95	37.0	0.00	0.00			403
440	6.76	6.72	34.260	26.874	123.6	0.750	0.50	7.3	68.1	3.00	38.2	0.00	0.00			443 202
500 ISL	6.39 D	6.34	34.292 D	26.949	117.1	0.822	0.35	D 5.1	74.8	3.11	39.4	0.00	0.04			503
517	6.27	6.22	34.301	26.972	115.1	0.842	0.30	4.3	76.7	3.14	39.7	0.00	0.05			521 201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED S; CRUISE CORRECTED 1° 02;

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 90.0 35.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE
			0551	UTC	322 m	260	14 kn			1009.4 mb	16.0 C	15.5 C				8/8
33 15.1 N	118 15.1 W	17/04/11														
0 ISL	15.89	15.89	33.392	24.537	338.9	0.000	6.10	108.1	2.5	0.26	0.0	0.01	0.00	0.33	0.06	0
2	15.89	15.89	33.392	24.537	339.0	0.007	6.10	108.1	2.5	0.26	0.0	0.01	0.00	0.33	0.06	2 219
10	15.83	15.83	33.391	24.550	338.0	0.034	6.10	108.0	2.6	0.25	0.0	0.01	0.00	0.35	0.07	10 217
10	15.83	15.83	33.392	24.550	337.9	0.034										10 218
20 ISL	14.08 D	14.08	33.374 D	24.915	303.4	0.066	6.42	D 109.7	3.8	0.34	0.3	0.02	0.00	0.89	0.37	20
21	13.96	13.96	33.366	24.934	301.6	0.069	6.25	106.5	3.9	0.35	0.3	0.02	0.00	0.97	0.41	21 216
26	12.82	12.82	33.359	25.158	280.4	0.083	5.38	89.5	6.8	0.68	5.2	0.11	0.00	1.34	0.59	26 215
30 ISL	11.92 D	11.92	33.316 D	25.298	267.2	0.094	4.76	D 77.7	9.5	0.96	10.3	0.11	0.00	1.14	0.49	30
31	11.86	11.86	33.317	25.310	266.1	0.097	4.68	76.3	10.2	1.03	11.5	0.11	0.00	1.06	0.45	31 214
41	11.34	11.33	33.408	25.476	250.5	0.123	4.01	64.7	14.0	1.30	15.6	0.07	0.00	0.56	0.31	41 213
50	10.80	10.79	33.457	25.611	237.8	0.145	3.73	59.5	16.9	1.47	18.1	0.02	0.00	0.22	0.18	50 212
60	10.46	10.45	33.574	25.762	223.7	0.168	3.11	49.3	21.4	1.70	21.4	0.00	0.00	0.16	0.15	60 211
70	10.21	10.20	33.649	25.863	214.2	0.190	2.87	45.2	23.4	1.81	22.9	0.00	0.00	0.10	0.15	70 210
75 ISL	10.15 D	10.14	33.673 D	25.892	211.6	0.201	2.88	D 45.3</td								

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 90.0 37.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SIO3	P04	N03	N02	NH4	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C	THETA			ml/l	pct	um/l	um/l	um/l	um/l	um/l	um/l	ug/l	ug/l	db	
0 ISL	15.58	15.58	33.405	24.616	331.3	0.000	6.26	110.3	2.4	0.24	0.0	0.00	0.00	0.51	0.16	0	
2	15.58	15.58	33.405	24.616	331.4	0.007	6.26	110.3	2.4	0.24	0.0	0.00	0.00	0.51	0.16	2	220
10 ISL	15.26	D 15.26	33.401 D	24.684	325.2	0.033	6.32	D 110.6	2.7	0.24	0.0	0.00	0.00	0.57	0.18	10	
11	15.19	15.19	33.394	24.694	324.3	0.036	6.29	109.9	2.7	0.24	0.0	0.00	0.00	0.58	0.18	11	219
20	14.31	14.31	33.370	24.864	308.3	0.065	6.10	104.7	4.0	0.37	0.9	0.02	0.00	1.66	0.71	20	218
30 ISL	11.99	D 11.99	33.348 D	25.309	266.1	0.093	4.87	D 79.6	10.2	1.02	10.7	0.24	0.00	1.08	0.41	30	
31	11.90	11.90	33.351	25.328	264.3	0.096	4.59	74.9	10.9	1.09	11.8	0.26	0.00	0.97	0.36	31	217
41	10.99	10.99	33.457	25.577	240.8	0.121	3.75	60.0	16.0	1.45	17.6	0.07	0.00	0.28	0.18	41	216
50	10.49	10.48	33.539	25.729	226.6	0.142	3.40	53.9	19.5	1.63	20.4	0.03	0.00	0.11	0.09	50	215
61	10.31	10.30	33.586	25.797	220.3	0.167	3.26	51.5	21.0	1.70	21.4	0.01	0.00	0.06	0.07	61	214
71	10.04	10.03	33.685	25.920	208.8	0.188	3.01	47.3	23.6	1.81	23.1	0.01	0.00	0.03	0.06	71	213
75 ISL	9.90	D 9.89	33.699 D	25.955	205.6	0.197	3.07	D 48.1	24.8	1.87	24.1	0.01	0.00	0.03	0.09	75	
86	9.89	9.88	33.807	26.041	197.7	0.219	2.31	36.2	27.7	2.02	26.3	0.00	0.00	0.03	0.16	86	212
100 ISL	9.66	D 9.65	33.895 D	26.148	187.7	0.246	2.47	D 38.5	28.8	2.01	25.9	0.00	0.00	0.02	0.07	101	
101	9.66	9.65	33.893	26.147	187.9	0.248	2.47	38.5	28.9	2.01	25.9	0.00	0.00	0.02	0.06	102	211
121	9.58	9.57	34.033	26.270	176.7	0.284	2.00	31.2	32.5	2.17	27.1	0.00	0.00	0.01	0.09	122	210
125 ISL	9.46	D 9.45	34.053 D	26.305	173.4	0.291	2.01	D 31.2	33.1	2.20	27.3	0.00	0.00	0.01	0.09	126	
141	9.48	9.46	34.117	26.352	169.3	0.318	1.74	27.1	35.0	2.27	27.9	0.00	0.00	0.01	0.07	142	209
150 ISL	9.38	D 9.36	34.131 D	26.380	166.8	0.334	1.76	D 27.3	35.6	2.27	28.1	0.00	0.00	0.01	0.06	151	
171	9.01	8.99	34.117	26.428	162.5	0.368	1.85	28.5	37.0	2.28	28.7	0.00	0.00	0.00	0.04	172	208
199	8.77	8.75	34.161	26.501	156.1	0.413	1.59	24.3	40.1	2.40	29.9	0.00	0.00	0.00	0.03	200	207
200 ISL	8.74	D 8.72	34.164 D	26.508	155.4	0.414	1.55	D 23.7	40.2	2.41	29.9	0.00	0.00			201	
230	8.61	8.59	34.224	26.576	149.5	0.460	1.19	18.2	44.4	2.55	31.1	0.00	0.00			231	206
250 ISL	8.29	D 8.26	34.215 D	26.618	145.8	0.490	1.15	D 17.4	46.9	2.62	31.9	0.00	0.00			252	
270	8.19	8.16	34.244	26.656	142.5	0.518	0.94	14.2	49.3	2.68	32.7	0.00	0.00			272	205
300 ISL	7.89	D 7.86	34.272 D	26.723	136.5	0.560	0.73	D 11.0	53.1	2.77	33.7	0.00	0.00			302	
321	7.74	7.71	34.266	26.741	135.1	0.589	0.70	10.5	55.7	2.82	34.4	0.00	0.00			323	204
383	7.27	7.23	34.296	26.832	127.2	0.670	0.47	7.0	62.3	2.96	36.1	0.00	0.00			386	203
400 ISL	6.96	D 6.92	34.277 D	26.860	124.6	0.692	0.51	D 7.5	65.4	3.00	36.9	0.00	0.00			403	
439	6.49	6.45	34.279	26.925	118.6	0.739	0.39	5.7	72.5	3.08	38.6	0.00	0.00			442	202
500 ISL	6.13	D 6.09	34.314 D	27.000	112.0	0.809	0.29	D 4.2	78.8	3.16	39.7	0.00	0.00			503	
520	6.04	5.99	34.323	27.019	110.4	0.832	0.25	3.6	80.9	3.18	40.0	0.00	0.00			524	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED S; CRUISE CORRECTED 1° 02';

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 90.0 45.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SIO3	P04	N03	N02	NH4	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C	THETA			ml/l	pct	um/l	um/l	um/l	um/l	um/l	um/l	ug/l	ug/l	db	
0 ISL	14.66	14.66	33.381	24.798	314.0	0.000	6.22	107.5	2.9	0.38	0.7	0.03	0.00	1.64	0.40	0	
2 A	14.66	14.66	33.381	24.798	314.1	0.006	6.22	107.5	2.9	0.38	0.7	0.03	0.00	1.64	0.40	2	224
6 A	14.57	14.57	33.382	24.818	312.3	0.019	6.25	107.8	3.0	0.37	0.7	0.03	0.00	1.70	0.37	6	223
8 A	14.52	14.52	33.381	24.828	311.4	0.025	6.26	107.9	2.9	0.37	0.7	0.03	0.00	1.78	0.22	8	221
8	14.52	14.52	33.382	24.829	311.3	0.025	6.25	107.7							8	222	
10 ISL	14.44	D 14.44	33.383 D	24.847	309.7	0.031	6.24	D 107.4	2.9	0.37	0.7	0.03	0.00	1.74	0.28	10	
15 A	14.41	14.41	33.379	24.850	309.5	0.047	6.21	106.8	2.9	0.37	0.8	0.03	0.00	1.61	0.42	15	220
20	14.39	14.39	33.383	24.857	308.9	0.062	6.18	106.2	2.9	0.38	0.8	0.03	0.00	1.82	0.42	20	219
28 A	14.04	14.04	33.377	24.926	302.6	0.087	5.85	99.8	4.0	0.48	2.5	0.07	0.00	1.26	0.31	28	218
30 ISL	12.34	D 12.34	33.456 D	25.327	264.5	0.092	5.84	D 96.3	6.8	0.77	6.6	0.26	0.00	1.02	0.30	30	
33 A	11.55	11.55	33.458	25.477	250.2	0.100	4.74	76.8	11.1	1.21	12.9	0.55	0.01	0.68	0.30	33	217
42	11.25	11.24	33.485	25.552	243.2	0.122	4.49	72.3	13.2	1.31	14.8	0.54	0.00	0.39	0.22	42	216
50	10.70	10.69	33.537	25.691	230.2	0.141	3.99	63.5	17.3	1.50	18.2	0.08	0.00	0.20	0.16	50	215
61	10.08	10.07	33.599	25.846	215.6	0.166	3.49	54.8	21.5	1.69	21.2	0.04	0.00	0.08	0.14	61	214
70	9.70	9.69	33.697	25.986	202.5	0.185	3.07	47.9	24.6	1.85	23.6	0.04	0.00	0.04	0.14	70	213
75 ISL	9.62	D 9.61	33.727 D	26.023	199.1	0.195	3.02	D 47.0	25.8	1.91	24.4	0.04	0.00	0.03	0.14	75	
85	9.53	9.52	33.829	26.118	190.3	0.214	2.66	41.3	27.8	1.98	25.3	0.04	0.00	0.02	0.12	85	212
100 ISL	9.31	D 9.30	33.947 D	26.246	178.4	0.242	2.42	D 37.5	30.8	2.07	26.4	0.02	0.00	0.01	0.06	101	
101	9.31	9.30	33.945	26.245	178.6	0.243	2.41	37.3	31.0	2.07	26.5	0.02	0.00	0.01	0.06	102	211
121	9.19	9.18	33.999	26.306	173.1	0.279	2.31	35.7	32.3	2.11	27.0	0.01	0.00	0.00	0.08	122	210
125 ISL	9.15	D 9.14	34.025 D	26.333	170.6	0.286	2.29	D 35.3	32.7	2.12	27.1	0.01	0.00	0.00	0.07	126	
140	9.03	9.01	34.045	26.368	167.6	0.311	2.14	32.9	34.3	2.17	27.8	0.01	0.00	0.00	0.03	141	209
150 ISL	9.02	D 9.00	34.092 D	26.407	164.1	0.327	2.02	D 31.1	35.8	2.23	28.4	0.01	0.00	0.00	0.03	151	
170	8.82</td																

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 90.0 53.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	sva	DYN HT	OXYGEN	OXY	S103	P04	N03	N02	NH4	chl-a	phaeo	pres	samp
m	deg c	deg c	theta				ml/l	pct	um/l	um/l	um/l	um/l	um/l	ug/l	ug/l	db	
0 ISL	13.50	13.50	33.485	25.120	283.4	0.000	6.09	102.9	0.5	0.48	3.5	0.11	0.34	1.52	0.21	0	
2	13.50	13.50	33.485	25.120	283.4	0.006	6.09	102.9	0.5	0.48	3.5	0.11	0.34	1.52	0.21	2 220	
10	13.50	13.50	33.484	25.119	283.7	0.028	6.11	103.2	0.5	0.46	3.5	0.11	0.22	1.44	0.20	10 219	
20 ISL	12.75	12.75	33.504	D 25.284	268.3	0.056	6.14	D 102.1	0.5	0.52	4.6	0.16	0.03	5.95	0.57	20	
21	12.75	12.75	33.501	25.282	268.5	0.059	6.10	101.4	0.5	0.53	4.8	0.17	0.02	6.36	0.61	21 218	
30 ISL	12.47	D 12.47	33.496	D 25.333	263.9	0.083	5.72	D 94.6	2.2	0.71	6.5	0.18	0.30	4.64	0.79	30	
31	12.48	12.48	33.493	25.329	264.3	0.085	5.72	94.6	2.5	0.74	6.8	0.18	0.33	4.30	0.80	31 217	
41	11.85	11.84	33.478	25.437	254.2	0.111	5.11	83.4	7.6	1.01	10.6	0.25	0.24	2.40	0.80	41 216	
49	10.81	10.80	33.509	25.650	234.1	0.131	4.08	65.1	16.3	1.42	17.3	0.09	0.00	0.29	0.28	49 215	
50 ISL	10.77	D 10.76	33.522	D 25.667	232.5	0.133	4.04	D 64.4	16.4	1.43	17.4	0.09	0.00	0.28	0.28	50	
60	10.65	10.64	33.532	25.696	230.0	0.156	3.86	61.4	17.7	1.49	18.5	0.05	0.00	0.14	0.28	60 214	
70	10.18	10.17	33.644	25.865	214.1	0.178	3.33	52.4	22.2	1.69	21.5	0.04	0.00	0.13	0.21	70 213	
75 ISL	10.03	D 10.02	33.698	D 25.932	207.8	0.189	3.23	D 50.7	23.7	1.76	22.5	0.03	0.00	0.10	0.20	75	
83	9.83	9.82	33.740	25.999	201.6	0.205	2.93	45.8	25.6	1.84	23.8	0.02	0.00	0.06	0.20	83 212	
100 ISL	9.52	D 9.51	33.876	D 26.156	186.9	0.238	2.54	D 39.5	29.3	1.99	25.7	0.02	0.00	0.02	0.11	101	
101	9.52	9.51	33.883	26.162	186.4	0.240	2.51	39.0	29.5	2.00	25.8	0.02	0.00	0.02	0.10	102 211	
121	8.94	8.93	34.054	26.389	165.2	0.275	1.97	30.3	36.1	2.21	28.6	0.00	0.00	0.01	0.11	122 210	
125 ISL	8.92	D 8.91	34.066	D 26.402	164.0	0.282	1.97	D 30.2	36.7	2.23	28.9	0.00	0.00	0.01	0.12	126	
140	8.79	8.78	34.092	26.443	160.4	0.306	1.80	27.6	38.2	2.29	29.5	0.00	0.00	0.02	0.14	141 209	
150 ISL	8.64	D 8.62	34.123	D 26.491	156.0	0.322	1.66	D 25.3	39.9	2.35	30.1	0.00	0.00	0.02	0.12	151	
170	8.41	8.39	34.149	26.547	151.1	0.353	1.48	22.5	43.4	2.45	31.3	0.00	0.00	0.01	0.08	171 208	
200 ISL	8.23	D 8.21	34.172	D 26.593	147.2	0.398	1.28	D 19.4	46.0	2.53	32.1	0.00	0.00	0.01	0.08	201	
201	8.23	8.21	34.169	26.590	147.4	0.399	1.27	19.2	46.1	2.53	32.1	0.00	0.00	0.01	0.08	202 207	
232	7.99	7.97	34.191	26.644	142.8	0.444	1.10	16.5	49.6	2.62	33.1	0.00	0.00			233 206	
250 ISL	7.87	D 7.84	34.205	D 26.673	140.4	0.469	1.00	D 15.0	51.5	2.67	33.7	0.00	0.00			252	
271	7.70	7.67	34.216	26.706	137.5	0.499	0.89	13.3	53.9	2.72	34.3	0.00	0.00			273 205	
300 ISL	7.35	D 7.32	34.236	D 26.772	131.5	0.538	0.72	D 10.7	57.9	2.80	35.3	0.00	0.00			302	
322	7.23	7.20	34.238	26.791	130.0	0.566	0.65	9.6	60.8	2.86	36.0	0.00	0.00			324 204	
380	6.95	6.91	34.247	26.838	126.3	0.641	0.53	7.8	64.9	2.93	36.9	0.00	0.00			383 203	
400 ISL	6.77	D 6.73	34.269	D 26.880	122.5	0.666	0.49	D 7.2	67.3	2.97	37.3	0.00	0.00			403	
442	6.49	6.45	34.285	26.930	118.2	0.716	0.35	5.1	72.6	3.04	38.2	0.00	0.00			445 202	
500 ISL	6.19	D 6.15	34.306	D 26.986	113.4	0.783	0.31	D 4.5	77.0	3.10	39.0	0.00	0.00			503	
517	6.16	6.11	34.307	26.991	113.2	0.803	0.28	4.0	78.3	3.12	39.2	0.00	0.00			521 201	

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED S; CRUISE CORRECTED 1° 02';

