

data report

PHYSICAL, CHEMICAL AND BIOLOGICAL DATA

CalCOFI Cruise 8808
9 – 24 August 1988

CalCOFI Cruise 8810
11 – 26 October 1988

SIO Reference 89-2
15 May 1989

UNIVERSITY OF CALIFORNIA
SCRIPPS INSTITUTION OF OCEANOGRAPHY
LA JOLLA, CALIFORNIA 92093

PHYSICAL, CHEMICAL AND BIOLOGICAL DATA

CalCOFI Cruise 8808
9-24 August 1988

CalCOFI Cruise 8810
11-26 October 1988

SIO Reference 89-2
15 May 1989

Approved for distribution:


Edward A. Frieman, Director

CONTENTS

Introduction	3
Literature Cited	6
Cruise 8808	
List of Figures	7
Personnel	13
Tabulated Hydrographic Cast Data	14
Tabulated Primary Productivity Cast Data	45
Tabulated Secchi Disk Observations	48
Tabulated Macrozooplankton Data	49
Cruise 8810	
List of Figures	50
Personnel	56
Tabulated Hydrographic Cast Data	57
Tabulated Primary Productivity Data	89
Tabulated Secchi Disk Observations	92
Tabulated Macrozooplankton Data	93

INTRODUCTION

The data in this report were collected during Cruises 8808*, and 8810 of the California Cooperative Oceanic Fisheries Investigations (CalCOFI) program aboard the *RV New Horizon* of the Scripps Institution of Oceanography (SIO). The CalCOFI program was organized in the late 1940s to study the causes of variations in population size of fishes of importance to the State of California. It is carried out by the National Marine Fisheries Service Southwest Fisheries Center, the California Department of Fish and Game, and the Marine Life Research Group (MLRG) of the Scripps Institution of Oceanography. MLRG contributes to this program by investigations of the physical, chemical, and biological structure of the California Current. Data from CalCOFI cruises 8808 and 8810 were collected and processed by personnel of the Marine Life Research Group and the Southwest Fisheries Center, National Marine Fisheries Service. Volunteers and other SIO staff members also assisted in the collection of data and chemical analyses at sea.

STANDARD PROCEDURES

Hydrographic Cast Data

The hydrographic casts usually consisted of 20 3-l plastic (PVC) bottles lowered to a maximum sampling depth of 525 meters, bottom depth permitting. Temperature, salinity, oxygen and nutrients were determined for all depths sampled. Chlorophyll-a and phaeopigments were usually determined from the top 14 depths. Productivity casts were merged with 200 meter hydrographic casts at a few non-standard CalCOFI sampling locations. Special near-bottom casts were done in the Santa Monica and Santa Barbara Basins.

Paired protected reversing thermometers were used to determine temperatures which are recorded to hundredths of a degree Celsius. Most sampling bottles used below a depth of about 75 meters were equipped with unprotected thermometers for determination of the depth of sampling, using the Saunders (1981) pressure-to-depth conversion technique.

Salinity samples were analyzed at sea using inductive-type salinometers standardized with substandard seawater. Periodic checks on the concentration of the substandard were made by comparison with Wormley Standard Seawater batch P-106. Salinity values have been calculated from the algorithms for the Practical Salinity Scale, 1978 (PSS78, UNESCO, 1981a) and were reported to three decimal places, provided accepted standards were met. If only one determination per sample was obtained, or there was doubt concerning the accuracy of the analytical results, the salinities were reported to two decimal places.

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

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

Chlorophyll-a and phaeopigments were measured with a fluorometric technique (Yentsch and Menzel, 1963; Holm-Hansen *et al.*, 1965) from subsamples filtered onto GF/C filters. The pigments were extracted with a cold extraction technique in 90% acetone (Venrick and Hayward, 1984) and the fluorescence determined before and after acidification with a fluorometer.

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

Primary Productivity Casts

Primary production was estimated from C uptake using a simulated *in situ* technique. Light penetration was estimated from the Secchi depth (assuming that the 1% light level is three times the Secchi depth). Six

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

depths, corresponding to predetermined levels of light penetration, were sampled with 5-l Niskin bottles. Temperature, salinity, oxygen, nutrients, chlorophyll-a, and phaeopigments were determined for all depths sampled. Triplicate samples (two light and one dark control) were drawn from each depth into 250-ml polycarbonate incubation bottles which were inoculated with approximately 10 μCi of ^{14}C as NaHCO_3 . These were incubated from local apparent noon to civil twilight in seawater-cooled incubators with neutral-density screens which simulate the *in situ* light levels. At the end of the incubation, the samples were filtered onto HA millipore filters and placed in scintillation vials. One-half ml of 10% HCl was added to each sample. The sample was then allowed to sit, without a cap, at room temperature for 12 hours (after Lean and Burnison, 1979). Following this, 10-ml of scintillation fluor were added to each sample and the samples were returned to SIO where the radioactivity was determined with a scintillation counter.

Macrozooplankton Net Tows

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

TABULATED DATA

Hydrographic Cast Data

The reported hydrographic cast time is the Coordinated Universal Time (UTC) of the messenger release. Bottom depths, determined acoustically, have been corrected using British Admiralty Tables (Carter, 1980) and are reported in meters. Weather conditions have been coded using WMO code 4501.

Observed and interpolated standard depth data from hydrographic casts have been interspersed and are presented together sequentially by depth. Interpolated or extrapolated standard level data are noted by the footnote "ISL" printed after the depth. Density-related parameters have been calculated from the International Equation of State of Seawater 1980 (EOS80, UNESCO, 1981,b). Computed values of potential temperature, sigma-theta, specific volume anomaly (SVA), dynamic height or geopotential anomaly, and pressure are included with both observed and interpolated standard depth levels.

Primary Productivity Casts

In addition to the normal hydrographic data, the tabulated data include: the light levels at which the samples were incubated, the uptake from each of the replicate light bottles (uptake 1 and uptake 2) which have been corrected for dark uptake by subtracting the dark value, the mean of the two uptake values, the dark uptake, chlorophyll-a and phaeopigments. The uptake values shown are the total for the incubation period. Also shown are the times of local apparent noon (LAN), civil twilight, and the vertically integrated value of the mean uptake from the surface to the deepest sample, assuming that the shallowest measured value extends to the surface and that negative values (when dark uptake exceeds light uptake) are zero. The uptake data have been presented to two significant digits (values <1.00) or one decimal (values >1.00). The higher production values may not warrant all of the digits presented. Incubation time, LAN, and civil twilight are given in local Pacific Standard Time (PST); to convert to UTC, add eight hours to the PST time.

Secchi Disk Observations

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

Macrozooplankton Data

Macrozooplankton biomass volumes are tabulated as total biomass volume (cm/1000 m strained) and as the total volume minus the volume of larger organisms under the heading "Small."

FOOTNOTES

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

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

P: After depth values indicates the bottle posttripped.

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

LITERATURE CITED

- Anderson, G. C., compiler, 1971. "Oxygen Analysis," Marine Technician's Handbook, SIO Ref. No. 71-8, Sea Grant Pub. No. 9.
- Atlas, E. L., J. C. Callaway, R. D. Tomlinson, L. I. Gordon, L. Barstow, and P. K. Park, 1971. *A Practical Manual for Use of the Technicon AutoAnalyzer* in Sea Water Nutrient Analysis*; Revised. Oregon State University Technical Report 215, Reference No. 71-22.
- Carpenter, J. H., 1965. The Chesapeake Bay Institute technique for the Winkler dissolved oxygen method. *Limnol. Oceanogr.*, 10:141-143.
- Carter, D. J. T., 1980. Echo-sounding correction tables. Third Edition. Hydrographic Department, Ministry of Defence, Taunton, U. K., NP 139:150 pp.
- Holm-Hansen, O., C. J. Lorenzen, R. W. Holmes, and J. D. H. Strickland, 1965. Fluorometric determination of chlorophyll. *J. Cons. perm. int. Explor. Mer.*, 30:3-15.
- Klein, Hans T., 1973. A new technique for processing physical Oceanographic data. SIO Ref. No. 73-14.
- Kramer, D., M. J. Kalin, E. G. Stevens, J. R. Thraikill, and J. R. Zweifel, 1972. Collecting and processing data on fish eggs and larvae in the California Current region. *NOAA Technical Report NMFS CIRC-370*: 38 pp.
- Lean, D. R. S., and B. K. Burnison, 1979. An evaluation of errors in the C method of primary production measurement. *Limnol. Oceanogr.*, 24:799-998.
- Reid, J. L., and A. W. Mantyla, 1976. The effect of the geostrophic flow upon coastal sea elevations in the northern North Pacific Ocean. *J. Geophys. Res.*, 81:3100-3110.
- Saunders, P. M., 1981. Practical conversion of pressure to depth. *J. Phys. Oceanogr.*, 11:573-574.
- UNESCO, 1981,a. Background papers and supporting data on the Practical Salinity Scale, 1978. *UNESCO Tech. Pap. in Mar. Sci.*, No. 37.
- UNESCO, 1981,b. Background papers and supporting data on the International Equation of State 1980. *UNESCO Tech. Pap. in Mar. Sci.*, No. 38.
- Venrick, E. L., and T. L. Hayward, 1984. Determining chlorophyll on the 1984 CalCOFI surveys. *CalCOFI Rep.*, Vol. XXV:74-79.
- Weiss, R. F., 1970. The solubility of nitrogen, oxygen and argon in water and seawater. *Deep-Sea Res.*, 17:721-735.
- Yentsch, C. S., and D. W. Menzel, 1963. A method for the determination of phytoplankton, chlorophyll and phaeophytin by fluorescence. *Deep-Sea Res.*, 10:221-231.

FIGURES
Cruise 8808

1. CalCOFI Cruise 8808 track and station positions.
2. Horizontal distribution of chlorophyll-a at 10 meters.
3. Horizontal distribution of dynamic height anomaly (0 over 500 m). In areas shallower than 500 m, the dynamic heights were extrapolated on the basis of the offshore deeper steric height as described in Reid and Mantyla (1976).
4. Horizontal distribution of sigma-theta at 10 meters.
5. Horizontal distribution of temperature at 10 meters.
6. Horizontal distribution of salinity at 10 meters.
7. Horizontal distribution of dynamic height anomaly (200 over 500 m).
8. Horizontal distribution of sigma-theta at 200 meters.
9. Horizontal distribution of temperature at 200 meters.
10. Horizontal distribution of salinity at 200 meters.