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 90.0 60.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	sva	DYN HT	OXYGEN	OXY	S103	P04	N03	N02	NH4	chl-a	phaeo	pres	samp
m	deg c	deg c	theta				ml/l	pct	um/l	um/l	um/l	um/l	um/l	ug/l	ug/l	db	
0 ISL	13.38	13.38	33.402	25.080	287.2	0.000	6.16	103.7	1.9	0.56	4.2	0.13	0.00	1.30	0.22	0	
2	13.38	13.38	33.402	25.080	287.2	0.006	6.16	103.7	1.9	0.56	4.2	0.13	0.00	1.30	0.22	2 220	
10	13.37	13.37	33.405	25.084	287.0	0.029	6.16	103.7	1.9	0.54	4.2	0.13	0.00	1.73	0.25	10 219	
20 ISL	13.33	D 13.33	33.407	D 25.094	286.3	0.057	6.22	D 104.6	1.8	0.55	4.2	0.13	0.00	1.86	0.22	20	
21	13.35	13.35	33.410	25.093	286.5	0.060	6.17	103.8	1.8	0.55	4.2	0.13	0.00	1.87	0.22	21 218	
30	13.16	13.16	33.409	25.130	283.2	0.086	6.12	102.6	1.4	0.58	4.4	0.13	0.04	1.52	0.56	30 217	
40	13.13	13.12	33.407	25.135	283.0	0.114	6.04	101.2	1.6	0.58	4.6	0.13	0.05	1.97	0.45	40 216	
50	12.64	12.63	33.406	25.231	274.1	0.142	5.76	95.5	3.4	0.74	6.2	0.18	0.16	1.50	0.37	50 215	
60	10.83	10.82	33.483	25.626	236.6	0.168	4.09	65.3	15.8	1.40	17.1	0.07	0.00	0.20	0.18	60 214	
71	10.14	10.13	33.616	25.849	215.6	0.192	3.28	51.6	22.1	1.71	21.9	0.02	0.00	0.10	0.17	71 213	
75 ISL	9.99	D 9.98	33.666	D 25.914	209.5	0.201	3.16	D 49.6	23.4	1.77	22.8	0.02	0.00	0.07	0.16	75	
86	9.76	9.75	33.738	26.009	200.7	0.224	2.90	45.3	25.6	1.87	24.2	0.01	0.00	0.03	0.12	86 212	
100 ISL	9.48	D 9.47	33.823	D 26.121	190.3	0.251	2.86	D 44.4	27.0	1.91	24.9	0.01	0.00	0.02	0.07	101	
102	9.48	9.47	33.820	26.119	190.5	0.255	2.94	45.6	27.2	1.91	25.0	0.01	0.00	0.02	0.07	103 211	
121	9.13	9.12	33.912	26.248	178.6	0.290	2.64	40.7	30.3	1.99	26.5	0.01	0.00	0.01	0.07	122 210	
125 ISL	9.09	D 9.08	33.923	D 26.263	177.3	0.297	2.66	D 41.0	30.9	2.01	26.7	0.01	0.00	0.01	0.07	126	
140	8.86	8.85	33.981	D 26.345	169.7	0.323	2.47	D 37.9								141 209	
150 ISL	8.79	D 8.77	33.997	D 26.369	167.6	0.340	2.43	D 37.2								151	
170	8.60	8.58	34.042	26.434	161.8	0.373	2.14	32.6	37.0	2.20	29.1	0.00	0.00	0.01	0.08	171 208	
200 ISL	8.37	D 8.35	34.102	D 26.516	154.5	0.420	1.78	D 27.0	41.1	2.34	30.6	0.00	0.00	0.00	0.05	201	
201	8.37	8.35	34.097	26.512	154.8	0.422	1.77	26.8	41.2	2.34	30.7	0.00	0.00	0.00	0.05	202 207	
231	8.06	8.04	34.137	26.591	147.8	0.467	1.41	21.2	46.4	2.49	32.3	0.00	0.00			232 206	
250 ISL	8.00	D 7.97	34.149	D 26.609	146.4	0.495	1.37	D 20.6	48.8	2.57	33.0	0.00	0.00			251	
272	7.77	7.74	34.177	26.666	141.4	0.527	1.13	16.9	51.4	2.65	33.8	0.00	0.00			2	

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 90.0 70.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE
32 4.8 N	120 38.6 W	15/04/11	2003	UTC	3767 m	330	25 kn	320 08	0	1020.3 mb	1.8 C	13.0 C	14m	0/8		
0 ISL	13.22	13.22	33.169	24.932	301.3	0.000	6.13	102.7	0.7	0.44	1.8	0.09	0.29	0.70	0.24	0
1 A	13.22	13.22	33.169	24.932	301.3	0.003	6.13	102.7	0.7	0.44	1.8	0.09	0.29	0.70	0.24	1 221
9 A	13.19	13.19	33.170	24.939	300.9	0.027	6.12	102.5	0.6	0.44	1.8	0.09	0.30	0.73	0.29	9 220
10 ISL	13.21	D 13.21	33.173	D 24.937	301.0	0.030	6.15	D103.1	0.6	0.44	1.8	0.09	0.30	0.71	0.28	10
13 A	13.21	13.21	33.170	24.935	301.3	0.039	6.12	102.6	0.6	0.43	1.8	0.09	0.30	0.63	0.24	13 219
20 ISL	13.17	D 13.17	33.173	D 24.945	300.5	0.060	6.15	D103.0	0.7	0.44	1.8	0.10	0.29	0.69	0.26	20
23 A	13.15	13.15	33.170	24.947	300.4	0.069	6.10	102.1	0.7	0.45	1.8	0.10	0.29	0.71	0.27	23 218
30 ISL	13.13	D 13.13	33.175	D 24.955	299.9	0.090	6.14	D102.7	0.6	0.44	1.8	0.10	0.30	0.73	0.28	30
32	13.13	13.13	33.172	24.953	300.1	0.096	6.11	102.2	0.6	0.43	1.8	0.10	0.30	0.74	0.29	32 217
43 A	13.10	13.09	33.176	24.962	299.5	0.129	6.09	101.8	0.6	0.43	1.9	0.10	0.36	0.82	0.35	43 216
50 ISL	13.09	D 13.08	33.183	D 24.970	299.0	0.150	6.11	D102.1	0.7	0.45	2.0	0.11	0.38	0.70	0.37	50
51 A	13.09	13.08	33.180	24.967	299.3	0.153	6.07	101.5	0.7	0.45	2.0	0.11	0.38	0.68	0.37	51 215
61	13.06	13.05	33.189	24.980	298.3	0.183	6.01	100.4	0.9	0.46	2.3	0.13	0.43	0.72	0.35	61 214
70	12.84	12.83	33.219	25.047	292.1	0.210	5.87	97.6	2.1	0.56	3.4	0.22	0.58	0.71	0.46	70 213
75 ISL	12.55	D 12.54	33.270	D 25.143	283.1	0.224	5.67	D 93.8	3.4	0.67	5.0	0.34	0.45	0.56	0.43	75
85	12.10	12.09	33.341	25.285	269.9	0.252	5.27	86.3	7.0	0.92	9.1	0.48	0.10	0.23	0.29	85 212
100 ISL	10.90	D 10.89	33.397	D 25.548	245.0	0.290	4.51	D 72.0	13.6	1.26	15.0	0.05	0.01	0.09	0.17	100
101	10.89	10.88	33.396	25.549	244.9	0.293	4.39	70.1	14.1	1.28	15.4	0.02	0.00	0.09	0.16	101 211
122	9.80	9.79	33.593	25.889	212.8	0.341	3.53	55.1	21.6	1.67	21.5	0.01	0.00	0.04	0.14	123 210
125 ISL	9.74	D 9.73	33.615	D 25.917	210.3	0.347	3.47	D 54.1	22.5	1.71	22.1	0.01	0.00	0.04	0.14	126
140	9.39	9.37	33.748	26.078	195.2	0.378	3.01	46.6	26.7	1.87	24.6	0.00	0.00	0.02	0.14	141 209
150 ISL	9.29	D 9.27	33.811	D 26.144	189.1	0.397	2.77	D 42.8	28.6	1.94	25.7	0.00	0.00	0.02	0.12	151
171	9.04	9.02	33.928	26.276	177.0	0.435	2.51	38.6	31.8	2.05	27.2	0.00	0.00	0.01	0.08	172 208
200	8.56	8.54	33.992	26.401	165.5	0.485	2.37	36.1	35.8	2.13	28.7	0.00	0.00	0.00	0.06	201 207
231	8.10	8.08	34.038	26.507	155.8	0.535	2.02	30.4	41.3	2.29	30.8	0.00	0.00		232 206	
250 ISL	7.67	D 7.65	34.027	D 26.562	150.7	0.564	2.03	D 30.3	44.8	2.37	32.0	0.00	0.00		251	
271	7.42	7.39	34.049	26.615	145.9	0.595	1.74	25.8	48.6	2.44	33.3	0.00	0.00		273 205	
300 ISL	7.13	D 7.10	34.085	D 26.684	139.7	0.636	1.36	D 20.0	53.8	2.53	34.8	0.00	0.00		302	
320	6.91	6.88	34.084	26.714	137.0	0.664	1.28	18.8	57.2	2.60	35.7	0.00	0.00		322 204	
381	6.76	6.72	34.202	26.828	127.1	0.744	0.69	10.1	64.9	2.89	37.3	0.00	0.00		383 203	
400 ISL	6.24	D 6.20	34.151	D 26.856	124.3	0.768	0.80	D 11.5	67.3	2.95	37.7	0.00	0.00		403	
440	6.45	6.41	34.271	26.924	118.6	0.817	0.41	6.0	72.3	3.04	38.6	0.00	0.00		443 202	
500 ISL	6.06	D 6.02	34.304	D 27.001	111.9	0.886	0.29	D 4.2	78.6	3.12	39.6	0.00	0.00		503	
522	5.98	5.93	34.331	27.032	109.1	0.910	0.25	3.6	80.9	3.15	40.0	0.00	0.00		526 201	

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED S; CRUISE CORRECTED 1° 02';

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 90.0 80.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE
31 44.9 N	121 19.3 W	15/04/11	1242	UTC	3571 m	240	25 kn			1022.1 mb	13.8 C	13.0 C				
0 ISL	13.68	13.68	33.098	24.784	315.3	0.000	6.12	103.5	0.7	0.34	0.3	0.02	0.11	0.64	0.23	0
2	13.68	13.68	33.098	24.784	315.4	0.006	6.12	103.5	0.7	0.34	0.3	0.02	0.11	0.64	0.23	2 220
10 ISL	13.68	D 13.68	33.101	D 24.786	315.4	0.032	6.13	D103.7	0.7	0.32	0.4	0.03	0.15	0.65	0.20	10
11	13.68	13.68	33.098	24.784	315.6	0.035	6.12	103.5	0.7	0.32	0.4	0.03	0.16	0.65	0.20	11 219
20	13.68	13.68	33.107	24.792	315.2	0.063	6.11	103.3	0.8	0.31	0.3	0.03	0.11	0.65	0.20	20 218
30 ISL	13.68	D 13.68	33.105	D 24.790	315.6	0.095	6.14	D103.9	0.8	0.33	0.5	0.03	0.23	0.64	0.21	30
31	13.68	13.68	33.101	24.787	315.9	0.098	6.11	103.3	0.8	0.33	0.5	0.03	0.24	0.64	0.21	31 217
39	13.66	13.65	33.109	24.798	315.1	0.123	6.11	103.3	0.7	0.32	0.4	0.03	0.07	0.66	0.20	39 216
49	13.16	13.15	33.128	24.913	304.3	0.154	6.00	100.4	1.9	0.48	2.3	0.12	0.58	0.61	0.40	49 215
50 ISL	13.08	D 13.07	33.135	D 24.934	302.4	0.157	6.02	D100.6	2.0	0.48	2.4	0.12	0.58	0.60	0.40	50
60	12.96	12.95	33.133	24.957	300.5	0.187	5.94	99.0	2.5	0.53	2.9	0.14	0.56	0.49	0.45	60 214
70	11.91	11.90	33.132	25.158	281.5	0.216	5.47	89.2	7.2	0.83	8.2	0.05	0.00	0.26	0.26	70 213
75 ISL	11.63	D 11.62	33.204	D 25.266	271.3	0.230	5.31	D 86.1	8.2	0.89	9.3	0.03	0.00	0.20	0.21	75
83	11.19	11.18	33.257	25.387	259.9	0.251	4.97	79.8	9.5	0.97	10.8	0.02	0.00	0.13	0.15	83 212
100 ISL	10.04	D 10.03	33.483	D 25.763	224.4	0.292	4.00	D 62.7	17.3	1.43	17.9	0.00	0.00	0.03	0.06	100
101	10.04	10.03	33.478	25.759	224.8	0.295	4.03	63.2	17.8	1.46	18.4	0.00	0.00	0.03	0.06	101 211
121	9.66	9.65	33.720	26.012	201.1	0.337	3.07	47.8	24.8	1.85	23.9	0.00	0.00	0.02	0.08	122 210
125 ISL	9.61	D 9.60	33.746	D 26.040	198.5	0.345	3.01	D 46.8	25.6	1.89	24.4	0.00	0.00	0.02	0.07	126
139	9.39	9.37	33.835	26.146	188.7	0.372	2.78	43.1	27.9	1.96	25.4	0.00	0.00	0.01	0.05	140 209
150 ISL	9.21	D 9.19	33.904	D 26.229	181.0	0.393	2.63	D 40.6	29.6	2.01	26.2	0.00	0.00	0.01	0.05	151
171	8.89	8.87	33.976	26.337	171.1	0.430	2.40	36.8	33.0	2.10	27.6	0.00	0.00	0.01	0.06	172 208
200 ISL	8.53	D 8.51	34.080	D 26.475	158.5	0.478	1.90	D 28.9	38.9	2.30	29.7	0.00	0.00	0.00	0.03	201
201	8.54	8.52	34.077	26.471	158.9	0.479	1.89	28.8	39.1	2.31	29.8	0.00	0.00	0.00	0.03	202 207
230	8.38	8.36	34.133	26.540	152.9	0.524	1.56	23.7	42.7	2.43	31.0	0.00	0.00		231 206	
250 ISL	8.19	D 8.16	34.168	D 26.596	147.8	0.554	1.35	D 20.4	45.5	2						

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 90.0 90.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE
31 25.1 N	122 0.1 W	15/04/11	0052	UTC	3770 m	000	18 kn	000 07 06	0	1025.9 mb	13.5 C	12.7 C	13m	0/8		
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	S103	P04	N03	N02	NH4	CHL-A	PHAEAO	PRES SAMP
m	DEG C	DEG C		THETA			ml/l	pct	uM/l	uM/l	uM/l	uM/l	uM/l	ug/l	ug/l	db
0 ISL	13.89	13.89	33.033	24.691	324.2	0.000	6.11	103.8	0.9	0.32	0.0	0.00	0.00	0.48	0.15	0
2	13.89	13.89	33.033	24.691	324.3	0.006	6.11	103.8	0.9	0.32	0.0	0.00	0.00	0.48	0.15	2 220
10 ISL	13.89	13.89	33.036 D	24.693	324.2	0.032	6.15	D104.4	0.9	0.32	0.0	0.00	0.00	0.48	0.13	10
11	13.90	13.90	33.036	24.691	324.5	0.036	6.11	103.8	0.9	0.32	0.0	0.00	0.00	0.48	0.13	11 219
20 ISL	13.89	13.89	33.036 D	24.694	324.5	0.065	6.15	D104.4	0.9	0.32	0.0	0.00	0.00	0.49	0.13	20
21	13.88	13.88	33.041	24.700	324.0	0.068	6.10	103.6	0.9	0.32	0.0	0.00	0.00	0.49	0.13	21 218
30 ISL	13.81	13.81	33.038 D	24.712	323.0	0.097	6.14	D104.1	1.0	0.32	0.1	0.00	0.00	0.51	0.14	30
31	13.85	13.85	33.040	24.705	323.7	0.100	6.11	103.7	1.0	0.32	0.1	0.00	0.00	0.51	0.14	31 217
41	13.15	13.14	33.083	24.880	307.3	0.132	6.10	102.0	1.6	0.43	1.4	0.11	0.13	1.01	0.35	41 216
50 ISL	12.85	12.84	33.176 D	25.011	295.0	0.159	6.08	D101.1	1.5	0.54	2.4	0.14	0.60	0.74	0.49	50
52	12.86	12.85	33.173	25.007	295.4	0.165	6.06	100.8	1.5	0.56	2.7	0.14	0.65	0.65	0.51	52 215
60	12.28	12.27	33.112	25.072	289.4	0.188	5.68	93.3	4.8	0.67	4.8	0.16	0.06	0.55	0.58	60 214
71	11.90	11.89	33.070	25.111	285.9	0.220	5.68	92.5	5.6	0.71	5.7	0.07	0.00	0.25	0.23	71 213
75 ISL	12.07	12.06	33.183 D	25.167	280.7	0.231	5.52	D 90.3	6.4	0.78	6.9	0.05	0.00	0.20	0.20	75
85	11.44	11.43	33.186	25.286	269.6	0.259	5.20	83.9	8.8	0.99	10.2	0.03	0.00	0.13	0.14	85 212
100	10.88	10.87	33.310	25.484	251.1	0.298	4.77	76.1	11.5	1.12	12.8	0.01	0.00	0.06	0.09	100 211
121	10.29	10.28	33.518	25.748	226.3	0.348	3.63	57.3	19.1	1.62	20.2	0.01	0.00	0.04	0.07	122 210
125 ISL	9.86	9.85	33.554 D	25.849	216.7	0.357	3.71	D 58.0	19.4	1.61	20.2	0.01	0.00	0.04	0.07	126
142	9.59	9.57	33.619	25.945	207.9	0.393	3.91	60.8	20.3	1.56	20.1	0.01	0.00	0.03	0.06	143 209
150 ISL	9.29	9.27	33.694 D	26.052	197.8	0.409	3.75	D 57.9	22.5	1.66	21.6	0.01	0.00	0.02	0.06	151
174	9.06	9.04	33.855	26.215	182.7	0.455	2.73	42.0	30.0	2.02	26.8	0.00	0.00	0.01	0.07	175 208
200 ISL	8.87	8.85	33.993 D	26.354	170.1	0.501	2.23	D 34.2	34.0	2.16	28.5	0.00	0.00	0.01	0.05	201
201	8.88	8.86	33.979	26.341	171.3	0.502	2.33	35.7	34.1	2.16	28.5	0.00	0.00	0.01	0.05	202 207
230	8.66	8.64	34.076	26.452	161.3	0.551	1.82	27.8	38.6	2.31	30.1	0.00	0.00			231 206
250 ISL	8.21	8.18	34.071 D	26.517	155.3	0.582	1.86	D 28.1	41.7	2.36	31.1	0.00	0.00			251
269	7.84	7.81	34.062	26.565	150.9	0.611	1.81	27.1	44.8	2.40	32.1	0.00	0.00			271 205
300 ISL	7.44	7.41	34.099 D	26.652	142.9	0.657	1.45	D 21.5	50.8	2.55	34.1	0.00	0.00			302
322	7.14	7.11	34.099	26.694	139.1	0.688	1.25	18.4	55.1	2.66	35.5	0.00	0.00			324 204
381	6.41	6.38	34.114	26.805	129.0	0.767	0.95	13.8	65.2	2.84	38.1	0.00	0.00			383 203
400 ISL	6.23	6.19	34.130 D	26.841	125.7	0.791	0.84	D 12.1	68.4	2.89	38.7	0.00	0.00			402
441	5.88	5.84	34.158	26.907	119.6	0.842	0.70	10.0	74.8	2.98	39.8	0.00	0.00			445 202
500 ISL	5.56	5.52	34.209 D	26.987	112.5	0.910	0.47	D 6.7	82.0	3.09	40.9	0.00	0.00			503
518	5.49	5.45	34.214	27.000	111.5	0.930	0.41	5.8	84.2	3.12	41.3	0.00	0.00			521 201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED S; CRUISE CORRECTED 1° 02';

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 90.0 100.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE
31 4.8 N	122 40.1 W	14/04/11	1827	UTC	3961 m	350	21 kn	350 06 07	1	1029.2 mb	14.5 C	13.5 C	21m	1/8	CU	
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	S103	P04	N03	N02	NH4	CHL-A	PHAEAO	PRES SAMP
m	DEG C	DEG C		THETA			ml/l	pct	uM/l	uM/l	uM/l	uM/l	uM/l	ug/l	ug/l	db
0 ISL	14.16	14.16	32.970	24.586	334.2	0.000	5.97	101.9	2.4	0.32	0.0	0.00	0.00	0.18	0.05	0
2 A	14.16	14.16	32.970	24.586	334.2	0.007	5.97	101.9	2.4	0.32	0.0	0.00	0.00	0.18	0.05	2 222
10 ISL	14.17	14.17	32.971 D	24.585	334.5	0.033	5.98	D 102.1	2.4	0.32	0.0	0.00	0.00	0.17	0.05	10
14 A	14.16	14.16	32.969	24.586	334.6	0.047	5.97	101.9	2.4	0.32	0.0	0.00	0.00	0.17	0.05	14 221
18 A	14.16	14.16	32.969	24.586	334.7	0.060	5.95	101.6	2.4	0.31	0.0	0.00	0.00	0.18	0.06	18 220
20 ISL	14.15	14.15	32.971 D	24.590	334.4	0.067	5.99	D 102.2	2.4	0.31	0.0	0.00	0.00	0.18	0.06	20
30 ISL	14.15	14.15	32.976 D	24.594	334.3	0.100	5.98	D 102.0	2.4	0.32	0.0	0.00	0.02	0.18	0.05	30
34 A	14.15	14.15	32.973	24.592	334.6	0.114	5.95	101.5	2.4	0.33	0.0	0.00	0.03	0.18	0.05	34 219
45	14.18	14.17	32.986	24.596	334.5	0.151	5.93	101.3	2.3	0.31	0.0	0.00	0.00	0.20	0.05	45 218
50 ISL	14.20	14.19	32.991 D	24.596	334.7	0.167	5.96	D 101.8	2.4	0.31	0.0	0.00	0.00	0.20	0.05	50
55	14.16	14.15	32.977	24.593	335.1	0.184	5.94	101.4	2.4	0.31	0.0	0.00	0.00	0.21	0.05	55 217
64 A	15.06	15.05	33.273	24.631	331.9	0.214	5.81	101.2	2.3	0.27	0.0	0.00	0.00	0.26	0.08	64 216
71	13.69	13.68	33.040	24.739	321.6	0.237	5.98	101.1	2.6	0.33	0.1	0.01	0.00	0.46	0.21	71 215
75 ISL	14.19	14.18	33.236 D	24.788	317.2	0.250	5.84	D 99.9	2.7	0.31	0.2	0.02	0.00	0.43	0.26	75
78 A	14.44	14.43	33.393	24.856	310.7	0.259	5.68	97.7	2.8	0.30	0.3	0.03	0.00	0.40	0.29	78 214
86	14.26	14.25	33.486	24.966	300.5	0.284	5.54	95.0	3.4	0.34	1.1	0.07	0.01	0.32	0.30	86 213
96	13.11	13.10	33.349	25.095	288.3	0.313	5.41	90.5	4.5	0.49	3.3	0.04	0.00	0.29	0.22	96 212
100 ISL	12.90	12.89	33.354 D	25.141	284.1	0.324	5.41	D 90.2	4.9	0.53	3.9	0.04	0.00	0.27	0.19	100
110	12.46	12.45	33.354	25.227	276.1	0.352	5.25	86.7	5.8	0.62	5.3	0.03	0.00	0.22	0.14	110 211
124	11.72	11.70	33.363	25.374	262.3	0.390	5.08	82.6	7.7	0.78	8.0	0.02	0.00	0.14	0.13	125 210
125 ISL	11.68	11.66	33.368 D	25.385	261.2	0.393	5.10	D 82.8	7.9	0.80	8.3	0.02	0.00	0.14	0.13	126
145	10.55	10.53	33.418	25.626	238.5	0.443	4.55	72.1	13.3	1.20	14.3	0.00	0.00	0.06	0.06	146 209
150 ISL	10.27	10.25	33.445 D	25.695	231.9	0.454										

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 90.0 110.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	N03	N02	NH4	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C	THETA		ml/l	PCT	uM/l	uM/l	uM/l	uM/l	uM/l	uM/l	ug/l	ug/l	db		
30	44.9 N	123 20.6 W	14/04/11	1107	UTC	3945 m	350	17 kn		1027.6 mb	13.9 C	12.9 C					
0	ISL	15.89	15.89	33.541	24.651	328.0	0.000	5.69	100.9	2.5	0.25	0.0	0.00	0.04	0.12	0.03	0
3		15.89	15.89	33.541	24.651	328.1	0.010	5.69	100.9	2.5	0.25	0.0	0.00	0.04	0.12	0.03	3 220
10		15.89	15.89	33.545	24.655	328.0	0.033	5.70	101.1	2.4	0.24	0.0	0.00	0.00	0.12	0.03	10 219
20	ISL	15.90	D 15.90	33.544 D	24.652	328.5	0.066	5.70	D101.1	2.4	0.24	0.0	0.00	0.00	0.12	0.03	20
26		15.90	15.90	33.549	24.656	328.4	0.085	5.68	100.8	2.4	0.24	0.0	0.00	0.00	0.12	0.03	26 218
30	ISL	15.89	D 15.89	33.543 D	24.654	328.7	0.098	5.69	D100.9	2.4	0.24	0.0	0.00	0.00	0.12	0.03	30
40		15.90	15.89	33.555	24.661	328.3	0.131	5.68	100.8	2.3	0.24	0.0	0.00	0.00	0.12	0.03	40 217
50		15.90	15.89	33.550	24.658	329.0	0.164	5.68	100.8	2.4	0.24	0.0	0.00	0.00	0.13	0.03	50 216
63		15.91	15.90	33.549	24.655	329.6	0.207	5.69	100.9	2.4	0.24	0.0	0.00	0.04	0.13	0.03	63 215
75	ISL	15.92	D 15.91	33.557 D	24.659	329.6	0.247	5.69	D101.0	2.3	0.24	0.0	0.00	0.03	0.14	0.04	75
76		15.92	15.91	33.551	24.655	330.1	0.250	5.69	101.0	2.3	0.24	0.0	0.00	0.03	0.14	0.04	76 214
87		15.92	15.91	33.553	24.657	330.2	0.286	5.70	101.1	2.4	0.24	0.0	0.00	0.00	0.16	0.04	87 213
100		15.91	15.89	33.554	24.660	330.3	0.329	5.67	100.6	2.4	0.23	0.0	0.00	0.01	0.18	0.05	100 212
112		15.57	15.55	33.516	24.707	326.1	0.368	5.63	99.2	2.6	0.26	0.2	0.01	0.06	0.28	0.14	112 211
125	ISL	12.76	D 12.74	33.260 D	25.096	288.9	0.408	5.45	D 90.5	4.5	0.52	3.6	0.02	0.01	0.22	0.20	126
126		12.74	12.72	33.270	25.108	287.8	0.411	5.44	90.3	4.7	0.54	3.9	0.02	0.00	0.21	0.20	127 210
142		11.61	11.59	33.251	25.307	269.0	0.456	5.12	83.0	7.5	0.79	8.0	0.00	0.00	0.09	0.09	143 209
150	ISL	11.23	D 11.21	33.325 D	25.434	257.0	0.477	5.05	D 81.2	9.4	0.93	10.2	0.00	0.02	0.06	0.07	151
172		9.98	9.96	33.432	25.735	228.6	0.530	4.41	69.0	15.8	1.32	16.5	0.00	0.05	0.01	0.03	173 208
199		9.47	9.45	33.690	26.021	201.8	0.588	3.26	50.5	24.9	1.81	23.6	0.00	0.00	0.00	0.02	200 207
200	ISL	9.50	D 9.48	33.769 D	26.078	196.5	0.590	3.14	D 48.7	25.2	1.82	23.8	0.00	0.00			201
233		9.04	9.01	33.982	26.319	174.1	0.652	2.38	36.6	32.8	2.10	27.6	0.00	0.00			234 206
250	ISL	8.86	D 8.83	34.032 D	26.387	167.9	0.681	2.19	D 33.6	35.3	2.19	28.6	0.00	0.00			251
269		8.65	8.62	34.072	26.451	162.1	0.712	1.99	30.4	37.8	2.26	29.5	0.00	0.00			270 205
300	ISL	8.23	D 8.20	34.121 D	26.554	152.7	0.761	1.64	D 24.8	42.6	2.39	31.1	0.00	0.00			302
323		7.97	7.94	34.131	26.601	148.5	0.795	1.52	22.8	46.3	2.48	32.3	0.00	0.00			325 204
382		7.32	7.28	34.168	26.724	137.4	0.880	1.02	15.1	56.2	2.73	35.3	0.00	0.00			384 203
400	ISL	7.15	D 7.11	34.190 D	26.766	133.7	0.904	0.86	D 12.7	59.1	2.79	36.1	0.00	0.00			402
441		6.66	6.62	34.179	26.824	128.3	0.958	0.75	10.9	65.2	2.90	37.7	0.00	0.00			444 202
500	ISL	6.34	D 6.29	34.228 D	26.905	121.2	1.032	0.52	D 7.5	72.9	3.03	39.2	0.00	0.00			503
513		6.14	6.09	34.225	26.928	118.9	1.047	0.49	7.1	74.6	3.06	39.5	0.00	0.00			516 201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED S; CRUISE CORRECTED 1° 02;

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 90.0 120.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	N03	N02	NH4	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C	THETA		ml/l	PCT	uM/l	uM/l	uM/l	uM/l	uM/l	uM/l	ug/l	ug/l	db		
30	25.2 N	124 0.1 W	14/04/11	0509	UTC	4216 m	020	13 kn		1028.8 mb	14.0 C	12.8 C					
0	ISL	15.16	15.16	33.255	24.593	333.5	0.000	5.81	101.4	2.4	0.29	0.0	0.00	0.00	0.15	0.04	0
3		15.16	15.16	33.255	24.593	333.6	0.010	5.81	101.4	2.4	0.29	0.0	0.00	0.00	0.15	0.04	3 220
10		15.16	15.16	33.254	24.592	333.9	0.033	5.81	101.4	2.4	0.30	0.0	0.00	0.00	0.15	0.04	10 219
20	ISL	15.13	D 15.13	33.247 D	24.594	334.0	0.067	5.84	D 101.8	2.4	0.30	0.0	0.00	0.00	0.15	0.04	20 218
25		15.16	15.16	33.255	24.594	334.2	0.083	5.82	101.5	2.4	0.30	0.0	0.00	0.00	0.15	0.04	25 218
30	ISL	15.16	D 15.16	33.256 D	24.595	334.3	0.100	5.85	D 102.1	2.4	0.30	0.0	0.00	0.00	0.15	0.04	30
40		15.18	15.17	33.264	24.597	334.4	0.134	5.81	101.4	2.4	0.30	0.0	0.00	0.00	0.15	0.05	40 217
50		15.24	15.23	33.295	24.608	333.6	0.167	5.79	101.2	2.4	0.29	0.0	0.00	0.00	0.14	0.05	50 216
62		15.24	15.23	33.296	24.609	333.9	0.207	5.81	101.6	2.4	0.29	0.0	0.00	0.00	0.15	0.04	62 215
75	ISL	15.17	D 15.16	33.294 D	24.623	332.9	0.250	5.81	D 101.4	2.4	0.29	0.0	0.00	0.00	0.28	0.10	75
76		15.17	15.16	33.291	24.621	333.2	0.254	5.78	100.9	2.4	0.29	0.0	0.00	0.00	0.29	0.11	76 214
87		14.06	14.05	33.133	24.735	322.4	0.290	5.84	99.6	3.0	0.40	0.7	0.08	0.04	0.47	0.38	87 213
100		13.07	13.06	33.100	24.911	305.9	0.331	5.57	93.0	4.1	0.54	2.8	0.24	0.00	0.30	0.27	100 212
112		12.49	12.48	33.133	25.050	292.9	0.367	5.34	88.1	5.4	0.67	5.1	0.11	0.00	0.18	0.21	112 211
125		12.02	12.00	33.179	25.175	281.3	0.404	5.23	85.5	6.6	0.77	7.0	0.02	0.00	0.14	0.15	126 210
140		11.17	11.15	33.243	25.381	261.8	0.445	4.83	77.5	10.0	1.04	11.3	0.00	0.00	0.09	0.12	141 209
150	ISL	10.11	D 10.09	33.292 D	25.603	240.6	0.470	4.71	D 73.9	13.3	1.21	14.3	0.00	0.00	0.06	0.08	151
170		9.44	9.42	33.534	25.903	212.4	0.515	4.06	62.8	20.2	1.53	19.8	0.00	0.00	0.01	0.02	171 208
200		9.05	9.03	33.772	26.152	189.2	0.575	3.14	48.3	27.7	1.89	25.3	0.00	0.00	0.00	0.02	201 207
231		8.72	8.70	33.926	26.325	173.3	0.631	2.70	41.2	32.4	2.03	27.5	0.00	0.00			232 206
250	ISL	8.27	D 8.24	33.990 D	26.444	162.1	0.663	2.65	D 40.1	35.6	2.09	28.6	0.00	0.00			251
271		7.96	7.93	33.991	26.492	157.9	0.697	2.47	37.1	39.2	2.16	29.7	0.00	0.00			272 205
300	ISL	7.57	D 7.54														

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 91.7 26.4

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SIO3	P04	N03	N02	NH4	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C	THETA			ml/l	PCT	uM/l	uM/l	uM/l	uM/l	uM/l	uM/l	ug/l	ug/l	db	
0 ISL	15.66	15.66	33.307	24.523	340.2	0.000	6.21	109.5	4.6	0.23	0.0	0.00	0.00	1.57	0.26	0	
2	15.66	15.66	33.307	24.523	340.3	0.007	6.21	109.5	4.6	0.23	0.0	0.00	0.00	1.57	0.26	2	205
5	15.66	15.66	33.310	24.525	340.1	0.017	6.21	109.5	4.4	0.23	0.0	0.00	0.00	1.37	0.30	5	204
10 ISL	15.52	D 15.52	33.318 D	24.563	336.7	0.034	6.25	D 109.9	4.5	0.23	0.0	0.01	0.00	1.65	0.31	10	
11	15.59	15.59	33.314	24.544	338.5	0.037	6.21	109.3	4.5	0.23	0.0	0.01	0.00	1.77	0.31	11	202
11	15.59	15.59	33.305	24.537	339.2	0.037											11 203
16	13.23	13.23	33.398	25.107	285.0	0.053	5.32	89.3	8.1	0.68	2.9	0.22	0.26	2.51	0.80	16	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; SECONDARY CORRECTED S; CRUISE CORRECTED 1° 02';

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 93.3 26.7

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SIO3	P04	N03	N02	NH4	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C	THETA			ml/l	PCT	uM/l	uM/l	uM/l	uM/l	uM/l	uM/l	ug/l	ug/l	db	
0 ISL	15.76	15.76	33.293	24.490	343.4	0.000	6.03	106.5	4.6	0.26	0.0	0.00	0.00	1.41	0.33	0	
2 A	15.76	15.76	33.293	24.490	343.4	0.007	6.03	106.5	4.6	0.26	0.0	0.00	0.00	1.41	0.33	2	207
7 A	15.53	15.53	33.291	24.540	338.8	0.024	6.05	106.4	4.6	0.26	0.0	0.00	0.00	1.52	0.42	7	206
10 ISL	15.49	D 15.49	33.289 D	24.547	338.2	0.034	6.09	D 107.0	4.8	0.28	0.1	0.02	0.00	1.67	0.48	10	
13 A	15.32	15.32	33.296	24.590	334.2	0.044	5.97	104.5	5.0	0.30	0.1	0.04	0.00	1.74	0.51	13	205
19 A	11.23	11.23	33.471	25.545	243.4	0.061	3.76	60.5	16.0	1.44	15.6	0.67	0.00	1.15	0.38	19	204
20 ISL	11.15	D 11.15	33.466 D	25.555	242.4	0.064	3.79	D 60.9	16.1	1.45	15.8	0.66	0.00	1.14	0.36	20	
26 A	11.04	11.04	33.479	25.585	239.7	0.078	3.62	58.0	16.8	1.51	16.9	0.61	0.00	1.07	0.31	26	203
30 ISL	10.84	D 10.84	33.507 D	25.642	234.3	0.088	3.47	D 55.4	17.7	1.57	17.9	0.66	0.15	1.01	0.32	30	
34 A	10.83	10.83	33.513	25.649	233.8	0.097	3.33	53.2	18.7	1.64	18.8	0.68	0.29	0.90	0.33	34	202
44	10.34	10.33	33.586	25.791	220.5	0.120	3.42	54.0	20.9	1.74	20.1	0.17	0.00	0.26	0.21	44	201

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; SECONDARY CORRECTED S; CRUISE CORRECTED 1° 02';

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 93.3 28.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SIO3	P04	N03	N02	NH4	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C	THETA			ml/l	PCT	uM/l	uM/l	uM/l	uM/l	uM/l	uM/l	ug/l	ug/l	db	
0 ISL	15.75	15.75	33.270	24.474	344.8	0.000	6.15	108.6	4.9	0.24	0.0	0.00	0.00	1.09	0.33	0	
2	15.75	15.75	33.270	24.474	344.9	0.007	6.15	108.6	4.9	0.24	0.0	0.00	0.00	1.09	0.33	2	220
10	15.49	15.49	33.300	24.555	337.4	0.034	6.04	106.1	5.8	0.32	0.6	0.05	0.01	1.47	0.42	10	219
20	11.41	11.41	33.461	25.504	247.3	0.063	3.90	63.0	15.1	1.36	15.5	0.50	0.00	1.11	0.38	20	218
30	10.65	10.65	33.456	25.636	234.9	0.088	3.84	61.0	17.1	1.50	17.7	0.08	0.00	0.36	0.20	30	217
40	10.26	10.26	33.524	25.757	223.7	0.110	3.67	57.9	19.4	1.60	19.5	0.02	0.00	0.12	0.10	40	216
50	9.97	9.96	33.598	25.864	213.7	0.132	3.41	53.4	21.7	1.72	21.3	0.02	0.00	0.05	0.08	50	215
58	9.85	9.84	33.641	25.917	208.8	0.149	3.28	51.3	22.9	1.76	22.1	0.01	0.00	0.03	0.06	58	214
70	9.66	9.65	33.735	26.023	199.0	0.174	3.10	48.3	25.0	1.83	23.2	0.01	0.09	0.01	0.06	70	213
75 ISL	9.58	D 9.57	33.780 D	26.071	194.5	0.184	3.10	D 48.2	25.9	1.87	23.8	0.01	0.07	0.01	0.08	75	
85	9.44	9.43	33.821	26.126	189.5	0.203	2.86	44.4	27.5	1.93	24.8	0.01	0.00	0.01	0.11	85	212
100	9.32	9.31	33.870	26.184	184.3	0.231	2.75	42.6	28.8	1.97	25.5	0.00	0.00	0.01	0.05	101	211
120	9.30	9.29	33.985	26.278	175.8	0.267	2.45	37.9	31.0	2.05	26.2	0.01	0.00	0.00	0.04	121	210
125 ISL	9.26	D 9.25	33.986 D	26.285	175.2	0.276	2.45	D 37.9	31.9	2.10	26.6	0.01	0.00	0.00	0.06	126	
140	9.53	9.51	34.097	26.328	171.5	0.302	1.77	27.6	34.4	2.26	27.6	0.01	0.00	0.02	0.12	141	209
150 ISL	9.19	D 9.17	34.098 D	26.384	166.3	0.318	1.93	D 29.8	35.2	2.27	27.9	0.01	0.00	0.02	0.11	151	
170	9.16	9.14	34.126	26.411	164.2	0.351	1.78	27.5	36.4	2.29	28.3	0.00	0.00	0.01	0.08	171	208
200 ISL	8.96	D 8.94	34.162 D	26.472	158.9	0.400	1.56	D 24.0	39.3	2.38	29.4	0.00	0.00	0.01	0.05	201	
202	8.96	8.94	34.160	26.470	159.1	0.403	1.54	23.7	39.5	2.39	29.5	0.00	0.00	0.01	0.05	203	207
231	8.75	8.73	34.211	26.544	152.7	0.448	1.23	18.8	43.0	2.52	30.7	0.00	0.00			232	206
250 ISL	8.78	D 8.75	34.260 D	26.578	149.8	0.477	1.08	D 16.5	44.6	2.57	31.2	0.00	0.00			252	
271	8.50	8.47	34.253	26.616	146.5	0.508	1.02	15.5	46.2	2.61	31.6	0.00	0.00			273	205
300 ISL	8.30	D 8.27	34.261 D	26.653	143.4	0.550	0.91	D 13.8	49.1	2.69	32.3	0.00	0.00			302	
323	8.16	8.13	34.273	26.684	140.8	0.583	0.76	11.5	51.6	2.75	33.0	0.00	0.00			325	204
383	7.47	7.43	34.257	26.773	132.9	0.665	0.67	10.0	58.5	2.85	35.0	0.00	0.00			386	203
400 ISL	7.09	D 7.05	34.257 D	26.827	127.8	0.687	0.60	D 8.8	61.3	2.90	35.7	0.00	0.00			403	
443	6.74	6.70	34.269	26.884	122.8	0.741	0.46	6.7	68.3	3.01	37.4	0.00	0.00			446	202
500 ISL	6.43	D 6.38	34.276 D	26.931	118.8	0.810	0.41	D 5.9	73.6	3.08	38.6	0.00	0.00			503	
517	6.30	6.25	34.288	26.958	116.4	0.830	0.35	5.1	75.2	3.10	38.9	0.00	0.00			521	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; SECONDARY CORRECTED S; CRUISE CORRECTED 1° 02';