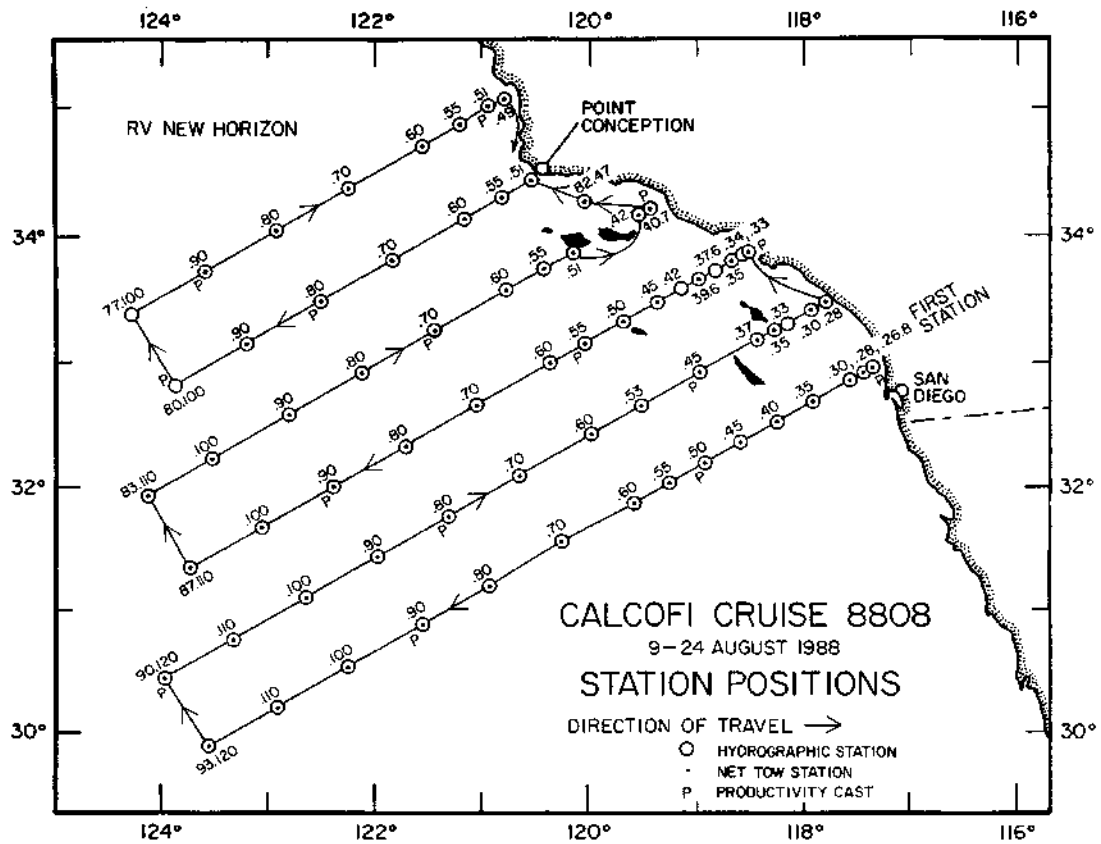


FIGURE 1

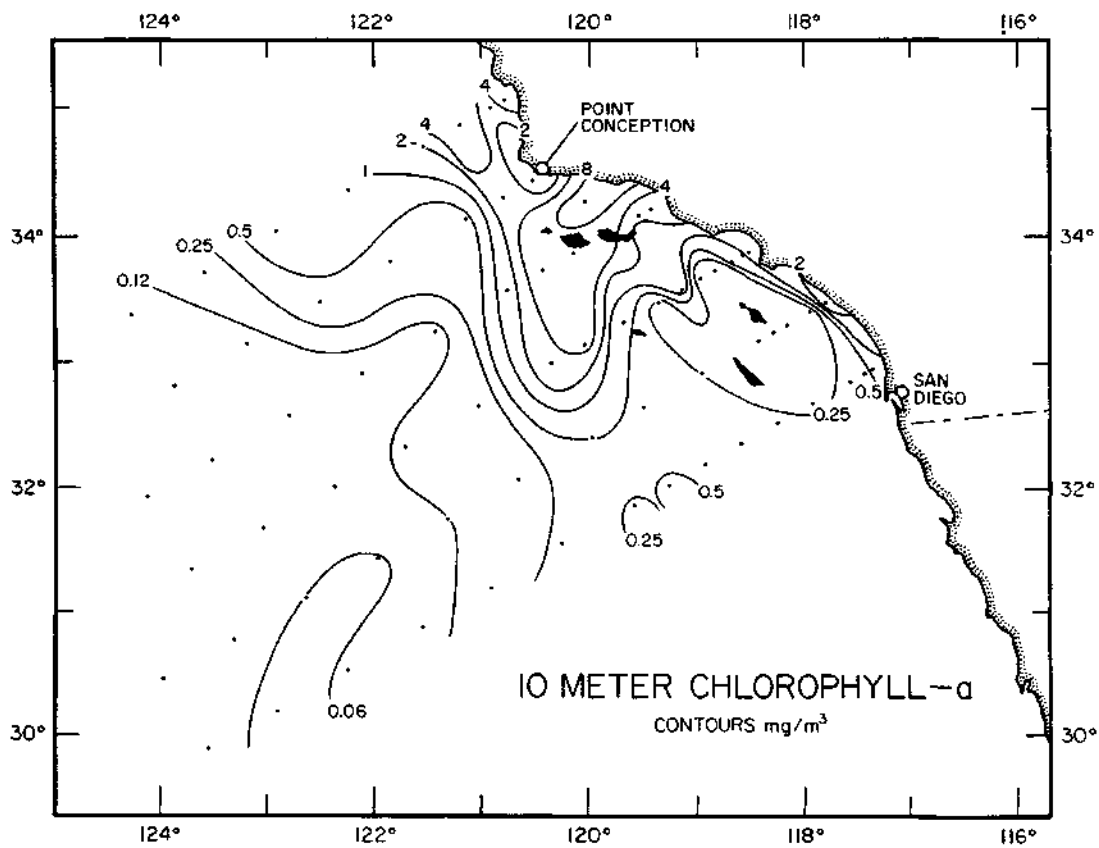


FIGURE 2

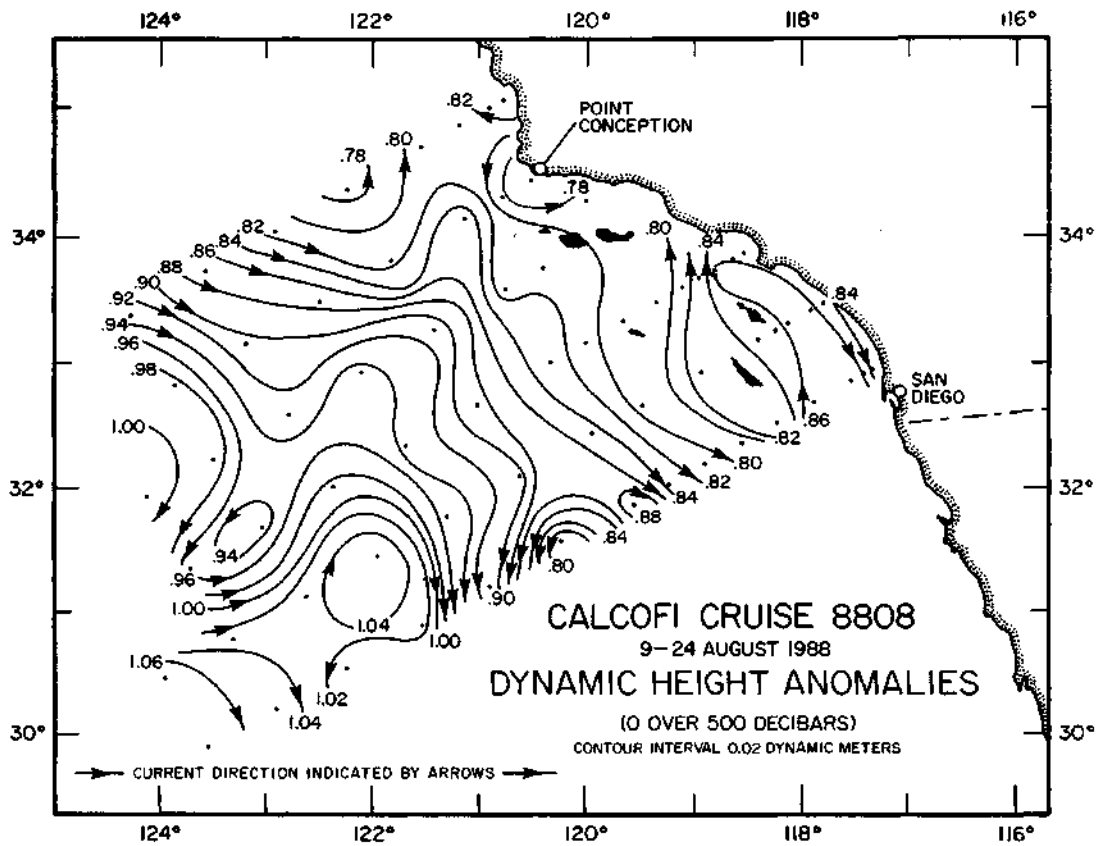


FIGURE 3

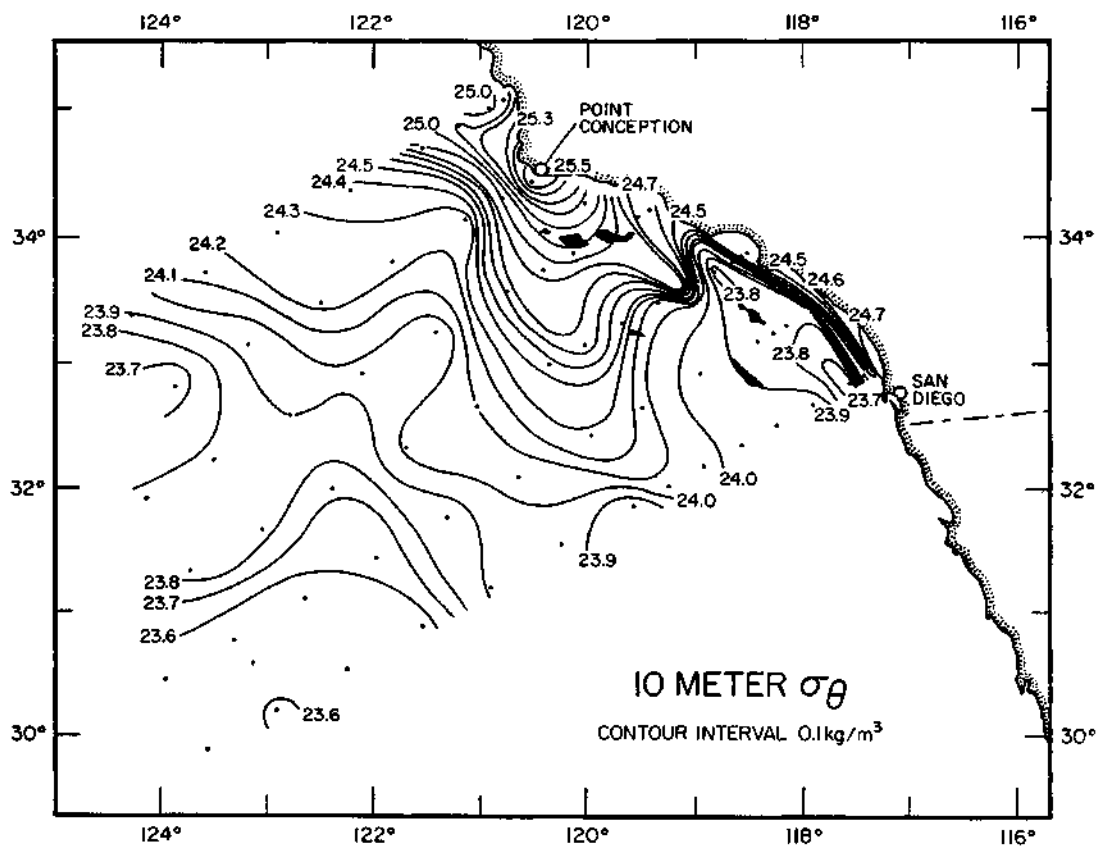


FIGURE 4

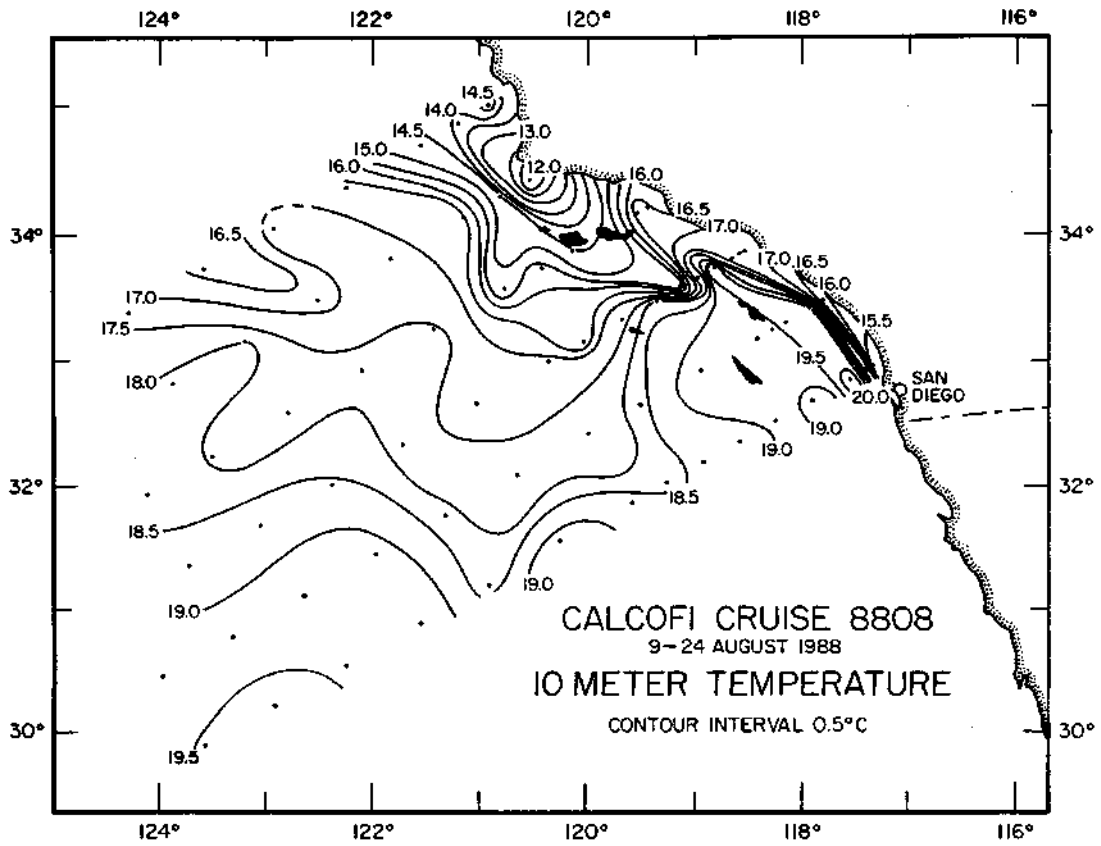


FIGURE 5

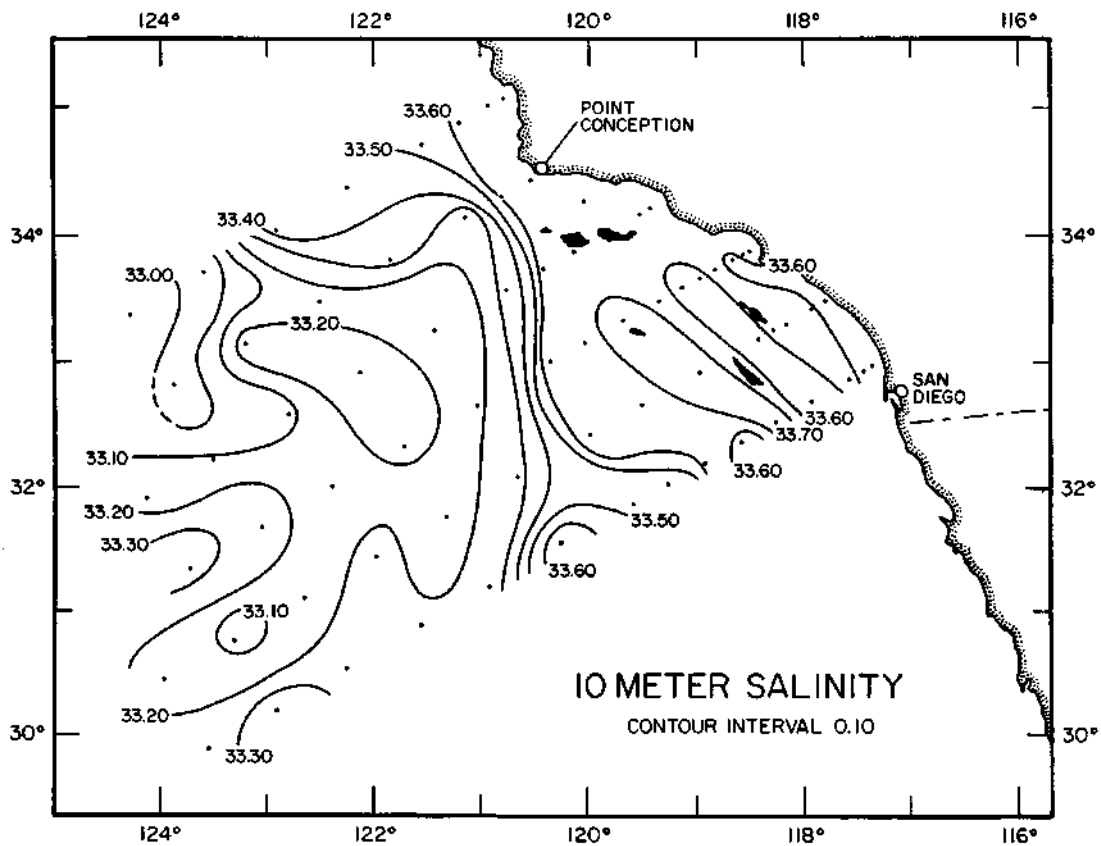


FIGURE 6

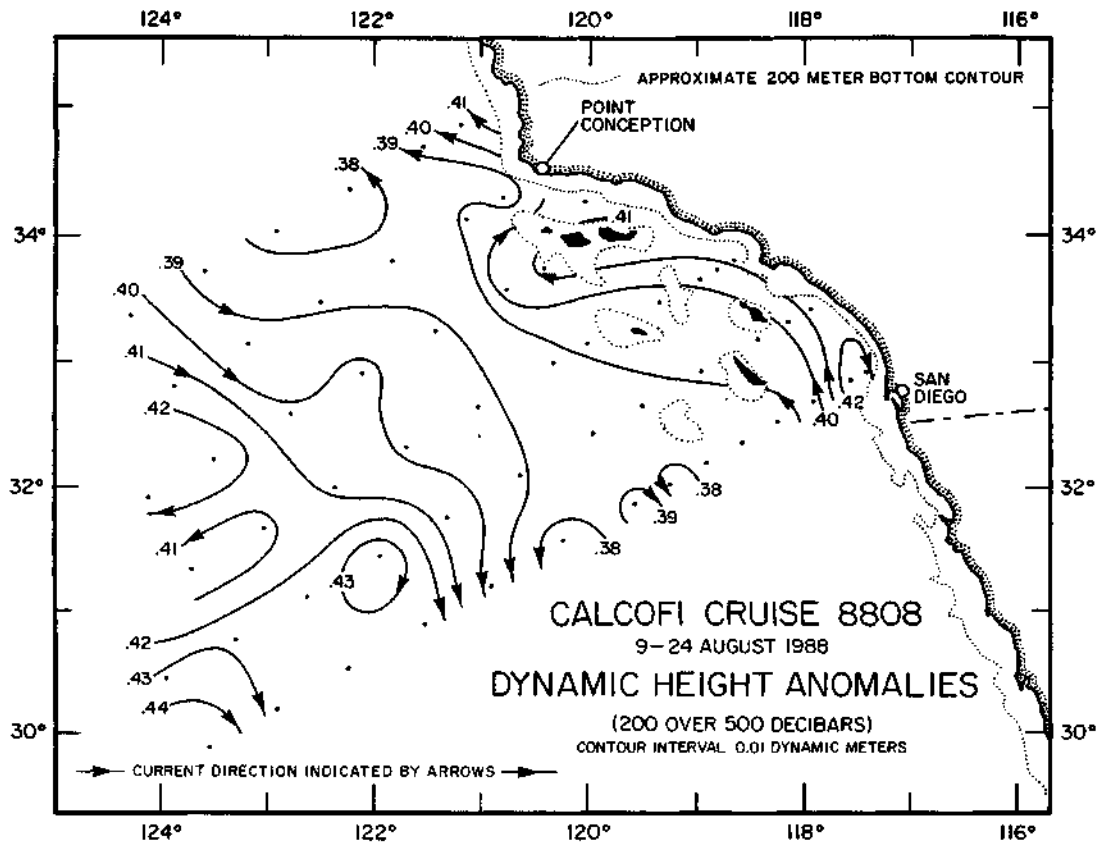


FIGURE 7

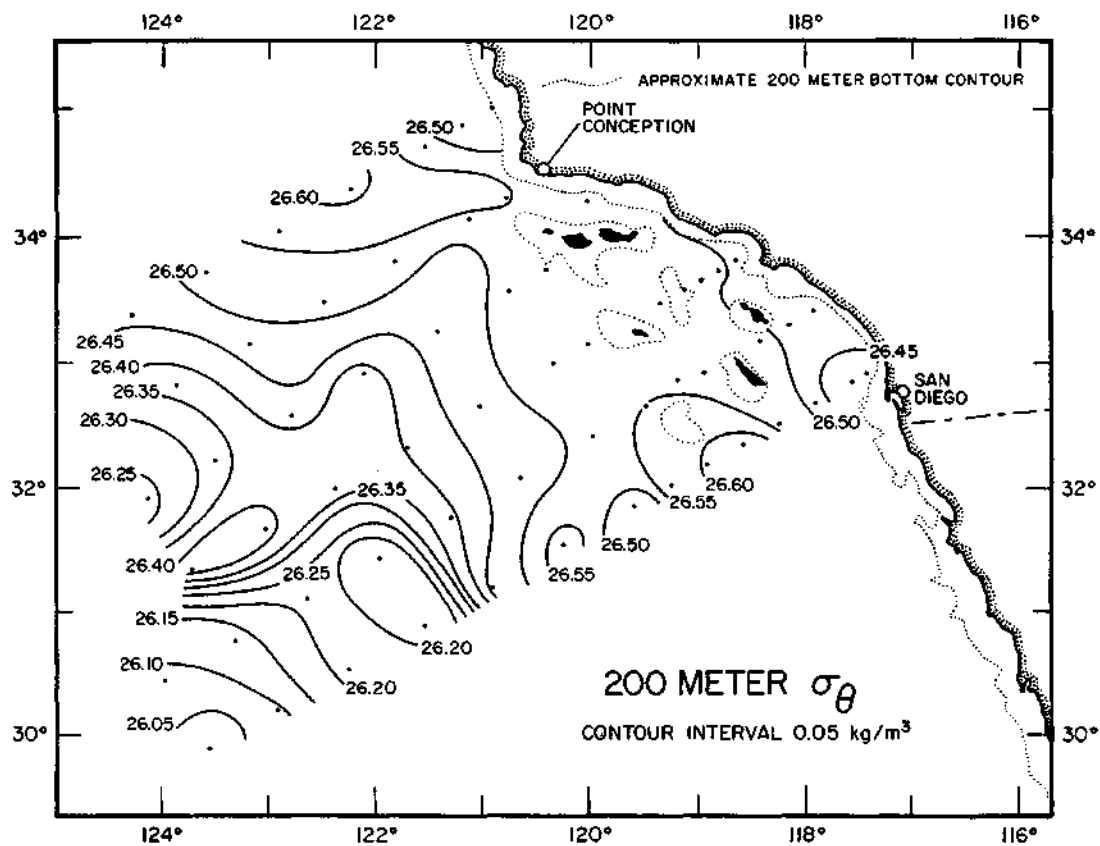


FIGURE 8

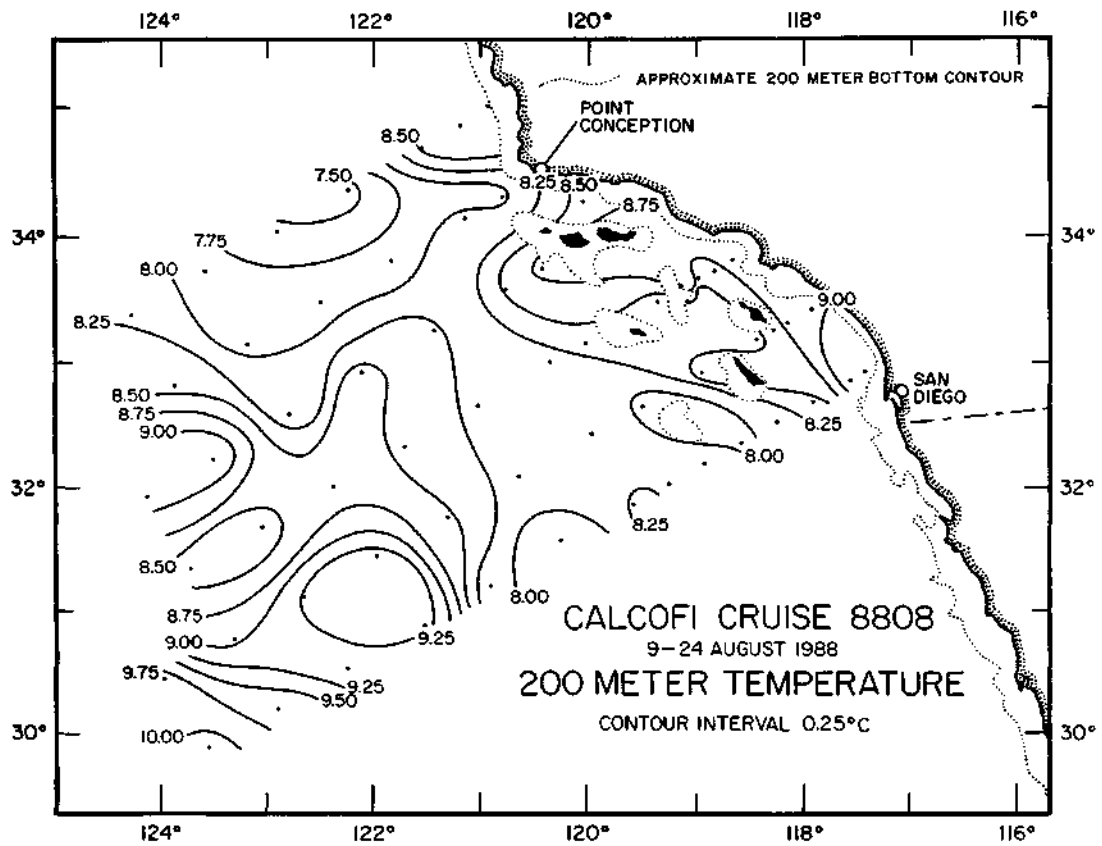


FIGURE 9

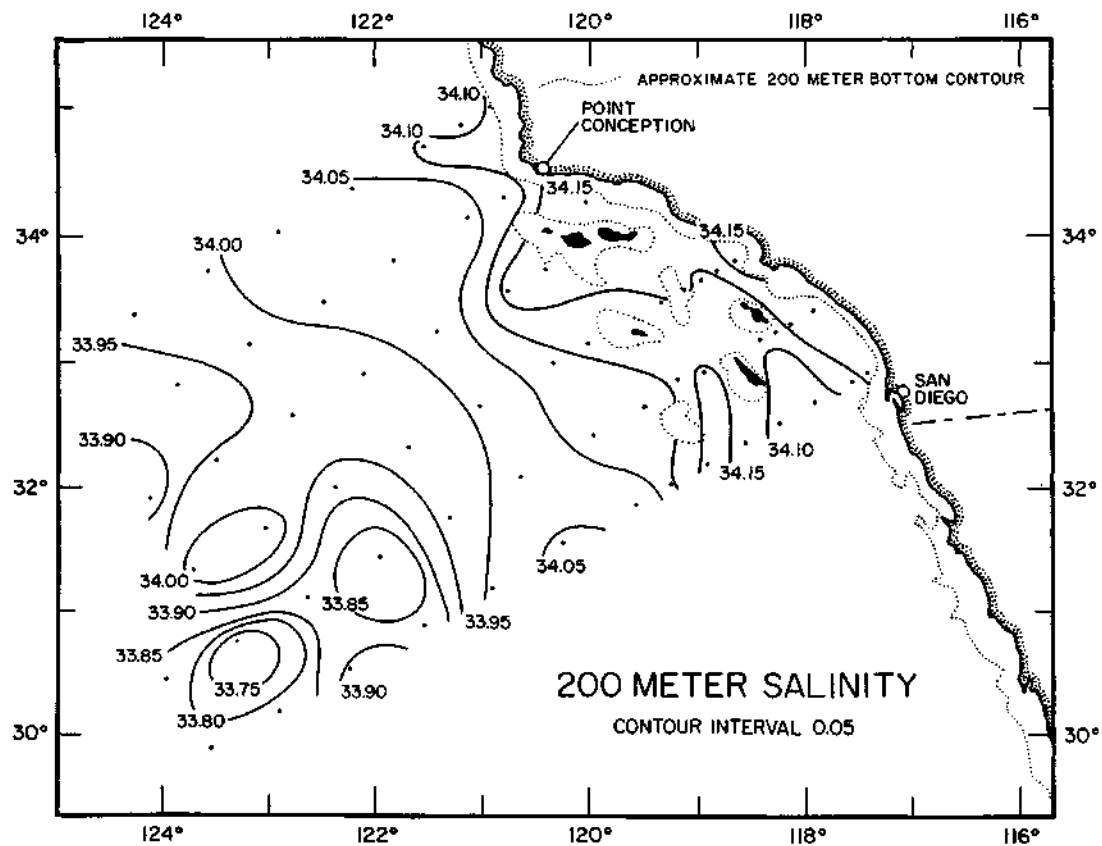


FIGURE 10

PERSONNEL

CalCOFI Cruise 8808

SHIP'S CAPTAIN

Phillip L. Munsch, RV *New Horizon*

PERSONNEL PARTICIPATING IN THE COLLECTION OF DATA

		Participation (Leg)
Mullin, Michael M. (Chief Scientist)	Professor, Director of MLRG, SIO	I, II
Abramenskoff, Dimitry N.	Fishery Biologist, NMFS	I, II
Anderson, George C.	Staff Research Associate, SIO	I, II
Brooks, Elaine R.	Staff Research Associate, SIO	I
Field, Timothy J.	Marine Technician, SIO	I
Gruber, Dennis W.	Marine Technician, SIO	I, II
Lauth, Robert	Associate Scientist, IATTC	I
Lowell, William R.	Staff Research Associate, SIO	I, II
Miller, Susan M.	Biological Technician, NMFS	I, II
Mogk, Seth A.	Resident Technician, SIO	I, II
Nordhausen, Walter	Graduate Student, SIO	I, II
Platenberg, Renata	Volunteer, SIO	I, II
Rodriguez, Angel M.	Graduate Student, SIO	I, II
Smith, Paul E.	Fishery Biologist, NMFS	I, II
Veit, Richard R.	Graduate Student, UCI	I, II

Leg I: San Diego to Dana Point, CA, 9-15 August 1988

Leg II: Dana Point to San Diego, CA, 15-24 August 1988

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD	AMT	TYPE		
35 5.3 N	120 46.9 W	23/08/88	2157 UTC	73 M	290	21 KT	280 03 05	1	1013.8 MB	18.6 c	16.5 c	1/8	AC			
CAST	DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	N03	N02	CHL-A	PHAE0	PRESS
	M	DEG C	DEG C	PSS 78	THETA			ML/L	PCT	UM/L	UM/L	UM/L	UM/L	UG/L	UG/L	D.BAR
1	0 ISL	14.87	14.87	33.647	24.958	298.8	0.000	6.84	118.9	1.5	0.24	1.9	0.07	3.78	0.69	0
1	1	14.87	14.87	33.647	24.958	298.8	0.003	6.84	118.9	1.5	0.24	1.9	0.07	3.78	0.69	1
1	10 ISL	13.71	13.71	33.641	25.198	276.2	0.029	6.29	106.8	2.5	0.38	4.9	0.15	5.90	0.68	10
1	11	13.53	13.53	33.642	25.235	272.7	0.032	6.19	104.7	2.6	0.40	5.4	0.16	6.12	0.68	11
1	20 ISL	12.69	12.69	33.650	25.409	256.4	0.055	5.10	84.8	8.7	0.95	10.1	0.32	3.75	0.93	20
1	22	12.55	12.55	33.654	25.440	253.5	0.061	4.86	80.6	10.2	1.08	11.1	0.35	3.05	0.99	22
1	30 ISL	12.23	12.23	33.684	25.525	245.6	0.080	4.37	72.0	13.3	1.30	13.5	0.41	2.14	1.04	30
1	32	12.17	12.17	33.692	25.542	244.0	0.085	4.28	70.4	13.9	1.33	14.0	0.42	2.02	1.05	32
1	43	11.55	11.54	33.732	25.690	230.2	0.111	3.75	60.9	18.1	1.54	16.8	0.48	1.50	0.76	43
1	50 ISL	11.27	11.26	33.746	25.752	224.4	0.127	3.55	57.3	19.5	1.61	18.2	0.48	0.76	0.40	50
1	53	11.17	11.16	33.752	25.775	222.3	0.134	3.48	56.0	20.0	1.64	18.7	0.48	0.46	0.26	53
1	69	10.86	10.85	33.795	25.864	214.2	0.169	3.12	49.9	25.4	1.82	20.9	0.46	0.34	0.42	70

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD	AMT	TYPE		
35 1.7 N	120 55.5 W	23/08/88	193 8 UTC	242 M	300	12 KT	300 03 07	0	1014.4 MB	19.0 c	17.0 c	0/8				
CAST	DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	N03	N02	CHL-A	PHAE0	PRESS
	M	DEG C	DEG C	PSS 78	THETA			ML/L	PCT	UM/L	UM/L	UM/L	UM/L	UG/L	UG/L	D.BAR
1	0 ISL	16.05	16.05	33.642	24.693	324.0	0.000	6.13	109.1	3.5	0.45	2.6	0.09	1.13	0.23	0
1	1	16.05	16.05	33.642	24.693	324.0	0.003	6.13	109.1	3.5	0.45	2.6	0.09	1.13	0.23	1
1	10 ISL	14.70	14.70	33.632	24.983	296.7	0.031	6.29	109.0	2.1	0.38	3.3	0.11	2.26	0.45	10
1	11	14.49	14.49	33.633	25.029	292.3	0.034	6.30	108.7	2.0	0.38	3.4	0.11	2.38	0.49	11
1	20 ISL	13.42	13.42	33.679	25.286	268.1	0.059	5.95	100.5	3.2	0.60	6.5	0.24	7.34	0.85	20
1	21	13.30	13.30	33.683	25.314	265.5	0.062	5.87	98.9	3.3	0.64	7.0	0.26	7.71	0.87	21
1	30 ISL	11.90	11.90	33.615	25.534	244.8	0.085	4.52	73.9	11.9	1.19	13.9	0.37	2.15	0.52	30
1	32	11.63	11.63	33.602	25.574	241.0	0.090	4.23	68.7	13.9	1.31	15.4	0.39	0.62	0.42	32
1	42	11.21	11.20	33.655	25.692	230.0	0.113	3.89	62.7	16.9	1.43	17.4	0.41	0.22	0.41	42
1	50 ISL	10.73	10.72	33.687	25.802	219.6	0.133	3.65	58.2	19.0	1.58	19.6	0.14	0.14	0.26	50
1	52	10.63	10.62	33.699	25.829	217.1	0.136	3.58	57.0	19.5	1.62	20.1	0.07	0.12	0.23	52
1	62	10.58	10.57	33.814	25.928	208.0	0.157	2.96	47.1	22.3	1.79	21.9	0.09	0.21	0.28	62
1	75 ISL	10.13	10.12	33.843	26.028	198.7	0.183	2.84	44.7	24.4	1.88	23.1	0.06	0.17	0.24	76
1	76	10.09	10.08	33.843	26.035	198.0	0.185	2.83	44.5	24.5	1.89	23.2	0.06	0.16	0.24	77
1	97	9.75	9.74	33.956	26.181	184.6	0.226	2.35	36.7	29.5	2.11	25.7	0.03	0.13	0.24	98
1	100 ISL	9.72	9.71	33.964	26.192	183.6	0.231	2.34	36.6	29.9	2.13	25.9	0.03	0.13	0.24	101
1	122	9.52	9.51	33.993	26.248	178.7	0.271	2.26	35.2	31.5	2.20	26.6	0.02	0.12	0.26	123
1	125 ISL	9.50	9.49	33.997	26.255	178.1	0.276	2.26	35.1	31.7	2.20	26.7	0.02	0.11	0.26	126
1	148	9.32	9.30	34.023	26.305	173.8	0.317	2.23	34.5	33.1	2.21	27.1	0.02	0.04	0.20	149
1	150 ISL	9.30	9.28	34.025	26.310	173.4	0.320	2.23	34.5	33.2	2.21	27.1	0.02	0.04	0.19	151
1	174	9.08	9.06	34.056	26.370	168.2	0.361	2.17	33.4	35.0	2.27	27.8	0.03	0.03	0.14	175
1	200 ISL	8.75	8.73	34.102	26.458	160.2	0.404	1.90	29.1	39.5	2.39	29.1	0.06	0.02	0.15	202
1	205	8.68	8.66	34.111	26.476	158.5	0.412	1.84	28.1	40.5	2.42	29.4	0.06	0.02	0.16	207
1	234	8.37	8.35	34.148	26.553	151.6	0.457	1.59	24.1	44.9	2.55	30.9	0.05	0.03	0.14	236

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD	AMT	TYPE		
34 53.4 N	121 12.0 W	23/08/88	1539 UTC	563 M	310	11 KT	290 03 09	1	1013.9 MB	17.9 c	16.5 c	1/8	AC			
CAST	DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	N03	N02	CHL-A	PHAE0	PRESS
	M	DEG C	DEG C	PSS 78	THETA			ML/L	PCT	UM/L	UM/L	UM/L	UM/L	UG/L	UG/L	D.BAR
1	0 ISL	14.73	14.73	33.638	24.981	296.6	0.000	6.54	113.4	1.4	0.29	2.7	0.13	4.03	0.46	0
1	1	14.73	14.73	33.638	24.981	296.6	0.003	6.54	113.4	1.4	0.29	2.7	0.13	4.03	0.46	1
1	10 ISL	13.72	13.72	33.616	25.177	278.2	0.029	6.33	107.5	1.1	0.36	4.1	0.15	6.04	0.45	10
1	11	13.57	13.57	33.615	25.206	275.5	0.032	6.29	106.5	1.1	0.38	4.4	0.15	6.35	0.45	11
1	20 ISL	13.09	13.09	33.627	25.313	265.6	0.056	5.86	98.2	2.1	0.60	6.5	0.20	7.77	0.82	20
1	22	13.01	13.01	33.633	25.333	263.7	0.061	5.74	96.1	2.3	0.66	7.1	0.22	8.09	0.92	22
1	30 ISL	12.52	12.52	33.678	25.464	251.4	0.082	5.25	87.0	6.0	0.92	9.6	0.34	4.86	1.19	30
1	32	12.40	12.40	33.688	25.495	248.5	0.087	5.13	84.8	7.3	1.00	10.5	0.37	3.92	1.22	32
1	42	11.99	11.98	33.688	25.574	241.3	0.111	4.74	77.7	15.1	1.50	17.7	0.32	2.69	0.91	42
1	50 ISL	11.43	11.42	33.695	25.683	231.0	0.130	4.25	68.8	15.5	1.51	17.8	0.31	1.44	0.50	50
1	53	11.21	11.20	33.703	25.729	226.6	0.137	4.04	65.1	15.6	1.52	17.8	0.31	1.01	0.37	53
1	63	10.60	10.59	33.759	25.882	212.4	0.159	3.36	53.4	20.2	1.70	20.6	0.07	0.29	0.33	63
1	73	10.13	10.12	33.817	26.008	200.5	0.180	3.04	47.9	23.5	1.82	22.7	0.02	0.10	0.21	74
1	75 ISL	10.08	10.07	33.825	26.023	199.2	0.184	3.00	47.2	23.9	1.84	23.0	0.02	0.10	0.21	76
1	88	9.86	9.85	33.862	26.089	193.1	0.209	2.84	44.5	25.8	1.91	24.1	0.02	0.07	0.21	89
1	100 ISL	9.68	9.67	33.883	26.135	189.0	0.232	2.77	43.2	27.1	1.96	24.8	0.01	0.16	0.28	101
1	103	9.64	9.63	33.889	26.147	187.9	0.238	2.76	43.0	27.4	1.97	24.9	0.01	0.18	0.29	104
1	124	9.32	9.31	33.973	26.265	177.1	0.276	2.69	41.7	30.6	2.07	26.4	0.01	0.03	0.13	125
1	125 ISL	9.31	9.30	33.974	26.268	176.9	0.278	2.68	41.5	30.7	2.07	26.4	0.01	0.03	0.13	126
1	149	9.01	8.99	33.988	26.327	171.6	0.320	2.45	37.7	33.0	2.13	27.3	0.01	0.03	0.20	150
1	150 ISL	9.00	8.98	33.989	26.329	171.4	0.321	2.44	37.5	33.1	2.13	27.3	0.01	0.03	0.20	151
1	179	8.78	8.76	34.019	26.388	166.4	0.370	2.32	35.5	35.7	2.20	28.3	0.01	0.02	0.12	180
1	200 ISL	8.53	8.51	34.053	26.454	160.5	0.405	2.17	33.0	38.4	2.26	29.2	0.01	0.01	0.09	202
1	211	8.39	8.37	34.070	26.488	157.3	0.422	2.10	31.9	39.8	2.29	29.7	0.01	0.01	0.07	213
1	241	8.11	8.09	34.086	26.543	152.5	0.469	2.01	30.3	42.5	2.37	30.5	0.01			243
1	250 ISL	8.06	8.03	34.102	26.564	150.8	0.482	1.90	28.6	43.7	2.42	30.9	0.01			252
1	282	7.92	7.89	34.165	26.634	144.6	0.530	1.45	21.8	48.5	2.59	32.4	0.01			284
1	300 ISL	7.80	7.77	34.182	26.665	141.9	0.555	1.30	19.5	51.0	2.66	33.1	0.01			303
1	338	7.51	7.													

LATITUDE		LONGITUDE		DAY/MO/YR		MESSENGER		BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER		DRY	WET	CLOUD	AMT	TYPE
34 43.4 N		121 33.1 W		23/08/88		1153 UTC		934 M	300	07 KT			1013.0 MB		16.5 C	16.1 C			
CAST	DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	N03	N02	CHL-A	PHAE0	PRESS			
	M	DEG C	DEG C	PSS 78	THETA			ML/L	PCT	UM/L	UM/L	UM/L	UM/L	UG/L	UG/L	D.BAR			
1	0 ISL	16.07	16.07	33.584	24.644	328.7	0.000	6.48	115.4	1.7	0.34	0.5	0.03	0.90	0.24	0			
1	1	16.07	16.07	33.584	24.644	328.7	0.003	6.48	115.4	1.7	0.34	0.5	0.03	0.90	0.24	1			
1	10 ISL	14.69	14.69	33.579	24.944	300.3	0.032	6.69	115.9	1.3	0.37	0.7	0.05	2.00	0.67	10			
1	11	14.46	14.46	33.577	24.992	295.9	0.035	6.70	115.5	1.2	0.37	0.7	0.05	2.13	0.72	11			
1	20 ISL	12.96	12.96	33.456	25.206	275.7	0.060	5.85	97.7	3.4	0.80	6.0	0.26	1.63	0.62	20			
1	22	12.68	12.68	33.434	25.244	272.1	0.066	5.62	93.3	4.1	0.90	7.3	0.31	1.44	0.58	22			
1	30 ISL	12.16	12.16	33.479	25.379	259.5	0.087	5.09	83.6	7.5	1.08	10.4	0.32	1.32	0.65	30			
1	32	12.08	12.08	33.493	25.405	257.1	0.092	5.00	82.0	8.3	1.11	11.0	0.32	1.28	0.66	32			
1	42	11.50	11.49	33.452	25.481	250.0	0.118	4.81	77.9	9.7	1.26	13.4	0.30	0.56	0.29	42			
1	50 ISL	11.30	11.29	33.466	25.529	245.6	0.137	4.69	75.6	10.9	1.34	14.5	0.22	0.56	0.49	50			
1	52	11.25	11.24	33.473	25.543	244.3	0.142	4.66	75.0	11.2	1.36	14.8	0.20	0.56	0.55	52			
1	62	10.79	10.78	33.501	25.647	234.6	0.166	4.43	70.6	13.8	1.50	17.0	0.14	0.43	0.28	62			
1	72	10.39	10.38	33.600	25.794	220.8	0.189	4.00	63.3	17.6	1.66	19.7	0.08	0.39	0.34	72			
1	75 ISL	10.35	10.34	33.627	25.822	218.2	0.196	3.87	61.2	18.3	1.69	20.2	0.08	0.38	0.32	75			
1	87	10.27	10.26	33.729	25.916	209.6	0.221	3.38	53.4	20.9	1.78	21.6	0.09	0.35	0.23	87			
1	100 ISL	10.01	10.00	33.836	26.044	197.7	0.248	2.98	46.8	24.3	1.90	23.3	0.06	0.33	0.39	101			
1	102	9.96	9.95	33.851	26.064	195.8	0.252	2.93	46.0	24.9	1.92	23.6	0.05	0.33	0.42	103			
1	123	9.35	9.34	33.949	26.242	179.3	0.291	2.62	40.6	30.4	2.08	26.0	0.03	0.31	0.64	124			
1	125 ISL	9.31	9.30	33.955	26.253	178.3	0.295	2.61	40.4	30.7	2.09	26.1	0.03	0.29	0.62	126			
1	149	8.97	8.95	34.014	26.354	169.1	0.336	2.45	37.6	33.6	2.18	27.3	0.02	0.09	0.23	150			
1	150 ISL	8.96	8.94	34.017	26.358	168.7	0.338	2.43	37.3	33.8	2.19	27.4	0.02	0.09	0.23	151			
1	180	8.68	8.66	34.111	26.476	158.1	0.387	1.93	29.5	39.3	2.37	29.5	0.02	0.05	0.14	181			
1	200 ISL	8.57	8.55	34.137	26.513	154.9	0.418	1.85	28.2	40.9	2.41	30.1	0.02	0.04	0.11	202			
1	211	8.46	8.44	34.138	26.531	153.3	0.435	1.81	27.5	41.7	2.42	30.3	0.02	0.04	0.10	213			
1	241	7.73	7.71	34.096	26.607	146.3	0.480	1.95	29.1	46.1	2.46	31.7	0.01			243			
1	250 ISL	7.57	7.55	34.092	26.627	144.5	0.493	1.92	28.6	48.0	2.48	32.1	0.01			252			
1	283	7.15	7.12	34.095	26.689	138.9	0.540	1.68	24.8	54.9	2.59	33.7	0.02			285			
1	300 ISL	7.04	7.01	34.104	26.712	137.0	0.564	1.55	22.8	57.0	2.65	34.3	0.02			302			
1	339	6.89	6.86	34.140	26.761	132.9	0.616	1.22	17.9	60.9	2.78	35.6	0.02			342			
1	400 ISL	6.68	6.64	34.228	26.859	124.3	0.695	0.69	10.1	68.2	3.00	37.3	0.01			403			
1	401	6.68	6.64	34.229	26.860	124.3	0.696	0.68	9.9	68.3	3.00	37.3	0.01			404			
1	467	6.18	6.14	34.261	26.951	116.2	0.775	0.48	6.9	77.3	3.13	39.0	0.02			471			
1	500 ISL	5.99	5.95	34.283	26.993	112.5	0.813	0.40	5.7	81.0	3.18	39.6	0.02			504			
1	539	5.77	5.72	34.310	27.042	108.1	0.856	0.31	4.4	85.3	3.23	40.4	0.03			544			