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 93.3 30.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	
32 50.9 N	117 31.7 W	10/04/11	0921	UTC	815 m	070	01 kn			1022.1 mb	14.0 C	11.5 C					
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	S103	P04	N03	N02	NH4	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C	THETA				ml/l	pct	uM/l	uM/l	uM/l	uM/l	uM/l	ug/l	ug/l	db	
0 ISL	15.69	15.69	33.291	24.504	342.0	0.000	6.05	106.7	4.0	0.25	0.0	0.00	0.00	0.69	0.19	0	
2	15.69	15.69	33.291	24.504	342.1	0.007	6.05	106.7	4.0	0.25	0.0	0.00	0.00	0.69	0.19	2	220
10 ISL	15.70	D 15.70	33.292	D 24.503	342.4	0.034	6.09	D 107.4	4.0	0.24	0.0	0.00	0.00	0.58	0.17	10	
11	15.68	15.68	33.295	24.509	341.8	0.038	6.04	106.5	4.0	0.24	0.0	0.00	0.00	0.57	0.17	11	219
20 ISL	12.61	D 12.61	33.343	D 25.187	277.5	0.066	5.39	D 89.3	7.0	0.74	5.2	0.23	0.00	2.04	0.59	20	
21	12.52	12.52	33.394	25.244	272.1	0.068	5.27	87.2	7.6	0.81	6.1	0.26	0.00	2.18	0.63	21	218
30 ISL	11.05	D 11.05	33.520	D 25.615	236.9	0.091	3.48	D 55.8	16.3	1.48	16.7	0.57	0.00	1.13	0.45	30	
31	11.05	11.05	33.517	25.613	237.2	0.094	3.59	57.6	17.3	1.55	17.8	0.59	0.00	0.96	0.41	31	217
41	10.46	10.46	33.611	25.790	220.5	0.116	3.00	47.5	21.0	1.76	21.3	0.30	0.00	0.39	0.25	41	216
50 ISL	10.03	D 10.02	33.655	D 25.898	210.5	0.136	3.17	D 49.8	22.7	1.80	22.1	0.11	0.00	0.16	0.16	50	
51	10.03	10.02	33.655	25.898	210.5	0.138	3.12	49.0	22.9	1.80	22.2	0.10	0.00	0.15	0.15	51	215
60	9.92	9.91	33.747	25.989	202.1	0.156	2.72	42.6	25.6	1.93	23.9	0.28	0.10	0.06	0.14	60	214
70	9.82	9.81	33.834	26.073	194.2	0.176	2.27	35.5	29.1	2.07	25.8	0.31	1.25	0.04	0.17	70	213
75 ISL	9.77	D 9.76	33.869	D 26.109	190.9	0.186	2.37	D 37.0	29.0	2.06	25.7	0.22	0.96	0.04	0.16	75	
85	9.69	9.68	33.886	26.136	188.6	0.205	2.46	38.4	28.9	2.04	25.6	0.03	0.00	0.03	0.13	85	212
100 ISL	9.30	D 9.29	33.936	D 26.239	179.1	0.232	2.66	D 41.2	29.7	2.02	25.7	0.01	0.01	0.01	0.06	101	
101	9.30	9.29	33.935	26.238	179.2	0.234	2.63	40.7	29.8	2.02	25.7	0.01	0.01	0.01	0.06	102	211
121	9.26	9.25	34.066	26.348	169.2	0.269	2.18	33.7	33.2	2.17	27.0	0.00	0.00	0.00	0.04	122	210
125 ISL	9.49	D 9.48	34.142	D 26.370	167.3	0.276	1.91	D 29.7	33.9	2.21	27.2	0.00	0.00	0.00	0.04	126	
141	9.48	9.46	34.202	26.419	163.0	0.302	1.56	24.3	36.4	2.36	28.1	0.01	0.00	0.00	0.05	142	209
150 ISL	9.44	D 9.42	34.224	D 26.443	160.9	0.317	1.44	D 22.4	37.7	2.42	28.5	0.02	0.00	0.00	0.05	151	
171	9.37	9.35	34.267	26.488	157.0	0.350	1.08	16.8	40.2	2.53	29.3	0.03	0.00	0.01	0.05	172	208
200 ISL	9.23	D 9.21	34.297	D 26.535	153.1	0.395	0.93	D 14.4	42.1	2.60	29.9	0.02	0.00	0.01	0.05	201	
201	9.24	9.22	34.289	26.527	153.9	0.397	0.91	14.1	42.2	2.60	29.9	0.02	0.00	0.01	0.05	202	207
230	9.06	9.03	34.309	26.572	150.2	0.441	0.80	12.3	44.3	2.66	30.7	0.01	0.00			231	206
250 ISL	8.95	D 8.92	34.302	D 26.584	149.3	0.471	0.84	D 12.9	45.2	2.68	31.0	0.01	0.00			252	
270	8.88	8.85	34.310	26.602	148.0	0.500	0.76	11.7	46.1	2.70	31.3	0.01	0.00			272	205
300 ISL	8.62	D 8.59	34.311	D 26.644	144.5	0.544	0.73	D 11.1	48.1	2.75	31.8	0.00	0.03			302	
320	8.59	8.56	34.336	26.668	142.6	0.573	0.57	8.7	49.8	2.79	32.2	0.00	0.04			322	204
378	7.76	7.72	34.297	26.763	134.1	0.653	0.56	8.4	57.0	2.88	34.6	0.00	0.00			380	203
400 ISL	7.37	D 7.33	34.288	D 26.812	129.5	0.682	0.54	D 8.0	59.7	2.92	35.4	0.00	0.00			403	
440	7.13	7.09	34.286	26.844	126.9	0.734	0.50	7.4	64.3	2.98	36.6	0.00	0.00			443	202
500 ISL	6.75	D 6.70	34.290	D 26.900	122.2	0.808	0.41	D 6.0	69.9	3.06	38.0	0.00	0.00			503	
517	6.59	6.54	34.289	26.921	120.3	0.829	0.38	5.5	71.5	3.08	38.4	0.00	0.00			521	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; SECONDARY CORRECTED S; CRUISE CORRECTED 1° 02';

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 93.3 35.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	
32 40.7 N	117 52.3 W	10/04/11	1323	UTC	627 m	300	07 kn	320 08 10	1	1023.6 mb	14.0 C	13.0 C	11m	6/8	SC		
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	S103	P04	N03	N02	NH4	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C	THETA				ml/l	pct	uM/l	uM/l	uM/l	uM/l	uM/l	ug/l	ug/l	db	
0 ISL	15.41	15.41	33.350	24.611	331.8	0.000	5.95	104.4	2.7	0.33	0.0	0.00	0.12	0.43	0.12	0	
2	15.41	15.41	33.350	24.611	331.9	0.007	5.95	104.4	2.7	0.33	0.0	0.00	0.12	0.43	0.12	2	220
10 ISL	15.41	D 15.41	33.347	D 24.609	332.3	0.033	6.01	D 105.5	2.6	0.33	0.0	0.00	0.08	0.43	0.10	10	
11	15.41	15.41	33.347	24.609	332.3	0.037	5.96	104.6	2.6	0.33	0.0	0.00	0.07	0.43	0.10	11	219
20	14.90	14.90	33.342	24.717	322.3	0.066	5.92	102.8	3.4	0.39	0.5	0.02	0.05	1.18	0.33	20	218
30	12.80	12.80	33.296	25.114	284.7	0.096	5.05	84.0	7.2	0.84	7.4	0.15	0.00	0.80	0.40	30	217
41	11.70	11.69	33.351	25.366	261.0	0.126	4.28	69.5	12.1	1.24	13.8	0.02	0.00	0.25	0.20	41	216
50	11.05	11.04	33.380	25.507	247.7	0.149	4.14	66.3	14.3	1.36	15.9	0.01	0.03	0.18	0.15	50	215
60	10.62	10.61	33.441	25.630	236.2	0.173	3.94	62.6	16.7	1.49	18.0	0.00	0.09	0.13	0.10	60	214
70	10.31	10.30	33.532	25.755	224.5	0.196	3.57	56.3	19.7	1.65	20.4	0.00	0.07	0.06	0.06	70	213
75 ISL	10.16	D 10.15	33.578	D 25.817	218.8	0.208	3.48	D 54.8	21.3	1.72	21.5	0.00	0.08	0.04	0.06	75	
86	9.87	9.86	33.686	25.950	206.3	0.231	3.08	48.2	24.1	1.84	23.3	0.00	0.10	0.01	0.05	86	212
100	9.58	9.57	33.772	26.065	195.6	0.259	3.09	48.1	25.4	1.84	23.7	0.00	0.00	0.00	0.03	101	211
120	9.30	9.29	33.906	26.216	181.7	0.297	2.57	39.8	29.9	2.01	26.3	0.00	0.00	0.00	0.04	121	210
125 ISL	9.19	D 9.18	33.933	D 26.255	178.1	0.306	2.52	D 38.9	30.5	2.03	26.6	0.00	0.01	0.00	0.04	126	
140	9.09	9.07	33.957	26.290	175.0	0.332	2.40	37.0	32.0	2.08	27.2	0.00	0.03	0.00	0.03	141	209
150 ISL	8.96	D 8.94	33.988	D 26.335	170.9	0.350	2.32	D 35.6	33.4	2.12	27.7	0.00	0.02	0.00	0.03	151	
170	8.74	8.72	34.030	26.403	164.8	0.383	2.14	32.7	36.2	2.20	28.8	0.00	0.00	0.00	0.03	171	208
200	8.47	8.45	34.067	26.474	158.5	0.432	1.94	29.5	39.3	2.28	29						

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 93.3 40.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE
32 30.6 N	118 13.0 W	10/04/11	1804	UTC	1659 m	300	08 kn	300 06 10	1	1026.1 mb	14.4 C	13.3 C	11m	2/8	SC	
0 ISL	15.29	15.29	33.364	24.648	328.2	0.000	6.02	105.4	2.6	0.35	0.0	0.00	0.07	0.46	0.12	0
2 A	15.29	15.29	33.364	24.648	328.3	0.007	6.02	105.4	2.6	0.35	0.0	0.00	0.07	0.46	0.12	2 222
9 A	15.24	15.24	33.362	24.658	327.6	0.030	6.06	106.0	2.6	0.33	0.0	0.00	0.00	0.50	0.14	9 220
9	15.21	15.21	33.360	24.663	327.1	0.030										9 221
10 ISL	15.19	15.19	33.362	24.669	326.6	0.033	6.11	D 106.7	2.6	0.33	0.0	0.00	0.00	0.53	0.15	10
18 A	15.12	15.12	33.361	24.684	325.4	0.059	6.07	105.9	2.7	0.34	0.1	0.00	0.00	0.74	0.19	18 219
20 ISL	15.08	15.08	33.362	24.693	324.6	0.065	6.12	D 106.7	2.8	0.35	0.1	0.00	0.00	1.04	0.25	20
26	14.68	14.68	33.356	24.775	317.0	0.085	6.18	106.9	3.4	0.37	0.2	0.02	0.02	1.75	0.43	26 218
30 ISL	14.43	14.43	33.350	24.824	312.4	0.097	6.20	D 106.7	4.2	0.48	1.4	0.08	0.07	1.47	0.42	30
33 A	13.90	13.90	33.345	24.931	302.3	0.106	5.66	96.3	5.1	0.60	3.0	0.14	0.09	1.12	0.41	33 217
41 A	12.27	12.26	33.381	25.282	269.0	0.129	4.67	76.8	9.3	1.05	10.1	0.39	0.00	0.63	0.41	41 216
50	11.26	11.25	33.471	25.540	244.6	0.152	3.85	62.0	14.3	1.42	16.2	0.29	0.00	0.25	0.22	50 215
60	10.85	10.84	33.567	25.688	230.7	0.176	3.42	54.6	17.5	1.64	19.1	0.15	0.01	0.14	0.17	60 214
70	10.35	10.34	33.654	25.843	216.2	0.198	3.02	47.7	21.5	1.79	22.1	0.02	0.00	0.09	0.14	70 213
75 ISL	10.20	D 10.19	33.685	D 25.893	211.5	0.209	3.00	D 47.3	22.7	1.83	22.8	0.02	0.00	0.07	0.12	75
85	9.85	9.84	33.726	25.984	203.0	0.230	3.00	46.9	24.6	1.87	23.6	0.01	0.00	0.04	0.08	85 212
100	9.53	9.52	33.849	26.134	189.1	0.259	2.79	43.4	27.7	1.97	24.9	0.00	0.00	0.01	0.05	101 211
120	9.55	9.54	33.977	26.231	180.3	0.296	2.32	36.1	30.8	2.11	26.3	0.00	0.00	0.01	0.06	121 210
125 ISL	9.36	D 9.35	33.992	D 26.274	176.3	0.305	2.43	D 37.7	31.3	2.13	26.5	0.00	0.00	0.01	0.06	126
140	9.37	9.35	34.024	26.297	174.4	0.331	2.23	34.6	32.5	2.16	26.9	0.00	0.00	0.01	0.06	141 209
150 ISL	9.35	D 9.33	34.088	D 26.351	169.5	0.349	1.97	D 30.5	33.4	2.19	27.2	0.00	0.00	0.01	0.06	151
170	9.02	9.00	34.074	26.393	165.8	0.382	2.10	32.3	35.4	2.23	28.0	0.00	0.00	0.01	0.05	171 208
200	8.34	8.32	34.050	26.480	157.9	0.431	2.16	32.7	39.1	2.27	29.8	0.00	0.00	0.00	0.03	201 207
231	8.24	8.22	34.116	26.548	152.0	0.479	1.68	25.4	43.5	2.45	31.3	0.00	0.00		232 206	
250 ISL	8.11	D 8.08	34.156	D 26.599	147.5	0.507	1.43	D 21.6	46.4	2.55	32.3	0.00	0.01		251	
270	7.73	7.70	34.149	26.649	142.8	0.536	1.30	19.4	2.64	33.3	0.00	0.02		272 205		
300 ISL	7.71	D 7.68	34.239	D 26.723	136.4	0.578	0.87	D 13.0	53.9	2.79	34.3	0.00	0.01		302	
320	7.56	7.53	34.249	26.753	133.8	0.605	0.74	11.0	56.7	2.88	34.8	0.00	0.00		322 204	
379	7.09	7.05	34.265	26.833	126.9	0.682	0.55	8.1	63.2	2.97	36.5	0.00	0.00		381 203	
400 ISL	6.90	D 6.86	34.272	D 26.864	124.1	0.708	0.50	D 7.3	65.3	3.00	37.1	0.00	0.00		403	
441	6.65	6.61	34.277	26.902	120.9	0.759	0.43	6.3	69.6	3.06	38.1	0.00	0.00		444 202	
500 ISL	6.26	D 6.22	34.302	D 26.974	114.6	0.828	0.33	D 4.8	77.1	3.16	39.6	0.00	0.29		503	
519	6.09	6.04	34.308	27.000	112.2	0.845	0.28	4.0	79.0	3.19	40.0	0.00	0.36		519 201	

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED S; CRUISE CORRECTED 1° 02;

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 93.3 45.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE
32 20.7 N	118 33.4 W	10/04/11	2135	UTC	1342 m	300	12 kn	280 05 08	1	1025.8 mb	13.7 C	12.1 C	12m	2/8	AS	
0 ISL	15.26	15.26	33.342	24.638	329.2	0.000	5.95	104.1	3.0	0.33	0.0	0.00	0.00	0.49	0.10	0
2	15.26	15.26	33.342	24.638	329.3	0.007	5.95	104.1	3.0	0.33	0.0	0.00	0.00	0.49	0.10	2 221
9	15.03	15.03	33.338	24.685	325.0	0.029										9 220
10	15.01	15.01	33.343	24.694	324.2	0.033	5.97	103.9	3.1	0.33	0.0	0.00	0.00	0.60	0.12	10 219
20	14.92	14.92	33.336	24.708	323.2	0.065	5.98	103.9	3.1	0.34	0.1	0.00	0.00	0.76	0.18	20 218
30	14.87	14.87	33.334	24.718	322.6	0.097	5.93	102.9	3.2	0.35	0.2	0.02	0.00	0.92	0.19	30 217
41	12.31	12.30	33.356	25.255	271.5	0.130	4.69	77.2	9.9	1.04	10.7	0.10	0.00	0.31	0.17	41 216
50	11.86	11.85	33.368	25.350	262.7	0.154	4.51	73.5	11.5	1.14	12.6	0.05	0.00	0.24	0.17	50 215
60	10.62	10.61	33.449	25.636	235.6	0.179	3.90	61.9	16.9	1.49	18.0	0.01	0.00	0.10	0.10	60 214
70	10.36	10.35	33.502	25.723	227.6	0.202	3.69	58.3	18.9	1.59	19.7	0.01	0.00	0.07	0.07	70 206
75 ISL	10.21	D 10.20	33.548	D 25.785	221.8	0.213	3.71	D 58.4	20.5	1.66	20.8	0.01	0.00	0.06	0.06	75
85	9.88	9.87	33.664	25.931	208.1	0.235	3.20	50.1	23.6	1.79	22.8	0.00	0.00	0.03	0.04	85 212
100 ISL	9.60	D 9.59	33.758	D 26.051	196.9	0.265	3.01	D 46.8	26.1	1.88	24.2	0.00	0.00	0.01	0.03	100
101	9.58	9.57	33.760	26.056	196.5	0.267	2.97	46.2	26.2	1.88	24.3	0.00	0.00	0.01	0.03	101 211
120	9.33	9.32	33.862	26.177	185.4	0.304	2.75	42.6	28.8	1.96	25.6	0.00	0.00	0.01	0.02	121 210
125 ISL	9.31	D 9.30	33.874	D 26.189	184.3	0.313	2.77	D 42.9	29.1	1.97	25.7	0.00	0.00	0.01	0.02	126
140	9.20	9.18	33.900	26.228	180.9	0.340	2.67	41.2	30.1	2.00	26.1	0.00	0.00	0.01	0.03	141 209
150 ISL	8.98	D 8.96	33.960	D 26.310	173.3	0.358	2.66	D 40.9	31.5	2.03	26.7	0.00	0.00	0.01	0.03	151
170	8.78	8.76	34.024	26.392	165.9	0.392	2.34	35.8	34.8	2.13	28.0	0.00	0.00	0.00	0.02	171 208
200	8.61	8.59	34.123	26.496	156.5	0.440	1.74	26.5	40.1	2.34	29.9	0.00	0.00	0.00	0.02	201 207
231	8.32	8.30	34.148	26.561	150.9	0.488	1.52	23.0	43.8	2.45	31.3	0.00	0.00		232 206	
250 ISL	8.10	D 8.07	34.177	D 26.617	145.8	0.516	1.29	D 19.5	47.2	2.55	32.4	0.00	0.00		251	
270	7.89	7.86	34.197	26.664	141.6	0.545	1.05	15.8	50.8	2.66	33.5	0.00	0.00		272 205	
300 ISL	7.60	D 7.57	34.228	D 26.731	135.6	0.586	0.84	D 12.5	54.7	2.76	34.5	0.00	0.00		302	
321	7.46	7.43	34.227	26.750	134.0	0.615	0.78	11.6	57.1	2.81	35.1	0.00	0.00		323 204	
380	7.01	6.97	34.246	26.829	127.2	0.692	0.60	8.8	63.6	2.92	36.8	0.00	0.00		382 203	
400 ISL	6.85	D 6.81	34.258	D 26.860	124.5	0.717</										

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 93.3 50.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE
32 10.8 N	118 53.6 W	11/04/11	0123	UTC	1320 m	310	17 kn	320 05 07	1	1025.7 mb	13.2 C	12.1 C	1/8		AC	
0 ISL	14.84	14.84	33.369	24.750	318.6	0.000	6.04	104.8	3.2	0.34	0.3	0.02	0.00	0.76	0.19	0
2	14.84	14.84	33.369	24.750	318.6	0.006	6.04	104.8	3.2	0.34	0.3	0.02	0.00	0.76	0.19	2 220
10	14.85	14.85	33.368	24.747	319.1	0.032	6.04	104.8	3.2	0.34	0.4	0.02	0.00	0.74	0.18	10 219
20	14.54	14.54	33.365	24.812	313.3	0.064	6.02	103.8	2.8	0.36	0.7	0.04	0.02	0.84	0.19	20 218
30 ISL	14.49 D	14.49	33.365 D	24.823	312.5	0.095	6.02	D103.7	2.8	0.37	0.8	0.05	0.05	0.85	0.22	30
31	14.48	14.48	33.362	24.823	312.6	0.098	5.96	102.6	2.8	0.37	0.8	0.05	0.06	0.85	0.22	31 217
40	14.32	14.31	33.352	24.849	310.3	0.126	5.90	101.3	2.9	0.40	1.1	0.07	0.17	0.70	0.19	40 216
50	12.78	12.77	33.311	25.130	283.7	0.156	5.18	86.1	7.1	0.81	7.1	0.36	0.23	0.26	0.14	50 215
60	10.63	10.62	33.498	25.673	232.1	0.181	3.65	58.0	18.0	1.53	19.0	0.01	0.00	0.10	0.09	60 214
70	10.23	10.22	33.610	25.829	217.4	0.204	3.27	51.5	21.6	1.69	21.6	0.02	0.00	0.05	0.07	70 213
75 ISL	10.17 D	10.16	33.633 D	25.858	214.9	0.215	3.25	D 51.2	22.8	1.74	22.4	0.06	0.00	0.04	0.07	75
86	9.91	9.90	33.734	25.981	203.4	0.238	2.89	45.3	24.9	1.83	23.6	0.14	0.00	0.02	0.06	86 212
99	9.67	9.66	33.848	26.110	191.4	0.263	2.62	40.9	27.9	1.94	25.2	0.06	0.00	0.01	0.05	99 211
100 ISL	9.64 D	9.63	33.864 D	26.127	189.7	0.265	2.62	D 40.8	28.0	1.95	25.3	0.06	0.00	0.01	0.05	100
119	9.51	9.50	33.950	26.216	181.7	0.301	2.39	37.2	30.1	2.03	26.3	0.02	0.00	0.01	0.04	120 210
125 ISL	9.46 D	9.45	33.980 D	26.248	178.8	0.311	2.38	D 37.0	31.1	2.06	26.7	0.02	0.00	0.01	0.04	126
141	9.33	9.31	34.050 D	26.324	171.9	0.339	2.12	D 32.8								142 209
150 ISL	9.19 D	9.17	34.092 D	26.380	166.7	0.355	2.00	D 30.9	34.9	2.20	28.2	0.01	0.00	0.01	0.05	151
170	9.00	8.98	34.135	26.444	161.0	0.387	1.71	26.3	37.8	2.29	29.2	0.00	0.00	0.01	0.05	171 208
199	8.82	8.80	34.155	26.489	157.3	0.434	1.56	23.9	39.9	2.36	30.0	0.00	0.00	0.00	0.03	200 207
200 ISL	8.79 D	8.77	34.163 D	26.500	156.3	0.435	1.57	D 24.0	40.0	2.36	30.0	0.00	0.00			201
231	8.49	8.47	34.187	26.565	150.5	0.483	1.31	19.9	44.5	2.48	31.5	0.00	0.00			232 206
250 ISL	8.14 D	8.11	34.213 D	26.639	143.7	0.511	1.09	D 16.5	47.6	2.57	32.4	0.00	0.00			251
271	7.97	7.94	34.221	26.671	141.0	0.541	0.97	14.6	51.0	2.66	33.4	0.00	0.00			273 205
300 ISL	7.73 D	7.70	34.228 D	26.712	137.5	0.581	0.89	D 13.3	54.5	2.74	34.5	0.00	0.00			302
321	7.49	7.46	34.226	26.745	134.5	0.610	0.81	12.0	56.7	2.78	35.1	0.00	0.00			323 204
382	6.98	6.94	34.237	26.826	127.5	0.689	0.64	9.4	63.5	2.90	36.7	0.00	0.00			384 203
400 ISL	6.82 D	6.78	34.256 D	26.863	124.2	0.712	0.54	D 7.9	65.8	2.94	37.2	0.00	0.00			403
441	6.57	6.53	34.275	26.911	120.0	0.762	0.42	6.1	70.8	3.03	38.3	0.00	0.00			444 202
500 ISL	6.27 D	6.23	34.302 D	26.973	114.8	0.831	0.33	D 4.8	76.1	3.10	39.3	0.00	0.00			503
521	6.15	6.10	34.311	26.995	112.8	0.855	0.28	4.0	78.0	3.13	39.7	0.00	0.00			525 201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED S; CRUISE CORRECTED 1° 02';

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 93.3 60.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE
31 51.1 N	119 34.7 W	11/04/11	1757	UTC	1860 m	330	14 kn	330 08 06	1	1024.6 mb	14.5 C	14.0 C	21m	7/8	SC	
0 ISL	15.80	15.80	33.355	24.528	339.7	0.000	5.75	101.7	1.9	0.31	0.0	0.00	0.00	0.16	0.03	0
2 A	15.80	15.80	33.355	24.528	339.7	0.007	5.75	101.7	1.9	0.31	0.0	0.00	0.00	0.16	0.03	2 221
10 ISL	15.81 D	15.81	33.358 D	24.529	340.0	0.034	5.79	D102.4	1.9	0.31	0.0	0.00	0.03	0.15	0.04	10
13 A	15.80	15.80	33.355	24.529	340.0	0.044	5.75	101.7	1.9	0.31	0.0	0.00	0.04	0.14	0.04	13 220
19 A	15.80	15.80	33.358	24.531	340.0	0.065	5.74	101.5	1.9	0.31	0.0	0.00	0.03	0.14	0.03	19 219
20 ISL	15.79 D	15.79	33.358 D	24.534	339.8	0.068	5.80	D102.6	1.9	0.31	0.0	0.00	0.03	0.14	0.03	20
26	15.77	15.77	33.371	24.548	338.6	0.088	5.76	101.8	1.9	0.30	0.0	0.00	0.00	0.17	0.04	26 218
30 ISL	15.76 D	15.76	33.356 D	24.539	339.6	0.102	5.80	D102.5	1.9	0.30	0.0	0.00	0.00	0.17	0.04	30
35 A	15.73	15.72	33.349	24.541	339.6	0.119	5.76	101.7	2.0	0.30	0.0	0.00	0.00	0.17	0.03	35 217
44	13.41	13.40	33.146	24.877	307.7	0.148	5.94	99.9	3.7	0.48	1.9	0.16	0.20	0.72	0.26	44 216
50 ISL	12.90 D	12.89	33.169 D	24.996	296.4	0.166	5.97	D 99.4	4.4	0.58	3.3	0.34	0.09	0.53	0.23	50
54	12.66	12.65	33.175	25.048	291.6	0.178	5.64	93.4	4.9	0.64	4.3	0.41	0.00	0.33	0.17	54 215
63 A	12.10	12.09	33.211	25.183	278.9	0.204	5.37	87.9	6.2	0.76	6.4	0.11	0.00	0.19	0.12	63 214
75 ISL	11.05 D	11.04	33.324 D	25.464	252.4	0.235	4.73	D 75.8	11.3	1.11	12.1	0.02	0.03	0.11	0.09	75
77 A	11.00	10.99	33.328	25.476	251.3	0.240	4.64	74.2	12.2	1.17	13.0	0.01	0.03	0.10	0.09	77 213
89	10.76	10.75	33.393	25.569	242.7	0.270	4.26	67.8	14.7	1.34	15.6	0.01	0.00	0.07	0.08	89 212
100	10.44	10.43	33.543	25.742	226.5	0.296	3.74	59.2	18.1	1.53	18.2	0.01	0.00	0.05	0.05	100 211
120	9.61	9.60	33.601	25.927	209.1	0.339	3.90	60.6	20.5	1.56	19.8	0.00	0.00	0.02	0.03	121 210
125 ISL	9.57 D	9.56	33.681 D	25.996	202.7	0.350	3.78	D 58.7	21.5	1.60	20.5	0.00	0.00	0.02	0.03	126 209
142	9.32	9.30	33.808	26.136	189.6	0.383	3.35	51.8	25.3	1.76	22.9	0.00	0.00	0.01	0.02	143 209
150 ISL	9.21 D	9.19	33.830 D	26.171	186.5	0.398	3.40	D 52.5	27.2	1.84	24.0	0.00	0.00	0.01	0.02	151
169	8.83	8.81	33.934	26.313	173.3	0.432	2.79	42.7	31.3	1.99	26.3	0.00	0.00	0.00	0.03	170 208
200 ISL	8.32 D	8.30	33.991 D	26.437	162.0	0.484	2.63	D 39.8	36.0	2.08	28.2	0.00	0.00	0.00	0.02	201
201	8.31	8.29	33.989	26.437	162.0	0.486	2.60	39.4	36.1	2.08	28.2	0.00	0.00	0.00	0.02	202 207
231	7.93	7.91	34.046	26.539	152.7	0.533	2.03	30.5	42.8	2.31	30.8	0.00	0.00			232 206
250 ISL	7.69 D	7.67	34.075 D	26.597	147.4	0.562	1.84	D 27.5	46.5	2.42	32.2	0.00	0.00			251
270	7.47	7.44	34.080	26.632	144.3	0.591	1.57	23.3	50.0	2.52	33.5	0.00	0.00			272 205
300 ISL	7.31 D	7.28	34.134 D	26.698	138.5	0.633	1.11	D 16.4	54.7	2.65	34.9	0.				

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 93.3 70.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	
31 31.1 N	120 15.0 W	11/04/11	2308	UTC	3876 m	330	22 kn	330 08 06	1	1021.3 mb	13.0 C	12.5 C	10m	6/8	AC		
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	S103	P04	N03	N02	NH4	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C	THETA				ml/l	pct	uM/l	uM/l	uM/l	uM/l	uM/l	ug/l	ug/l	db	
0 ISL	14.67	14.67	33.376	24.792	314.6	0.000	5.99	103.6	2.4	0.38	0.8	0.03	0.00	0.59	0.11	0	
2	14.67	14.67	33.376	24.792	314.6	0.006	5.99	103.6	2.4	0.38	0.8	0.03	0.00	0.59	0.11	2	220
10 ISL	14.66 D	14.66	33.374 D	24.793	314.8	0.031	6.05	D104.6	2.4	0.38	0.8	0.03	0.00	0.57	0.12	10	
11	14.67	14.67	33.374	24.791	315.0	0.035	6.01	103.9	2.4	0.38	0.8	0.03	0.00	0.57	0.12	11	219
20 ISL	14.54 D	14.54	33.364 D	24.811	313.4	0.063	6.07	D104.7	2.4	0.40	0.9	0.04	0.01	0.63	0.10	20	
22	14.57	14.57	33.367	24.807	313.8	0.069	6.01	103.7	2.4	0.40	0.9	0.04	0.01	0.64	0.10	22	218
30	14.07	14.07	33.340	24.891	306.0	0.094	6.01	102.6	2.4	0.48	2.2	0.08	0.18	0.51	0.15	30	217
41	13.60	13.59	33.370	25.012	294.8	0.127	5.55	93.9	4.2	0.67	4.2	0.17	0.76	0.35	0.18	41	216
50 ISL	11.86 D	11.85	33.375 D	25.355	262.2	0.152	4.71	D 76.8	9.2	1.05	10.6	0.19	0.16	0.26	0.18	50	
52	11.86	11.85	33.375	25.355	262.3	0.157	4.66	76.0	10.5	1.14	12.2	0.20	0.00	0.24	0.18	52	215
60	11.19	11.18	33.414	25.508	247.8	0.178	4.08	65.6	14.4	1.38	16.1	0.06	0.00	0.15	0.17	60	214
72	10.80	10.79	33.461	25.615	238.0	0.207	3.82	60.9	16.8	1.51	18.1	0.03	0.00	0.13	0.13	72	213
75 ISL	10.56 D	10.55	33.505 D	25.691	230.7	0.214	3.77	D 59.8	17.7	1.55	18.8	0.02	0.00	0.11	0.12	75	
87	10.08	10.07	33.596	25.844	216.4	0.241	3.39	53.3	21.3	1.72	21.5	0.01	0.00	0.05	0.07	87	212
100 ISL	9.78 D	9.77	33.724 D	25.995	202.3	0.268	3.01	D 47.0	24.8	1.87	23.8	0.00	0.00	0.02	0.06	100	
101	9.79	9.78	33.722	25.991	202.7	0.270	2.98	46.6	25.0	1.88	23.9	0.00	0.00	0.02	0.06	101	211
122	9.41	9.40	33.852	26.156	187.4	0.311	2.71	42.0	28.5	1.99	25.6	0.00	0.00	0.01	0.05	123	210
125 ISL	9.32 D	9.31	33.878 D	26.191	184.2	0.316	2.69	D 41.6	29.0	2.00	25.8	0.00	0.00	0.01	0.05	126	
141	9.03	9.01	33.940	26.286	175.4	0.345	2.58	39.7	31.4	2.06	26.8	0.00	0.00	0.01	0.04	142	209
150 ISL	8.81 D	8.79	33.965 D	26.340	170.3	0.361	2.66	D 40.7	32.6	2.09	27.3	0.00	0.00	0.01	0.04	151	
170	8.65	8.63	34.008	26.399	165.1	0.394	2.36	36.0	35.3	2.15	28.3	0.00	0.00	0.00	0.04	171	208
200 ISL	8.36 D	8.34	34.079 D	26.500	156.0	0.443	1.94	D 29.4	40.1	2.30	30.1	0.00	0.00	0.00	0.03	201	
203	8.36	8.34	34.076	26.498	156.3	0.447	1.91	29.0	40.6	2.32	30.3	0.00	0.00	0.00	0.03	204	207
231	8.12	8.10	34.116	26.566	150.3	0.490	1.58	23.8	44.8	2.47	31.8	0.00	0.00			232	206
250 ISL	7.92 D	7.89	34.150 D	26.622	145.2	0.518	1.37	D 20.6	48.3	2.59	32.8	0.00	0.00			251	
271	7.80	7.77	34.202	26.681	139.9	0.548	1.00	15.0	52.1	2.71	33.8	0.00	0.00			273	205
300 ISL	7.62 D	7.59	34.213 D	26.716	137.0	0.588	0.92	D 13.7	55.5	2.79	34.8	0.00	0.00			302	
321	7.40	7.37	34.219	26.752	133.8	0.617	0.78	11.6	57.6	2.82	35.4	0.00	0.00			323	204
382	6.85	6.81	34.254	26.857	124.5	0.696	0.54	7.9	65.9	2.98	37.2	0.00	0.00			384	203
400 ISL	6.75 D	6.71	34.259 D	26.874	123.0	0.718	0.51	D 7.5	68.0	3.02	37.7	0.00	0.00			403	
442	6.44	6.40	34.284	26.939	117.3	0.768	0.39	5.7	72.7	3.09	38.7	0.00	0.00			445	202
500 ISL	5.99 D	5.95	34.314 D	27.018	110.2	0.834	0.28	D 4.0	79.9	3.17	40.1	0.00	0.00			503	
519	5.90	5.85	34.318	27.032	109.0	0.855	0.24	3.4	82.3	3.20	40.6	0.00	0.00			523	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED S; CRUISE CORRECTED 1° 02;