LATITUDE		LONGITUDE		DAY/MO/YR		MESSENGER		BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER		DRY	WET	CLOUD	AMT	TYPE
34 23.1 N		122 14.5 W		23/08/88		0611 UTC		4017 M	270	04 KT			1013.4 MB		17.8 C	17.1 C			
CAST	DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	N03	N02	CHL-A	PHAE0	PRESS			
	M	DEG C	DEG C	PSS 78	THETA			ML/L	PCT	UM/L	UM/L	UM/L	UM/L	UG/L	UG/L	D.BAR			
1	0 ISL	17.41	17.41	33.468	24.243	366.9	0.000	6.03	110.1	2.3	0.34	0.1	0.01	0.53	0.13	0			
1	1	17.41	17.41	33.468	24.243	366.9	0.004	6.03	110.1	2.3	0.34	0.1	0.01	0.53	0.13	1			
1	10 ISL	16.89	16.89	33.458	24.358	356.2	0.036	6.03	109.0	2.1	0.34	0.1	0.01	0.71	0.30	10			
1	11	16.78	16.78	33.458	24.384	353.8	0.040	6.03	108.8	2.1	0.34	0.1	0.01	0.75	0.33	11			
1	20 ISL	15.31	15.31	33.513	24.759	318.3	0.070	5.97	104.6	2.5	0.54	2.6	0.12	1.31	0.59	20			
1	21	15.09	15.09	33.520	24.813	313.2	0.073	5.96	104.0	2.5	0.58	3.1	0.13	1.35	0.61	21			
1	30 ISL	12.51	12.51	33.562	25.376	259.7	0.099	5.25	86.9	7.0	1.07	10.2	0.68	0.85	0.48	30			
1	32	11.97	11.97	33.578	25.492	248.8	0.104	5.06	82.8	8.3	1.18	12.0	0.77	0.68	0.42	32			
1	42	10.99	10.98	33.644	25.725	227.0	0.128	4.32	69.3	14.1	1.48	18.3	0.37	0.27	0.19	42			
1	50 ISL	10.22	10.21	33.710	25.909	209.4	0.145	3.71	58.5	19.9	1.68	22.0	0.08	0.21	0.16	50			
1	52	10.07	10.06	33.726	25.947	205.9	0.149	3.59	56.4	21.1	1.72	22.7	0.03	0.19	0.15	52			
1	62	9.85	9.84	33.767	26.016	199.5	0.170	3.41	53.4	22.9	1.80	23.6	0.02	0.13	0.09	62			
1	72	9.57	9.56	33.814	26.099	191.8	0.189	3.18	49.5	25.8	1.91	25.0	0.02	0.06	0.07	73			
1	75 ISL	9.47	9.46	33.829	26.127	189.1	0.195	3.09	48.0	26.6	1.92	25.4	0.02	0.05	0.06	76			
1	86	9.10	9.09	33.881	26.228	179.8	0.215	2.83	43.6	29.2	1.95	26.6	0.01	0.02	0.05	87			
1	100 ISL	8.75	8.74	33.919	26.313	171.9	0.240	2.80	42.8	31.4	2.01	26.9	0.01	0.01	0.04	101			
1	102	8.71	8.70	33.923	26.322	171.1	0.243	2.80	42.8	31.7	2.02	26.9	0.01	0.01	0.04	103			
1	122	8.32	8.31	33.956	26.408	163.2	0.277	3.25	49.2	33.8	1.99	27.0	0.01	0.01	0.04	123			
1	125 ISL	8.30	8.29	33.963	26.417	162.5	0.282	3.20	48.4	34.2	2.00	27.2	0.01	0.01	0.04	126			
1	148	8.15	8.14	34.011	26.477	157.1	0.318	2.66	40.1	37.3	2.10	28.6	0.01	0.01	0.03	149			
1	150 ISL	8.12	8.10	34.011	26.482	156.7	0.322	2.66	40.1	37.5	2.10	28.6	0.01	0.01	0.03	151			
1	179	7.69	7.67	34.010	26.544	151.1	0.366	2.69	40.1	40.5	2.16	29.3	0.01	0.00	0.02	180			
1	200 ISL	7.49	7.47	34.046	26.602	146.0	0.397	2.22	33.0	45.2	2.33	31.4	0.01	0.01	0.02	202			
1	210	7.40	7.38	34.064	26.629	143.6	0.412	1.98	29.4	47.6	2.41	32.5	0.01	0.01	0.02	212			
1	241	7.00	6.98	34.071	26.690	138.0	0.455	1.72	25.3	53.1	2.50	34.2	0.01			243			
1	250 ISL	6.93	6.91	34.077	26.705	136.8	0.468	1.64	24.1	54.5	2.55	34.6	0.01			252			
1	282	6.73	6.70	34.103	26.753	132.6	0.511	1.34	19.6	59.2	2.73	35.7	0.02			284			
1	300 ISL	6.62	6.59	34.118	26.779	130.3	0.535	1.19	17.3	61.9	2.80	36.4	0.02			302			
1	339	6.36	6.33	34.143	26.833	125.6	0.585	0.93	13.5	67.8	2.91	38.0	0.01			342			
1	400	5.78	5.75	34.157	26.918	117.9	0.659	0.71	10.1	77.4	3.05	39.9	0.00			403			
1	466	5.42	5.38	34.203	26.999	110.8	0.734	0.49	6.9	86.1	3.13	41.3	0.00			470			
1	500 ISL	5.34	5.30	34.243	27.040	107.2	0.771	0.39	5.5	88.8	3.16	41.6	0.00			504			
1	537																		

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD	AMT	TYPE		
34 3.3 N	122 56.2 W	23/08/88	0056 UTC	4231 M	220	05 KT	270 04 09	1	1012.4 MB	20.7 C	17.6 C	1/8	AS			
CST	DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	N03	N02	CHL-A	PHAE0	PRESS
	M	DEG C	DEG C	PSS 7 8	THETA			ML/L	PCT	UM/L	UM/L	UM/L	UM/L	UG/L	UG/L	D.BAR
1	0 ISL	17.47	17.47	33.442	24.208	370.2	0.000	5.93	108.4	2.5	0.34	0.1	0.00	0.68	0.18	0
1	1	17.47	17.47	33.442	24.208	370.2	0.004	5.93	108.4	2.5	0.34	0.1	0.00	0.68	0.18	1
1	10 ISL	17.27	17.27	33.440	24.255	366.1	0.037	5.94	108.2	2.3	0.34	0.1	0.00	0.69	0.19	10
1	11	17.23	17.23	33.440	24.264	365.2	0.040	5.94	108.1	2.3	0.34	0.1	0.00	0.69	0.19	11
1	20 ISL	16.91	16.91	33.440	24.340	358.3	0.073	5.99	108.3	2.1	0.34	0.1	0.01	1.04	0.39	20
1	21	16.88	16.88	33.440	24.347	357.6	0.077	5.99	108.3	2.1	0.34	0.1	0.01	1.08	0.41	21
1	30 ISL	16.85	16.85	33.438	24.353	357.4	0.109	5.89	106.4	2.0	0.35	0.1	0.01	1.30	0.47	30
1	32	16.84	16.83	33.438	24.355	357.2	0.116	5.85	105.6	2.0	0.35	0.1	0.01	1.35	0.48	32
1	42	13.61	13.60	33.667	25.239	273.2	0.147	5.63	95.4	3.2	0.81	5.9	0.34	0.58	0.23	42
1	50 ISL	12.19	12.18	33.662	25.516	247.0	0.168	4.82	79.3	7.8	1.25	12.1	0.63	0.38	0.21	50
1	52	11.96	11.95	33.647	25.548	244.0	0.173	4.61	75.5	9.1	1.35	13.6	0.65	0.36	0.20	52
1	62	11.11	11.10	33.660	25.714	228.3	0.197	4.19	67.4	13.9	1.54	18.6	0.65	0.14	0.10	62
1	72	9.97	9.96	33.599	25.865	214.1	0.219	3.98	62.4	18.7	1.64	20.6	0.63	0.05	0.07	73
1	75 ISL	9.90	9.89	33.638	25.907	210.1	0.225	3.84	60.1	20.0	1.69	21.4	0.63	0.04	0.06	76
1	86	9.65	9.64	33.764	26.047	197.0	0.248	3.27	50.9	24.3	1.89	24.1	0.62	0.02	0.05	87
1	100 ISL	9.27	9.26	33.863	26.187	184.0	0.274	2.80	43.3	28.6	2.01	26.2	0.61	0.01	0.05	101
1	102	9.22	9.21	33.873	26.203	182.5	0.278	2.76	42.6	29.1	2.02	26.4	0.61	0.01	0.05	103
1	122	8.73	8.72	33.953	26.343	169.5	0.313	2.64	40.3	32.9	2.08	27.5	0.61	0.00	0.04	123
1	125 ISL	8.67	8.66	33.962	26.359	168.0	0.318	2.63	40.1	33.4	2.09	27.7	0.61	0.00	0.04	126
1	148	8.27	8.25	34.010	26.458	158.9	0.356	2.54	38.4	37.3	2.16	28.8	0.61	0.00	0.04	149
1	150 ISL	8.24	8.22	34.012	26.465	158.4	0.359	2.53	38.2	37.6	2.17	28.9	0.61	0.00	0.04	151
1	179	7.86	7.84	34.030	26.535	152.0	0.404	2.42	36.3	41.3	2.24	30.0	0.61	0.00	0.03	180
1	200 ISL	7.53	7.51	34.029	26.583	147.8	0.436	2.37	35.2	44.5	2.30	30.9	0.62	0.00	0.02	202
1	209	7.40	7.38	34.030	26.602	146.1	0.449	2.32	34.4	45.9	2.34	31.4	0.62	0.00	0.02	211
1	239	7.24	7.22	34.070	26.656	141.4	0.492	1.84	27.2	50.7	2.52	33.3	0.62	0.00	0.02	241
1	250 ISL	7.13	7.11	34.075	26.676	139.6	0.507	1.73	25.5	52.7	2.57	33.9	0.62	0.00	0.02	252
1	280	6.78	6.75	34.082	26.729	134.8	0.548	1.49	21.8	58.0	2.67	35.5	0.62	0.00	0.02	282
1	300 ISL	6.59	6.56	34.091	26.762	131.9	0.575	1.33	19.4	61.2	2.75	36.4	0.62	0.00	0.02	302
1	337	6.29	6.26	34.112	26.818	126.9	0.623	1.06	15.3	66.7	2.88	37.9	0.62	0.00	0.02	340
1	398	5.92	5.89	34.160	26.903	119.4	0.698	0.68	9.7	75.1	3.04	39.8	0.61	0.01	0.01	401
1	400 ISL	5.91	5.88	34.161	26.906	119.2	0.701	0.67	9.6	75.4	3.04	39.8	0.61	0.01	0.01	403
1	463	5.52	5.48	34.19	26.977	113.0	0.774	0.50	7.1	82.8	3.15	41.1	0.61	0.01	0.01	467
1	500 ISL	5.38	5.34	34.225	27.021	109.1	0.815	0.40	5.7	86.8	3.20	41.6	0.61	0.01	0.01	504
1	534	5.25	5.21	34.257	27.063	105.5	0.851	0.31	4.4	90.5	3.25	42.0	0.61	0.01	0.01	539

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

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD	AMT	TYPE		
33 43.7 N	123 37.4 W	23/08/88	1858 UTC	4292 M	140	03 KT	350 04 06	2	1012.9 MB	18.8 C	18.0 C	8/8	SC			
CST	DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	N03	N02	CHL-A	PHAE0	PRESS
	M	DEG C	DEG C	PSS 7 8	THETA			ML/L	PCT	UM/L	UM/L	UM/L	UM/L	UG/L	UG/L	D.BAR
1	0	16.22	16.22	32.991	24.154	375.4	0.000	5.85	104.1	2.1	0.35	0.0	0.00	0.15	0.03	0
1	10 ISL	16.14	16.14	32.996	24.176	373.5	0.037	5.90	104.8	1.7	0.35	0.0	0.00	0.16	0.04	10
1	11	16.13	16.13	32.997	24.179	373.3	0.041	5.90	104.8	1.7	0.35	0.0	0.00	0.16	0.04	11
1	20 ISL	16.00	16.00	33.012	24.220	369.7	0.075	5.93	105.1	1.7	0.35	0.0	0.00	0.19	0.06	20
1	22	15.97	15.97	33.020	24.233	368.5	0.082	5.93	105.0	1.7	0.35	0.0	0.00	0.20	0.06	22
1	30 ISL	15.88	15.88	33.084	24.303	362.1	0.111	5.96	105.4	1.6	0.37	0.0	0.01	0.33	0.12	30
1	31	15.87	15.87	33.105	24.322	360.4	0.115	5.96	105.4	1.6	0.37	0.0	0.01	0.35	0.14	31
1	42	13.11	13.10	33.022	24.841	311.0	0.152	6.32	105.6	2.3	0.43	0.2	0.03	0.74	0.50	42
1	50 ISL	11.93	11.92	32.984	25.038	292.3	0.176	6.05	98.6	3.6	0.61	2.8	0.26	0.47	0.41	50
1	52	11.74	11.73	32.981	25.071	289.2	0.182	5.95	96.5	3.9	0.66	3.5	0.31	0.38	0.37	52
1	63	11.36	11.35	33.076	25.215	275.8	0.213	5.68	91.5	4.8	0.72	5.2	0.03	0.19	0.24	63
1	73	11.01	11.00	33.134	25.323	265.7	0.240	5.43	86.8	6.9	0.87	7.7	0.02	0.14	0.14	74
1	75 ISL	10.90	10.89	33.161	25.363	261.9	0.245	5.35	85.3	7.7	0.93	8.7	0.02	0.12	0.12	76
1	87	10.19	10.18	33.348	25.632	236.5	0.275	4.78	75.2	13.3	1.31	15.2	0.02	0.04	0.06	88
1	100 ISL	9.65	9.64	33.503	25.844	216.6	0.304	4.23	65.8	17.8	1.50	18.6	0.01	0.02	0.04	101
1	102	9.58	9.57	33.524	25.871	214.0	0.309	4.15	64.4	18.4	1.52	19.0	0.01	0.02	0.04	103
1	123	8.88	8.87	33.753	26.163	186.6	0.351	3.34	51.1	26.8	1.89	24.7	0.00	0.01	0.03	124
1	125 ISL	8.84	8.83	33.765	26.179	185.2	0.355	3.33	50.9	27.2	1.89	24.8	0.00	0.01	0.03	126
1	148	8.49	8.47	33.859	26.307	173.4	0.396	3.20	48.6	29.8	1.93	25.6	0.01	0.00	0.02	149
1	150 ISL	8.46	8.44	33.866	26.317	172.4	0.399	3.20	48.6	30.1	1.93	25.7	0.01	0.00	0.02	151
1	179	8.06	8.04	33.949	26.443	160.9	0.448	3.16	47.5	34.4	1.99	26.8	0.01	0.00	0.01	180
1	200 ISL	7.82	7.80	33.994	26.513	154.5	0.481	2.86	42.8	38.6	2.12	28.4	0.01	0.00	0.01	202
1	209	7.73	7.71	34.009	26.538	152.3	0.495	2.71	40.5	40.5	2.18	29.1	0.01	0.00	0.01	211
1	239	7.43	7.41	34.032	26.600	146.8	0.539	2.31	34.3	45.7	2.32	31.3	0.01	0.00	0.01	241
1	250 ISL	7.27	7.25	34.034	26.624	144.6	0.555	2.22	32.8	47.6	2.37	31.9	0.01	0.00	0.01	252
1	279	6.85	6.82	34.039	26.686	139.0	0.597	1.99	29.1	52.8	2.49	33.5	0.01	0.00	0.01	281
1	300 ISL	6.47	6.44	34.059	26.726	135.4	0.625	1.70	24.8	56.7	2.62	34.8	0.01	0.00	0.01	302
2	335	6.45	6.42	34.097	26.785	130.1	0.672	1.22	17.7	62.7	2.81	36.8	0.01	0.00	0.01	338
2	395	6.06	6.03	34.129	26.861	123.5	0.748	0.89	12.8	70.5	2.94	38.7	0.01	0.00	0.01	398
2	400 ISL	6.03	6.00	34.134	26.869	122.8	0.754	0.86	12.4	71.2	2.95	38.8	0.01	0.00	0.01	403
2	462	5.69	5.65	34.192	26.958	114.9	0.828	0.50	7.1	79.6	3.12	40.4	0.00	0.00	0.00	466
2	500 ISL	5.45	5.41	34.216	27.006	110.6	0.871	0.42	6.0	84.9	3.17	41.2	0.00	0.00	0.00	504
2	535	5.22	5.18	34.238	27.051	106.5	0.909	0.34	4.8	89.7	3.22	41.9	0.00	0.00	0.00	540

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD	AMT	TYPE	
33 23.2 N	124 19.2 W	22/08/88	1328 UTC	3733 M	240	05 KT			1010.0 MB	17.4 C	15.2 C				
CST DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	N03	N02	CHL-A	PHAE0	PRESS
M	DEG C	DEG C	PSS 78	THETA			ML/L	PCT	UM/L	UM/L	UM/L	UM/L	UG/L	UG/L	D.BAR
0 ISL	17.45	17.45	33.014	23.885	401.0	0.000	5.63	102.6	2.8	0.36	0.1	0.00	0.09	0.02	0
1 1	17.45	17.45	33.014	23.885	401.0	0.004	5.63	102.6	2.8	0.36	0.1	0.00	0.09	0.02	1
1 10 ISL	17.45	17.45	33.014	23.886	401.3	0.040	5.63	102.6	2.6	0.36	0.1	0.00	0.09	0.02	10
1 11	17.45	17.45	33.014	23.886	401.3	0.044	5.63	102.6	2.6	0.36	0.1	0.00	0.09	0.02	11
1 20 ISL	17.44	17.44	33.033	23.903	400.0	0.080	5.64	102.8	2.5	0.36	0.1	0.00	0.14	0.03	20
1 21	17.44	17.44	33.035	23.904	399.9	0.084	5.64	102.8	2.5	0.36	0.1	0.00	0.15	0.03	21
1 30 ISL	17.45	17.45	33.037	23.904	400.2	0.120	5.63	102.6	2.3	0.36	0.1	0.00	0.12	0.03	30
1 31	17.45	17.44	33.037	23.904	400.2	0.124	5.63	102.6	2.3	0.36	0.1	0.00	0.12	0.03	31
1 41	16.53	16.52	33.235	24.272	365.5	0.162	5.93	106.3	2.2	0.35	0.1	0.00	0.14	0.05	41
1 50 ISL	14.71	14.70	33.246	24.685	326.3	0.194	6.26	108.2	2.4	0.39	0.1	0.00	0.20	0.10	50
1 51	14.50	14.49	33.244	24.728	322.2	0.197	6.29	108.3	2.5	0.40	0.1	0.00	0.21	0.11	51
1 61	13.11	13.10	33.274	25.036	292.9	0.228	6.14	102.7	3.4	0.55	2.0	0.09	0.27	0.22	61
1 71	12.39	12.38	33.326	25.218	275.9	0.256	5.84	96.3	4.6	0.70	4.6	0.14	0.27	0.22	72
1 75 ISL	12.11	12.10	33.333	25.276	270.4	0.267	5.63	92.3	5.5	0.80	6.4	0.12	0.26	0.21	76
1 85	11.50	11.49	33.349	25.402	258.5	0.293	5.11	82.7	8.2	1.06	10.8	0.06	0.22	0.18	86
1 100	11.00	10.99	33.427	25.553	244.5	0.331	4.77	76.4	11.6	1.25	14.2	0.03	0.14	0.11	101
1 120	10.11	10.10	33.554	25.807	220.6	0.378	4.05	63.6	17.8	1.56	19.0	0.01	0.04	0.05	121
1 125 ISL	9.90	9.89	33.587	25.868	214.9	0.389	3.91	61.2	19.1	1.61	19.9	0.01	0.03	0.05	126
1 146	9.16	9.14	33.729	26.100	193.1	0.431	3.45	53.1	24.2	1.78	23.0	0.01	0.01	0.03	147
1 150 ISL	9.07	9.05	33.759	26.138	189.6	0.439	3.37	51.8	25.2	1.81	23.5	0.01	0.01	0.03	151
1 177	8.58	8.56	33.932	26.351	169.8	0.488	2.98	45.4	31.2	1.97	26.3	0.00	0.00	0.04	178
1 200 ISL	8.22	8.20	33.990	26.451	160.5	0.526	2.83	42.7	34.9	2.06	27.7	0.00	0.01	0.03	202
1 208	8.11	8.09	33.999	26.475	158.4	0.538	2.80	42.2	36.0	2.09	28.0	0.00	0.01	0.03	210
1 238	7.75	7.73	34.024	26.548	151.9	0.585	2.67	39.9	40.3	2.19	29.1	0.00			240
1 250 ISL	7.59	7.57	34.029	26.575	149.4	0.603	2.57	38.3	42.4	2.24	29.8	0.00			252
1 279	7.19	7.16	34.034	26.635	143.9	0.645	2.31	34.1	47.7	2.37	31.5	0.00			281
1 300 ISL	6.91	6.88	34.032	26.673	140.6	0.675	2.17	31.8	51.4	2.44	32.7	0.00			302
1 337	6.44	6.41	34.027	26.732	135.2	0.726	1.93	28.0	57.9	2.56	34.6	0.00			340
1 398	5.79	5.76	34.034	26.820	127.2	0.806	1.48	21.1	68.1	2.79	37.7	0.00			401
1 400 ISL	5.77	5.74	34.036	26.824	126.8	0.809	1.46	20.8	68.5	2.80	37.8	0.00			403
1 465	5.36	5.32	34.111	26.933	116.9	0.888	0.81	11.4	80.4	3.05	40.6	0.00			469
1 500 ISL	5.26	5.22	34.158	26.983	112.6	0.928	0.62	8.7	84.6	3.12	41.1	0.00			504
1 536	5.15	5.11	34.206	27.034	108.1	0.968	0.43	6.0	89.0	3.20	41.7	0.00			541

RV NEW HORIZON

CALCOFI CRUISE 8808

STATION 80 51

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD	AMT	TYPE	
34 27.1 N	120 31.7 W	21/08/88	0212 UTC	76 M	300	02 KT	260 03 05	0	1006.3 MB	16.6 C	14.5 C				
CST DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	N03	N02	CHL-A	PHAE0	PRESS
M	DEG C	DEG C	PSS 78	THETA			ML/L	PCT	UM/L	UM/L	UM/L	UM/L	UG/L	UG/L	D.BAR
0 ISL	15.81	15.81	33.690	24.784	315.4	0.000	6.79	120.4	1.9	0.24	0.1	0.03	3.70	0.63	0
1 1	15.81	15.81	33.690	24.784	315.4	0.003	6.79	120.4	1.9	0.24	0.1	0.03	3.70	0.63	1
1 10 ISL	11.90	11.90	33.689	25.590	238.8	0.028	3.89	63.6	15.0	1.35	15.1	0.34	1.70	0.78	10
1 11	11.36	11.36	33.704	25.702	228.2	0.030	3.49	56.4	16.8	1.50	17.2	0.38	1.41	0.79	11
1 20 ISL	10.91	10.91	33.736	25.808	218.4	0.051	3.20	51.2	19.1	1.65	19.5	0.13	0.59	0.52	20
1 22	10.81	10.81	33.744	25.832	216.1	0.055	3.13	50.0	19.6	1.68	20.0	0.06	0.51	0.44	22
1 30 ISL	10.49	10.49	33.791	25.925	207.5	0.072	2.93	46.5	21.9	1.79	21.5	0.05	0.28	0.32	30
1 32	10.43	10.43	33.801	25.943	205.8	0.076	2.90	46.0	22.3	1.81	21.7	0.05	0.26	0.30	32
1 43	10.39	10.38	33.807	25.955	204.9	0.099	2.87	45.5	22.3	1.82	21.9	0.05	0.25	0.31	43
1 50 ISL	10.37	10.36	33.810	25.961	204.5	0.113	2.86	45.3	22.4	1.83	21.9	0.05	0.26	0.32	50
1 53	10.36	10.35	33.812	25.964	204.3	0.119	2.86	45.3	22.4	1.84	21.9	0.05	0.26	0.32	53
1 69	10.14	10.13	33.86	26.040	197.4	0.151	2.69	42.4	24.2	1.92	23.0	0.05	0.22	0.34	70

RV NEW HORIZON

CALCOFI CRUISE 8808

STATION 80 55

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD	AMT	TYPE	
34 19.2 N	120 48.3 W	21/08/88	0449 UTC	770 M	150	06 KT			1007.0 MB	17.0 C	15.2 C				
CST DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	N03	N02	CHL-A	PHAE0	PRESS
M	DEG C	DEG C	PSS 78	THETA			ML/L	PCT	UM/L	UM/L	UM/L	UM/L	UG/L	UG/L	D.BAR
1 0	15.00	15.00	33.630	24.917	302.7	0.000	6.53	113.8	2.9	0.36	0.4	0.07	2.56	0.25	0
1 10	14.68	14.68	33.635	24.990	296.0	0.030	6.61	114.5	2.8	0.38	0.5	0.08	3.46	0.44	10
1 20 ISL	13.60	13.60	33.679	25.250	271.5	0.058	6.17	104.6	5.8	0.59	2.7	0.17	5.27	1.58	20
1 21	13.48	13.48	33.682	25.277	269.0	0.061	6.12	103.5	6.1	0.62	3.0	0.18	5.41	1.69	21
1 30 ISL	12.94	12.94	33.607	25.327	264.4	0.085	5.97	99.7	5.2	0.77	5.2	0.20	4.99	1.73	30
1 31	12.89	12.89	33.599	25.331	264.1	0.088	5.95	99.3	5.1	0.79	5.6	0.20	4.89	1.73	31
1 40	12.12	12.11	33.657	25.525	245.9	0.111	4.82	79.2	11.6	1.21	11.8	0.34	4.56	1.58	40
1 50 ISL	11.56	11.55	33.721	25.680	231.4	0.134	3.73	60.6	16.4	1.50	16.4	0.48	2.21	1.24	50
1 52	11.45	11.44	33.735	25.711	228.5	0.139	3.55	57.5	17.2	1.55	17.2	0.49	1.71	1.16	52
1 62	10.55	10.54	33.821	25.939	206.9	0.161	2.97	47.2	22.3	1.81	21.4	0.40	0.86	0.80	62
1 72	9.96	9.95	33.835	26.051	196.4	0.181	2.99	46.9	24.9	1.83	23.1	0.05	0.39	0.40	73
1 75 ISL	9.83	9.82	33.842	26.078	193.9	0.187	2.97	46.5	25.5	1.84	23.5	0.04	0.36	0.39	76
1 87	9.46	9.45	33.883	26.171	185.2	0.210	2.83	43.9	28.0	1.92	24.8	0.02	0.25	0.35	88
1 100 ISL	9.18	9.17	33.958	26.276	175.6	0.233	2.62	40.4	31.1	2.02	26.1	0.03	0.17	0.21	101
1 101	9.16	9.15	33.964	26.284	174.8	0.235	2.61	40.3	31.3	2.03	26.2	0.03	0.17	0.20	102
1 123	8.85	8.84	34.031	26.385	165.5	0.272	2.54	38.9	33.9	2.10	27.3	0.03	0.11	0.20	124
1 125 ISL	8.82	8.81	34.034	26.392	164.9	0.276	2.52	38.6	34.2	2.11	27.4	0.03	0.11	0.20	126
1 149	8.48	8.46	34.064	26.469	158.0	0.314	2.24	34.1	38.4	2.23	28.9	0.02	0.44	U 1.64	150
1 150 ISL	8.47	8.45	34.066	26.472	157.7	0.316	2.23	33.9	38.5	2.24	28.9	0.02	0.09	0.17	151
1 180	8.26	8.24	34.100	26.531	152.7	0.362	2.02	30.6	41.8	2.35	30.0	0.02	0.07	0.13	181
1 200 ISL	7.99	7.97	34.082	26.557	150.4	0.393	2.14	32.2	43.2	2.33	30.3	0.02	0.09	0.12	202
1 211	7.82	7.80	34.069	26.573	149.1	0.409	2.21	33.1</							