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 93.3 80.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	
31 10.9 N	120 55.4 W	12/04/11	2135	UTC	3772 m	340	24 kn	330 06 07	1	1021.9 mb	13.0 C	12.0 C	11m	7/8	ST		
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	S103	P04	N03	N02	NH4	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C	THETA				ml/l	pct	uM/l	uM/l	uM/l	uM/l	uM/l	ug/l	ug/l	db	
0 ISL	14.52	14.52	33.148	24.648	328.3	0.000	6.00	103.3	2.7	0.30	0.0	0.00	0.00	0.53	0.11	0	
2	14.52	14.52	33.148	24.648	328.3	0.007	6.00	103.3	2.7	0.30	0.0	0.00	0.00	0.53	0.11	2	220
10 ISL	14.52 D	14.52	33.150 D	24.650	328.4	0.033	6.03	D 103.8	2.6	0.29	0.0	0.00	0.00	0.50	0.11	10	
11	14.52	14.52	33.148	24.648	328.6	0.036	6.01	103.5	2.6	0.29	0.0	0.00	0.00	0.50	0.11	11	219
20	14.50	14.50	33.152	24.656	328.1	0.066	6.01	103.4	2.6	0.30	0.0	0.00	0.00	0.55	0.14	20	218
30	14.46	14.46	33.170 D	24.679	326.3	0.098	6.01	103.3	2.6	0.30	0.0	0.00	0.00	0.54	0.13	30	217
40	14.39	14.38	33.191	24.710	323.6	0.131	6.03	103.5	2.6	0.30	0.0	0.01	0.00	0.76	0.19	40	216
50 ISL	14.07 D	14.06	33.284 D	24.849	310.6	0.163	5.84	D 99.7	3.1	0.33	0.6	0.07	0.00	0.72	0.31	50	
51	14.11	14.10	33.281	24.838	311.6	0.166	5.83	99.6	3.2	0.33	0.7	0.08	0.00	0.72	0.32	51	215
61	12.81	12.80	33.240	25.069	289.8	0.196	5.53	91.9	4.7	0.52	3.7	0.16	0.00	0.33	0.26	61	214
71	11.96	11.95	33.233	25.227	275.0	0.224	5.30	86.5	6.8	0.75	7.2	0.03	0.00	0.16	0.15	71	213
75 ISL	11.68 D	11.67	33.334 D	25.357	262.6	0.235	5.14	D 83.5	7.4	0.78	8.0	0.02	0.00	0.13	0.12	75	
87	11.23	11.22	33.343	25.447	254.3	0.266	4.92	79.1	10.0	0.96	10.7	0.01	0.00	0.08	0.07	87	212
100	10.25	10.24	33.401	25.664	233.8	0.298	4.24	66.8	16.1	1.55	17.1	0.00	0.00	0.03	0.05	100	211
121	9.42	9.41	33.600	25.957	206.2	0.344	3.73	57.7	22.4	1.83	21.7	0.00	0.00	0.01	0.03	122	210
125 ISL	9.38 D	9.37	33.618 D	25.978	204.3	0.352	3.67	D 56.8	23.5	1.87	22.5	0.00	0.00	0.01	0.03	126	
140	9.08	9.06	33.775	26.149	188.4	0.381	3.15	48.4	27.5	1.99	25.1	0.00	0.00	0.00	0.03	141	209
150 ISL	8.90 D	8.88	33.848 D	26.235	180.4	0.400	3.08	D 47.2	30.0	2.05	26.4	0.00	0.00	0.00	0.03	151	
170	8.98	8.96	34.011	26.350	169.9	0.435	2.21	34.0	34.3	2.13	28.3	0.00	0.00	0.00	0.03	171	208
200	8.70	8.68	34.072	26.442	161.6												

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 93.3 90.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	S103	P04	N03	N02	NH4	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C	THETA		ml/l	pct	uM/l	uM/l	uM/l	uM/l	uM/l	uM/l	ug/l	ug/l	db		
30 50.8 N	121 35.6 W	13/04/11	0342	UTC	4054 m	320	18 kn			1022.4 mb	12.8 C	11.9 C					
0 ISL	14.26	14.26	33.171	24.720	321.4	0.000	6.04	103.4	2.4	0.33	0.2	0.02	0.02	0.67	0.14	0	
3	14.26	14.26	33.171	24.721	321.5	0.010	6.04	103.4	2.4	0.33	0.2	0.02	0.02	0.67	0.14	3	220
10 ISL	14.26	D 14.26	33.173 D	24.722	321.5	0.032	6.07	D 103.9	2.4	0.33	0.2	0.02	0.07	0.68	0.13	10	
11	14.26	14.26	33.175	24.724	321.4	0.035	6.04	103.4	2.4	0.33	0.2	0.02	0.08	0.68	0.13	11	219
20 ISL	14.26	D 14.26	33.174 D	24.723	321.7	0.064	6.06	D 103.8	2.4	0.32	0.2	0.02	0.08	0.70	0.14	20	
21	14.27	14.27	33.173	24.721	322.0	0.068	6.03	103.3	2.4	0.32	0.2	0.02	0.08	0.70	0.14	21	218
30 ISL	14.27	D 14.27	33.175 D	24.722	322.1	0.096	6.05	D 103.6	2.5	0.32	0.2	0.02	0.10	0.67	0.14	30	
31	14.24	14.24	33.172	24.726	321.7	0.100	6.04	103.4	2.5	0.32	0.2	0.02	0.10	0.67	0.14	31	217
40	12.77	12.76	33.147	25.004	295.4	0.127	5.70	94.6	4.8	0.61	3.9	0.50	0.00	0.36	0.31	40	216
50	12.25	12.24	33.205	25.150	281.8	0.156	5.44	89.4	6.1	0.74	6.7	0.08	0.00	0.18	0.18	50	215
60	11.69	11.68	33.284	25.316	266.2	0.184	5.07	82.3	9.3	0.98	10.4	0.03	0.00	0.10	0.11	60	214
70	10.93	10.92	33.397	25.542	244.9	0.209	4.40	70.3	14.2	1.30	15.4	0.02	0.00	0.06	0.07	70	213
75 ISL	10.72	D 10.71	33.430 D	25.605	239.0	0.221	4.24 D	67.5	16.1	1.41	17.1	0.02	0.00	0.05	0.07	75	
85	10.11	10.10	33.493	25.759	224.5	0.245	3.83	60.2	19.1	1.56	19.6	0.01	0.00	0.03	0.06	85	212
100 ISL	9.76	D 9.75	33.627 D	25.922	209.2	0.277	3.36 D	52.4	22.5	1.71	22.2	0.00	0.00	0.02	0.06	100	
101	9.79	9.78	33.599	25.895	211.8	0.279	3.44	53.7	22.7	1.72	22.3	0.00	0.00	0.02	0.06	101	211
121	9.40	9.39	33.778	26.100	192.7	0.320	2.75	42.6	28.3	1.97	26.0	0.00	0.00	0.01	0.07	122	210
125 ISL	9.31	D 9.30	33.812 D	26.141	188.9	0.327	2.70 D	41.8	29.1	2.00	26.4	0.00	0.00	0.01	0.06	126	
140	9.16	9.14	33.904	26.237	180.0	0.355	2.47	38.1	31.4	2.09	27.4	0.00	0.00	0.00	0.04	141	209
150 ISL	9.06	D 9.04	33.950 D	26.289	175.3	0.373	2.36 D	36.3	32.5	2.11	27.8	0.00	0.00	0.00	0.04	151	
169	8.68	8.66	33.968	26.363	168.5	0.405	2.40	36.6	34.7	2.13	28.4	0.00	0.00	0.00	0.04	170	208
200 ISL	8.10	D 8.08	34.026 D	26.497	156.1	0.456	2.21 D	33.3	40.1	2.26	30.4	0.00	0.00	0.00	0.03	201	
202	8.10	8.08	34.026	26.497	156.2	0.459	2.12	31.9	40.5	2.27	30.5	0.00	0.00	0.00	0.03	203	207
233	7.84	7.82	34.069	26.570	149.7	0.506	1.74	26.1	45.1	2.43	32.2	0.00	0.00		234	206	
250 ISL	7.44	D 7.42	34.048 D	26.611	145.9	0.531	1.80 D	26.7	48.6	2.51	33.4	0.00	0.00		251		
271	7.23	7.20	34.080	26.666	141.0	0.561	1.39	20.5	53.2	2.61	34.9	0.00	0.00		273	205	
300 ISL	6.73	D 6.70	34.072 D	26.728	135.2	0.602	1.45 D	21.2	58.5	2.71	36.3	0.00	0.00		302		
323	6.61	6.58	34.103	26.769	131.6	0.632	1.07	15.6	62.3	2.78	37.2	0.00	0.00		325	204	
381	6.12	6.09	34.134	26.858	123.7	0.706	0.82	11.8	71.0	2.93	38.9	0.00	0.00		383	203	
400 ISL	5.98	D 5.95	34.169 D	26.903	119.6	0.729	0.71 D	10.2	73.6	2.97	39.4	0.00	0.00		403		
440	5.85	5.81	34.211	26.953	115.3	0.776	0.50	7.2	78.7	3.06	40.2	0.00	0.00		443	202	
500 ISL	5.57	D 5.53	34.266 D	27.031	108.4	0.843	0.33 D	4.7	85.3	3.15	41.1	0.00	0.00		503		
516	5.54	5.50	34.289	27.053	106.5	0.861	0.27	3.8	87.0	3.18	41.4	0.00	0.00		519	201	

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED S; CRUISE CORRECTED 1° 02;

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 93.3 100.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	S103	P04	N03	N02	NH4	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C	THETA		ml/l	pct	uM/l	uM/l	uM/l	uM/l	uM/l	uM/l	ug/l	ug/l	db		
30 30.9 N	122 15.6 W	13/04/11	1024	UTC	4104 m	320	19 kn			1023.6 mb	12.2 C	11.2 C					
0 ISL	14.42	14.42	33.111	24.641	329.0	0.000	5.98	102.7	2.3	0.31	0.0	0.00	0.33	0.10	0		
3	14.42	14.42	33.111	24.641	329.1	0.010	5.98	102.7	2.3	0.31	0.0	0.00	0.33	0.10	3	220	
10 ISL	14.42	D 14.42	33.114 D	24.643	329.0	0.033	6.00 D	103.0	2.3	0.31	0.0	0.00	0.31	0.10	10		
11	14.43	14.43	33.112	24.640	329.4	0.036	5.99	102.9	2.3	0.31	0.0	0.00	0.31	0.10	11	219	
20 ISL	14.43	D 14.43	33.113 D	24.641	329.6	0.066	6.01 D	103.2	2.3	0.33	0.0	0.00	0.32	0.10	20		
24	14.43	14.43	33.110	24.638	329.9	0.079	5.98	102.7	2.3	0.34	0.0	0.00	0.33	0.10	24	218	
30 ISL	14.42	D 14.42	33.111 D	24.643	329.6	0.099	6.00 D	103.0	2.3	0.34	0.0	0.00	0.33	0.10	30		
41	14.43	14.42	33.110	24.639	330.3	0.135	5.98	102.7	2.4	0.34	0.0	0.00	0.32	0.10	41	217	
50 ISL	14.42	D 14.41	33.113 D	24.644	330.2	0.165	5.99 D	102.9	2.4	0.32	0.0	0.00	0.33	0.11	50		
51	14.42	14.41	33.110	24.641	330.4	0.168	5.98	102.7	2.4	0.32	0.0	0.00	0.33	0.11	51	216	
62	14.11	14.10	33.114	24.710	324.2	0.204	5.96	101.7	2.7	0.37	0.5	0.05	0.46	0.25	62	215	
74	12.96	12.95	33.142	24.964	300.1	0.242	5.74	95.7	4.4	0.58	3.3	0.41	0.10	0.22	0.20	74	214
75 ISL	12.90	D 12.89	33.155 D	24.986	298.1	0.245	5.74 D	95.5	4.6	0.60	3.6	0.39	0.09	0.21	0.19	75	
87	11.99	11.98	33.186	25.185	279.3	0.279	5.37	87.7	6.6	0.80	7.3	0.02	0.00	0.10	0.10	87	213
100 ISL	11.38	D 11.37	33.262 D	25.357	263.2	0.315	5.01 D	80.8	9.4	0.99	10.4	0.02	0.00	0.07	0.08	100	
101	11.29	11.28	33.267	25.377	261.3	0.317	4.96	79.8	9.7	1.01	10.7	0.02	0.00	0.07	0.08	101	212
111	10.41	10.40	33.328	25.580	242.1	0.342	4.60	72.7	13.6	1.25	14.5	0.01	0.00	0.04	0.05	111	211
125 ISL	10.13	D 10.12	33.501 D	25.762	225.0	0.375	3.82 D	60.0	18.6	1.59	19.4	0.01	0.00	0.03	0.07	126	
126	10.23	10.22	33.487	25.735	227.7	0.377	3.82	60.2	18.9	1.61	19.7	0.01	0.00	0.03	0.07	127	210
140	9.73	9.71	33.608	25.913	210.9	0.408	3.32	51.8	23.4	1.82	22.9	0.00	0.00	0.01	0.06	141	209
150 ISL	9.44	D 9.42	33.729 D	26.055	197.5	0.428	3.04 D	47.1	25.2	1.87	23.9	0.00	0.00	0.01	0.05	151	
169	8.94	8.92	33.802	26.193	184.7	0											

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 93.3 110.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	
30 10.8 N	122 55.5 W	13/04/11	1810	UTC	3736 m	340	19 kn	340 07 05	2	1025.7 mb	13.5 C	12.3 C	22m	8/8		SC	
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SV	DYN HT	OXYGEN	OXY	SIO3	P04	N03	N02	NH4	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C	THETA				ml/l	PCT	uM/l	uM/l	uM/l	uM/l	uM/l	ug/l	ug/l	db	
0 ISL	15.80	15.80	33.487	24.630	330.0	0.000	5.70	100.9	2.3	0.26	0.0	0.00	0.00	0.13	0.03	0	
2 A	15.80	15.80	33.487	24.630	330.1	0.007	5.70	100.9	2.3	0.26	0.0	0.00	0.00	0.13	0.03	2	222
10 ISL	15.80	D 15.80	33.486 D	24.630	330.4	0.033	5.72	D101.2	2.4	0.26	0.0	0.00	0.03	0.14	0.03	10	
14 A	15.80	15.80	33.484	24.628	330.6	0.046	5.69	100.7	2.4	0.26	0.0	0.00	0.03	0.14	0.03	14	221
19 A	15.80	15.80	33.484	24.628	330.8	0.063	5.70	100.9	2.3	0.26	0.0	0.00	0.00	0.13	0.03	19	220
20 ISL	15.80	D 15.80	33.486 D	24.630	330.7	0.066	5.72	D101.2	2.3	0.26	0.0	0.00	0.00	0.13	0.03	20	
30 ISL	15.80	D 15.80	33.486 D	24.630	330.9	0.099	5.72	D101.2	2.3	0.27	0.0	0.00	0.00	0.13	0.03	30	
35 A	15.80	15.79	33.487	24.631	331.0	0.116	5.68	100.5	2.3	0.27	0.0	0.00	0.00	0.13	0.03	35	219
45	15.81	15.80	33.493	24.634	331.1	0.149	5.69	100.7	2.3	0.26	0.0	0.00	0.00	0.15	0.03	45	218
50 ISL	15.81	D 15.80	33.488 D	24.630	331.6	0.165	5.71	D101.1	2.3	0.26	0.0	0.01	0.00	0.15	0.03	50	
55	15.80	15.79	33.503	24.644	330.4	0.182	5.69	100.7	2.3	0.27	0.0	0.01	0.00	0.14	0.04	55	217
66 A	15.80	15.79	33.490	24.635	331.7	0.218	5.70	100.9	2.3	0.27	0.0	0.00	0.00	0.14	0.04	66	216
75	15.81	15.80	33.488	24.631	332.3	0.248	5.69	100.7	2.2	0.27	0.0	0.00	0.00	0.17	0.05	75	215
81	15.81	15.80	33.488	24.631	332.5	0.268	5.68	100.5	2.3	0.27	0.0	0.01	0.00	0.16	0.05	81	214
89	15.76	15.75	33.480	24.637	332.2	0.295	5.69	100.6	2.3	0.27	0.0	0.01	0.00	0.20	0.06	89	213
95	14.68	14.67	33.289	24.726	323.7	0.314	5.71	98.7	2.6	0.35	0.4	0.12	0.00	0.40	0.28	95	212
100 ISL	13.92	D 13.91	33.196 D	24.813	315.4	0.330	5.73	D 97.4	3.1	0.42	1.3	0.09	0.00	0.34	0.25	100	
111	13.14	13.12	33.245	25.009	296.9	0.364	5.50	92.0	4.3	0.55	3.5	0.04	0.00	0.21	0.17	111	211
125	12.33	12.31	33.333	25.236	275.6	0.404	5.30	87.2	5.6	0.65	5.4	0.02	0.00	0.12	0.10	126	210
145	10.78	10.76	33.375	25.553	245.5	0.456	4.82	76.8	11.1	1.04	11.7	0.01	0.00	0.04	0.05	146	209
150 ISL	10.64	D 10.62	33.382 D	25.583	242.7	0.468	4.81	D 76.4	12.0	1.09	12.6	0.01	0.00	0.03	0.04	151	
170	9.88	9.86	33.533	25.830	219.4	0.515	4.50	70.3	15.9	1.28	16.0	0.01	0.00	0.01	0.03	171	208
200	9.03	9.01	33.789	26.169	187.7	0.576	3.26	50.1	27.4	1.86	24.7	0.00	0.00	0.00	0.02	201	207
230	8.57	8.55	33.925	26.348	171.1	0.630	2.98	45.3	32.1	1.97	26.8	0.00	0.00			231	206
250 ISL	8.24	D 8.21	33.984 D	26.444	162.1	0.663	2.72	D 41.1	36.1	2.11	28.5	0.00	0.00			251	
271	8.05	8.02	34.033	26.511	156.1	0.696	2.20	33.1	40.6	2.26	30.3	0.00	0.00			272	205
300 ISL	7.63	D 7.60	34.079 D	26.609	147.1	0.740	1.76	D 26.2	46.2	2.42	32.3	0.00	0.00			302	
322	7.41	7.38	34.074	26.637	144.7	0.772	1.64	24.3	50.3	2.52	33.6	0.00	0.00			324	204
379	6.77	6.73	34.106	26.751	134.3	0.852	1.16	17.0	60.1	2.74	36.5	0.00	0.00			381	203
400 ISL	6.75	D 6.71	34.160 D	26.796	130.4	0.880	0.90	D 13.1	63.4	2.82	37.3	0.00	0.00			402	
436	6.41	6.37	34.178	26.856	125.0	0.926	0.70	10.1	68.8	2.94	38.5	0.00	0.00			439	202
500 ISL	5.93	D 5.89	34.245 D	26.970	114.5	1.002	0.42	D 6.0	77.5	3.09	39.9	0.00	0.00			503	
525	5.85	5.80	34.261	26.993	112.6	1.031	0.36	5.2	80.9	3.15	40.5	0.00	0.00			528	201

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED S; CRUISE CORRECTED 1° 02';

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 93.3 120.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	
29 51.0 N	123 35.3 W	13/04/11	2314	UTC	4022 m	020	17 kn	000 06 07	1	1027.0 mb	14.0 C	12.8 C	24m	6/8		ST	
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SV	DYN HT	OXYGEN	OXY	SIO3	P04	N03	N02	NH4	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C	THETA				ml/l	PCT	uM/l	uM/l	uM/l	uM/l	uM/l	ug/l	ug/l	db	
0 ISL	15.09	15.09	33.124	24.507	341.7	0.000	5.83	101.5	2.5	0.31	0.0	0.00	0.00	0.16	0.02	0	
2	15.09	15.09	33.124	24.507	341.8	0.007	5.83	101.5	2.5	0.31	0.0	0.00	0.00	0.16	0.02	2	220
10 ISL	15.06	D 15.06	33.123 D	24.513	341.4	0.034	5.86	D102.0	2.5	0.31	0.0	0.00	0.00	0.16	0.01	10	
11	15.07	15.07	33.123	24.511	341.6	0.038	5.84	101.6	2.5	0.31	0.0	0.00	0.00	0.16	0.01	11	219
20 ISL	15.02	D 15.02	33.123 D	24.522	340.9	0.068	5.87	D102.1	2.5	0.31	0.0	0.00	0.00	0.17	0.01	20	
26	15.02	15.02	33.121	24.521	341.2	0.089	5.83	101.4	2.5	0.31	0.0	0.00	0.00	0.17	0.01	26	218
30 ISL	14.99	D 14.99	33.122 D	24.528	340.6	0.102	5.86	D101.8	2.5	0.31	0.0	0.00	0.00	0.16	0.02	30	
41	14.99	14.98	33.123	24.529	340.8	0.140	5.84	101.5	2.5	0.31	0.0	0.00	0.00	0.15	0.03	41	217
50	14.98	14.97	33.124	24.533	340.8	0.171	5.83	101.3	2.5	0.31	0.0	0.00	0.00	0.15	0.10	50	216
62	14.72	14.71	33.101	24.571	337.4	0.211	5.85	101.1	2.5	0.33	0.1	0.00	0.00	0.16	0.11	62	215
75 ISL	13.87	D 13.86	33.073 D	24.728	322.8	0.254	5.86	D 99.5	3.0	0.40	0.7	0.12	0.03	0.48	0.25	75	
77	13.73	13.72	33.069	24.754	320.4	0.261	5.80	98.2	3.1	0.42	0.9	0.14	0.00	0.49	0.26	77	214
87	13.29	13.28	33.099	24.866	309.9	0.292	5.67	95.1	3.7	0.50	2.2	0.23	0.00	0.36	0.17	87	213
100 ISL	12.72	D 12.71	33.183 D	25.044	293.2	0.331	5.48	D 90.9	4.5	0.59	3.9	0.07	0.00	0.19	0.21	100	
102	12.72	12.71	33.184	25.044	293.2	0.337	5.44	90.2	4.7	0.61	4.3	0.04	0.00	0.17	0.21	102	212
113	11.72	11.71	33.191	25.240	274.7	0.368	5.18	84.1	7.1	0.81	7.5	0.01	0.00	0.14	0.09	113	211
125 ISL	10.80	D 10.79	33.267 D	25.465	253.4	0.400	4.84	D 77.1	10.8	1.07	11.7	0.00	0.00	0.07	0.05	126	
126	10.76	10.74	33.267	25.472	252.8	0.403	4.82	76.7	11.1	1.09	12.0	0.00	0.00	0.06	0.05	127	210
140	10.21	10.19	33.357	25.637	237.3	0.437	4.56	71.7	14.2	1.26	14.9	0.00	0.00	0.04	0.04	141	209
150 ISL	9.79																

PRIMARY PRODUCTIVITY CASTS

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 76.7 80.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE								
DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/l	OXY PCT	S103 uM/l	P04 uM/l	N03 uM/l	N02 uM/l	CHL-A ug/l	PHAE0 ug/l	LIGHT PCT	1	UPTAKE 1 mg C/m3	MEAN	DARK
34	3.3 N	122 56.5 W	25/04/11 1835 UTC	18 m	1208 - 1911 PST	1210 PST	1913 PST	166.0 mg C/m2								
2	14.34	32.950	24.533	6.02	103.1	2.3	0.30	0.0	0.00	0.16	0.04	84. A	3.0	2.8	2.9	0.06
11	14.26	32.950	24.550	5.99	102.4	2.3	0.30	0.0	0.00	0.18	0.03	39.	3.1	3.6	3.3	0.08
16	14.25	32.949	24.552	6.01	102.8	2.3	0.29	0.0	0.00	0.17	0.06	26.	3.1	3.3	3.2	0.09
30	14.22	32.947	24.557	5.99	102.3	2.3	0.29	0.0	0.00	0.20	0.02	7.7	2.3	2.2	2.3	0.03
37	14.16	32.955	24.576	6.00	102.4	2.3	0.29	0.0	0.00	0.23	0.03					
46	13.11	32.977	24.806	6.35	106.0	2.5	0.32	0.2	0.00	0.82	0.17					
55	12.74	33.033	24.922	6.18	102.4	2.8	0.42	1.5	0.05	0.67	0.24	0.92	1.6	3.4	2.5	0.08
61	12.53	33.033	24.963	6.04	99.7	3.1	0.48	2.2	0.09	0.67	0.25					
67	12.29	33.017	24.997	5.95	97.7	3.5	0.53	2.7	0.14	0.48	0.21	0.33	0.38	0.49	0.43	0.05

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 80.0 60.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE								
DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/l	OXY PCT	S103 uM/l	P04 uM/l	N03 uM/l	N02 uM/l	CHL-A ug/l	PHAE0 ug/l	LIGHT PCT	1	UPTAKE 1 mg C/m3	MEAN	DARK
34	9.0 N	121 9.3 W	23/04/11 1727 UTC	8 m	1205 - 1903 PST	1203 PST	1913 PST	1425.6 mg C/m2								
2	11.80	33.498	25.461	6.36	103.7	3.3	0.88	8.5	0.19	4.62	1.57	68. A	85.8	85.3	85.6	0.74
5	11.70	33.502	25.482	6.35	103.3	3.7	0.87	8.7	0.19	5.66	0.86	38.	86.0	89.7	87.8	0.39
8	11.56	33.513	25.517	6.33	102.7	4.3	0.89	8.8	0.19	5.60	1.70	22.	86.1	87.1	86.6	0.49
14	11.44	33.542	25.562	6.03	97.6	7.3	1.08	10.4	0.20	4.66	1.41	6.8	44.0	60.6	52.3	0.28
25	11.45	33.581	25.590	5.92	95.8	9.0	1.17	11.1	0.22	3.44	1.85	0.83	3.5	3.5	3.5	0.40
30	11.32	33.595	25.625	5.46	88.1	13.4	1.38	13.5	0.21	0.54	1.09	0.32	0.15	0.15	0.15	0.12

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 80.0 90.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE								
DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/l	OXY PCT	S103 uM/l	P04 uM/l	N03 uM/l	N02 uM/l	CHL-A ug/l	PHAE0 ug/l	LIGHT PCT	1	UPTAKE 1 mg C/m3	MEAN	DARK
33	9.3 N	123 14.1 W	24/04/11 1700 UTC	17 m	1214 - 1915 PST	1214 PST	1921 PST	292.2 mg C/m2								
3	14.31	32.949	24.539	5.99	102.5	2.4	0.31	0.0	0.00	0.25	0.06	76. A	0.37	0.41	0.39	0.08
11	14.27	32.949	24.547	5.99	102.5	2.4	0.30	0.0	0.00	0.19	0.05	37.	4.8	4.4	4.6	0.09
14	14.19	32.948	24.563	6.03	103.0	2.4	0.30	0.0	0.00	0.21	0.07	28.	5.5	5.2	5.4	0.07
20	13.72	32.953	24.664	6.17	104.3	2.4	0.31	0.0	0.00	0.31	0.08					
28	13.44	32.955	24.723	6.25	105.1	2.4	0.31	0.0	0.00	0.41	0.13	8.0	8.6	8.4	8.5	0.15
39	12.86	32.950	24.834	6.31	104.8	2.6	0.35	0.4	0.01	0.70	0.22					
51	12.43	33.013	24.967	6.08	100.1	3.0	0.48	2.2	0.08	0.44	0.35	1.00	3.3	3.2	3.2	0.12
64	12.24	33.084	25.058	5.87	96.3	3.8	0.59	3.7	0.16	0.37	0.18	0.31	0.25	0.80	0.53	0.05

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 83.3 42.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE								
DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/l	OXY PCT	S103 uM/l	P04 uM/l	N03 uM/l	N02 uM/l	CHL-A ug/l	PHAE0 ug/l	LIGHT PCT	1	UPTAKE 1 mg C/m3	MEAN	DARK
34	10.5 N	119 30.8 W	22/04/11 1846 UTC	10 m	1159 - 1905 PST	1157 PST	1906 PST	1546.3 mg C/m2								
2	13.27	33.656	25.299	6.36	107.0	7.2	0.74	6.4	0.16	4.63	0.11	74. A	38.9	57.4	48.1	0.55
6	12.53	33.656	25.445	6.29	104.2	8.1	0.81	7.2	0.17	5.04	0.02	40.	93.3	91.6	92.4	0.68
8	12.26	33.666	25.505	6.31	104.0	7.8	0.84	7.3	0.18	6.06	0.11	29.	98.0	87.7	92.8	0.74
16	11.75	33.674	25.607	5.59	91.1	13.5	1.20	11.6	0.18	3.91	1.30	8.6	44.2	39.4	41.8	0.39
23	11.66	33.681	25.629	5.37	87.4	14.4	1.29	12.4	0.18	2.22	0.66					
30	11.61	33.692	25.647	5.25	85.3	15.4	1.34	13.0	0.19	1.39	0.65	1.00	2.7	2.7	2.7	0.13
37	11.59	33.693	25.652	5.17	84.0	15.7	1.35	13.3	0.19	1.33	0.61	0.34	0.32	0.94	0.63	0.12

A) INCUBATION LIGHT INTENSITIES WERE 92, 38, 27.6, 8.6, 1.03, 0.34 PERCENT RESPECTIVELY.

PRIMARY PRODUCTIVITY CASTS

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 83.3 70.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE								
DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN mL/l	OXY PCT	S103 uM/l	P04 uM/l	N03 uM/l	N02 uM/l	CHL-A ug/l	PHAE0 ug/l	LIGHT PCT	UPTAKE 1	2	(mg C/m3) MEAN	DARK
33 14.8 N	121 26.7 W	21/04/11	1729 UTC	18 m	1205 - 1932 PST	1205 PST	1902 PST	386.4 mg C/m2								
2	14.18	32.940	24.559	6.35	108.4	2.5	0.30	0.0	0.00	0.19	0.05	84. A	3.1	3.0	3.0	0.05
11	13.87	32.951	24.632	6.03	102.3	2.4	0.30	0.0	0.00	0.23	0.05	39.	5.6	4.8	5.2	0.06
16	13.70	32.998	24.703	6.13	103.7	1.7	0.30	0.1	0.01	0.38	0.08	26.	10.7	9.8	10.2	0.10
22	13.66	33.024	24.731	6.09	102.9	1.3	0.29	0.1	0.00	0.45	0.14					
30	13.62	33.050	24.760	6.09	102.8	1.2	0.32	0.3	0.02	0.67	0.27	7.7	9.5	9.3	9.4	0.09
38	13.32	33.035	24.809	6.03	101.2	1.9	0.37	0.9	0.07	0.78	0.35					
45	13.08	33.137	24.936	6.01	100.4	1.5	0.47	2.3	0.11	0.80	0.47					
55	12.64	33.222	25.088	5.99	99.2	2.3	0.60	3.9	0.15	0.94	0.46	0.92	2.9	2.2	2.5	0.06
61	12.19	33.223	25.175	5.87	96.3	3.6	0.69	5.5	0.14	1.05	0.45					
67	11.79	33.238	25.262	5.67	92.2	5.0	0.80	7.2	0.12	1.01	0.43	0.33	0.57	0.79	0.68	0.03

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 83.3 110.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE								
DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN mL/l	OXY PCT	S103 uM/l	P04 uM/l	N03 uM/l	N02 uM/l	CHL-A ug/l	PHAE0 ug/l	LIGHT PCT	UPTAKE 1	2	(mg C/m3) MEAN	DARK
31 55.5 N	124 10.3 W	20/04/11	1632 UTC	25 m	1210 - 1915 PST	1216 PST	1910 PST	112.1 mg C/m2								
2	14.96	32.992	24.434	5.87	101.9	2.2	0.32	0.1	0.00	0.08	0.02	88. A	0.77	0.86	0.81	0.06
8	14.94	32.992	24.438	5.87	101.8	2.2	0.31	0.0	0.00	0.09	0.02					
16	14.92	32.989	24.440	5.89	102.1	2.1	0.31	0.1	0.00	0.08	0.02	37.	1.8	1.4	1.6	0.04
22 B	14.84	32.989	24.458	5.88	101.8	2.1	0.31	0.0	0.00	0.10	0.00	26.	1.9	1.9	1.9	0.00
31	14.61	32.988	24.506	5.91	101.8	2.1	0.30	0.0	0.00	0.11	0.01					
40	14.59	32.987	24.510	5.90	101.6	2.1	0.31	0.0	0.00	0.11	0.02	8.6	1.4	1.5	1.4	0.05
52	14.58	32.987	24.513	5.90	101.6	2.0	0.31	0.0	0.00	0.13	0.03					
64	14.48	32.989	24.536	5.91	101.5	2.1	0.30	0.0	0.00	0.21	0.04					
75	13.80	32.963	24.657	6.01	101.8	2.2	0.32	0.0	0.00	0.29	0.13	1.00	0.93	0.86	0.89	0.10
85	13.12	33.043	24.856	5.84	97.6	2.9	0.41	0.9	0.08	0.78	0.28	0.33	0.78	0.41	0.59	0.01
93	12.52	32.999	24.939	5.78	95.3	3.5	0.51	2.3	0.13	0.51	0.28					

B) PRODUCTIVITY REPLICATES POOR, UNCERTAIN VALUE ELIMINATED

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 86.7 33.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE								
DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN mL/l	OXY PCT	S103 uM/l	P04 uM/l	N03 uM/l	N02 uM/l	CHL-A ug/l	PHAE0 ug/l	LIGHT PCT	UPTAKE 1	2	(mg C/m3) MEAN	DARK
33 53.4 N	118 29.4 W	17/04/11	2149 UTC	6 m	1405 - 1910 PST	1154 PST	1854 PST	802.6 mg C/m2								
2	14.14	33.483	24.986	7.37	126.1	0.4	0.37	0.4	0.10	10.22	0.22	60. A	92.6	91.6	92.1	0.06
4	14.15	33.484	24.985	7.39	126.5	0.3	0.34	0.3	0.09	13.38	0.26	36.	80.9	74.7	77.8	0.09
5	14.01	33.485	25.015	7.18	122.6	0.8	0.37	1.1	0.17	10.29	0.32	28.	76.9	78.4	77.7	0.99
10	13.65	33.493	25.096	6.42	108.8	2.8	0.62	4.1	0.36	5.79	0.18	7.7	25.0	24.0	24.5	0.76
19	13.34	33.493	25.159	5.78	97.3	5.0	0.72	6.5	0.47	1.25	0.48	0.77	0.49	1.2	0.83	0.46
22	13.20	33.492	25.186	5.75	96.5	5.0	0.72	6.5	0.49	1.29	0.35	0.36	0.05	0.02	0.03	0.33

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 86.7 50.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE								
DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN mL/l	OXY PCT	S103 uM/l	P04 uM/l	N03 uM/l	N02 uM/l	CHL-A ug/l	PHAE0 ug/l	LIGHT PCT	UPTAKE 1	2	(mg C/m3) MEAN	DARK
33 19.5 N	119 40.1 W	18/04/11	1816 UTC	10 m	1158 - 1855 PST	1158 PST	1857 PST	471.3 mg C/m2								
2	13.49	33.468	25.109	5.57	94.1	7.7	0.78	6.8	0.14	1.09	0.26	74. A	14.1	13.1	13.6	0.17
6	13.47	33.472	25.116	5.55	93.7	7.6	0.77	6.9	0.14	1.01	0.36	40.	26.0	28.7	27.4	0.21
8	13.47	33.467	25.112	5.56	93.8	7.7	0.76	6.9	0.13	1.01	0.25	29.	24.0	24.2	24.1	0.54
16	12.92	33.474	25.228	5.48	91.4	7.9	0.79	7.3	0.14	0.95	0.34	8.6	18.1	17.6	17.9	0.27
23	11.92	33.571	25.495	4.59	75.0	13.4	1.20	13.3	0.17	0.60	0.28					
30	10.89	33.655	25.749	3.62	57.9	19.2	1.58	19.3	0.18	0.47	0.24	1.00	1.5	1.5	1.5	0.06
37	10.19	33.699	25.905	3.11	49.0	22.7	1.78	22.4	0.13	0.39	0.17	0.34	0.45	0.40	0.43	0.03

A) INCUBATION LIGHT INTENSITIES WERE 92, 38, 27.6, 8.6, 1.03, 0.34 PERCENT RESPECTIVELY.