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD	AMT	TYPE		
34 9.2 N	121 8.9 W	21/08/88	0844 UTC	2257 M	210	03 KT			1008.0 MB	17.0 C	14.5 C					
CAST	DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	N03	N02	CHL-A	PHAE0	PRESS
	M	DEG C	DEG C	PSS 78	THETA			ML/L	PCT	UM/L	UM/L	UM/L	UM/L	UG/L	UG/L	D.BAR
1	0 ISL	16.58	16.58	33.241	24.263	364.9	0.000	5.94	106.6	2.3	0.35	0.0	0.00	0.33	0.12	0
	1	16.58	16.58	33.241	24.263	364.9	0.004	5.94	106.6	2.3	0.35	0.0	0.00	0.33	0.12	1
	10 ISL	16.54	16.54	33.237	24.270	364.6	0.036	5.86	105.1	2.1	0.35	0.0	0.00	0.34	0.12	10
	11	16.54	16.54	33.237	24.270	364.6	0.040	5.85	104.9	2.1	0.35	0.0	0.00	0.34	0.12	11
	20 ISL	16.04	16.04	33.243	24.389	353.6	0.072	6.05	107.4	2.0	0.36	0.0	0.00	0.67	0.25	20
	22	15.85	15.85	33.238	24.428	349.9	0.079	6.11	108.1	2.0	0.36	0.0	0.00	0.75	0.28	22
	30 ISL	14.67	14.67	33.154	24.622	331.7	0.107	6.34	109.5	2.2	0.41	0.3	0.02	0.87	0.28	30
	32	14.32	14.32	33.129	24.677	326.5	0.113	6.39	109.5	2.3	0.43	0.4	0.03	0.88	0.28	32
	42	12.52	12.51	33.022	24.956	300.0	0.145	6.40	105.6	3.2	0.53	1.8	0.12	0.79	0.23	42
	50 ISL	12.12	12.11	33.086	25.082	288.2	0.168	6.01	98.4	4.3	0.69	4.3	0.25	0.58	0.27	50
	51	12.10	12.09	33.099	25.096	286.9	0.171	5.95	97.4	4.5	0.71	4.7	0.27	0.55	0.27	51
	62	11.57	11.56	33.253	25.314	266.4	0.201	5.43	87.9	6.4	0.94	8.6	0.31	0.31	0.22	62
	73	11.57	11.56	33.401	25.430	255.7	0.230	5.05	81.8	8.0	1.10	11.7	0.23	0.22	0.16	74
	75 ISL	11.39	11.38	33.421	25.478	251.1	0.235	4.91	79.3	9.1	1.15	12.6	0.20	0.19	0.15	76
	87	10.17	10.16	33.524	25.773	223.2	0.264	4.09	64.4	16.4	1.44	17.8	0.02	0.06	0.07	88
	100 ISL	9.70	9.69	33.597	25.909	210.5	0.292	3.87	60.3	19.4	1.56	19.9	0.02	0.03	0.05	101
	102	9.66	9.65	33.609	25.925	209.0	0.296	3.85	59.9	19.7	1.58	20.1	0.02	0.03	0.05	103
	123	9.10	9.09	33.852	26.206	182.6	0.337	2.89	44.5	28.7	1.96	25.9	0.01	0.02	0.04	124
	125 ISL	9.07	9.06	33.863	26.219	181.4	0.341	2.87	44.2	29.1	1.97	26.0	0.01	0.02	0.04	126
	149	8.81	8.79	33.927	26.311	173.1	0.383	2.69	41.2	31.8	2.04	27.2	0.01	0.01	0.05	150
	150 ISL	8.80	8.78	33.929	26.314	172.8	0.385	2.69	41.2	31.9	2.04	27.2	0.01	0.01	0.05	151
	180	8.34	8.32	33.997	26.438	161.5	0.435	2.66	40.3	35.8	2.10	28.2	0.01	0.03	0.04	181
	200 ISL	8.10	8.08	34.035	26.505	155.5	0.467	2.45	36.9	39.1	2.20	29.4	0.01	0.02	0.03	202
	211	7.98	7.96	34.049	26.533	152.9	0.484	2.33	35.0	40.9	2.25	30.0	0.01	0.02	0.03	213
	241	7.62	7.60	34.052	26.589	148.0	0.529	2.24	33.4	44.4	2.32	31.1	0.01	0.01	0.03	243
	250 ISL	7.52	7.50	34.060	26.609	146.2	0.542	2.15	32.0	46.0	2.37	31.6	0.01	0.01	0.03	252
	282	7.19	7.16	34.097	26.685	139.3	0.588	1.75	25.8	52.3	2.55	33.5	0.01	0.01	0.03	284
	300 ISL	7.06	7.03	34.118	26.720	136.2	0.613	1.51	22.2	55.4	2.64	34.5	0.01	0.01	0.03	302
	339	6.80	6.77	34.158	26.787	130.3	0.665	1.04	15.2	61.5	2.82	36.4	0.01	0.01	0.03	342
	399	6.33	6.29	34.201	26.884	121.7	0.740	0.69	10.0	70.5	3.01	38.2	0.01	0.01	0.03	402
	400 ISL	6.32	6.28	34.201	26.885	121.6	0.742	0.69	10.0	70.6	3.01	38.2	0.01	0.01	0.03	403
	465	5.85	5.81	34.209	26.952	115.7	0.819	0.54	7.7	78.0	3.11	40.1	0.01	0.01	0.03	468
	500 ISL	5.71	5.67	34.236	26.991	112.4	0.859	0.45	6.4	81.4	3.15	40.6	0.01	0.01	0.03	504
	536	5.57	5.52	34.265	27.031	108.9	0.898	0.35	5.0	84.9	3.19	41.1	0.01	0.01	0.03	541

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD	AMT	TYPE		
33 49.2 N	121 50.6 W	21/08/88	1416 UTC	3622 M	360	05 KT	290 03 07	2	1007.9 MB	17.5 C	14.6 C		8/8	ST		
CAST	DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	N03	N02	CHL-A	PHAE0	PRESS
	M	DEG C	DEG C	PSS 78	THETA			ML/L	PCT	UM/L	UM/L	UM/L	UM/L	UG/L	UG/L	D.BAR
1	0 ISL	17.02	17.02	33.346	24.241	367.0	0.000	5.76	104.3	2.1	0.35	0.2	0.00	0.35	0.11	0
	1	17.02	17.02	33.346	24.241	367.0	0.004	5.76	104.3	2.1	0.35	0.2	0.00	0.35	0.11	1
	10	17.04	17.04	33.345	24.236	367.8	0.037	5.77	104.6	1.9	0.33	0.1	0.00	0.36	0.09	10
	20 ISL	16.92	16.92	33.456	24.350	357.3	0.073	5.85	105.8	1.8	0.31	0.2	0.02	0.58	0.17	20
	22	16.88	16.88	33.481	24.379	354.7	0.080	5.86	105.9	1.8	0.31	0.2	0.02	0.63	0.19	22
	30 ISL	16.71	16.71	33.522	24.450	348.1	0.108	5.84	105.3	1.7	0.33	0.6	0.04	0.68	0.25	30
	32	16.67	16.66	33.532	24.467	346.6	0.115	5.83	105.0	1.7	0.34	0.7	0.04	0.68	0.26	32
	42	12.75	12.74	33.659	25.405	257.4	0.145	5.25	87.4	5.5	1.03	8.8	0.50	0.70	0.21	42
	50 ISL	11.42	11.41	33.612	25.620	237.0	0.165	4.66	75.4	10.8	1.38	14.5	0.60	0.38	0.17	50
	52	11.24	11.23	33.592	25.638	235.3	0.170	4.51	72.7	12.2	1.44	15.7	0.63	0.29	0.16	52
	62	10.43	10.42	33.649	25.825	217.7	0.193	3.99	63.2	17.7	1.65	20.5	0.13	0.17	0.09	62
	73	10.04	10.03	33.774	25.990	202.3	0.216	3.29	51.7	22.6	1.85	23.8	0.03	0.06	0.08	74
	75 ISL	9.97	9.96	33.785	26.010	200.4	0.220	3.22	50.5	23.2	1.88	24.1	0.03	0.05	0.09	76
	87	9.60	9.59	33.824	26.102	191.8	0.243	2.94	45.8	26.3	1.98	25.4	0.02	0.02	0.11	88
	100 ISL	9.22	9.21	33.857	26.190	183.7	0.268	2.74	42.3	29.2	2.04	26.6	0.01	0.02	0.07	101
	102	9.16	9.15	33.861	26.203	182.5	0.271	2.72	41.9	29.6	2.04	26.7	0.01	0.02	0.06	103
	123	8.59	8.58	33.892	26.317	171.9	0.308	2.93	44.6	31.6	2.01	26.7	0.02	0.01	0.03	124
	125 ISL	8.59	8.58	33.901	26.324	171.3	0.312	2.90	44.2	31.9	2.02	26.8	0.02	0.01	0.03	126
	148	8.60	8.58	33.988	26.391	165.4	0.351	2.45	37.3	35.8	2.16	28.4	0.01	0.01	0.03	149
	150 ISL	8.57	8.55	33.991	26.398	164.8	0.354	2.46	37.5	36.0	2.16	28.5	0.01	0.01	0.03	151
	179	8.02	8.00	34.016	26.501	155.4	0.400	2.53	38.0	38.9	2.19	29.3	0.01	0.00	0.02	180
	200 ISL	7.82	7.80	34.031	26.543	151.7	0.433	2.42	36.2	41.4	2.25	30.1	0.01	0.00	0.02	202
	210	7.75	7.73	34.037	26.557	150.5	0.448	2.34	35.0	42.8	2.29	30.6	0.01	0.00	0.02	212
	240	7.49	7.47	34.058	26.612	145.7	0.492	2.04	30.3	47.5	2.42	32.2	0.01	0.01	0.02	242
	250 ISL	7.37	7.35	34.062	26.632	143.9	0.507	1.95	28.9	49.2	2.47	32.8	0.01	0.01	0.02	252
	281	7.00	6.97	34.076	26.695	138.2	0.550	1.66	24.4	54.7	2.61	34.5	0.01	0.01	0.02	283
	300 ISL	6.82	6.79	34.090	26.730	135.0	0.576	1.46	21.4	58.0	2.70	35.5	0.01	0.01	0.02	302
	337	6.51	6.48	34.120	26.796	129.2	0.625	1.09	15.8	64.2	2.86	37.3	0.02	0.01	0.02	340
	398	6.00	5.97	34.156	26.890	120.7	0.701	0.72	10.3	74.0	3.02	39.6	0.01	0.01	0.02	401
	400 ISL	5.99	5.96	34.158	26.893	120.5	0.704	0.71	10.2	74.3	3.02	39.7	0.01	0.01	0.02	403
	464	5.65	5.61	34.224	26.988	112.1	0.778	0.43	6.1	83.1	3.15	41.0	0.01	0.01	0.02	468
	500 ISL	5.52	5.48	34.255	27.028	108.6	0.818	0.36	5.1	86.6	3.20	41.4	0.01	0.01	0.02	504
	538	5.39	5.35	34.289	27.071	104.9	0.859	0.29	4.1	90.2	3.25	41.8	0.00	0.01	0.02	543

RV NEW HORIZON				CALCOFI CRUISE 8808								STATION 80 80				
LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD	AMT	TYPE		
33 29.2 N	122 31.4 W	21/08/88	2025 UTC	3997 M	I10	07 KT	230 02 05	2	1009.1 MB	20.0 C	17.0 C	8/8	ST			
CAST	DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	N03	N02	CHL-A	PHAE0	PRESS
	M	DEG C	DEG C	PSS 78	THETA			ML/L	PCT	UM/L	UM/L	UM/L	UM/L	UG/L	UG/L	D.BAR
1	0	17.49	17.49	33.105	23.945	395.3	0.000	5.75	105.0	2.0	0.35	0.1	0.00	0.16	0.04	0
1	10	16.52	16.52	33.159	24.215	369.9	0.038	5.92	106.1	1.9	0.36	0.1	0.01	0.43	0.13	10
	20	16.43	16.43	33.217	24.280	364.0	0.075	5.91	105.7	1.7	0.34	0.1	0.01	0.33	0.12	20
1	21	16.42	16.42	33.216	24.282	363.9	0.079	5.91	105.7	1.7	0.34	0.1	0.01	0.32	0.12	21
	30	16.37	16.37	33.274	24.338	358.8	0.111	5.98	106.9	1.5	0.33	0.1	0.01	0.64	0.15	30
1	31	16.36	16.36	33.281	24.346	358.1	0.115	5.99	107.1	1.5	0.33	0.1	0.01	0.67	0.16	31
1	41	13.76	13.75	32.995	24.689	325.5	0.149	6.40	108.3	2.3	0.38	0.1	0.01	0.53	0.30	41
	50	12.51	12.50	32.924	24.882	307.3	0.177	6.51	107.3	2.6	0.43	0.2	0.02	0.67	0.45	50
1	51	12.41	12.40	32.922	24.900	305.6	0.180	6.52	107.3	2.6	0.44	0.2	0.02	0.69	0.46	51
1	62	11.41	11.40	32.914	25.080	288.6	0.213	6.10	108.2	2.8	0.45	0.2	0.02	0.54	0.46	62
1	71	11.25	11.24	33.175	25.312	266.7	0.238	5.38	86.5	8.1	1.04	10.5	0.05	0.26	0.27	72
	75	11.23	11.22	33.282	25.399	258.6	0.249	5.23	84.1	9.3	1.16	12.6	0.05	0.19	0.22	76
1	86	11.18	11.17	33.519	25.592	240.5	0.276	5.00	80.4	11.4	1.31	15.4	0.03	0.10	0.13	87
	100	10.48	10.47	33.562	25.750	225.7	0.309	4.53	71.8	15.7	1.49	18.3	0.02	0.05	0.07	101
1	102	10.36	10.35	33.560	25.769	223.9	0.313	4.45	70.3	16.4	1.51	18.7	0.02	0.05	0.06	103
	122	9.48	9.47	33.725	26.045	197.9	0.355	3.48	54.0	23.8	1.77	23.4	0.02	0.01	0.04	123
	125	9.39	9.38	33.744	26.075	195.1	0.361	3.41	52.8	24.5	1.79	23.7	0.02	0.01	0.04	126
1	148	8.87	8.85	33.867	26.254	178.5	0.404	3.14	48.1	28.5	1.89	25.2	0.01	0.01	0.02	149
	150	8.83	8.81	33.877	26.268	177.2	0.408	3.12	47.8	28.9	1.90	25.3	0.01	0.01	0.02	151
1	178	8.25	8.23	33.990	26.446	160.6	0.455	2.93	44.3	34.3	2.02	27.3	0.01	0.00	0.02	179
	200	7.88	7.86	34.025	26.529	153.0	0.490	2.77	41.5	37.9	2.11	28.5	0.01			202
1	209	7.76	7.74				0.503									211
	239	7.50	7.48	34.039	26.595	147.2	0.548	2.43	36.1	44.3	2.27	30.7	0.01			241
	250	7.36	7.34	34.042	26.618	145.2	0.564	2.31	34.2	46.6	2.33	31.5	0.01			252
1	280	6.97	6.94	34.055	26.682	139.4	0.607	1.95	28.6	52.8	2.49	33.6	0.01			282
	300	6.83	6.80	34.077	26.719	136.1	0.634	1.70	24.9	56.1	2.59	34.7	0.01			302
1	337	6.60	6.57	34.120	26.784	130.4	0.684	1.27	18.5	61.8	2.75	36.5	0.01			340
1	399	6.00	5.97	34.154	26.889	120.9	0.762	0.80	11.5	72.2	3.00	39.1	0.01			402
	400	5.99	5.96	34.154	26.890	120.8	0.763	0.80	11.5	72.3	3.00	39.1	0.01			403
	464	5.69	5.65	34.187	26.954	115.3	0.838	0.57	8.1	78.9	3.09	40.3	0.01			468
1	500	5.51	5.47	34.216	26.999	111.4	0.879	0.47	6.7	83.0	3.15	41.0	0.01			504
1	536	5.32	5.28	34.245	27.045	107.2	0.919	0.36	5.1	87.1	3.20	41.6	0.01			541

RV NEW HORIZON				CALCOFI CRUISE 8808								STATION 80 90				
LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD	AMT	TYPE		
33 9.2 N	123 13.0 W	22/08/88	0216 UTC	4228 M	320	08 KT	160 05 10	2	1007.8 MB	18.5 C	16.9 C	8/8	SC			
CAST	DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	N03	N02	CHL-A	PHAE0	PRESS
	M	DEG C	DEG C	PSS 78	THETA			ML/L	PCT	UM/L	UM/L	UM/L	UM/L	UG/L	UG/L	D.BAR
1	0	17.96	17.96	33.123	23.846	404.7	0.000	5.58	102.8	2.8	0.34	0.1	0.00	0.09	0.02	0
1	10	18.00	18.00	33.209	23.902	399.7	0.040	5.60	103.3	2.5	0.34	0.1	0.00	0.10	0.03	10
	20	17.97	17.97	33.217	23.916	398.7	0.080	5.59	103.1	2.4	0.34	0.1	0.00	0.11	0.03	20
1	21	17.97	17.97	33.218	23.917	398.7	0.084	5.59	103.1	2.4	0.34	0.1	0.00	0.11	0.03	21
	30	17.30	17.30	33.156	24.031	388.1	0.120	5.67	103.1	1.9	0.34	0.1	0.00	0.14	0.03	30
1	31	17.14	17.13	33.143	24.059	385.5	0.123	5.68	103.0	1.9	0.34	0.1	0.00	0.14	0.03	31
	41	13.87	13.86	32.937	24.622	331.9	0.159	6.36	107.9	2.5	0.37	0.1	0.00	0.22	0.07	41
	50	13.42	13.41	33.103	24.842	311.2	0.188	6.28	105.6	2.4	0.41	0.2	0.01	0.25	0.12	50
1	51	13.37	13.36	33.110	24.857	309.7	0.191	6.27	105.4	2.4	0.42	0.2	0.01	0.25	0.13	51
	61	12.49	12.48	33.171	25.078	288.9	0.221	5.89	97.2	3.2	0.62	3.2	0.20	0.30	0.22	61
1	71	12.14	12.13	33.219	25.182	279.2	0.250	5.72	93.7	3.7	0.73	5.3	0.17	0.30	0.21	72
	75	12.13	12.12	33.280	25.231	274.6	0.261	5.64	92.4	4.4	0.80	6.7	0.14	0.27	0.18	76
	86	12.00	11.99	33.440	25.380	260.8	0.290	5.31	86.9	7.2	1.03	10.8	0.05	0.16	0.09	87
	100	10.93	10.92	33.458	25.590	241.0	0.325	4.52	72.3	11.8	1.29	14.9	0.03	0.12	0.11	101
1	101	10.84	10.83	33.458	25.606	239.5	0.328	4.46	71.2	12.2	1.31	15.2	0.03	0.12	0.11	102
1	122	9.50	9.49	33.646	25.980	204.1	0.374	3.61	56.0	21.7	1.70	21.8	0.01	0.01	0.04	123
	125	9.40	9.39	33.671	26.016	200.7	0.380	3.52	54.5	22.6	1.74	22.4	0.01	0.01	0.04	126
1	147	8.96	8.94	33.829	26.210	182.6	0.423	3.07	47.1	27.9	1.93	25.4	0.01	0.00	0.03	148
	150	8.90	8.88	33.845	26.232	180.6	0.428	3.07	47.0	28.4	1.93	25.6	0.01	0.01	0.03	151
1	178	8.38	8.36	33.956	26.400	165.1	0.476	3.06	46.4	32.9	1.96	26.5	0.00	0.05	0.04	179
	200	7.96	7.94	33.991	26.491	156.7	0.512	3.09	46.4	36.3	2.00	27.2	0.00	0.02	0.03	202
1	209	7.81	7.79	34.000	26.520	154.0	0.526	3.10	46.4	37.9	2.02	27.6	0.01	0.01	0.02	211
1	239	7.50	7.48	34.039	26.595	147.3	0.571	2.34	34.8	45.0	2.31	30.8	0.01			241
	250	7.35	7.33	34.041	26.618	145.2	0.587	2.30	34.1	46.9	2.36	31.5	0.01			252
1	281	6.91	6.88	34.036	26.676	140.0	0.631	2.18	32.0	51.7	2.45	32.9	0.01			283
	300	6.63	6.60	34.029	26.708	137.1	0.658	2.09	30.4	54.9	2.50	33.7	0.01			302
1	337	6.20	6.17	34.035	26.769	131.5	0.707	1.81	26.1	61.3	2.62	35.4	0.01			340
1	398	6.04	6.01	34.151	26.881	121.6	0.784	0.90	12.9	72.1	2.97	38.9	0.01			401
	400	6.04	6.01	34.154	26.884	121.4	0.787	0.88	12.6	72.3	2.98	39.0	0.01			403
	464	5.86	5.82	34.236	26.972	113.8	0.862	0.45	6.4	78.9	3.15	40.2	0.01			468
	500	5.67	5.63	34.263	27.017	109.9	0.902	0.37	5.3	82.9	3.18	40.8	0.01			504
1	532	5.51	5.47	34.287	27.055	106.4	0.937	0.29	4.1	86.5	3.21	41.4	0.01			537

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD	AMT	TYPE		
32 48.8 N	123 53.8 W	22/08/88	0753 UTC	4404 M	240	09 KT			1009.5 MB	19.0 C	15.9 C					
CAST	DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	N03	N02	CHL-A	PHAE0	PRESS
	M	DEG C	DEG C	PSS 78	THETA			ML/L	PCT	UM/L	UM/L	UM/L	UM/L	UG/L	UG/L	D.BAR
1	0 ISL	18.11	18.11	32.954	23.680	420.6	0.000	5.57	102.8	2.8	0.34	0.0	0.00	0.07	0.02	0
1	1	18.11	18.11	32.954	23.680	420.6	0.004	5.57	102.8	2.8	0.34	0.0	0.00	0.07	0.02	1
1	10	18.03	18.03	32.952	23.698	419.2	0.042	5.58	102.8	2.4	0.34	0.0	0.00	0.07	0.02	10
1	20 ISL	17.99	17.99	32.953	23.709	418.5	0.084	5.58	102.7	2.0	0.34	0.0	0.00	0.08	0.02	20
1	22	17.98	17.98	32.953	23.712	418.3	0.092	5.58	102.7	1.9	0.34	0.0	0.00	0.08	0.02	22
1	30 ISL	17.50	17.50	32.964	23.836	406.7	0.125	5.79	105.6	1.8	0.34	0.0	0.00	0.13	0.04	30
1	32	17.33	17.32	32.968	23.880	402.6	0.133	5.85	106.4	1.8	0.34	0.0	0.00	0.14	0.04	32
1	42	16.22	16.21	33.007	24.168	375.4	0.172	5.98	106.4	1.5	0.34	0.0	0.00	0.14	0.05	42
1	50 ISL	15.23	15.22	33.023	24.401	353.3	0.201	6.17	107.6	1.6	0.34	0.0	0.00	0.15	0.07	50
1	52	14.99	14.98	33.027	24.456	348.1	0.208	6.21	107.8	1.6	0.34	0.0	0.00	0.15	0.07	52
1	62	14.05	14.04	33.046	24.669	328.0	0.242	6.27	106.8	1.6	0.34	0.1	0.00	0.21	0.38	62
1	73	13.10	13.09	33.036	24.855	310.5	0.277	6.22	103.9	1.7	0.37	0.1	0.00	0.18	0.13	74
1	75 ISL	12.96	12.95	33.030	24.878	308.4	0.284	6.20	103.2	1.7	0.39	0.2	0.05	0.19	0.14	76
1	87	12.34	12.33	33.026	24.995	297.5	0.320	6.04	99.3	2.1	0.51	1.3	0.29	0.26	0.19	88
1	100 ISL	12.25	12.24	33.149	25.108	287.1	0.358	5.75	94.4	2.7	0.54	2.5	0.14	0.18	0.19	101
1	102	12.24	12.23	33.171	25.126	285.3	0.364	5.70	93.6	2.8	0.54	2.8	0.10	0.16	0.19	103
1	123	11.23	11.21	33.286	25.403	259.3	0.421	5.30	85.2	6.0	0.79	7.6	0.02	0.07	0.12	124
1	125 ISL	11.12	11.10	33.298	25.432	256.6	0.426	5.25	84.2	6.5	0.82	8.1	0.02	0.06	0.11	126
1	149	9.84	9.82	33.478	25.794	222.4	0.483	4.71	73.5	12.9	1.20	14.4	0.01	0.02	0.04	150
1	150 ISL	9.80	9.78	33.488	25.808	221.1	0.486	4.69	73.2	13.2	1.21	14.6	0.01	0.02	0.04	151
1	180	8.86	8.84	33.797	26.202	184.1	0.546	4.17	63.8	22.1	1.54	20.4	0.01	0.01	0.01	181
1	200 ISL	8.40	8.38	33.942	26.386	166.8	0.581	4.01	60.8	26.0	1.66	22.3	0.01	0.00	0.01	202
1	211	8.21	8.19	33.993	26.455	160.4	0.599	3.95	59.6	27.9	1.71	23.0	0.01	0.00	0.01	213
1	241	7.87	7.85	33.994	26.507	155.9	0.647	3.65	54.7	34.3	1.84	25.2	0.01			243
1	250 ISL	7.75	7.73	33.997	26.527	154.1	0.661	3.52	52.6	36.2	1.89	26.0	0.01			252
1	282	7.32	7.29	34.008	26.597	147.7	0.709	3.01	44.5	42.9	2.10	28.7	0.01			284
1	300 ISL	7.11	7.08	34.010	26.628	144.9	0.735	2.77	40.8	46.4	2.21	30.1	0.01			302
1	339	6.70	6.67	34.022	26.693	139.1	0.791	2.24	32.7	53.6	2.44	32.8	0.01			342
1	399	6.20	6.16	34.089	26.812	128.3	0.871	1.30	18.7	64.9	2.79	36.8	0.01			402
1	400 ISL	6.19	6.15	34.089	26.813	128.2	0.872	1.29	18.6	65.1	2.79	36.9	0.01			403
1	467	5.48	5.44	34.095	26.906	119.6	0.955	0.98	13.9	77.5	2.96	39.7	0.01			471
1	500 ISL	5.33	5.29	34.129	26.951	115.6	0.994	0.77	10.9	82.3	3.05	40.6	0.01			504
1	536	5.17	5.13	34.166	27.000	111.3	1.035	0.55	7.7	87.5	3.15	41.6	0.01			541

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD	AMT	TYPE		
34 17.1 N	120 2.4 W	20/08/88	2221 UTC	575 M	260	03 KT	260 01 07	1	1007.0 MB	18.5 C	15.7 C		1/8	CU		
CAST	DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	N03	N02	CHL-A	PHAE0	PRESS
	M	DEG C	DEG C	PSS 78	THETA			ML/L	PCT	UM/L	UM/L	UM/L	UM/L	UG/L	UG/L	D.BAR
1	0 A	16.62	16.62	33.679	24.590	333.8	0.000	6.67	120.1	7.0	0.37	0.0	0.01	0.49	0.17	0
1	10	13.81	13.81	33.662	25.194	276.6	0.031	7.59	129.2	10.5	0.48	0.0	0.02	9.41	0.31	10
1	20 ISL	12.17	12.17	33.688	25.539	244.0	0.057	5.20	85.5	14.3	1.11	10.1	0.50	4.93	0.54	20
1	25	11.67	11.67	33.703	25.645	234.1	0.069	3.76	61.2	16.1	1.44	15.8	0.69	1.14	0.61	25
1	30 ISL	11.35	11.35	33.724	25.720	227.0	0.080	3.58	57.9	17.6	1.56	18.1	0.52	0.87	0.52	30
1	40	10.96	10.96	33.763	25.821	217.7	0.102	3.23	51.8	20.1	1.66	20.3	0.06	0.32	0.28	40
1	50 ISL	10.58	10.57	33.799	25.916	208.8	0.124	3.01	47.9	22.3	1.76	21.9	0.03	0.15	0.23	50
1	55	10.41	10.40	33.820	25.962	204.5	0.134	2.91	46.1	23.4	1.81	22.5	0.01	0.13	0.22	55
1	71	9.83	9.82	33.927	26.144	187.5	0.165	2.55	39.9	28.2	1.95	25.1	0.01	0.05	0.10	72
1	75 ISL	9.73	9.72	33.952	26.181	184.1	0.173	2.46	38.4	29.2	2.00	25.6	0.01	0.04	0.10	76
1	85	9.55	9.54	34.004	26.251	177.6	0.191	2.28	35.5	31.4	2.10	26.6	0.01	0.03	0.09	86
1	100	9.36	9.35	34.049	26.318	171.6	0.217	2.12	32.9	33.9	2.15	27.5	0.01	0.04	0.10	101
1	119	9.22	9.21	34.087	26.370	167.0	0.249	1.97	30.5	36.1	2.28	28.2	0.01	0.03	0.11	120
1	125 ISL	9.15	9.14	34.101	26.393	164.9	0.259	1.90	29.3	36.9	2.31	28.5	0.01	0.03	0.11	126
1	140	8.99	8.97	34.132	26.443	160.5	0.284	1.73	26.6	39.0	2.36	29.4	0.01	0.02	0.09	141
1	150 ISL	8.92	8.90	34.142	26.462	158.9	0.299	1.65	25.3	40.0	2.38	29.9	0.01	0.02	0.09	151
1	170	8.79	8.77	34.152	26.490	156.5	0.331	1.52	23.3	41.7	2.43	30.7	0.01	0.02	0.08	171
1	200	8.53	8.51	34.161	26.538	152.5	0.377	1.35	20.6	45.0	2.55	31.7	0.01	0.02	0.09	202
1	239	8.17	8.15	34.174	26.604	146.8	0.436	1.12	16.9	50.5	2.67	33.0	0.00	0.02	0.09	241
1	250 ISL	8.08	8.05	34.176	26.619	145.6	0.452	1.07	16.1	52.0	2.71	33.3	0.00	0.02	0.09	252
1	290	7.78	7.75	34.181	26.667	141.5	0.509	0.91	13.6	56.8	2.85	34.0	0.01	0.01	0.10	292
1	300 ISL	7.73	7.70	34.182	26.676	140.9	0.523	0.89	13.3	57.4	2.86	34.2	0.01			302
1	339	7.52	7.49	34.189	26.712	138.0	0.578	0.81	12.1	60.3	2.88	34.9	0.01			342
1	388	7.06	7.02	34.213	26.796	130.5	0.644	0.54	7.9	69.2	3.07	35.1	0.00			391
1	400 ISL	6.96	6.92	34.217	26.813	129.0	0.659	0.48	7.1	71.5	3.11	35.0	0.00			403
1	428	6.75	6.71	34.226	26.849	125.9	0.695	0.35	5.1	77.4	3.21	34.8	0.01			432
1	466	6.49	6.45	34.242	26.896	121.7	0.742	0.17	2.5	87.3	3.37	32.9	0.01			470
1	496	6.37	6.33	34.248	26.917	120.1	0.778	0.08	1.2	93.0	3.56	31.9	0.00			500
1	500 ISL	6.36	6.31	34.249	26.919	119.9	0.783	0.08	1.2	93.2	3.56	31.9	0.00			504
1	517	6.34	6.29	34.251	26.											