PRIMARY PRODUCTIVITY CASTS

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 86.7 80.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE								
DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN mL/l	OXY PCT	S103 uM/l	P04 uM/l	N03 uM/l	N02 uM/l	CHL-A ug/l	PHAE0 ug/l	LIGHT PCT	UPTAKE 1	UPTAKE 2	(mg C/m3) MEAN	DARK
1	14.74	33.031	24.511	5.88	101.6	2.4	0.30	0.0	0.00	0.13	0.04	94. A	1.3	1.3	1.3	0.12
15	14.68	33.032	24.525	5.88	101.5	2.3	0.29	0.0	0.00	0.10	0.06	37.	1.6	2.4	2.0	0.09
19	14.67	33.033	24.528	5.91	102.0	2.4	0.29	0.0	0.00	0.10	0.03	28.	1.6	1.5	1.6	0.12
28	14.60	33.072	24.573	5.87	101.2	2.3	0.29	0.0	0.00	0.10	0.03					
36	14.58	33.063	24.571	5.88	101.3	2.3	0.29	0.0	0.00	0.11	0.03					
48	14.60	33.074	24.575	5.87	101.1	2.3	0.29	0.0	0.00	0.12	0.03					
59	15.12	33.294	24.634	5.79	101.0	2.3	0.26	0.0	0.00	0.17	0.05					
69	15.38	33.414	24.669	5.76	101.0	2.3	0.24	0.0	0.00	0.22	0.09	1.00	0.20	0.14	0.17	0.15
77	14.86	33.316	24.707	5.89	102.2	2.5	0.27	0.0	0.00	0.42	0.20					
85	13.81	33.112	24.771	6.03	102.3	2.8	0.33	0.3	0.03	0.34	0.65	0.34	0.41	0.96	0.68	0.02

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 90.0 45.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE								
DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN mL/l	OXY PCT	S103 uM/l	P04 uM/l	N03 uM/l	N02 uM/l	CHL-A ug/l	PHAE0 ug/l	LIGHT PCT	UPTAKE 1	UPTAKE 2	(mg C/m3) MEAN	DARK
2	14.66	33.381	24.798	6.22	107.5	2.9	0.38	0.7	0.03	1.64	0.40	71. A	24.4	24.6	24.5	0.27
6	14.57	33.382	24.818	6.25	107.8	3.0	0.37	0.7	0.03	1.70	0.37	36.	53.2	53.5	53.3	0.18
8 B	14.52	33.381	24.828	6.26	107.9	2.9	0.37	0.7	0.03	1.78	0.22	26.	47.4	47.4	47.4	0.45
15	14.41	33.379	24.850	6.21	106.8	2.9	0.37	0.8	0.03	1.61	0.42	7.7	35.7	34.3	35.0	0.40
20	14.39	33.383	24.857	6.18	106.2	2.9	0.38	0.8	0.03	1.82	0.42					
28	14.04	33.377	24.926	5.85	99.8	4.0	0.48	2.5	0.07	1.26	0.31	0.84	5.1	5.4	5.2	0.37
33	11.55	33.458	25.477	4.74	76.8	11.1	1.21	12.9	0.55	0.68	0.30	0.36	0.38	0.83	0.60	0.19

B) PRODUCTIVITY REPLICATES POOR, UNCERTAIN VALUE ELIMINATED

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 90.0 70.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE								
DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN mL/l	OXY PCT	S103 uM/l	P04 uM/l	N03 uM/l	N02 uM/l	CHL-A ug/l	PHAE0 ug/l	LIGHT PCT	UPTAKE 1	UPTAKE 2	(mg C/m3) MEAN	DARK
1	13.22	33.169	24.932	6.13	102.7	0.7	0.44	1.8	0.09	0.70	0.24	90. A	0.78	1.4	1.1	0.13
9	13.19	33.170	24.939	6.12	102.5	0.6	0.44	1.8	0.09	0.73	0.29	37.	14.6	14.1	14.4	0.14
13	13.21	33.170	24.935	6.12	102.6	0.6	0.43	1.8	0.09	0.63	0.24	24.	15.4	11.2	13.3	0.14
23	13.15	33.170	24.947	6.10	102.1	0.7	0.45	1.8	0.10	0.71	0.27	8.0	11.3	12.1	11.7	0.23
32	13.13	33.172	24.953	6.11	102.2	0.6	0.43	1.8	0.10	0.74	0.29					
43	13.10	33.176	24.962	6.09	101.8	0.6	0.43	1.9	0.10	0.82	0.35	0.90	2.3	1.9	2.1	0.07
51	13.09	33.180	24.967	6.07	101.5	0.7	0.45	2.0	0.11	0.68	0.37	0.37	0.64	0.66	0.65	0.09

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 90.0 100.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE								
DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN mL/l	OXY PCT	S103 uM/l	P04 uM/l	N03 uM/l	N02 uM/l	CHL-A ug/l	PHAE0 ug/l	LIGHT PCT	UPTAKE 1	UPTAKE 2	(mg C/m3) MEAN	DARK
2	14.16	32.970	24.586	5.97	101.9	2.4	0.32	0.0	0.00	0.18	0.05	86. A	0.92	1.0	0.96	0.06
14	14.16	32.969	24.586	5.97	101.9	2.4	0.32	0.0	0.00	0.17	0.05	36.	4.6	4.1	4.3	0.03
18	14.16	32.969	24.586	5.95	101.6	2.4	0.31	0.0	0.00	0.18	0.06	27.	4.2	3.8	4.0	0.42
34	14.15	32.973	24.592	5.95	101.5	2.4	0.33	0.0	0.00	0.18	0.05	8.3	3.9	3.9	3.9	0.08
45	14.18	32.986	24.596	5.93	101.3	2.3	0.31	0.0	0.00	0.20	0.05					
55	14.16	32.977	24.593	5.94	101.4	2.4	0.31	0.0	0.00	0.21	0.05					
64	15.06	33.273	24.631	5.81	101.2	2.3	0.27	0.0	0.00	0.26	0.08	0.93	1.2	1.3	1.2	0.00
71	13.69	33.040	24.739	5.98	101.1	2.6	0.33	0.1	0.01	0.46	0.21					
78	14.44	33.393	24.856	5.68	97.7	2.8	0.30	0.3	0.03	0.40	0.29	0.33	0.48	0.83	0.66	0.01

A) INCUBATION LIGHT INTENSITIES WERE 92, 38, 27.6, 8.6, 1.03, 0.34 PERCENT RESPECTIVELY.

PRIMARY PRODUCTIVITY CASTS

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 93.3 26.7

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE								
DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN mL/l	OXY PCT	S103 uM/l	P04 uM/l	N03 uM/l	N02 uM/l	CHL-A ug/l	PHAE0 ug/l	LIGHT PCT	UPTAKE 1	UPTAKE 2	(mg C/m3) MEAN	DARK
32 57.5 N	117 18.1 W	09/04/11	1918 UTC	9 m	1215 - 1843 PST	1151 PST	1840 PST	1038.8 mg C/m2								
2	15.76	33.293	24.490	6.03	106.5	4.6	0.26	0.0	0.00	1.41	0.33	71. A	41.5	42.5	42.0	0.36
7	15.53	33.291	24.540	6.05	106.4	4.6	0.26	0.0	0.00	1.52	0.42	30.	60.1	55.3	57.7	0.81
13	15.32	33.296	24.590	5.97	104.5	5.0	0.30	0.1	0.04	1.74	0.51	11.	56.9	56.6	56.8	0.77
19	11.23	33.471	25.545	3.76	60.5	16.0	1.44	15.6	0.67	1.15	0.38	3.9	20.6	20.9	20.7	0.42
26	11.04	33.479	25.585	3.62	58.0	16.8	1.51	16.9	0.61	1.07	0.31	1.2	6.7	6.7	6.7	0.29
34	10.83	33.513	25.649	3.33	53.2	18.7	1.64	18.8	0.68	0.90	0.33	0.30	0.71	2.7	1.7	0.30

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 93.3 40.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE								
DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN mL/l	OXY PCT	S103 uM/l	P04 uM/l	N03 uM/l	N02 uM/l	CHL-A ug/l	PHAE0 ug/l	LIGHT PCT	UPTAKE 1	UPTAKE 2	(mg C/m3) MEAN	DARK
32 30.6 N	118 13.0 W	10/04/11	1804 UTC	11 m	1152 - 1847 PST	1154 PST	1847 PST	572.7 mg C/m2								
2	15.29	33.364	24.648	6.02	105.4	2.6	0.35	0.0	0.00	0.46	0.12	76. A	6.9	7.1	7.0	0.23
9	15.24	33.362	24.658	6.06	106.0	2.6	0.33	0.0	0.00	0.50	0.14	28.	20.0	19.7	19.8	0.29
18	15.12	33.361	24.684	6.07	105.9	2.7	0.34	0.1	0.00	0.74	0.19	8.1	21.3	21.1	21.2	0.36
26	14.68	33.356	24.775	6.18	106.9	3.4	0.37	0.2	0.02	1.75	0.43					
33	13.90	33.345	24.931	5.66	96.3	5.1	0.60	3.0	0.14	1.12	0.41	1.00	9.6	10.4	10.0	0.14
41	12.27	33.381	25.282	4.67	76.8	9.3	1.05	10.1	0.39	0.65	0.41	0.33	0.77	2.5	1.6	0.14

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 93.3 60.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE								
DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN mL/l	OXY PCT	S103 uM/l	P04 uM/l	N03 uM/l	N02 uM/l	CHL-A ug/l	PHAE0 ug/l	LIGHT PCT	UPTAKE 1	UPTAKE 2	(mg C/m3) MEAN	DARK
31 51.1 N	119 34.7 W	11/04/11	1757 UTC	21 m	1155 - 1850 PST	1159 PST	1852 PST	180.9 mg C/m2								
2	15.80	33.355	24.528	5.75	101.7	1.9	0.31	0.0	0.00	0.16	0.03	86. A	0.38	0.30	0.34	0.10
13	15.80	33.355	24.529	5.75	101.7	1.9	0.31	0.0	0.00	0.14	0.04	39.	3.9	3.5	3.7	0.09
19	15.80	33.358	24.531	5.74	101.5	1.9	0.31	0.0	0.00	0.14	0.03	25.	3.5	3.5	3.5	0.13
26	15.77	33.371	24.548	5.76	101.8	1.9	0.30	0.0	0.00	0.17	0.04					
35	15.73	33.349	24.541	5.76	101.7	2.0	0.30	0.0	0.00	0.17	0.03	7.7	3.8	3.8	3.8	0.12
44	13.41	33.146	24.877	5.94	99.9	3.7	0.48	1.9	0.16	0.72	0.26					
54	12.66	33.175	25.048	5.64	93.4	4.9	0.64	4.3	0.41	0.33	0.17					
63	12.10	33.211	25.183	5.37	87.9	6.2	0.76	6.4	0.11	0.19	0.12	1.00	1.1	1.1	1.1	0.04
77	11.00	33.328	25.476	4.64	74.2	12.2	1.17	13.0	0.01	0.10	0.09	0.36	0.19	0.28	0.24	0.05

RV BELL M. SHIMADA

CALCOFI CRUISE 1104

STATION 93.3 110.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE								
DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN mL/l	OXY PCT	S103 uM/l	P04 uM/l	N03 uM/l	N02 uM/l	CHL-A ug/l	PHAE0 ug/l	LIGHT PCT	UPTAKE 1	UPTAKE 2	(mg C/m3) MEAN	DARK
30 10.8 N	122 55.5 W	13/04/11	1810 UTC	22 m	1210 - 1904 PST	1212 PST	1905 PST	120.4 mg C/m2								
2	15.80	33.487	24.630	5.70	100.9	2.3	0.26	0.0	0.00	0.13	0.03	87. A	0.08	0.09	0.09	0.04
14	15.80	33.484	24.628	5.69	100.7	2.4	0.26	0.0	0.00	0.14	0.03	38.	2.7	2.5	2.6	0.10
19	15.80	33.484	24.628	5.70	100.9	2.3	0.26	0.0	0.00	0.13	0.03	27.	2.6	2.6	2.6	0.08
35	15.80	33.487	24.631	5.68	100.5	2.3	0.27	0.0	0.00	0.13	0.03	8.7	2.6	2.6	2.6	0.01
45	15.81	33.493	24.634	5.69	100.7	2.3	0.26	0.0	0.00	0.15	0.03					
55	15.80	33.503	24.644	5.69	100.7	2.3	0.27	0.0	0.01	0.14	0.04					
66	15.80	33.490	24.635	5.70	100.9	2.3	0.27	0.0	0.00	0.14	0.04	1.00	0.64	0.53	0.59	0.04

A) INCUBATION LIGHT INTENSITIES WERE 92, 38, 27.6, 8.6, 1.03, 0.34 PERCENT RESPECTIVELY.

MACROZOOPLANKTON BIOMASS
Net Mesh Size: 0.505mm

Line	Sta.	Latitude N	Longitude W	Mo/Day	Date	Time (PST)	Water Volume	Max. Tow	Volume per		
					Start	End	Strained (m³)		1000 m³ Strained	Total (cm³)	Small (cm³)
76.7	70.0	34 23.1	122 14.8	04/25	1730	1749	376	209	27	27	
76.7	80.0	34 03.3	122 56.4	04/25	1140	1159	370	215	27	27	
76.7	90.0	33 43.5	123 37.6	04/25	0534	0555	418	210	67	67	
76.7	100.0	33 23.2	124 19.2	04/24	2233	2254	393	214	99	99	
78.3	51.0	34 44.5	120 43.5	04/11	1123	1128	149	45	329	329	
78.3	55.0	34 36.5	121 00.5	04/11	0948	1005	389	182	180	180	
78.3	60.0	34 26.6	121 21.3	04/10	1853	1912	417	200	113	72	
78.3	70.0	34 06.8	122 03.0	04/10	1247	1305	411	179	97	97	
78.3	80.0	33 46.6	122 44.9	04/10	0847	0906	386	203	26	26	
78.3	90.0	33 27.1	123 25.9	04/09	1602	1622	403	208	32	32	
80.0	51.0	34 27.0	120 31.5	04/23	0238	0243	101	48	2826	395	
80.0	55.0	34 19.1	120 48.0	04/23	0619	0639	391	209	261	261	
80.0	60.0	34 09.0	121 09.0	04/23	1055	1114	325	209	1086	1086	
80.0	70.0	33 49.0	121 50.6	04/23	1657	1716	378	210	468	468	
80.0	80.0	33 29.0	122 32.2	04/24	0315	0336	411	217	58	58	
80.0	90.0	33 08.5	123 12.4	04/24	0806	0827	473	213	38	38	
80.0	100.0	32 48.9	123 54.4	04/24	1518	1540	393	222	18	18	
81.7	43.5	34 23.4	119 48.6	04/22	1704	1706	61	27	295	295	
81.7	45.0	34 21.0	119 53.9	04/11	2233	2252	381	197	315	275	
81.7	50.0	34 11.4	120 14.9	04/21	1610	1632	505	185	283	271	
81.7	55.0	34 01.3	120 35.9	04/21	1316	1335	383	178	240	240	
81.7	60.0	33 51.4	120 56.8	04/21	1034	1048	344	155	166	166	
81.7	70.0	33 31.4	121 38.1	04/20	2332	2356	536	191	97	97	
81.7	80.0	33 11.2	122 19.3	04/20	1538	1559	436	189	32	32	
81.7	90.0	32 51.6	123 00.7	04/20	1033	1052	417	162	46	46	
81.8	46.9	34 16.6	120 01.5	04/22	2023	2044	413	198	295	295	
83.3	39.4	34 14.1	119 23.3	04/22	1344	1346	47	20	2229	2123	
83.3	40.6	34 13.4	119 24.7	04/22	1249	1252	53	27	640	640	
83.3	42.0	34 10.5	119 29.5	04/22	0959	1010	173	112	869	823	
83.3	51.0	33 52.5	120 07.7	04/22	0408	0415	173	72	75	75	
83.3	55.0	33 44.7	120 24.6	04/21	2245	2306	392	212	156	156	
83.3	60.0	33 34.7	120 45.4	04/21	1656	1714	376	202	242	242	
83.3	70.0	33 14.7	121 26.5	04/21	1103	1122	352	210	77	77	
83.3	80.0	32 54.9	122 07.7	04/21	0430	0451	413	211	22	22	
83.3	90.0	32 34.8	122 48.8	04/20	2034	2056	445	204	58	58	
83.3	100.0	32 14.8	123 29.5	04/20	1441	1503	438	211	50	50	
83.3	110.0	31 54.7	124 09.3	04/20	0728	0750	489	198	27	27	
85.0	40.0	33 57.2	119 10.3	04/22	0425	0454	538	167	450	450	
85.0	45.0	33 47.1	119 31.0	04/22	0812	0831	435	163	94	94	
85.0	50.0	33 36.7	119 51.8	04/22	1139	1201	487	165	236	236	
85.0	55.0	33 27.0	120 12.4	04/22	1505	1525	419	191	303	303	
86.7	33.0	33 53.4	118 29.5	04/17	1443	1447	98	39	1682	1682	
86.7	35.0	33 49.5	118 37.5	04/17	1848	1910	423	212	161	161	
86.7	40.0	33 39.4	118 58.4	04/18	0205	0226	451	212	113	95	
86.7	45.0	33 29.5	119 19.1	04/18	0619	0640	422	209	176	176	
86.7	50.0	33 19.0	119 39.1	04/18	0941	0946	186	52	167	167	
86.7	55.0	33 09.2	120 00.4	04/18	1430	1452	359	211	262	262	
86.7	60.0	32 59.5	120 20.6	04/18	1840	1902	379	208	246	246	
86.7	70.0	32 39.4	121 01.8	04/19	0423	0444	396	218	81	81	
86.7	80.0	32 18.8	121 42.0	04/19	0910	0931	412	213	22	22	
86.7	90.0	31 59.8	122 23.1	04/19	1608	1629	423	209	9	9	
86.7	100.0	31 39.4	123 04.1	04/19	2143	2205	407	215	29	29	
86.7	110.0	31 19.5	123 44.9	04/20	0256	0316	414	215	41	41	
86.8	32.5	33 53.3	118 26.6	04/17	1553	1555	47	23	298	298	
88.3	35.0	33 32.7	118 26.5	04/23	1800	1822	536	176	95	56	
88.3	40.0	33 22.9	118 47.3	04/23	1450	1509	411	189	63	63	
88.3	45.0	33 12.8	119 08.0	04/23	1137	1153	379	173	451	61	
88.3	50.0	33 02.8	119 28.5	04/23	0803	0824	481	159	252	252	
88.3	55.0	32 53.2	119 49.1	04/23	0450	0507	399	159	233	233	
90.0	27.7	33 29.6	117 45.1	04/17	0829	0832	69	27	44	44	
90.0	28.0	33 29.0	117 46.1	04/17	0723	0727	99	29	142	142	
90.0	30.0	33 25.1	117 54.3	04/17	0442	0503	415	214	82	82	
90.0	35.0	33 15.2	118 14.9	04/16	2320	2341	419	215	138	138	
90.0	37.0	33 10.8	118 23.3	04/16	1810	1831	411	219	80	80	
90.0	45.0	32 55.1	118 56.1	04/16	1206	1226	411	209	3682	66	
90.0	53.0	32 39.2	119 28.6	04/16	0622	0643	473	217	97	97	
90.0	60.0	32 24.9	119 57.7	04/15	1947	2010	432	213	127	127	
90.0	70.0	32 05.1	120 38.4	04/15	1330	1352	451	212	93	93	
90.0	80.0	31 45.1	121 18.6	04/15	0648	0709	469	202	81	81	
90.0	90.0	31 25.1	121 59.9	04/14	1834	1856	437	214	91	91	
90.0	100.0	31 04.9	122 39.6	04/14	1152	1210	371	216	5	5	
90.0	110.0	30 44.9	123 20.1	04/14	0457	0517	453	211	22	22	
90.0	120.0	30 25.1	123 59.9	04/13	2232	2253	428	206	35	35	
91.7	26.4	33 14.6	117 28.0	04/09	1542	1543	38	11	27	27	
91.7	27.0	33 13.4	117 30.7	04/24	0438	0454	366	115	1558	1558	
91.7	30.0	33 07.3	117 42.7	04/24	0701	0723	486	173	128	128	
91.7	35.0	32 57.4	118 03.5	04/24	1026	1047	514	158	27	27	
91.7	40.0	32 47.3	118 23.9	04/24	1339	1344	171	47	140	140	
91.7	45.0	32 37.4	118 44.3	04/24	1641	1658	436	172	51	51	
91.7	50.0	32 27.5	119 44.4	04/24	2019	2025	160	59	680	368	
93.3	26.7	32 57.4	117 18.3	04/09	1209	1213	98	40	317	317	
93.3	28.0	32 54.7	117 23.7	04/09	1845	1905	491	211	59	59	
93.3	30.0	32 50.5	117 32.0	04/10	0248	0307	392	212	64	64	
93.3	35.0	32 40.8	117 52.3	04/10	0653	0714	427	210	73	73	
93.3	40.0	32 30.8	118 12.9	04/10	1116	1135	387	209	96	96	
93.3	45.0	32 20.8	118 33.3	04/10	1443	1503	428	209	33	33	
93.3	50.0	32 10.9	118 53.4	04/10	1830	1850	499	209	42	42	
93.3	60.0	31 50.2	119 34.0	04/11	0846	0906	479	209	21	21	
93.3	70.0	31 31.0	120 14.4	04/11	1618	1635	353	216	37	37	
93.3	80.0	31 10.7	120 55.1	04/12	1443	1503	415	206	14	14	
93.3	90.0	30 50.7	121 35.4	04/12	2050	2111	444	202	97	97	
93.3	100.0	30 31.1	122 15.1	04/13	0350	0412	455	214	66	66	
93.3	110.0	30 10.8	122 55.5	04/13	0858	0918	463	210	6	6	
93.3	120.0	29 50.8	123 35.1	04/13	1624	1643	407	208	15	15	
93.4	26.4	32 57.1	117 17.0	04/09	1304	1306	46	13	22	22	