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD	AMT	TYPE		
34 10.8 N	119 30.6 W	20/08/88	1527 UTC	138 M	360	04 KT	270 01 04	2	1007.4 MB	16.0 C	15.1 C	8/8	SC			
CAST	DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	PO4	NO3	NO2	CHL-A	PHAE0	PRESS
	M	DEG C	DEG C	PSS 78	THETA			ML/L	PCT	UM/L	UM/L	UM/L	UM/L	UG/L	UG/L	D.BAR
1	0	16.74	16.74	33.696	24.575	335.2	0.000	6.92	124.9	1.3	0.16	0.1	0.01	1.67	0.65	0
1	10	16.36	16.36	33.696	24.664	327.1	0.033	6.97	124.9	1.0	0.14	0.1	0.01	2.01	0.75	10
	20	ISL 14.12	14.12	33.640	25.113	284.6	0.064	5.35	91.6	6.0	0.62	3.0	0.12	2.95	1.15	20
1	21	13.89	13.89	33.637	25.158	280.3	0.067	5.18	88.3	6.6	0.68	3.4	0.13	2.99	1.18	21
	30	ISL 13.43	13.43	33.642	25.256	271.2	0.091	4.80	81.0	8.4	0.90	6.4	0.22	1.34	0.88	30
1	31	13.41	13.41	33.643	25.261	270.8	0.094	4.78	80.7	8.6	0.92	6.8	0.23	1.13	0.83	31
1	42	12.43	12.42	33.666	25.473	250.9	0.123	4.23	69.9	12.2	1.20	12.6	0.33	1.11	0.66	42
	50	ISL 11.21	11.20	33.725	25.747	225.0	0.142	3.57	57.5	17.3	1.53	17.9	0.21	0.68	0.55	50
1	52	10.93	10.92	33.740	25.808	219.1	0.146	3.42	54.8	18.5	1.60	19.1	0.17	0.56	0.52	52
1	62	10.50	10.49	33.747	25.890	211.6	0.168	3.24	51.4	19.8	1.68	20.8	0.05	0.28	0.34	62
1	73	10.22	* 10.21	33.768	25.954	205.6	0.191	3.24	51.1	21.0	1.71	21.7	0.04	0.15	0.26	74
	75	ISL 10.16	10.15	33.778	25.973	203.9	0.195	3.21	50.6	21.4	1.73	21.9	0.04	0.14	0.24	76
1	87	9.85	9.84	33.854	26.084	193.5	0.219	2.98	46.7	24.2	1.84	23.5	0.02	0.09	0.17	88
	100	ISL 9.68	9.67	33.933	26.175	185.3	0.243	2.67	41.7	27.3	1.97	24.9	0.03	0.11	0.19	101
1	103	9.65	9.64	33.949	26.192	183.6	0.249	2.61	40.7	28.0	2.00	25.2	0.03	0.11	0.20	104
	125	ISL 9.44	9.43	34.013	26.277	176.0	0.288	2.45	38.0	30.8	2.09	26.2	0.03	0.12	0.15	126
1	129	9.40	9.39	34.025	26.293	174.6	0.295	2.42	37.6	31.3	2.11	26.4	0.03	0.12	0.14	130

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD	AMT	TYPE		
33 52.7 N	120 8.3 W	20/08/88	1011 UTC	103 M	330	05 KT			1007.2 MB	15.1 C	13.5 C					
CAST	DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	PO4	NO3	NO2	CHL-A	PHAE0	PRESS
	M	DEG C	DEG C	PSS 78	THETA			ML/L	PCT	UM/L	UM/L	UM/L	UM/L	UG/L	UG/L	D.BAR
1	0	14.93	14.93	33.689	24.977	2 96.9	0.000	5.74	100.0	4.9	0.52	3.2	0.11	3.82	1.01	0
1	10	14.81	14.81	33.675	24.993	295.8	0.030	5.64	98.0	4.9	0.55	3.5	0.13	4.37	1.23	10
	20	ISL 13.67	13.67	33.640	25.206	275.8	0.058	5.12	86.9	7.5	0.81	7.1	0.24	3.11	1.11	20
1	26	12.82	12.82	33.628	25.367	260.5	0.074	4.74	79.0	9.7	1.00	9.9	0.30	2.07	0.95	26
	30	ISL 12.39	12.39	33.627	25.450	252.7	0.085	4.54	75.0	10.9	1.10	11.5	0.30	1.61	0.84	30
1	36	11.83	11.83	33.634	25.561	242.2	0.099	4.26	69.5	12.8	1.23	13.7	0.29	1.04	0.66	36
1	47	11.14	11.13	33.673	25.719	227.5	0.125	3.81	61.3	16.0	1.45	17.1	0.24	0.40	0.33	47
	50	ISL 10.93	10.92	33.710	25.785	221.3	0.132	3.61	57.8	18.0	1.54	18.3	0.22	0.33	0.36	50
1	56	10.50	10.49	33.797	25.929	207.7	0.145	3.21 A	51.0	22.5	1.72	20.7	0.17	0.24	0.43	56
1	66	9.76	9.75	33.918	26.149	187.0	0.165	2.85 A	42.1	28.1	1.95	24.5	0.10	0.09	0.25	67
	75	ISL 9.58	9.57	33.959	26.211	181.2	0.181	2.53	39.4	30.3	2.03	25.5	0.10	0.07	0.26	76
1	76	9.57	9.56	33.962	26.215	180.9	0.183	2.52 A	39.2	30.5	2.03	25.5	0.10	0.07	0.26	77
1	86	9.34	9.33	34.018	26.296	173.3	0.201	2.31 A	35.8	33.0	2.11	26.7	0.07	0.08	0.21	87
1	97	9.22	9.21	34.051	26.342	169.2	0.220	2.16 A	33.4	35.0	2.21	27.4	0.06	0.04	0.18	98

A) THE OXYGEN SAMPLES FROM 56 TO 97 METERS APPEAR TO HAVE BEEN ANALYZED IN REVERSE ORDER. THEY ARE ASSUMED TO NOW BE IN THE CORRECT ORDER.

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD	AMT	TYPE		
33 44.6 N	120 25.0 W	20/08/88	0557 UTC	1018 M	300	11 KT			1007.5 MB	16.4 C	14.8 C					
CAST	DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	PO4	NO3	NO2	CHL-A	PHAE0	PRESS
	M	DEG C	DEG C	PSS 78	THETA			ML/L	PCT	UM/L	UM/L	UM/L	UM/L	UG/L	UG/L	D.BAR
	0	ISL 15.56	15.56	33.652	24.810	312.8	0.000	6.96	122.7	0.9	0.23	0.1	0.01	6.63	1.90	0
1	1	15.56	15.56	33.652	24.810	312.8	0.003	6.96	122.7	0.9	0.23	0.1	0.01	6.63	1.90	1
	10	ISL 15.54	15.54	33.650	24.814	312.8	0.031	6.94	122.3	0.7	0.25	0.1	0.01	6.72	1.92	10
1	11	15.54	15.54	33.650	24.814	312.8	0.034	6.94	122.3	0.7	0.25	0.1	0.01	6.73	1.92	11
	20	ISL 15.20	15.20	33.654	24.892	305.7	0.062	6.47	113.3	1.1	0.29	0.2	0.03	7.18	2.09	20
1	21	15.14	15.14	33.655	24.906	304.4	0.065	6.40	111.9	1.1	0.29	0.2	0.03	7.20	2.11	21
	30	ISL 14.52	14.52	33.673	25.054	290.5	0.092	5.77	99.6	3.2	0.52	2.6	0.10	6.32	1.43	30
1	31	14.42	14.42	33.675	25.077	288.4	0.095	5.69	98.1	3.6	0.56	3.1	0.11	6.12	1.34	31
1	41	12.85	12.84	33.668	25.392	258.5	0.122	4.70	78.4	9.4	1.02	10.4	0.22	2.62	0.83	41
	50	ISL 11.19	11.18	33.718	25.745	225.1	0.144	3.71	59.8	15.5	1.45	17.2	0.25	0.66	0.54	50
1	51	11.03	11.02	33.726	25.780	221.8	0.146	3.61	58.0	16.2	1.49	17.9	0.25	0.52	0.52	51
1	61	10.28	10.27	33.808	25.975	203.4	0.168	3.13	49.5	22.3	1.76	22.0	0.05	0.20	0.31	61
1	71	9.92	9.91	33.871	26.086	193.1	0.187	2.93	46.0	24.9	1.86	23.4	0.03	0.25	0.20	72
	75	ISL 9.82	9.81	33.893	26.120	189.9	0.195	2.85	44.6	25.9	1.89	23.9	0.03	0.30	0.24	76
1	85	9.64	9.63	33.937	26.184	184.0	0.214	2.68	41.8	27.9	1.95	24.8	0.03	0.37	0.34	86
1	100	9.51	9.50	33.963	26.226	180.3	0.241	2.57	40.0	29.8	2.02	25.5	0.02	0.09	0.17	101
1	120	9.04	9.03	34.046	26.367	167.2	0.276	2.45	37.7	34.2	2.15	27.2	0.02	0.04	0.09	121
	125	ISL 9.03	9.02	34.063	26.382	165.9	0.284	2.39	36.8	34.7	2.17	27.4	0.02	0.04	0.10	126
1	144	9.01	8.99	34.095	26.411	163.6	0.315	2.13	32.8	36.1	2.24	27.9	0.02	0.06	0.17	145
	150	ISL 8.98	8.96	34.110	26.427	162.2	0.325	2.05	31.5	36.8	2.26	28.2	0.02	0.05	0.15	151
1	174	8.85	8.83	34.160	26.487	156.9	0.364	1.79	27.5	39.6	2.35	29.3	0.02	0.02	0.07	175
	200	ISL 8.82	8.80	34.177	26.506	155.7	0.404	1.71	26.2	40.5	2.40	29.6	0.02	0.02	0.07	202
1	205	8.81	8.79	34.178	26.508	155.5	0.412	1.70	26.1	40.6	2.41	29.7	0.02	0.02	0.07	207
1	234	8.54	8.52	34.200	26.568	150.3	0.456	1.48	22.5	43.6	2.50	30.7	0.01			236
	250	ISL 8.42	8.39	34.204	26.590	148.5	0.480	1.42	21.6	44.8	2.53	31.2	0.01			252
1	274	8.26	8.23	34.206	26.616	146.4	0.516	1.36	20.6	46.5	2.58	31.8	0.01			276
	300	ISL 8.09	8.06</													

LATITUDE		LONGITUDE		DAY/MO/YR	MESSENGER		BOTTOM	WIND	SPEED	WAVES			WEATHER	BAROMETER		DRY	WET	CLOUD		AMT	TYPE					
33	34.7	N	120	45.5	W	20/08/88	0205	UTC	1551	M	310	16	KT	3	20	05	07	1	1007.2	MB	18.0	C	15.1	C	7/8	SC
CAST	DEPTH	TEMP	POT	TEMP	SALINITY	SIGMA	SVA	DYN	HT	OXYGEN	OXY	SI03	PO4	N03	N02	CHL-A	PHAE0	PRESS								
	M	DEG C	DEG C	PSS	78	THETA				ML/L	PCT	UM/L	UM/L	UM/L	UM/L	UG/L	UG/L	D.BAR								
1	0	15.41	15.41	33.323	24.590	333.8	0.000	6.14	107.7	2.2	0.37	0.4	0.04	1.14	0.24	0										
1	10	15.04	15.04	33.356	24.697	323.9	0.033	6.14	106.9	2.0	0.39	0.7	0.06	1.28	0.33	10										
1	20	15.04	15.04	33.580	24.870	307.7	0.064	5.92	103.3	2.8	0.45	1.5	0.08	1.87	1.66	20										
1	21	15.04	15.04	33.605	24.889	305.9	0.068	5.89	102.7	2.9	0.46	1.6	0.08	1.93	1.78	21										
1	30	13.87	13.87	33.499	25.056	290.3	0.094	5.77	98.2	3.7	0.63	4.0	0.19	2.12	1.49	30										
1	31	13.69	13.69	33.480	25.078	288.2	0.097	5.74	97.3	3.8	0.66	4.4	0.20	2.14	1.46	31										
1	41	11.70	11.69	33.396	25.401	257.6	0.125	5.05	82.1	8.3	1.07	11.4	0.16	0.45	0.46	41										
1	50	11.78	11.77	33.523	25.485	249.9	0.147	4.68	76.3	10.6	1.20	13.1	0.23	0.43	0.36	50										
1	51	11.79	11.78	33.535	25.492	249.2	0.150	4.63	75.5	10.9	1.21	13.2	0.24	0.43	0.35	51										
1	62	11.12	11.11	33.732	25.768	223.2	0.176	3.61	58.1	17.5	1.49	18.0	0.26	0.28	0.32	62										
1	72	10.41	10.40	33.813	25.957	205.4	0.197	3.07	48.6	22.2	1.72	21.9	0.09	0.22	0.29	73										
1	75	10.26	10.25	33.832	25.998	201.6	0.203	2.98	47.1	23.2	1.77	22.6	0.08	0.20	0.26	76										
1	86	9.84	9.83	33.895	26.118	190.3	0.225	2.77	43.4	26.5	1.89	24.3	0.03	0.14	0.17	87										
1	100	9.41	9.40	33.977	26.253	177.7	0.251	2.52	39.1	30.7	2.03	26.2	0.02	0.10	0.16	101										
1	101	9.39	9.38	33.982	26.260	177.0	0.252	2.51	38.9	31.0	2.04	26.3	0.02	0.10	0.16	102										
1	122	9.24	9.23	34.023	26.317	172.1	0.289	2.37	36.6	32.6	2.10	27.0	0.02	0.05	0.14	123										
1	125	9.21	9.20	34.035	26.332	170.8	0.294	2.33	36.0	33.1	2.12	27.2	0.02	0.05	0.14	126										
1	147	8.97	8.95	34.118	26.435	161.3	0.331	2.00	30.8	36.8	2.27	28.8	0.01	0.03	0.11	148										
1	150	8.95	8.93	34.124	26.443	160.7	0.336	1.97	30.3	37.1	2.29	28.9	0.01	0.03	0.11	151										
1	178	8.81	8.79	34.156	26.490	156.7	0.380	1.78	27.3	39.7	2.39	29.6	0.01	0.03	0.09	179										
1	200	8.65	8.63	34.168	26.525	153.7	0.414	1.67	25.5	41.6	2.43	30.3	0.01	0.03	0.09	202										
1	209	8.59	8.57	34.172	26.538	152.7	0.428	1.63	24.9	42.4	2.44	30.6	0.01	0.03	0.09	211										
1	239	8.49	8.46	34.204	26.579	149.4	0.473	1.43	21.8	44.6	2.52	31.2	0.01	0.03	0.09	241										
1	250	8.40	8.37	34.218	26.604	147.2	0.490	1.38	21.0	45.6	2.55	31.5	0.01	0.03	0.09	252										
1	280	8.09	8.06	34.247	26.674	140.9	0.533	1.24	18.7	48.5	2.61	32.6	0.01	0.03	0.09	282										
1	300	7.91	7.88	34.244	26.698	138.9	0.561	1.14	17.1	50.7	2.65	33.3	0.01	0.03	0.09	302										
1	337	7.58	7.55	34.231	26.736	135.7	0.612	0.94	14.0	55.1	2.74	34.6	0.01	0.03	0.09	340										
1	397	7.02	6.98	34.259	26.838	126.7	0.690	0.66	9.7	62.8	2.89	36.6	0.01	0.03	0.09	400										
1	400	7.00	6.96	34.260	26.841	126.3	0.694	0.65	9.6	63.1	2.90	36.7	0.01	0.03	0.09	403										
1	464	6.53	6.49	34.269	26.912	120.2	0.773	0.52	7.6	69.1	3.00	38.3	0.01	0.03	0.09	468										
1	500	6.32	6.27	34.288	26.955	116.5	0.816	0.44	6.4	73.4	3.05	38.9	0.01	0.03	0.09	504										
1	537	6.11	6.06	34.309	26.999	112.6	0.858	0.35	5.0	77.9	3.10	39.5	0.01	0.03	0.09	542										

LATITUDE		LONGITUDE		DAY/MO/YR	MESSENGER		BOTTOM	WIND	SPEED	WAVES			WEATHER	BAROMETER		DRY	WET	CLOUD		AMT	TYPE					
33	15.0	N	121	26.4	W	19/08/88	1959	UTC	3799	M	310	15	KT	3	20	05	07	2	1010.7	MB	18.4	C	15.8	C	8/8	ST
CAST	DEPTH	TEMP	POT	TEMP	SALINITY	SIGMA	SVA	DYN	HT	OXYGEN	OXY	SI03	PO4	N03	N02	CHL-A	PHAE0	PRESS								
	M	DEG C	DEG C	PSS	78	THETA				ML/L	PCT	UM/L	UM/L	UM/L	UM/L	UG/L	UG/L	D.BAR								
1	0	17.57	17.57	33.181	23.984	391.5	0.000	5.62	102.8	2.4	0.35	0.0	0.00	0.11	0.03	0										
1	1	17.57	17.57	33.181	23.984	391.6	0.004	5.62	102.8	2.4	0.35	0.0	0.00	0.11	0.03	1										
1	10	17.56	17.56	33.179	23.986	391.7	0.039	5.66	103.5	2.2	0.35	0.0	0.00	0.11	0.03	10										
1	11	17.56	17.56	33.179	23.986	391.8	0.043	5.67	103.7	2.2	0.35	0.0	0.00	0.11	0.03	11										
1	20	17.57	17.57	33.186	23.989	391.8	0.078	5.65	103.3	2.1	0.34	0.0	0.01	0.10	0.02	20										
1	22	17.57	17.57	33.188	23.991	391.7	0.086	5.65	103.3	2.1	0.34	0.0	0.01	0.10	0.02	22										
1	30	17.39	17.39	33.187	24.033	387.9	0.117	5.68	103.5	2.0	0.34	0.0	0.01	0.11	0.03	30										
1	32	17.35	17.34	33.187	24.043	387.0	0.125	5.69	103.6	2.0	0.34	0.0	0.01	0.11	0.03	32										
1	42	15.03	15.02	33.132	24.528	341.0	0.162	6.25	108.7	1.9	0.36	0.0	0.00	0.20	0.09	42										
1	50	13.69	13.68	33.076	24.766	318.4	0.188	6.24	105.5	2.3	0.40	0.2	0.03	0.31	0.14	50										
1	53	13.33	13.32	33.069	24.834	312.0	0.197	6.23	104.6	2.5	0.41	0.3	0.04	0.35	0.16	53										
1	63	12.81	12.80	33.201	25.039	292.7	0.228	5.82	96.7	3.1	0.62	3.6	0.34	0.41	0.27	63										
1	74	12.06	12.05	33.27	25.237	274.1	0.259	5.43	88.9	5.4	0.85	7.7	0.03	0.20	0.19	75										
1	75	12.02	12.01	33.281	25.253	272.6	0.261	5.39	88.1	5.6	0.87	8.1	0.03	0.19	0.18	76										
1	88	11.61	11.60	33.426	25.442	254.9	0.296	4.84	78.5	9.3	1.12	12.4	0.03	0.07	0.12	89										
1	100	10.98	10.97	33.534	25.640	236.2	0.325	4.36	69.8	13.7	1.34	16.2	0.02	0.03	0.07	101										
1	104	10.77	10.76	33.564	25.701	230.5	0.335	4.22	67.3	15.1	1.41	17.3	0.02	0.03	0.06	105										
1	124	10.18	10.17	33.656	25.875	214.3	0.379	3.73	58.7	19.6	1.59	20.4	0.02	0.01	0.04	125										
1	125	10.15	10.14	33.662	25.885	213.4	0.381	3.70	58.2	19.9	1.60	20.6	0.02	0.01	0.04	126										
1	150	9.35	9.33	33.821	26.142	189.3	0.432	3.09	47.8	26.4	1.84	24.5	0.01	0.00	0.03	151										
1	181	8.60	8.58	33.975	26.381	167.0	0.487	2.80	42.7	33.6	2.02	27.2	0.01	0.00	0.03	182										
1	200	8.31	8.29	34.026	26.466	159.2	0.518	2.57	38.9	37.6	2.12	28.7	0.01	0.00	0.04	202										
1	212	8.16	8.14	34.046	26.504	155.7	0.537	2.42	36.5	40.0	2.19	29.5	0.01	0.00	0.04	214										
1	242	7.84	7.82	34.083	26.581	148.9	0.582	2.03	30.4	45.4	2.37	31.3	0.01	0.01	0.04	244										
1	250	7.73	7.71	34.088	26.601	147.1	0.594	1.95	29.1	47.0	2.41	31.8	0.01	0.01	0.04	252										
1	283	7.31	7.28	34.107	26.676	140.2	0.642	1.67	24.7	53.2	2.55	33.9	0.00	0.00	0.04	285										
1	300	7.18	7.15	34.123	26.707	137.5	0.665	1.49	22.0	55.8	2.63	34.8	0.00	0.00	0.04	302										
1	340	6.91	6.88	34.160	26.774	131.6	0.719	1.08	15.8	61.6	2.79	36.5	0.00	0.00	0.04	343										
1	400	6.37	6.33	34.195	26.874	122.7	0.795	0.71	10.3	71.0	2.98	38.9	0.00	0.00	0.04	403										
1	401	6																								

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD	AMT	TYPE		
32 54.8 N	122 7.8 W	19/08/88	1308 UTC	4175 M	330	21 KT			1012.0 MB	10.9 C	15.2 C					
CAST	DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	N03	N02	CHL-A	PHAE0	PRESS
	M	DEG C	DEG C	PSS 78	THETA			ML/L	PCT	UM/L	UM/L	UM/L	UM/L	UG/L	UG/L	D.BAR
1	0 ISL	17.83	17.83	33.230	23.959	393.9	0.000	5.62	103.3	3.3	0.35	0.1	0.00	0.09	0.02	0
	2	17.83	17.83	33.230	23.959	394.0	0.008	5.62	103.3	3.3	0.35	0.1	0.00	0.09	0.02	2
1	10 ISL	17.82	17.82	33.230	23.962	394.0	0.039	5.59	102.8	3.3	0.34	0.1	0.00	0.09	0.02	10
1	12	17.82	17.82	33.230	23.962	394.1	0.047	5.58	102.6	3.3	0.34	0.1	0.00	0.09	0.02	12
	20 ISL	17.83	17.83	33.229	23.959	394.6	0.079	5.62	103.3	3.5	0.34	0.1	0.00	0.10	0.02	20
1	23	17.84	17.84	33.229	23.957	394.9	0.091	5.64	103.7	3.5	0.34	0.1	0.00	0.10	0.02	23
	30 ISL	17.85	17.84	33.229	23.955	395.4	0.118	5.60	103.0	3.3	0.34	0.1	0.00	0.09	0.02	30
1	34	17.85	17.84	33.229	23.955	395.5	0.134	5.58	102.6	3.2	0.34	0.1	0.00	0.09	0.02	34
1	43	17.77	17.76	33.228	23.974	394.0	0.170	5.59	102.7	3.0	0.34	0.1	0.00	0.10	0.02	43
	50 ISL	16.08	16.07	33.158	24.316	361.5	0.196	5.98	106.2	3.2	0.37	0.1	0.00	0.15	0.05	50
1	54	15.00	14.99	33.138	24.539	340.3	0.210	6.19	107.6	3.3	0.39	0.1	0.00	0.19	0.07	54
1	64	13.95	13.94	33.190	24.801	315.5	0.243	6.12	104.1	3.6	0.45	0.9	0.10	0.30	0.15	64
1	74	12.61	12.60	33.194	25.073	289.8	0.273	5.81	96.1	5.1	0.65	3.9	0.28	0.34	0.27	74
	75 ISL	12.54	12.53	33.203	25.093	287.8	0.276	5.77	95.3	5.3	0.67	4.3	0.27	0.33	0.27	75
1	89	12.02	12.01	33.350	25.307	267.8	0.315	5.25	85.9	8.0	0.96	9.6	0.07	0.15	0.15	89
	100 ISL	11.58	11.57	33.425	25.447	254.7	0.344	4.90	79.4	11.0	1.13	12.5	0.02	0.07	0.09	100
1	104	11.41	11.40	33.449	25.497	250.0	0.354	4.77	77.1	12.2	1.19	13.5	0.02	0.05	0.07	104
1	125	10.32	10.31	33.614	25.818	219.7	0.403	3.92	61.9	20.0	1.53	19.4	0.01	0.02	0.05	125
1	150	9.61	9.59	33.728	26.027	200.3	0.456	3.36	52.3	25.1	1.75	22.8	0.01	0.01	0.03	150
1	181	8.92	8.90	33.922	26.290	175.7	0.514	2.81	43.1	33.3	1.97	26.4	0.01	0.00	0.03	181
	200 ISL	8.56	8.54	33.977	26.389	166.6	0.546	2.63	40.0	36.8	2.07	28.0	0.01	0.00	0.03	200
1	212	8.35	8.33	33.997	26.437	162.2	0.566	2.55	38.6	38.7	2.12	28.8	0.01	0.00	0.03	212
1	242	7.92	7.90	34.039	26.535	153.3	0.613	2.38	35.7	43.9	2.23	30.1	0.00	0.00	0.03	242
	250 ISL	7.80	7.78	34.043	26.556	151.4	0.626	2.35	35.2	45.3	2.25	30.5	0.00	0.00	0.03	250
1	283	7.31	7.28	34.051	26.632	144.4	0.674	2.21	32.7	50.9	2.36	32.0	0.01	0.00	0.03	283
	300 ISL	7.08	7.05	34.057	26.669	141.0	0.699	2.04	30.0	54.1	2.44	33.1	0.01	0.00	0.03	300
1	340	6.59	6.56				0.754									340
	400 ISL	6.08	6.05	34.121	26.853	124.4	0.831	0.97	13.9	72.7	2.92	38.8	0.00	0.00	0.03	400
1	401	6.07	6.03	34.122	26.855	124.2	0.832	0.96	13.8	72.9	2.92	38.9	0.00	0.00	0.03	401
1	467	5.68	5.64	34.188	26.956	115.2	0.911	0.55	7.8	82.9	3.10	40.9	0.00	0.00	0.03	467
	500 ISL	5.54	5.50	34.217	26.996	111.6	0.949	0.45	6.4	87.1	3.16	41.5	0.00	0.00	0.03	500
1	539	5.37	5.33	34.252	27.044	107.4	0.991	0.34	4.8	92.0	3.22	42.1	0.00	0.00	0.03	539

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD	AMT	TYPE		
32 34.8 N	122 49.1 W	19/08/88	0432 UTC	4289 M	340	24 KT			1011.9 MB	17.5 C	16.0 C					
CAST	DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	N03	N02	CHL-A	PHAE0	PRESS
	M	DEG C	DEG C	PSS 78	THETA			ML/L	PCT	UM/L	UM/L	UM/L	UM/L	UG/L	UG/L	D.BAR
1	0 ISL	17.62	17.62	33.085	23.899	399.7	0.000	5.70	104.3	3.9	0.35	0.0	0.00	0.10	0.02	0
	1	17.62	17.62	33.085	23.899	399.7	0.004	5.70	104.3	3.9	0.35	0.0	0.00	0.10	0.02	1
1	10 ISL	17.61	17.61	33.083	23.900	399.9	0.040	5.69	104.1	3.8	0.35	0.0	0.00	0.10	0.02	10
1	11	17.61	17.61	33.083	23.900	399.9	0.044	5.69	104.1	3.8	0.35	0.0	0.00	0.10	0.02	11
	20 ISL	17.47	17.47	33.113	23.957	394.8	0.080	5.79	105.6	3.5	0.35	0.0	0.00	0.18	0.03	20
1	22	17.44	17.44	33.120	23.970	393.7	0.088	5.81	106.0	3.5	0.35	0.0	0.00	0.20	0.04	22
	30 ISL	15.73	15.73	33.002	24.274	364.9	0.118	6.22	109.6	3.6	0.36	0.0	0.00	0.26	0.08	30
1	32	15.26	15.26	32.98	24.360	356.7	0.125	6.33	110.5	3.6	0.36	0.0	0.00	0.28	0.10	32
1	42	14.24	14.23	33.067	24.646	329.7	0.160	6.56	112.2	3.7	0.38	0.0	0.01	0.50	0.27	42
	50 ISL	13.51	13.50	33.099	24.821	313.2	0.185	6.41	108.0	3.8	0.45	0.6	0.06	0.93	0.47	50
1	52	13.34	13.33	33.104	24.859	309.6	0.191	6.34	106.5	3.8	0.47	0.9	0.07	1.01	0.51	52
1	63	12.38	12.37	33.118	25.058	290.9	0.224	5.85	96.3	4.7	0.60	2.9	0.60	0.52	0.53	63
1	73	12.09	12.08	33.117	25.112	285.9	0.253	5.76	94.2	5.1	0.66	4.2	0.16	0.40	0.33	73
	75 ISL	12.00	11.99	33.125	25.135	283.7	0.259	5.71	93.2	5.4	0.67	4.6	0.14	0.36	0.30	75
1	87	11.43	11.42	33.203	25.302	268.2	0.292	5.40	87.1	7.5	0.83	7.6	0.03	0.14	0.14	87
	100 ISL	11.12	11.11	33.315	25.445	254.8	0.326	5.18	83.1	10.3	1.19	11.9	0.02	0.06	0.07	100
1	103	11.04	11.03	33.345	25.483	251.3	0.334	5.10	81.7	11.2	1.28	13.0	0.02	0.06	0.06	103
1	123	9.82	9.81	33.596	25.889	212.9	0.380	3.76	58.7	20.9	1.59	20.5	0.02	0.02	0.04	123
	125 ISL	9.74	9.73	33.615	25.917	210.2	0.384	3.68	57.4	21.5	1.61	21.0	0.02	0.02	0.04	125
1	149	9.08	9.06	33.781	26.154	188.0	0.432	3.24	49.8	27.0	1.81	24.2	0.02	0.00	0.03	149
	150 ISL	9.05	9.03	33.786	26.162	187.3	0.434	3.25	50.0	27.2	1.81	24.2	0.02	0.00	0.03	150
1	180	8.39	8.37	33.897	26.352	169.6	0.488	3.40	51.5	31.1	1.85	25.2	0.01	0.00	0.02	180
	200 ISL	8.15	8.13	33.969	26.445	161.1	0.521	3.52	53.1	33.0	1.83	25.3	0.01	0.00	0.02	200
1	211	8.04	8.02	33.997	26.484	157.6	0.538	3.55	53.4	34.3	1.82	25.3	0.01	0.00	0.02	211
1	240	7.58	7.56	33.997	26.551	151.5	0.583	3.26	48.5	40.1	1.98	27.5	0.01	0.00	0.02	240
	250 ISL	7.53	7.51	34.016	26.573	149.5	0.598	2.94	43.7	42.7	2.09	28.8	0.01	0.00	0.02	250
1	282	7.43	7.40	34.092	26.648	143.0	0.645	1.77	26.3	51.0	2.47	33.0	0.01	0.00	0.02	282
	300 ISL	7.24	7.21	34.117	26.694	138.8	0.670	1.61	23.8	54.4	2.59	34.3	0.01	0.00	0.02	300
1	338	6.82	6.79				0.721									338
	399	6.57	6.55	34.197	26.849	125.2	0.800	0.75	10.9	68.2	2.91	37.9	0.01	0.00	0.02	399
1	400 ISL	6.56	6.52	34.198	26.852	125.0	0.801	0.74	10.8	68.3	2.91	37.9	0.01	0.00	0.02	400
1	466	6.15	6.11	34.238	26.937	117.5	0.881	0.50	7.2	76.6	3.06	39.7	0.00	0.00	0.02	466
	500 ISL	5.91	5.87	34.254	26.980	113.6	0.920	0.43	6.2	80.8	3.10	40.5	0.00	0.00	0.02	500
1	536	5.65	5.60	34.272	27.027	109.4	0.960	0.35	5.0	85.3	3.15	41.3	0.00	0.00	0.02	536

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD	AMT	TYPE		
32 13.A N	123 31.5 W	18/08/88	2100 UTC	A109 M	3 40	21 KT	350 07 07	0	1013.0 MB	19.7 C	17.A C		0/8			
CAST	DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	PO4	NO3	NO2	CHL-A	PHAE0	PRESS
	M	DEG C	DEG C	PSS 78	THETA			ML/L	PCT	UM/L	UM/L	UM/L	UM/L	UG/L	UG/L	D.BAR
1	0	17.98	17.98	33.103	23.826	A06.7	0.000	5.6A	103.9	2.2	0.3A	0.1	0.00	0.09	0.02	0
	10 ISL	17.98	17.98	33.102	23.825	A07.1	0.0A1	5.65	10A.1	2.2	0.3A	0.1	0.00	0.07	0.02	10
1	11	17.98	17.98	33.102	23.825	A07.1	0.0A5	5.65	10A.1	2.2	0.3A	0.1	0.00	0.07	0.02	11
	20 ISL	17.97	17.97	33.100	23.827	A07.3	0.081	5.63	103.7	2.0	0.33	0.1	0.00	0.08	0.02	20
1	22	17.96	17.96	33.099	23.828	A07.2	0.090	5.63	103.7	1.9	0.33	0.1	0.00	0.08	0.02	22
	30 ISL	17.90	17.89	33.098	23.8A2	406.1	0.122	5.65	103.9	1.9	0.32	0.1	0.00	0.08	0.02	30
1	32	17.89	17.88	33.098	23.845	405.9	0.130	5.65	103.9	1.9	0.32	0.1	0.00	0.08	0.02	32
1	43	16.08	16.07	33.130	24.294	363.4	0.173	6.16	109.4	1.7	0.33	0.1	0.00	0.14	0.05	43
	50 ISL	14.25	14.24	32.969	24.568	337.3	0.197	6.36	108.7	2.1	0.35	0.1	0.00	0.14	0.05	50
1	53	13.53	13.52	32.914	24.674	327.3	0.207	6.39	107.6	2.3	0.36	0.1	0.00	0.14	0.05	53
1	63	12.70	12.69	33.023	24.922	3 03.8	0.239	6.08	100.7	2.9	0.45	0.5	0.06	0.53	0.32	63
1	74	12.84	12.83	33.277	25.092	287.9	0.271	5.84	97.2	3.3	0.64	4.1	0.62	0.54	0.35	74
	75 ISL	12.83	12.82	33.290	25.104	286.8	0.274	5.82	96.8	3.4	0.66	4.5	0.59	0.52	0.33	76
1	88	12.75	12.74	33.402	25.207	277.4	0.311	5.62	93.4	5.3	0.88	8.8	0.02	0.18	0.11	88
	100 ISL	12.61	12.60	33.426	25.253	273.3	0.344	5.58	92.5	6.0	0.93	9.4	0.02	0.09	0.09	101
1	103	12.54	12.53	33.424	25.265	272.2	0.352	5.57	92.2	6.2	0.94	9.6	0.02	0.09	0.08	104
	124	11.30	11.28	33.410	25.487	251.4	0.407	5.01	80.7	10.0	1.12	12.7	0.01	0.03	0.05	125
	125 ISL	11.24	11.22	33.418	25.504	249.8	0.409	4.96	79.8	10.4	1.14	13.0	0.01	0.03	0.05	126
1	150	9.88	9.86	33.683	25.947	207.9	0.467	3.58	56.0	20.9	1.63	21.2	0.01	0.01	0.03	151
1	180	9.30	9.28	33.921	26.229	181.7	0.525	2.70	41.8	30.0	1.95	26.0	0.00	0.00	0.03	181
	200 ISL	9.02	9.00	33.968	26.311	174.2	0.561	2.62	40.3	32.5	2.02	27.0	0.00	0.00	0.03	202
1	211	8.89	8.87	33.978	26.339	171.7	0.580	2.57	39.4	33.4	2.04	27.3	0.00	0.00	0.03	213
1	241	8.58	8.55	34.045	26.440	162.5	0.630	2.30	35.0	37.9	2.16	28.8	0.00	0.00	0.03	243
	250 ISL	8.49	8.46	34.060	26.466	160.2	0.644	2.23	33.9	39.1	2.19	29.2	0.00	0.00	0.03	252
1	282	8.15	8.12	34.094	26.545	153.2	0.694	2.02	30.5	43.1	2.31	30.8	0.00	0.00	0.03	284
	300 ISL	7.89	7.86	34.096	26.585	149.6	0.722	1.92	28.8	45.7	2.36	31.6	0.00	0.00	0.03	302
1	337	7.37	7.34	34.094	26.658	142.9	0.776	1.71	25.3	51.3	2.48	33.4	0.00	0.00	0.03	340
1	399	6.82	6.78	34.146	26.776	132.3	0.861	1.13	16.5	61.6	2.76	36.6	0.00	0.00	0.03	402
	400 ISL	6.81	6.77	34.147	26.778	132.1	0.862	1.13	16.5	61.8	2.76	36.7	0.00	0.00	0.03	403
1	467	6.16	6.12	34.199	26.905	120.5	0.947	0.89	12.8	73.3	3.01	39.6	0.00	0.00	0.03	471
	500 ISL	5.97	5.93	34.230	26.954	116.2	0.986	0.65	9.3	77.7	3.07	40.3	0.00	0.00	0.03	504
1	539	5.74	5.69	34.266	27.011	111.0	1.030	0.36	5.1	83.0	3.1A	AL.2	0.00	0.00	0.03	544

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD	AMT	TYPE		
31 54.8 N	124 10.1 W	18/08/88	1404 UTC	4200 M	330	22 KT	330 08 07	1	1013.3 MB	18.0 C	16.5 C		1/8	ST		
CAST	DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	PO4	NO3	NO2	CHL-A	PHAE0	PRESS
	M	DEG C	DEG C	PSS 78	THETA			ML/L	PCT	UM/L	UM/L	UM/L	UM/L	UG/L	UG/L	D.BAR
	0 ISL	18.27	18.27	33.192	23.823	406.9	0.000	5.56	103.1	2.4	0.34	0.0	0.00	0.08	0.02	0
1	1	18.27	18.27	33.192	23.823	407.0	0.004	5.56	103.1	2.4	0.34	0.0	0.00	0.08	0.02	1
	10 ISL	18.28	18.28	33.191	23.820	407.6	0.041	5.57	103.3	2.4	0.33	0.0	0.00	0.08	0.02	10
1	11	18.28	18.28	33.191	23.820	407.6	0.045	5.57	103.3	2.4	0.33	0.0	0.00	0.08	0.02	11
	20 ISL	18.30	18.30	33.190	23.815	408.4	0.082	5.57	103.3	2.2	0.35	0.0	0.00	0.08	0.02	20
1	22	18.30	18.30	33.190	23.815	408.5	0.090	5.57	103.3	2.2	0.35	0.0	0.00	0.08	0.02	22
	30 ISL	17.89	17.88	33.179	23.907	399.9	0.122	5.72	105.3	2.2	0.33	0.0	0.00	0.13	0.04	30
1	32	17.72	17.71	33.176	23.946	3 96.3	0.130	5.77	105.8	2.2	0.33	0.0	0.00	0.14	0.04	32
1	43	16.31	16.30	33.167	24.270	365.7	0.172	6.00	107.1	2.0	0.35	0.0	0.00	0.14	0.05	43
	50 ISL	15.35	15.3A	33.133	24.459	3 47.8	0.197	6.15	107.6	2.0	0.36	0.0	0.00	0.22	0.10	50
1	53	15.03	15.02	33.124	24.522	341.9	0.207	6.21	108.0	2.0	0.36	0.0	0.00	0.26	0.12	53
1	63	14.96	14.95	33.169	24.572	337.4	0.241	6.27	108.9	2.0	0.37	0.0	0.00	0.32	0.18	63
1	74	14.29	14.28	33.197	24.737	322.0	0.277	6.10	104.5	2.1	0.46	0.8	0.06	0.47	0.32	74
	75 ISL	14.20	14.19	33.195	24.754	320.4	0.281	6.08	104.0	2.1	0.47	0.9	0.11	0.47	0.32	76
1	88	13.07	13.06	33.171	24.965	300.4	0.321	5.86	97.9	2.9	0.58	2.5	0.69	0.36	0.32	88
	100 ISL	12.48	12.47	33.214	25.114	286.5	0.356	5.64	93.1	3.9	0.71	5.2	0.23	0.23	0.22	101
1	104	12.34	12.33	33.239	25.160	282.2	0.368	5.56	91.5	4.4	0.76	6.2	0.02	0.19	0.18	105
1	124	11.76	11.74	33.446	25.431	256.9	0.421	5.09	82.8	8.3	1.08	11.9	0.01	0.05	0.06	125
	125 ISL	11.71	11.69	33.451	25.444	255.6	0.424	5.06	82.3	8.6	1.09	12.1	0.01	0.05	0.06	126
1	150	10.42	10.40	33.551	25.752	226.5	0.484	4.30	68.0	15.7	1.37	17.1	0.01	0.01	0.04	151
1	181	9.53	9.51	33.792	26.091	194.9	0.550	3.19	49.6	25.4	1.80	23.7	0.01	0.00	0.04	182
	200 ISL	9.07	9.05	33.884	26.237	181.2	0.585	3.0A	A6.8	29.3	1.92	25.6	0.01	0.00	0.0A	202
1	212	8.80	8.78	33.923	26.310	17A.A	0.607	2.9A	A5.0	31.2	1.95	26.2	0.01	0.00	0.0A	21A
1	2A1	8.22	8.20	33.965	26.432	163.1	0.656	3.18	48.0	34.4	1.95	26.6	0.01	0.00	0.0A	243
	250 ISL	8.12	8.09	33.986	26.46A	160.2	0.670	3.03	A5.7	36.2	2.00	27.3	0.01	0.00	0.0A	252
1	282	7.87	7.84	34.057	26.557	151.9	0.720	2.28	34.2	43.3	2.25	30.4	0.00	0.00	0.0A	284
	300 ISL	7.76	7.73	34.082	26.593	148.7	0.7A7	2.02	30.2	A6.1	2.35	31.A	0.00	0.00	0.0A	302
1	339	7.A6	7.A3	3A.11A	26.661	142.7	0.804	1.60	23.8	52.0	2.52	33.4	0.01	0.00	0.0A	342
1	400	6.49	6.45	34.126	26.804	129.A	0.887	1.11	16.1	65.A	2.79	37.5	0.01	0.00	0.0A	A03
1	A67	6.10	6.06	3A.215	26.925	118.5	0.970	0.57	8.2	75.7	3.02	39.7	0.00	0.00	0.0A	A7.1
	500 ISL	5.95	5.91	34.233	26.958	115.7	1.009	0.49	7.0	79.0	3.07	40.2	0.00	0.00	0.0A	504
1	540	5.77	5.72	34.256	26.999	112.2	1.054	0.39	5.6	82.9	3.13	40.9	0.00	0.00	0.0A	545

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD	AMT	TYPE		
33 53.4 N	118 29.2 W	15/08/88	2018 UTC	55 M	260	06 KT	050 01 04	0	1010.0 MB	20.0 C	17.5 C		0/8			
CAST	DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	N03	N02	CHL-A	PHAE0	PRESS
	M	DEG C	DEG C	PSS 78	THETA			ML/L	PCT	UM/L	UM/L	UM/L	UM/L	UG/L	UG/L	D.BAR
1	0	17.78	17.78	33.636	24.282	363.1	0.000	6.77	124.7	3.2	0.26	0.1	0.00	1.06	0.28	0
1	10	17.23	17.23	33.637	24.415	350.8	0.036	6.86	125.0	3.3	0.25	0.0	0.00	1.32	0.22	10
	20 ISL	14.63	14.63	33.579	24.958	299.4	0.068	6.22	107.6	6.7	0.47	0.1	0.02	4.29	0.68	20
1	21	14.32	14.32	33.575	25.020	293.4	0.071	6.09	104.7	7.3	0.49	0.1	0.02	4.47	0.72	21
	30 ISL	12.20	12.20	33.518	25.402	257.3	0.096	3.85	63.3	15.6	1.67	11.4	0.64	0.82	0.42	30
1	31	12.02	12.02	33.516	25.434	254.3	0.099	3.61	59.1	16.5	1.79	12.7	0.71	0.34	0.37	31
1	43	11.59	11.58	33.630	25.603	238.4	0.128	3.45	56.0	16.7	1.68	15.1	0.79	0.13	0.23	43
	50 ISL	11.36	11.35	33.654	25.664	232.8	0.145	3.20	51.7	19.0	1.77	16.7	0.81	0.11	0.34	50
1	52	11.29	11.28	33.661	25.682	231.1	0.149	3.13	50.5	19.6	1.79	17.2	0.81	0.11	0.37	52

RV NEW HORIZON

CALCOFI CRUISE 8808

STATION 87 34

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD	AMT	TYPE		
33 51.5 N	118 33.3 W	15/08/88	2144 UTC	75 M	280	13 KT	270 01 03	4	1010.0 MB	19.6 C	17.2 C					
CAST	DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	N03	N02	CHL-A	PHAE0	PRESS
	M	DEG C	DEG C	PSS 78	THETA			ML/L	PCT	UM/L	UM/L	UM/L	UM/L	UG/L	UG/L	D.BAR
1	0	18.19	18.19	33.647	24.191	371.9	0.000	6.33	117.5	2.5	0.27	0.0	0.00	0.63	0.28	0
1	10	17.35	17.35	33.635	24.385	353.7	0.036	6.62	120.9	2.4	0.26	0.0	0.00	0.74	0.33	10
	20 ISL	15.36	15.36	33.577	24.798	314.6	0.070	7.11	124.8	3.0	0.35	0.0	0.01	6.36	0.65	20
1	21	15.13	15.13	33.572	24.844	310.2	0.073	7.16	125.1	3.1	0.36	0.0	0.01	6.77	0.68	21
	30 ISL	13.12	13.12	33.547	25.245	272.3	0.099	5.13	86.0	8.7	0.95	5.4	0.29	1.83	0.61	30
1	31	12.92	12.92	33.548	25.285	268.4	0.102	4.87	81.3	9.4	1.03	6.2	0.34	1.13	0.60	31
1	42	11.80	11.79	33.593	25.535	244.9	0.130	3.63	59.2	15.3	1.65	13.7	0.98	0.33	0.45	42
	50 ISL	11.43	11.42	33.636	25.637	235.4	0.149	3.31	53.6	17.7	1.96	16.4	0.94	0.15	0.30	50
1	52	11.36	11.35	33.648	25.659	233.3	0.154	3.26	52.7	18.2	2.00	16.9	0.93	0.14	0.27	52
1	62	10.85	10.84	33.728	25.813	218.8	0.176	2.89	46.2	21.3	1.87	20.8	0.61	0.06	0.24	62
1	72	10.60	10.59	33.771	25.891	211.7	0.198	2.51	39.9	24.7	1.93	22.1	0.43	0.06	0.51	73

RV NEW HORIZON

CALCOFI CRUISE 8808

STATION 87 35

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD	AMT	TYPE		
33.49.4 N	118 37.5 W	15/08/88	2307 UTC	597 M	280	11 KT	280 01 03	4	1009.4 MB	20.0 C	17.9 C					
CAST	DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	N03	N02	CHL-A	PHAE0	PRESS
	M	DEG C	DEG C	PSS 78	THETA			ML/L	PCT	UM/L	UM/L	UM/L	UM/L	UG/L	UG/L	D.BAR
	0 ISL	18.69	18.69	33.614	24.041	3 86.1	0.000	5.97	111.9	3.2	0.30	0.0	0.00	0.23	0.10	0
1	1	18.69	18.69	33.614	24.041	3 86.1	0.004	5.97	111.8	3.2	0.30	0.0	0.00	0.23	0.10	1
	10 ISL	17.20	17.20	33.596	24.391	353.1	0.037	6.44	117.2	3.2	0.28	0.0	0.00	0.87	0.26	10
1	11	16.94	16.94	33.593	24.450	3 47.5	0.041	6.50	117.7	3.2	0.28	0.0	0.00	0.96	0.28	11
	20 ISL	14.73	14.73	33.516	24.888	3 06.1	0.070	6.32	109.5	3.6	0.47	2.0	0.10	0.89	0.32	20
1	22	14.28	14.28	33.505	24.975	297.8	0.076	6.28	107.8	3.7	0.52	2.4	0.12	0.87	0.32	22
	30 ISL	13.45	13.45	33.525	25.162	280.2	0.099	5.96	100.6	5.5	0.57	2.0	0.06	1.05	0.39	30
1	32	13.31	13.31	33.532	25.195	277.1	0.105	5.88	99.0	6.3	0.58	1.9	0.04	1.07	0.40	32
1	42	12.26	12.25	33.558	25.422	255.8	0.131	4.03	66.4	13.3	1.49	11.2	0.59	0.52	0.34	42
	50 ISL	11.95	11.94	33.585	25.501	248.3	0.152	3.90	63.8	14.3	1.52	13.2	0.76	0.30	0.33	50
1	52	11.91	11.90	33.591	25.514	247.2	0.157	3.87	63.3	14.6	1.53	13.3	0.77	0.27	0.32	52
1	63	11.54	11.53	33.630	25.613	238.0	0.183	3.67	59.5	15.9	1.55	15.4	0.70	0.17	0.22	63
1	73	11.15	11.14	33.664	25.710	228.9	0.207	3.56	57.3	16.6	1.54	17.9	0.28	0.14	0.18	74
	75 ISL	11.04	11.03	33.681	25.743	225.8	0.211	3.49	56.0	17.2	1.56	18.5	0.22	0.13	0.17	76
1	87	10.39	10.38	33.793	25.945	206.9	0.237	3.01	47.7	21.7	1.75	21.9	0.01	0.06	0.12	88
	100 ISL	10.03	10.02	33.870	26.067	195.5	0.263	2.77	43.5	25.5	1.88	23.6	0.01	0.02	0.07	101
1	103	9.98	9.97	33.885	26.087	193.7	0.269	2.74	43.0	26.2	1.90	23.9	0.01	0.02	0.06	104
1	124	9.60	9.59	34.000	26.241	179.5	0.308	2.50	39.0	30.5	2.03	25.9	0.01	0.01	0.06	125
	125 ISL	9.59	9.58	34.003	26.245	179.1	0.310	2.50	38.9	30.6	2.03	25.9	0.01	0.01	0.06	126
1	149	9.31	9.29	34.042	26.321	172.3	0.352	2.44	37.8	32.7	2.10	26.6	0.01	0.01	0.07	150
	150 ISL	9.30	9.28	34.044	26.324	172.0	0.354	2.43	37.6	32.8	2.10	26.6	0.01	0.01	0.07	151
1	180	9.12	9.10	34.100	26.398	165.6	0.405	2.21	34.1	36.1	2.19	27.7	0.01	0.01	0.07	181
	200 ISL	8.94	8.92	34.137	26.456	160.5	0.437	2.03	31.2	38.3	2.27	28.6	0.01	0.02	0.12	202
1	211	8.84	8.82	34.156	26.486	157.7	0.455	1.93	29.6	39.5	2.32	29.1	0.01	0.03	0.14	213
1	242	8.72	8.69	34.191	26.533	153.9	0.503	1.66	25.4	42.4	2.42	29.9	0.01			244
	250 ISL	8.69	8.66	34.206	26.550	152.4	0.515	1.56	23.8	43.3	2.46	30.2	0.02			252
1	283	8.51	8.48	34.258	26.619	146.5	0.565	1.20	18.3	47.1	2.61	31.5	0.04			285
	300 ISL	8.39	8.36	34.261	26.640	144.7	0.589	1.11	16.9	48.7	2.65	31.9	0.04			302
1	338	8.06	8.03	34.252	26.683	141.2	0.644	0.99	14.9	52.5	2.73	32.9	0.04			341
1	399	7.36	7.32	34.264	26.795	131.1	0.727	0.73	10.8	61.1	2.88	35.3	0.01			402
	400 ISL	7.35	7.31	34.264	26.796	131.0	0.728	0.73	10.8	61.2	2.88	35.3	0.01			403
1	466	7.01	6.97	34.294	26.868	124.9	0.812	0.56	8.2	66.3	2.99	36.7	0.01			470
	500 ISL	6.74	6.69	34.300	26.909	121.3	0.854	0.48	7.0	70.6	3.05	37.4	0.02			504
1	538	6.43	6.38	34.307	26.956	117.1	0.900	0.39	5.7	75.5	3.12	38.2	0.04			543

RV NEW HORIZON CALCOFI CRUISE 8808 STATION 87 42. Table with columns: LATITUDE, LONGITUDE, DAY/MO/YR, MESSENGER, BOTTOM, WIND SPEED WAVES WEATHER, BAROMETER, DRY WET CLOUD AMT TYPE. Rows include depth data from 0 to 262 meters.

RV NEW HORIZON CALCOFI CRUISE 8808 STATION 87 45. Table with columns: LATITUDE, LONGITUDE, DAY/MO/YR, MESSENGER, BOTTOM, WIND SPEED WAVES WEATHER, BAROMETER, DRY WET CLOUD AMT TYPE. Rows include depth data from 0 to 534 meters.

RV NEW HORIZON CALCOFI CRUISE 8808 STATION 87 50. Table with columns: LATITUDE, LONGITUDE, DAY/MO/YR, MESSENGER, BOTTOM, WIND SPEED WAVES WEATHER, BAROMETER, DRY WET CLOUD AMT TYPE. Rows include depth data from 0 to 73 meters.

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD	AMT	TYPE		
33 9.4 N	120 0.8 W	16/08/88	1819 UTC	1191 M	330	20 KT	310 05 06	2	1011.3 MB	15.8 C	15.0 C	8/8	ST			
CAST	DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	N03	N02	CHL-A	PHAE0	PRESS
	M	DEG C	DEG C	PSS 78	THETA			ML/L	PCT	UM/L	UM/L	UM/L	UM/L	UG/L	UG/L	D.BAR
1	0 ISL	16.38	16.38	33.687	24.652	327.9	0.000	5.91	105.9	1.1	0.31	0.1	0.01	4.09	1.46	0
1	1	16.38	16.38	33.687	24.652	327.9	0.003	5.91	105.9	1.1	0.31	0.1	0.01	4.09	1.46	1
1	10 ISL	16.37	16.37	33.684	24.652	328.2	0.033	5.92	106.1	0.8	0.30	0.1	0.01	4.09	1.41	10
1	11	16.37	16.37	33.684	24.652	328.2	0.036	5.92	106.1	0.8	0.30	0.1	0.01	4.09	1.40	11
1	20 ISL	16.36	16.36	33.685	24.656	328.2	0.066	5.91	105.9	1.0	0.31	0.1	0.01	4.09	1.35	20
1	21	16.36	16.36	33.685	24.656	328.2	0.069	5.91	105.9	1.0	0.31	0.1	0.01	4.09	1.34	21
1	30 ISL	12.72	12.72	33.637	25.394	258.1	0.095	4.74	78.8	8.7	1.02	10.8	0.30	0.71	0.39	30
1	31	12.30	12.30	33.643	25.479	249.9	0.098	4.60	75.8	9.7	1.11	12.1	0.33	0.33	0.28	31
1	41	11.49	11.48	33.703	25.678	231.3	0.122	4.03	65.3	13.6	1.35	16.0	0.33	0.25	0.22	41
1	50 ISL	10.81	10.80	33.754	25.840	216.0	0.142	3.49	55.8	19.0	1.58	19.7	0.22	0.14	0.18	50
1	51	10.75	10.74	33.759	25.855	214.6	0.144	3.44	54.9	19.6	1.60	20.1	0.21	0.13	0.18	51
1	61	10.47	10.46	33.806	25.941	206.7	0.165	3.20	50.8	22.1	1.71	21.4	0.21	0.11	0.18	61
1	71	10.01	10.00	33.852	26.056	196.0	0.185	2.98	46.8	24.6	1.81	23.1	0.06	0.06	0.13	72
1	75 ISL	9.89	9.88	33.869	26.089	192.9	0.193	2.93	45.9	25.3	1.83	23.6	0.05	0.05	0.12	76
1	85	9.68	9.67	33.907	26.154	186.9	0.212	2.84	44.3	26.7	1.88	24.5	0.03	0.04	0.10	86
1	100 ISL	9.46	9.45	33.956	26.229	180.1	0.240	2.67	41.5	29.5	1.96	25.5	0.03	0.03	0.14	101
1	101	9.45	9.44	33.959	26.233	179.7	0.241	2.66	41.3	29.7	1.96	25.6	0.03	0.03	0.14	102
1	121	9.25	9.24	33.995	26.294	174.3	0.277	2.53	39.1	31.7	2.05	26.5	0.02	0.03	0.12	122
1	125 ISL	9.18	9.17	34.004	26.312	172.6	0.284	2.52	38.9	32.2	2.06	26.7	0.02	0.03	0.12	126
1	146	8.85	8.83	34.049	26.400	164.6	0.319	2.48	38.0	35.1	2.10	27.5	0.02	0.01	0.10	147
1	150 ISL	8.82	8.80	34.056	26.410	163.7	0.326	2.44	37.4	35.6	2.12	27.7	0.02	0.01	0.10	151
1	176	8.70	8.68	34.090	26.456	159.8	0.368	2.14	32.7	38.3	2.24	28.9	0.02	0.01	0.10	177
1	200 ISL	8.49	8.47	34.116	26.509	155.2	0.406	2.03	30.9	40.5	2.30	29.8	0.01	0.03	0.13	202
1	206	8.44	8.42	34.124	26.523	154.0	0.415	1.99	30.2	41.2	2.32	30.0	0.01	0.04	0.14	208
1	236	8.22	8.20	34.183	26.603	146.9	0.460	1.52	23.0	46.3	2.51	31.7	0.01			238
1	250 ISL	8.11	8.08	34.200	26.633	144.2	0.480	1.35	20.4	48.3	2.58	32.3	0.01			252
1	276	7.90	7.87	34.222	26.682	140.0	0.517	1.11	16.7	51.7	2.68	33.4	0.02			278
1	300 ISL	7.71	7.68	34.234	26.719	136.7	0.551	0.96	14.4	54.8	2.76	34.3	0.02			302
1	333	7.46	7.43	34.245	26.764	132.9	0.595	0.83	12.3	58.7	2.84	35.4	0.02			336
1	392	7.08	7.04	34.261	26.831	127.3	0.672	0.68	10.0	63.9	2.94	36.6	0.00			395
1	400 ISL	7.03	6.99	34.263	26.840	126.6	0.682	0.66	9.7	64.7	2.95	36.8	0.00			403
1	459	6.68	6.64	34.274	26.896	121.8	0.755	0.52	7.6	70.6	3.03	38.0	0.00			463
1	500 ISL	6.42	6.37	34.283	26.938	118.2	0.804	0.44	6.4	74.3	3.09	38.9	0.00			504
1	530	6.23	6.18	34.291	26.969	115.4	0.839	0.39	5.6	77.0	3.13	39.6	0.00			535

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD	AMT	TYPE		
32 59.9 N	120 21.1 W	16/08/88	2313 UTC	712 M	320	19 KT	320 05 06	2	1010.5 MB	17.8 C	16.0 C	8/8	SC			
CAST	DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	N03	N02	CHL-A	PHAE0	PRESS
	M	DEG C	DEG C	PSS 78	THETA			ML/L	PCT	UM/L	UM/L	UM/L	UM/L	UG/L	UG/L	D.BAR
1	0 ISL	17.16	17.16	33.699	24.479	344.4	0.000	5.93	107.9	1.7	0.25	0.0	0.00	3.23	0.88	0
1	1	17.16	17.16	33.699	24.479	344.4	0.003	5.93	107.9	1.7	0.25	0.0	0.00	3.23	0.88	1
1	10 ISL	17.15	17.15	33.697	24.480	344.6	0.034	5.90	107.4	1.6	0.25	0.0	0.00	3.15	1.03	10
1	11	17.15	17.15	33.697	24.480	344.6	0.038	5.90	107.4	1.6	0.25	0.0	0.00	3.14	1.05	11
1	20 ISL	17.15	17.15	33.697	24.481	344.9	0.069	5.92	107.7	1.6	0.25	0.0	0.00	3.02	1.16	20
1	22	17.15	17.15	33.697	24.481	345.0	0.076	5.92	107.7	1.6	0.25	0.0	0.00	2.96	1.17	22
1	30 ISL	16.43	16.43	33.640	24.605	333.3	0.103	5.82	104.4	2.4	0.35	1.0	0.04	2.55	1.06	30
1	32	16.25	16.24	33.627	24.637	330.4	0.110	5.80	103.7	2.6	0.38	1.2	0.06	2.35	1.03	32
1	42	12.43	12.42	33.480	25.328	264.6	0.139	5.10	84.2	8.0	0.98	9.8	0.28	0.30	0.28	42
1	50 ISL	11.80	11.79	33.568	25.516	246.9	0.160	4.45	72.6	12.2	1.24	14.0	0.24	0.21	0.20	50
1	53	11.59	11.58	33.601	25.581	240.8	0.167	4.31	70.0	13.5	1.30	15.1	0.23	0.18	0.17	53
1	63	11.26	11.25	33.679	25.702	229.5	0.191	3.95	63.7	16.2	1.43	17.2	0.22	0.14	0.14	63
1	73	10.56	10.55	33.745	25.878	212.9	0.213	3.49	55.5	20.7	1.64	20.8	0.06	0.08	0.11	74
1	75 ISL	10.45	10.44	33.760	25.909	210.1	0.217	3.41	54.1	21.5	1.67	21.3	0.05	0.07	0.12	76
1	88	9.90	9.89	33.852	26.074	194.5	0.243	3.02	47.3	25.5	1.82	23.7	0.01	0.05	0.15	89
1	100 ISL	9.54	9.53	33.907	26.177	185.0	0.266	2.89	45.0	28.1	1.91	24.9	0.01	0.04	0.10	101
1	103	9.47	9.46	33.917	26.197	183.2	0.272	2.87	44.6	28.6	1.93	25.1	0.01	0.04	0.09	104
1	124	9.25	9.24	33.969	26.273	176.3	0.309	2.70	41.7	31.0	1.99	26.1	0.01	0.02	0.08	125
1	125 ISL	9.24	9.23	33.971	26.277	176.0	0.311	2.69	41.6	31.1	1.99	26.1	0.01	0.02	0.08	126
1	150	8.88	8.86	34.026	26.377	166.9	0.354	2.51	38.5	34.5	2.10	27.4	0.01	0.01	0.07	151
1	181	8.38	8.36	34.050	26.474	158.1	0.404	2.42	36.7	38.6	2.19	28.9	0.00	0.01	0.07	182
1	200 ISL	8.19	8.17	34.065	26.515	154.5	0.434	2.26	34.1	41.3	2.27	29.9	0.00	0.02	0.07	202
1	213	8.05	8.03	34.076	26.544	151.9	0.454	2.13	32.1	43.5	2.33	30.7	0.00	0.02	0.07	215
1	241	7.59	7.57	34.106	26.635	143.6	0.495	1.84	27.4	49.4	2.47	32.5	0.02			243
1	250 ISL	7.54	7.52	34.116	26.650	142.3	0.508	1.75	26.0	50.5	2.51	32.9	0.02			252
1	283	7.43	7.40	34.153	26.696	138.5	0.554	1.42	21.1	53.7	2.63	34.0	0.01			285
1	300 ISL	7.30	7.27	34.173	26.730	135.5	0.578	1.23	18.2	56.5	2.71	34.8	0.01			302
1	340	6.98	6.95	34.214	26.807	128.6	0.631	0.84	12.3	63.1	2.87	36.6	0.00			343
1	400	6.66	6.62	34.242	26.873	123.0	0.706	0.63	9.2	68.7	2.99	37.9	0.00			403
1	466	6.20	6.16	34.288	26.970	114.4	0.784	0.40	5.8	77.5	3.13	39.6	0.00			470
1	500 ISL	6.05	6.01	34.303	27.001	111.8	0.823	0.37	5.3	80.6	3.17	40.0	0.00			504
1	537	5.88	5.83	34.319	27.036	108.9	0.864	0.34	4.9	83.9	3.21	40.5	0.00			542

Table with columns: LATITUDE, LONGITUDE, DAY/MO/YR, MESSENGER, BOTTOM, WIND, SPEED, WAVES, WEATHER, BAROMETER, DRY, WET, CLOUD, AMT, TYPE. Includes a detailed sub-table for CAST DEPTH, TEMP, POT TEMP, SALINITY, SIGMA, SVA, DYN HT, OXYGEN, OXY, SI03, P04, N03, N02, CHL-A, PHAEO, PRESS.

Table with columns: LATITUDE, LONGITUDE, DAY/MO/YR, MESSENGER, BOTTOM, WIND, SPEED, WAVES, WEATHER, BAROMETER, DRY, WET, CLOUD, AMT, TYPE. Includes a detailed sub-table for CAST DEPTH, TEMP, POT TEMP, SALINITY, SIGMA, SVA, DYN HT, OXYGEN, OXY, SI03, P04, N03, N02, CHL-A, PHAEO, PRESS.

Table with columns: LATITUDE, LONGITUDE, DAY/MO/YR, MESSENGER, BOTTOM, WIND, SPEED, WAVES, WEATHER, BAROMETER, DRY, WET, CLOUD, AMT, TYPE. Includes a detailed sub-table for CAST DEPTH, TEMP, POT TEMP, SALINITY, SIGMA, SVA, DYN HT, OXYGEN, OXY, SI03, P04, N03, N02, CHL-A, PHAEO, PRESS.

Table with columns: LATITUDE, LONGITUDE, DAT/MO/YR, MESSENGER, BOTTOM, WIND SPEED, WAVES, WEATHER, BAROMETER, DRY WET, CLOUD AMT, TYPE. Includes data for depth from 0 to 535 meters.

Table with columns: LATITUDE, LONGITUDE, DAY/MO/YR, MESSENGER, BOTTOM, WIND SPEED, WAVES, WEATHER, BAROMETER, DRY WET, CLOUD AMT, TYPE. Includes data for depth from 0 to 537 meters.

Table with columns: LATITUDE, LONGITUDE, DAY/MO/YR, MESSENGER, BOTTOM, WIND SPEED, WAVES, WEATHER, BAROMETER, DRY, WET, CLOUD, AMT, TYPE. Rows include depth measurements from 0 to 52 meters.

Table with columns: LATITUDE, LONGITUDE, DAY/MO/YR, MESSENGER, BOTTOM, WIND SPEED, WAVES, WEATHER, BAROMETER, DRY, WET, CLOUD, AMT, TYPE. Rows include depth measurements from 0 to 532 meters.

Table with columns: LATITUDE, LONGITUDE, DAY/MO/YR, MESSENGER, BOTTOM, WIND SPEED, WAVES, WEATHER, BAROMETER, DRY, WET, CLOUD, AMT, TYPE. Rows include depth measurements from 0 to 536 meters.

PRIMARY PRODUCTIVITY CASTS

RV NEW HORIZON

CALCOFI CRUISE 8808

STATION 77 51

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI	DEPTH	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE								
35 1.6 N	120 55.3 W	23/ 8/88	1916 UTC	10 M		1207 - 1906 PST	1207 PST	1906 PST	925.6 MG C/M2								
DEPTH	TEMP	SALINITY	SIGMA	DISS	O2	OXY	SI03	P04	N03	N02	CHL	PHAE0	LIGHT	UPTAKE (MG C/M3)			
M	DEG C	PSS 7 8	THETA	ML/L	PCT	UM/L	UM/L	UM/L	UM/L	UG/L	UG/L	UG/L	PCT	1	2	MEAN	DARK
1	16.07	33.644	24.690	6.13	109.2	4.0	0.39	2.5	0.09	1.09	0.21	99.	15.1	13.3	14.2	0.64	
7	15.67	33.642	24.778	6.20	109.6	3.9	0.39	2.5	0.09	1.00	0.22	37.	33.6	31.6	32.6	0.76	
12	14.30	33.646	25.079	6.08	104.5	2.8	0.38	4.0	0.13	3.11	0.63	19.	57.5	47.7	52.6	0.50	
22	13.33	33.654	25.286	6.25	105.3	2.0	0.47	5.6	0.13	10.68	1.31	4.5	20.2	33.8	27.0	0.45	
32	12.17	33.639	25.501	4.38	72.0	12.1	1.24	13.2	0.47	0.70	0.55	1.0	2.7	2.1	2.4	0.29	
43	11.41	33.662	25.661	3.87	62.6	16.2	1.46	17.1	0.47	0.24	0.85	0.20	0.03	-0.12	-0.04	0.64	

RV NEW HORIZON

CALCOFI CRUISE 8808

STATION 77 90

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI	DEPTH	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE								
33 43.6 N	123 36.5 W	22/ 8/88	1955 UTC	22 M		1216 - 1915 PST	1217 PST	1916 PST	276.5 MG C/M2								
DEPTH	TEMP	SALINITY	SIGMA	DISS	O2	OXY	SI03	P04	N03	N02	CHL	PHAE0	LIGHT	UPTAKE (MG C/M3)			
M	DEG C	PSS 7 8	THETA	ML/L	PCT	UM/L	UM/L	UM/L	UM/L	UG/L	UG/L	UG/L	PCT	1	2	MEAN	DARK
1	16.30	32.992	24.136	5.88	104.8	2.6	0.36	0.0	0.00	0.19	0.06	99.	1.3	1.6	1.5	0.19	
16	16.09	32.998	24.189	5.91	104.9	2.2	0.36	0.0	0.00	0.19	0.07	37.	4.8	5.0	4.9	0.19	
26	15.88	33.076	24.297	5.97	105.6	2.0	0.37	0.0	0.00	0.40	0.15	19.	8.4	8.0	8.2	0.26	
47	12.27	32.983	24.974	6.21	101.9	3.4	0.52	1.2	0.23	0.46	0.34	4.5	2.9	2.5	2.7	0.11	
70	11.31	33.137	25.271	5.56	89.5	5.8	0.76	6.1	0.02	0.16	0.17	1.0	0.69	0.69	0.69	0.10	
92	10.42	33.354	25.598	4.77	75.4	13.8	1.30	15.3	0.01	0.04	0.05	0.20	0.05	0.04	0.04	0.07	

RV NEW HORIZON

CALCOFI CRUISE 8808

STATION 80 80

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI	DEPTH	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE								
33 29.3 N	122 31.8 W	21/ 8/88	1955 UTC	19 M		1218 - 1918 PST	1213 PST	1919 PST	264.6 MG C/M2								
DEPTH	TEMP	SALINITY	SIGMA	DISS	O2	OXY	SI03	P04	N03	N02	CHL	PHAE0	LIGHT	UPTAKE (MG C/M3)			
M	DEG C	PSS 7 8	THETA	ML/L	PCT	UM/L	UM/L	UM/L	UM/L	UG/L	UG/L	UG/L	PCT	1	2	MEAN	DARK
1	16.63	33.138	24.173	5.89	105.7	2.5	0.36	0.1	0.00	0.31	0.10	99.	2.9	3.3	3.1	0.16	
13	16.47	33.173	24.237	5.91	105.8	2.3	0.34	0.1	0.00	0.35	0.10	37.	7.6	7.3	7.5	0.17	
22	16.41	33.229	24.294	5.91	105.7	2.1	0.33	0.1	0.00	0.35	0.11	19.	5.6	5.2	5.4	0.15	
40	13.37	32.984	24.760	6.38	107.1	2.8	0.40	0.1	0.01	0.59	0.35	4.5	3.1	2.6	2.8	0.16	
59	11.54	32.915	25.057	6.08	98.2	4.6	0.62	2.8	0.16	0.56	0.54	1.0	2.0	2.0	2.0	0.13	
78	11.14	33.337	25.458	5.03	80.7	10.9	1.20	13.5	0.02	0.15	0.18	0.20	0.21	0.10	0.15	0.07	

RV NEW HORIZON

CALCOFI CRUISE 8808

STATION 83 40.9

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI	DEPTH	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE								
34 13.0 N	119 26.0 W	20/ 8/88	1830 UTC	7 M		1158 - 1909 PST	1201 PST	1910 PST	1224.6 MG C/M2								
DEPTH	TEMP	SALINITY	SIGMA	DISS	O2	OXY	SI03	P04	N03	N02	CHL	PHAE0	LIGHT	UPTAKE (MG C/M3)			
M	DEG C	PSS 7 8	THETA	ML/L	PCT	UM/L	UM/L	UM/L	UM/L	UG/L	UG/L	UG/L	PCT	1	2	MEAN	DARK
0	16.95	33.696	24.526	7.01	127.1	0.1	0.12	0.1	0.01	1.83	0.47	99.	41.8	39.1	40.4	0.71	
5	16.78	33.692	24.563	7.03	127.0	0.0	0.13	0.1	0.01	2.20	0.59	37.	68.9	72.0	70.5	0.70	
8	16.61	33.686	24.598	7.05	126.9	1.3	0.14	0.0	0.01	2.69	0.61	19.	68.8	73.8	71.3	0.72	
14	14.47	33.650	25.046	5.63	97.1	4.7	0.46	0.9	0.05	6.87	1.30	4.5	64.7	54.8	59.7	0.55	
22	13.93	33.642	25.154	5.12	87.3	6.6	0.63	2.4	0.10	4.16	0.91	1.0	13.3	13.6	13.5	0.41	
29	12.56	33.606	25.401	4.50	74.6	10.9	1.10	10.1	0.36	1.00	0.53	0.20	0.64	0.31	0.47	0.13	

RV NEW HORIZON

CALCOFI CRUISE 8808

STATION 83 70

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI	DEPTH	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE								
33 15.0 N	121 26.4 W	19/ 8/88	1927 UTC	26 M		1208 - 1909 PST	1210 PST	1910 PST	153.6 MG C/M2								
DEPTH	TEMP	SALINITY	SIGMA	DISS	O2	OXY	SI03	P04	N03	N02	CHL	PHAE0	LIGHT	UPTAKE (MG C/M3)			
M	DEG C	PSS 7 8	THETA	ML/L	PCT	UM/L	UM/L	UM/L	UM/L	UG/L	UG/L	UG/L	PCT	1	2	MEAN	DARK
1	17.64	33.191	23.975	5.68	104.0	1.7	0.33	0.0	0.00	0.10	0.03	99.	2.1	2.1	2.1	0.19	
19	17.59	33.191	23.988	5.63	103.0	1.7	0.34	0.0	0.00	0.10	0.02	37.	2.7	2.7	2.7	0.15	
30	17.58	33.195	23.994	5.63	103.0	1.6	0.33	0.0	0.00	0.10	0.03	19.	1.9	1.8	1.8	0.14	
56	13.54	33.176	24.874	6.12	103.3	1.9	0.49	1.3	0.18	0.44	0.23	4.5	1.8	1.9	1.9	0.11	
81	11.85	33.392	25.371	5.01	81.7	7.4	1.02	10.8	0.03	0.11	0.13	1.0	0.41	0.42	0.42	0.09	
109	10.79	33.591	25.718	4.08	65.1	16.6	1.47	18.3	0.02	0.02	0.06	0.20	0.07	0.00	0.04	0.06	

PRIMARY PRODUCTIVITY CASTS

RV NEW HORIZON			CALCOFI CRUISE 8808										STATION 83 100			
LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI	DEPTH	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE							
32 13.6 N	123 31.1 W	18/ 8/88	2024 UTC	21 M	1240 - 1920 PST	1218 PST	1920 PST	116.8 MG C/M2								
DEPTH	TEMP	SALINITY	SIGMA	DISS O2	OXY	SI03	P04	N03	N02	CHL	PHAE0	LIGHT	UPTAKE (MG C/M3)			
M	DEG C	PSS 7 8	THETA	ML/L	PCT	UM/L	UM/L	UM/L	UM/L	UG/L	UG/L	PCT	1	2	MEAN	DARK
1	17.96	33.102	23.830	5.61	103.3	2.7	0.34	0.1	0.00	0.08	0.02	99.	0.65	0.63	0.64	0.19
18	17.94	33.100	23.834	5.61	103.3	2.6	0.34	0.1	0.00	0.08	0.02	37.	1.7	1.8	1.8	0.17
26	17.87	33.097	23.849	5.63	103.5	2.4	0.34	0.1	0.00	0.08	0.02	19.	1.7	1.7	1.7	0.17
46	14.47	32.972	24.524	6.25	107.3	2.7	0.35	0.1	0.00	0.14	0.05	4.5	1.2	1.2	1.2	0.03
68	12.42	33.075	25.017	5.95	98.0	3.6	0.51	1.7	0.16	0.53	0.36	1.0	1.6	1.7	1.7	0.14
89	12.90	33.401	25.177	5.60	93.3	5.6	0.88	8.6	0.02	0.20	0.11	0.20	0.23	0.27	0.25	0.08

RV NEW HORIZON			CALCOFI CRUISE 8808										STATION 87 33			
LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI	DEPTH	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE							
33 53.5 N	118 29.4 W	15/ 8/88	1956 UTC	11 M	1212 - 1909 PST	1158 PST	1909 PST	926.2 MG C/M2								
DEPTH	TEMP	SALINITY	SIGMA	DISS O2	OXY	SI03	P04	N03	N02	CHL	PHAE0	LIGHT	UPTAKE (MG C/M3)			
M	DEG C	PSS 7 8	THETA	ML/L	PCT	UM/L	UM/L	UM/L	UM/L	UG/L	UG/L	PCT	1	2	MEAN	DARK
0	18.02	33.640	24.227	6.69	123.8	3.8	0.26	0.1	0.00	1.04	0.26	99.	31.3	29.6	30.4	0.46
7	17.22	33.635	24.416	6.80	123.9	3.7	0.26	0.1	0.00	1.22	0.33	37.	39.5	37.8	38.7	0.57
12	17.11	33.638	24.444	6.82	124.0	3.6	0.25	0.1	0.00	1.43	0.29	19.	40.0	44.5	42.3	0.52
23	13.58	33.552	25.156	5.37	90.9	8.6	0.71	2.1	0.13	2.75	0.57	4.5	20.4	20.2	20.3	0.71
34	12.02	33.523	25.440	3.60	59.0	16.7	1.78	12.7	0.72	0.40	0.41	1.0	2.1	2.0	2.1	0.74
47	11.69	33.620	25.577	3.42	55.7	17.1	1.68	15.4	0.81	0.13	0.21	0.20	0.12	0.07	0.10	0.26

RV NEW HORIZON			CALCOFI CRUISE 8808										STATION 87 55			
LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI	DEPTH	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE							
33 10.0 N	120 2.3 W	16/ 8/88	1945 UTC	8 M	1206 - 1925 PST	1204 PST	1914 PST	1820.5 MG C/M2								
DEPTH	TEMP	SALINITY	SIGMA	DISS O2	OXY	SI03	P04	N03	N02	CHL	PHAE0	LIGHT	UPTAKE (MG C/M3)			
M	DEG C	PSS 7 8	THETA	ML/L	PCT	UM/L	UM/L	UM/L	UM/L	UG/L	UG/L	PCT	1	2	MEAN	DARK
1	16.50	33.686	24.623	5.94	106.7	1.7	0.31	0.0	0.01	3.63	1.46	99.	103.9	108.7	106.3	0.39
6	16.50	33.686	24.624	5.96	107.1	1.5	0.30	0.0	0.01	3.58	1.56	37.	118.7	128.8	123.7	0.45
10	16.49	33.685	24.625	5.95	106.9	1.3	0.29	0.0	0.01	3.73	1.49	19.	98.9	91.0	94.9	0.74
18	16.49	33.685	24.626	5.94	106.7	1.3	0.29	0.0	0.01	3.51	1.86	4.5	30.4	29.8	30.1	0.47
26	16.46	33.685	24.633	5.91	106.1	1.2	0.30	0.1	0.01	3.51	1.68	1.0	9.6	10.3	10.0	0.36
34	15.00	33.652	24.935	5.90	102.9	4.2	0.61	4.2	0.13	1.32	0.77	0.20	0.42	0.40	0.41	0.15

RV NEW HORIZON			CALCOFI CRUISE 8808										STATION 87 90			
LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI	DEPTH	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE							
31 60.0 N	122 23.7 W	17/ 8/88	193 8 UTC	22 M	1214 - 1918 PST	1214 PST	1919 PST	157.9 MG C/M2								
DEPTH	TEMP	SALINITY	SIGMA	DISS O2	OXY	SI03	P04	N03	N02	CHL	PHAE0	LIGHT	UPTAKE (MG C/M3)			
M	DEG C	PSS 7 8	THETA	ML/L	PCT	UM/L	UM/L	UM/L	UM/L	UG/L	UG/L	PCT	1	2	MEAN	DARK
1	18.52	33.122	23.708	5.53	103.0	2.6	0.33	0.0	0.00	0.09	0.02	99.	1.8	1.6	1.7	0.15
15	18.53	33.120	23.704	5.55	103.4	2.5	0.33	0.0	0.00	0.09	0.02	37.	3.0	3.1	3.1	0.13
26	17.78	33.105	23.877	5.58	102.4	2.9	0.32	0.0	0.00	0.11	0.02	19.	2.3	2.3	2.3	0.12
46	15.39	33.141	24.456	6.10	106.8	2.4	0.35	0.0	0.00	0.28	0.14	4.5	1.6	1.4	1.5	0.09
68	13.48	33.002	24.752	6.25	105.2	3.1	0.36	0.0	0.00	0.30	0.19	1.0	1.6	1.6	1.6	0.09
91	13.03	33.216	25.008	5.75	96.0	4.2	0.65	4.1	0.30	0.21	0.23	0.20	0.21	0.21	0.21	0.08

RV NEW HORIZON			CALCOFI CRUISE 8808										STATION 90 45			
LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI	DEPTH	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE							
32 55.1 N	118 56.3 W	14/ 8/88	1927 UTC	15 M	1200 - 1907 PST	1201 PST	1907 PST	321.4 MG C/M2								
DEPTH	TEMP	SALINITY	SIGMA	DISS O2	OXY	SI03	P04	N03	N02	CHL	PHAE0	LIGHT	UPTAKE (MG C/M3)			
M	DEG C	PSS 7 8	THETA	ML/L	PCT	UM/L	UM/L	UM/L	UM/L	UG/L	UG/L	PCT	1	2	MEAN	DARK
0	19.38	33.728	23.954	5.58	106.0	2.3	0.29	0.1	0.00	0.25	0.15	99.	6.6	6.4	6.5	0.21
10	19.29	33.724	23.974	5.59	106.0	2.2	0.29	0.1	0.00	0.24	0.15	37.	13.7	13.4	13.6	0.23
17	16.05	33.614	24.672	6.11	108.8	3.3	0.41	1.9	0.07	0.49	0.30	19.	10.2	10.4	10.3	0.24
31	12.55	33.575	25.379	5.10	84.5	7.8	1.04	10.9	0.39	0.63	0.38	4.5	2.0	2.0	2.0	0.16
47	11.54	33.570	25.566	4.62	74.9	11.1	1.21	14.1	0.15	0.48	0.25	1.0	2.0	2.1	2.1	0.10
63	10.91	33.727	25.802	3.43	54.9	18.0	1.58	20.1	0.04	0.22	0.17	0.20	0.21	0.18	0.20	0.06

PRIMARY PRODUCTIVITY CASTS

RV NEW HORIZON														CALCOFI CRUISE 8808				STATION 90 80	
LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI	DEPTH	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE										
31 44.8 N	121 19.7 W	13/ 8/88	1943 UTC	21 M		1206 - 1913 PST	1210 PST	1913 PST	183.2 MG C/M2										
DEPTH	TEMP	SALINITY	SIGMA	DISS O2	OXY	SI03	P04	N03	N02	CHL	PHAE0	LIGHT	UPTAKE (MG C/M3)						
M	DEG C	PSS 7 8	THETA	ML/L	PCT	UM/L	UM/L	UM/L	UM/L	UG/L	UG/L	PCT	1	2	MEAN	DARK			
0	18.12	33.169	23.842	5.66	104.6	2.3	0.36	0.1	0.00	0.14	0.03	99.	2.6	2.6	2.6	0.14			
14	18.07	33.167	23.853	5.63	104.0	2.0	0.36	0.1	0.00	0.14	0.04	37.	4.2	4.4	4.3	0.14			
24	18.01	33.168	23.869	5.65	104.2	1.6	0.36	0.1	0.00	0.15	0.04	19.	3.6	3.5	3.6	0.15			
43	14.87	33.060	24.507	6.22	107.8	1.6	0.36	0.1	0.00	0.27	0.10	4.5	1.1	0.97	1.0	0.12			
65	12.92	33.002	24.863	6.29	104.6	2.4	0.41	0.1	0.01	0.42	0.26	1.0	1.7	1.8	1.8	0.09			
86	12.50	33.240	25.130	5.59	92.3	4.4	0.70	5.4	0.06	0.22	0.22	0.20	0.20	0.18	0.19	0.04			

RV NEW HORIZON														CALCOFI CRUISE 8808				STATION 90 120	
LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI	DEPTH	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE										
30 25.8 N	123 59.8 W	12/ 8/88	1948 UTC	32 M		1219 - 1925 PST	1221 PST	1925 PST	90.8 MG C/M2										
DEPTH	TEMP	SALINITY	SIGMA	DISS O2	OXY	SI03	P04	N03	N02	CHL	PHAE0	LIGHT	UPTAKE (MG C/M3)						
M	DEG C	PSS 7 8	THETA	ML/L	PCT	UM/L	UM/L	UM/L	UM/L	UG/L	UG/L	PCT	1	2	MEAN	DARK			
0	19.33	33.124	23.505	5.45	103.0	2.4	0.32	0.0	0.00	0.06	0.02	99.	1.5	1.4	1.4	0.16			
22	19.31	33.123	23.511	5.46	103.2	2.4	0.33	0.0	0.00	0.07	0.01	37.	1.6	1.7	1.7	0.12			
36	18.05	33.121	23.824	5.68	104.8	2.4	0.32	0.1	0.00	0.07	0.01	19.	1.1	0.97	1.1	0.12			
68	15.13	33.173	24.538	6.11	106.5	2.3	0.31	0.0	0.00	0.10	0.03	4.5	0.16	0.15	0.15	0.06			
98	14.05	33.178	24.773	6.03	102.8	2.3	0.34	0.0	0.00	0.16	0.10	1.0	0.41	0.43	0.42	0.04			
133	12.02	33.290	25.261	5.40	88.3	5.2	0.68	5.9	0.02	0.12	0.14	0.20	0.07	0.08	0.07	0.03			

RV NEW HORIZON														CALCOFI CRUISE 8808				STATION 93 26.7	
LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI	DEPTH	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE										
32 57.3 N	117 18.5 W	9/ 8/88	1930 UTC	12 M		1200 - 1908 PST	1154 PST	1909 PST	530.4 MG C/M2										
DEPTH	TEMP	SALINITY	SIGMA	DISS O2	OXY	SI03	P04	N03	N02	CHL	PHAE0	LIGHT	UPTAKE (MG C/M3)						
M	DEG C	PSS 7 8	THETA	ML/L	PCT	UM/L	UM/L	UM/L	UM/L	UG/L	UG/L	PCT	1	2	MEAN	DARK			
0	18.07	33.617	24.197	6.38	118.1	3.8		0.4	0.01	0.80	0.18	99.	19.6	19.2	19.4	0.26			
8	15.97	33.592	24.673	6.55	116.4	4.0		0.4	0.01	0.78	0.26	37.	24.7	23.3	24.0	0.29			
13	14.41	33.564	24.993	6.51	112.1	4.2		0.7	0.04	1.75	0.40	19.	24.9	26.4	25.7	0.27			
25	12.77	33.552	25.318	4.99	83.0	9.8		8.8	0.48	1.32	0.58	4.5	3.8	3.5	3.7	0.06			
37	11.48	33.627	25.621	3.89	63.0	14.8		15.7	0.60	0.55	0.39	1.0	2.8	2.6	2.7	0.05			
50	11.10	33.710	25.755	3.23	51.9	19.6		19.7	0.39	0.17	0.31	0.20	0.07	-0.01	0.03	0.05			

RV NEW HORIZON														CALCOFI CRUISE 8808				STATION 93 50	
LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI	DEPTH	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE										
32 11.0 N	118 55.4 W	10/ 8/88	1925 UTC	14 M		1204 - 1912 PST	1201 PST	1912 PST	317.0 MG C/M2										
DEPTH	TEMP	SALINITY	SIGMA	DISS O2	OXY	SI03	P04	N03	N02	CHL	PHAE0	LIGHT	UPTAKE (MG C/M3)						
M	DEG C	PSS 7 8	THETA	ML/L	PCT	UM/L	UM/L	UM/L	UM/L	UG/L	UG/L	PCT	1	2	MEAN	DARK			
0	19.21	33.736	24.003	5.57	105.5	2.1	0.27	0.2	0.00	0.30	0.24	99.	9.1	9.0	9.1	0.13			
10	19.18	33.743	24.016	5.56	105.2	1.9	0.27	0.1	0.00	0.30	0.25	37.	11.8	11.2	11.5	0.14			
17	19.04	33.724	24.038	5.63	106.2	1.4	0.27	0.1	0.00	0.41	0.26	19.	10.2	9.5	9.9	0.11			
31	13.83	33.548	25.102	5.59	95.1	4.3	0.71	6.4	0.27	0.89	0.27	4.5	2.6	2.6	2.6	0.06			
48	11.80	33.440	25.417	4.97	81.0	8.5	1.07	11.6	0.30	0.47	0.26	1.0	1.7	1.8	1.8	0.14			
63	10.72	33.706	25.819	3.62	57.7	19.4	1.59	20.6	0.08	0.13	0.11	0.20	0.08	0.10	0.09	0.03			

RV NEW HORIZON														CALCOFI CRUISE 8808				STATION 93 90	
LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI	DEPTH	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE										
30 52.1 N	121 33.3 W	11/ 8/88	2008 UTC	34 M		1226 - 1919 PST	1211 PST	1920 PST	128.4 MG C/M2										
DEPTH	TEMP	SALINITY	SIGMA	DISS O2	OXY	SI03	P04	N03	N02	CHL	PHAE0	LIGHT	UPTAKE (MG C/M3)						
M	DEG C	PSS 7 8	THETA	ML/L	PCT	UM/L	UM/L	UM/L	UM/L	UG/L	UG/L	PCT	1	2	MEAN	DARK			
0	19.61	33.237	23.520	5.46	103.8	1.8	0.32	0.0	0.00	0.07	0.02	99.	1.9	1.8	1.9	0.17			
23	18.49	33.244	23.809	5.63	104.8	1.9	0.31	0.0	0.00	0.07	0.02	37.	1.7	1.8	1.8	0.13			
38	18.10	33.383	24.012	5.66	104.7	1.9	0.31	0.0	0.00	0.08	0.02	19.	1.4	1.4	1.4	0.13			
72	14.19	33.210	24.767	6.03	103.1	2.2	0.34	0.0	0.00	0.16	0.10	4.5	0.42	0.31	0.37	0.11			
105	14.56	33.769	25.122	5.44	94.0	3.1	0.41	2.0	0.21	0.21	0.27	1.0	0.66	0.69	0.68	0.05			
143	12.13	33.680	25.543	4.90	80.5	7.9	0.80	9.0	0.02	0.09	0.13	0.20	0.08	0.08	0.08	0.02			

Secchi Disk Observations

CalCOFI Cruise 8808

Line	Sta.	Day	Mo	Local Time (+8: PST)	Secchi Depth (m)	Forel Water Color	Weather	Clouds Type/Amt
77	49	23	08	1345	7	6	1	AC 1/8
77	51	23	08	1100	10	5	0	- 0
77	55	23	08	0815	10	5	1	AC 1/8
77	80	22	08	1630	12	4	1	AS 1/8
77	90	22	08	1145	22	2	2	SC 8/8
80	70	21	8	0705	16	2	2	ST 8/8
80	80	21	8	1345	19	2	2	ST 8/8
82	47	20	8	1330	14	4	1	CU 1/8
83	40.9	20	8	1004	7	6	2	SC 8/8
83	42	20	8	0740	8	4	2	SC 8/8
83	70	19	8	1115	26	2	2	ST 8/8
83	100	18	8	1215	21	2	0	- 0
83	110	18	8	0631	17	1	1	ST 1/8
87	33	15	8	1143	11	4	0	- 0
87	34	15	8	1315	15	4	4	- -
87	35	15	8	1420	16	3	4	- -
87	55	16	8	1136	8	5	2	ST 8/8
87	60	16	8	1443	9	4	2	SC 8/8
87	90	17	8	1100	22	1	1	SC 7/8
87	100	17	8	1702	23	1	1	CU 5/8
90	37	14	8	1618	15	3	0	- 0
90	45	14	8	1116	15	3	1	CU 2/8
90	70	13	8	1617	16	2	1	SC 7/8
90	80	13	8	1130	21	2	1	SC 8/8
90	110	12	8	1647	29	2	2	SC 8/8
90	120	12	8	1126	32	2	2	ST 8/8
93	26.5	9	8	1026	7	4	2	ST 8/8
93	26.7	9	8	1115	12	5	2	ST 8/8
93	28	9	8	1457	16	2	1	CU 4/8
93	30	9	8	1642	15	4	1	AC 4/8
93	50	10	8	1111	15	3	2	ST 8/8
93	55	10	8	1525	14	3	2	SC 7/8
93	80	11	8	0735	18	2	1	SC 7/8
93	90	11	8	1151	34	2	1	ST 5/8
93	100	11	8	1747	28	2	1	SC 7/8
93	120	12	8	0620	27	1	2	ST 8/8

CalCOFI Cruise 8808

MACROZOOPLANKTON BIOMASS
Net Mesh Size: 0.505 mm

Line	Stt.	Position		Date Mo/Day	Time (UTC)		Water Volume Strained (m)	Max. Tow Depth (m)	Volume per 1000 m Strained	
					Sun	End			Total (cm)	Small (cm)
77	49	35 05.4N	120 47.4W	8/23	2225	2233	154	72	136	136
77	51	35 01.8N	120 56.1W	8/23	2016	2038	405	211	375	207
77	55	34 53.8N	121 12.6W	8/23	1639	1701	398	215	183	183
77	60	34 43.5N	121 34.1W	8/23	1240	1302	401	213	381	381
77	70	34 22.4N	122 14.1W	8/23	0705	0727	429	214	121	121
77	80	34 02.8N	122 55.5W	8/23	0145	0207	422	214	213	213
77	90	33 43.4N	123 36.6W	8/22	2030	2052	437	210	76	57
77	100	33 22.4N	124 19.0W	8/22	1421	1443	431	211	250	250
80	51	34 27.2N	120 32.6W	8/21	0242	0250	144	68	173	173
80	55	34 19.2N	120 47.2W	8/21	0540	0602	404	213	208	208
80	60	34 09.0N	121 08.4W	8/21	0930	0952	417	210	235	235
80	70	33 48.6N	121 50.0W	8/21	1512	1534	409	209	11148	10787
80	80	33 28.9N	122 30.3W	8/21	2113	2135	432	209	808	808
80	90	33 08.5N	123 12.4W	8/22	0310	0332	421	210	62	62
80	100	32 48.4N	123 54.2W	8/22	0841	0903	423	211	40	40
82	47	34 17.0N	120 03.4W	8/20	2314	2336	411	216	161	136
83	40.6	34 13.9N	119 25.5W	8/20	1752	1756	64	27	219	219
83	42	34 10.4N	119 31.1W	8/20	1604	1616	221	112	118	118
83	51	33 52.7N	120 09.0W	8/20	1040	1050	172	87	128	128
83	55	33 44.1N	120 26.6W	8/20	0723	0745	438	207	290	290
83	60	33 34.7N	120 46.2W	8/20	0255	0317	425	222	97	97
83	70	33 15.4N	121 26.6W	8/19	2043	2105	441	212	234	234
83	80	32 55.2N	122 08.4W	8/19	1406	1428	440	216	45	45
83	90	32 35.2N	122 51.9W	8/19	0650	0713	493	216	195	57
83	100	32 13.5N	123 32.0W	8/18	2130	2152	455	215	4	4
83	110	31 55.0N	124 10.5W	8/18	1458	1520	424	226	5	5
87	33	33 53.1N	118 29.6W	8/15	2045	2051	99	50	203	203
87	35	33 49.4N	118 37.7W	8/15	2352	0014	393	213	199	199
87	39.5	33 39.5N	118 57.6W	8/16	0540	0602	413	202	152	152
87	45	33 29.6N	119 19.4W	8/16	1024	1047	286	226	203	203
87	50	33 19.4N	119 40.9W	8/16	1424	1432	144	69	97	97
87	55	33 09.7N	120 01.5W	8/16	1904	1926	433	211	60	60
87	60	32 59.8N	120 21.8W	8/17	0025	0047	426	212	49	49
87	70	32 39.5N	121 03.2W	8/17	0730	0752	450	215	44	44
87	80	32 19.5N	121 43.8W	8/17	1357	1419	430	215	23	23
87	90	32 00.4N	122 24.2W	8/17	2010	2032	455	220	7	7
87	100	31 40.0N	123 05.0W	8/18	0223	0245	452	214	24	24
87	110	31 19.6N	123 45.2W	8/18	0823	0845	442	218	16	16
90	28	33 28.9N	117 46.5W	8/15	1301	1306	73	35	205	205
90	30	33 25.6N	117 54.9W	8/15	1046	1108	370	208	265	146
90	35	33 15.2N	118 15.5W	8/15	0430	0452	398	209	126	126
90	37	33 11.0N	118 24.2W	8/15	0140	0202	411	216	22	22
90	45	32 55.1N	118 56.9W	8/14	2000	2022	424	213	33	33
90	53	32 39.4N	119 30.6W	8/14	1318	1340	445	215	63	63
90	60	32 24.9N	119 58.4W	8/14	0752	0814	431	212	65	65
90	70	32 05.1N	120 39.7W	8/14	0139	0201	414	217	128	39
90	80	31 45.0N	121 19.1W	8/13	1854	1916	396	218	20	20
90	90	31 25.7N	122 00.4W	8/13	1320	1342	440	209	5	5
90	100	31 06.3N	122 41.0W	8A3	0725	0747	438	207	14	14
90	110	30 46.0N	123 19.7W	8/13	0157	0219	430	210	12	12
90	120	30 26.1N	124 00.3W	8/12	2015	2038	439	223	7	7
93	26.7	32 56.8N	117 19.0W	8/09	2027	2033	113	50	35	35
93	28	32 53.4N	117 23.9W	8/09	2305	2327	418	212	57	57
93	30	32 50.1N	117 33.1W	8/10	0218	0240	393	211	33	33
93	35	32 40.5N	117 54.4W	8/10	0608	0630	405	206	76	76
93	40	32 31.0N	118 14.0W	8/10	1016	1038	405	214	136	136
93	45	32 20.9N	118 33.7W	8/10	1408	1430	395	208	61	61
93	50	32 10.9N	118 55.2W	8/10	1940	2002	405	217	47	47
93	55	32 01.0N	119 13.8W	8/10	2330	2352	406	209	274	274
93	60	31 51.0N	119 35.9W	8/11	0400	0422	428	206	54	54
93	70	31 33.6N	120 16.1W	8/11	1007	1029	422	211	88	88
93	80	31 10.2N	120 55.5W	8/11	1556	1619	425	212	35	35
93	90	30 52.1N	121 33.2W	8/11	2110	2132	420	215	2	2
93	100	30 31.2N	122 16.4W	8/12	0300	0323	439	210	23	23
93	110	30 11.3N	122 56.3W	8/12	0843	0905	443	212	23	23
93	120	29 52.1N	123 35.8W	8/12	1429	1451	433	210	30	30

FIGURES
Cruise 8810

1. CalCOFI Cruise 8810 track and station positions.
2. Horizontal distribution of chlorophyll-a at 10 meters.
3. Horizontal distribution of dynamic height anomaly (0 over 500 m). In areas shallower than 500 m, the dynamic heights were extrapolated on the basis of the offshore deeper steric height as described in Reid and Mantyla (1976).
4. Horizontal distribution of sigma-theta at 10 meters.
5. Horizontal distribution of temperature at 10 meters.
6. Horizontal distribution of salinity at 10 meters.
7. Horizontal distribution of dynamic height anomaly (200 over 500 m).
8. Horizontal distribution of sigma-theta at 200 meters.
9. Horizontal distribution of temperature at 200 meters.
10. Horizontal distribution of salinity at 200 meters.

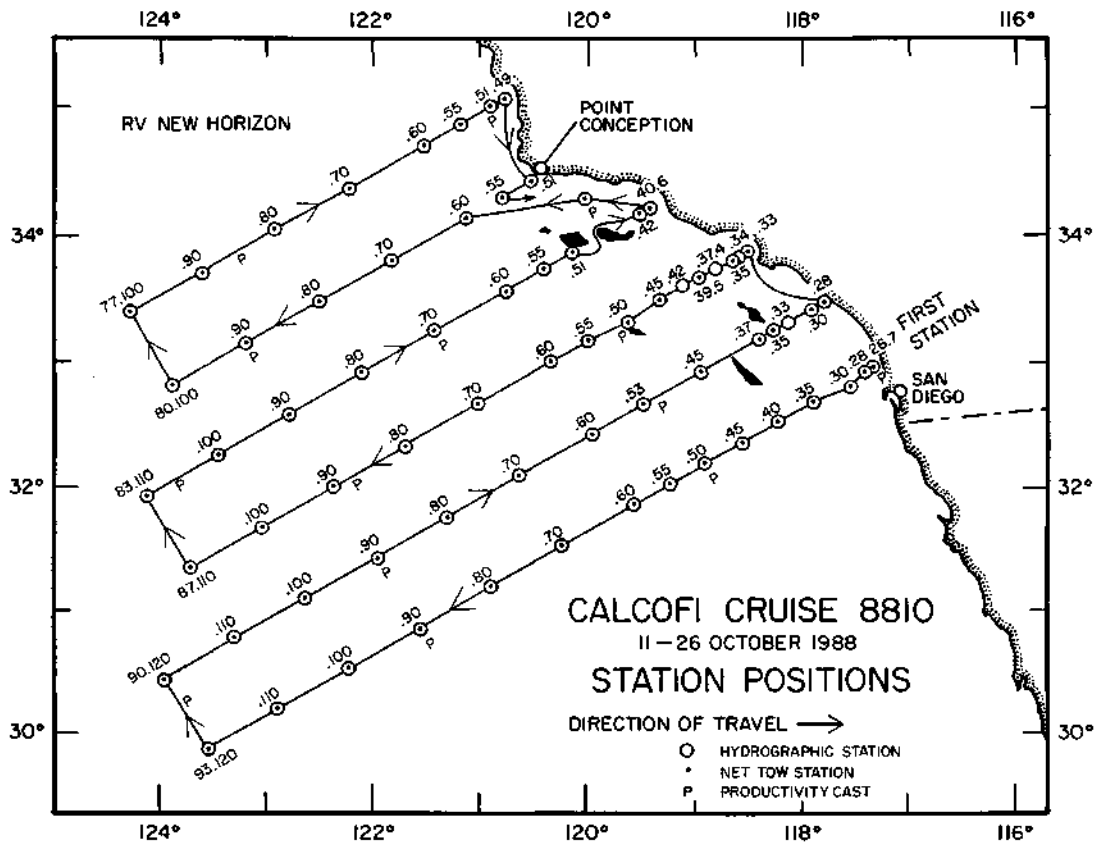


FIGURE 1

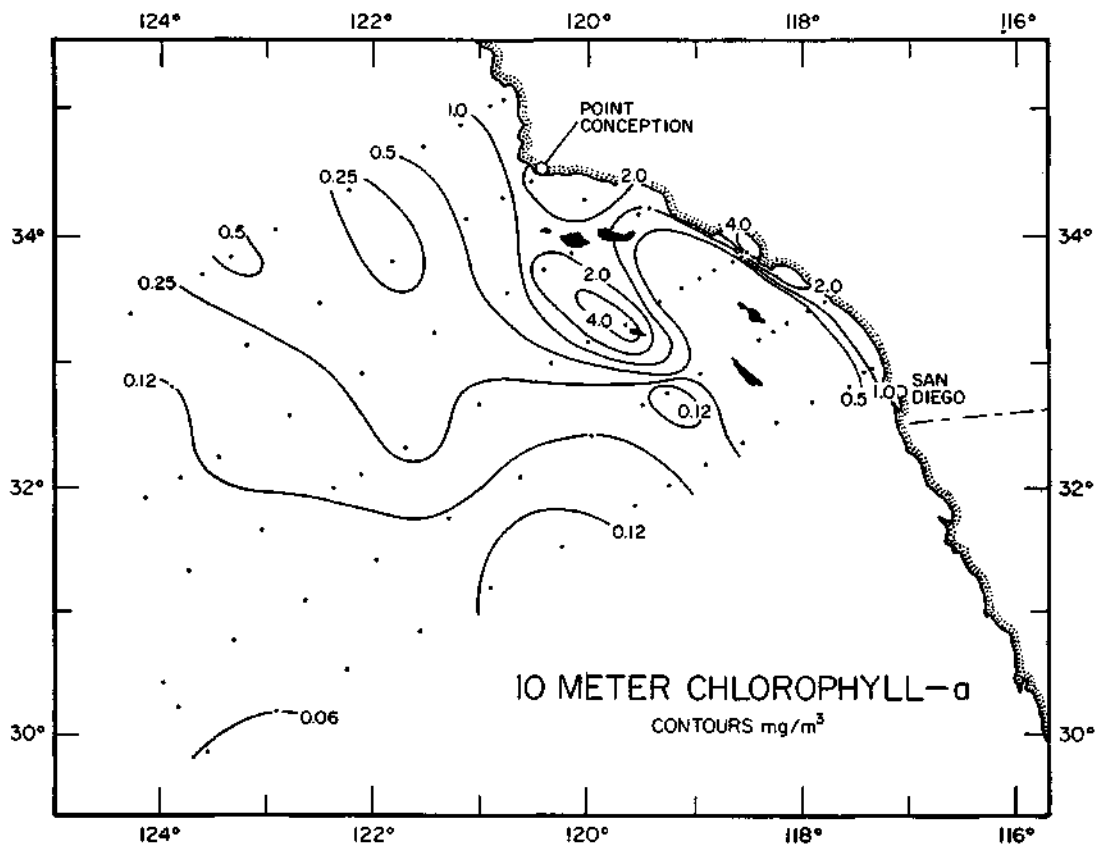


FIGURE 2

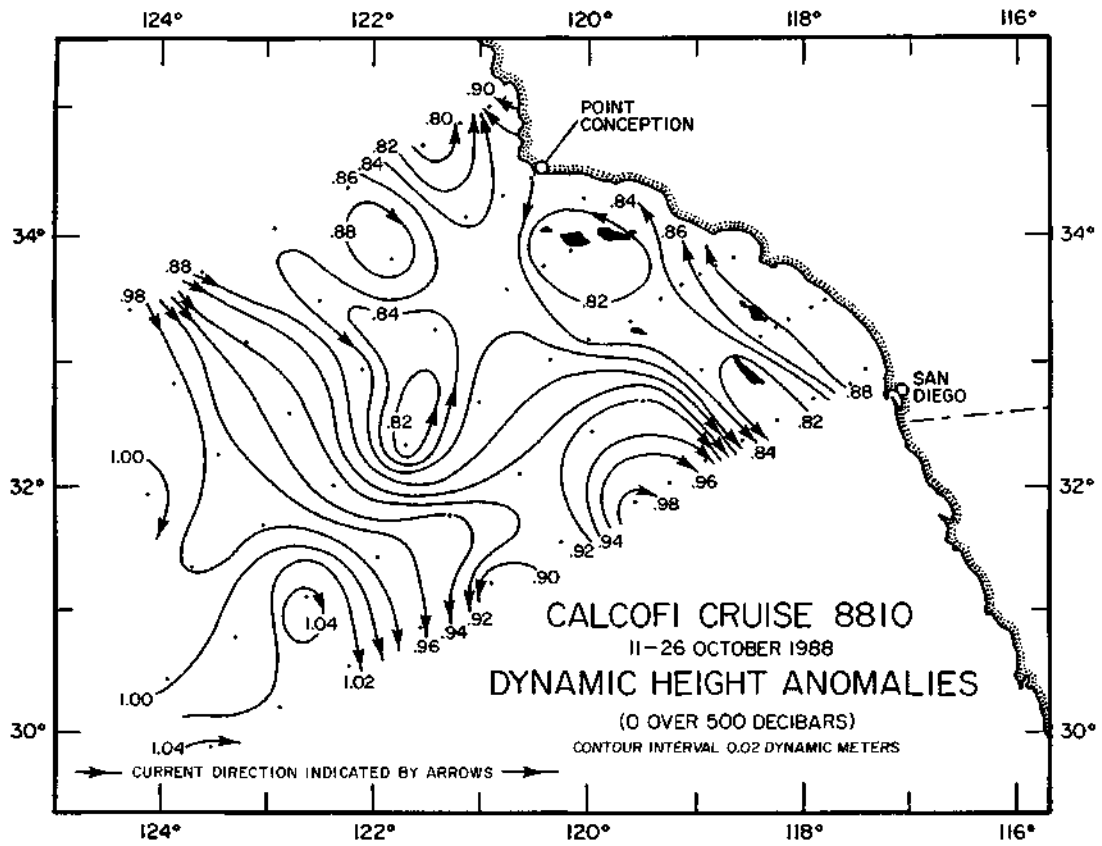


FIGURE 3

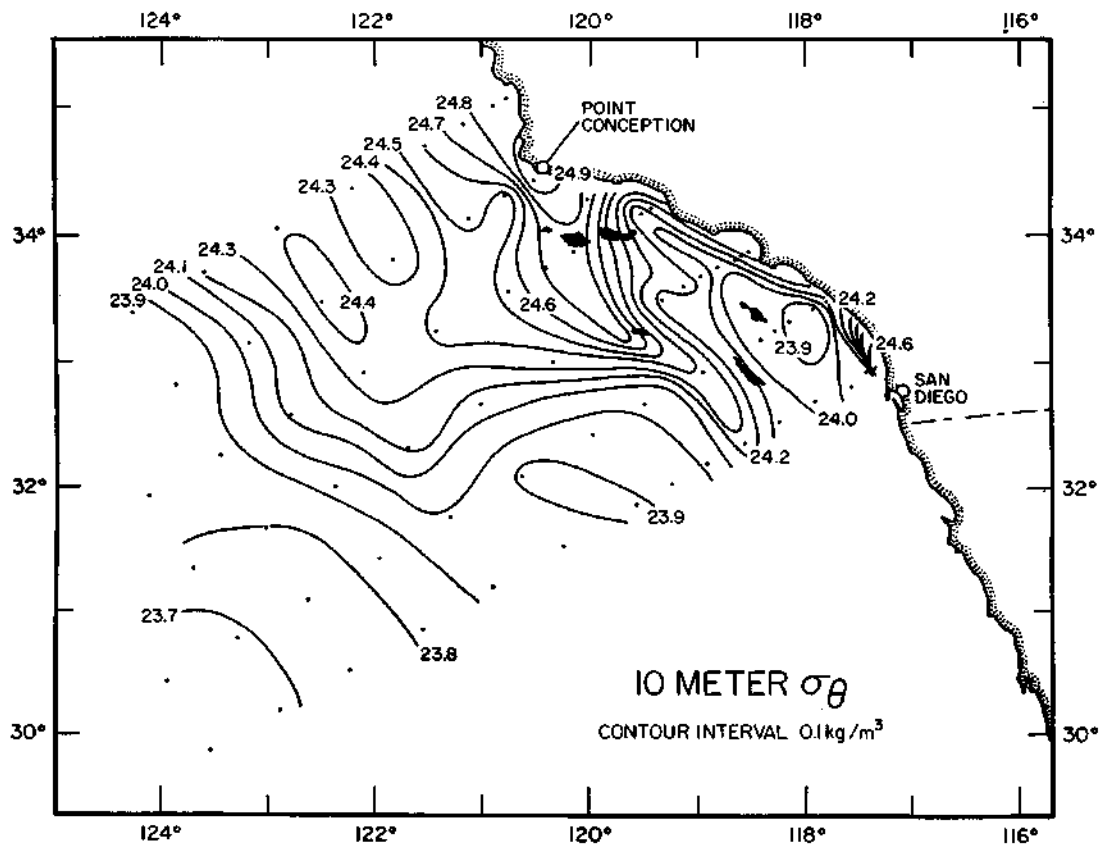


FIGURE 4

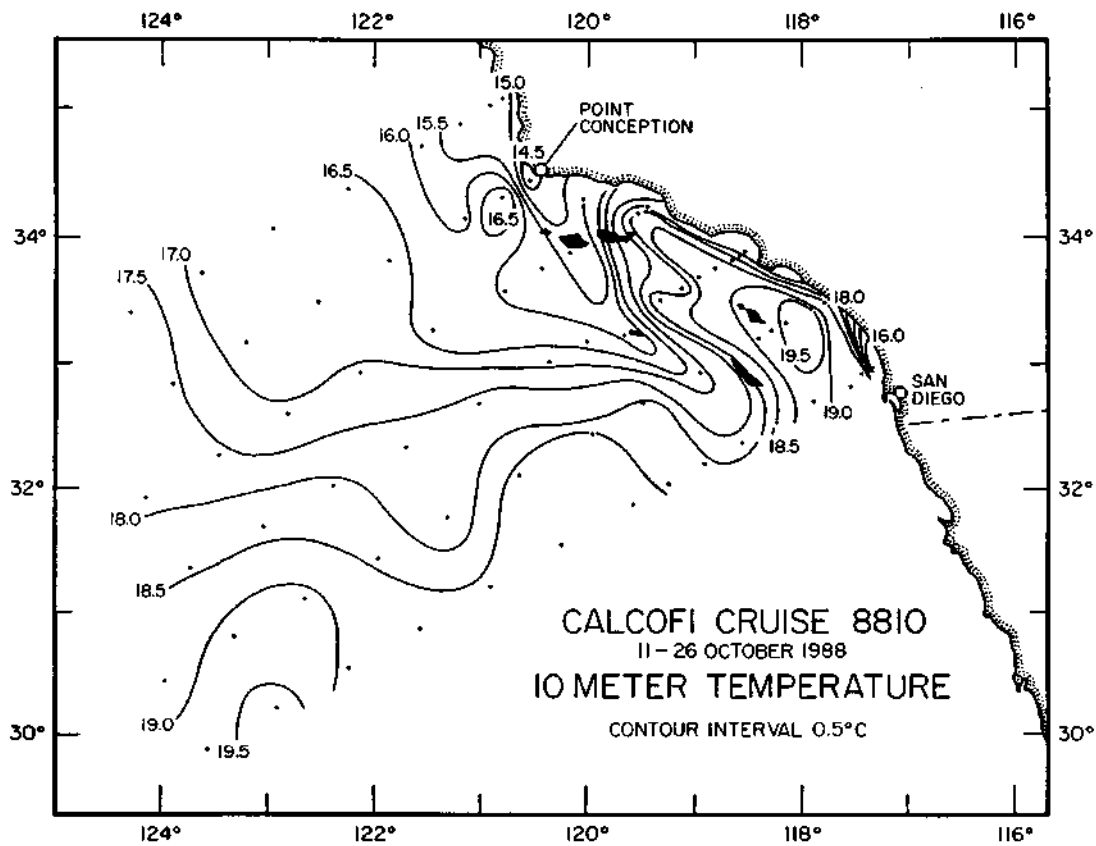


FIGURE 5

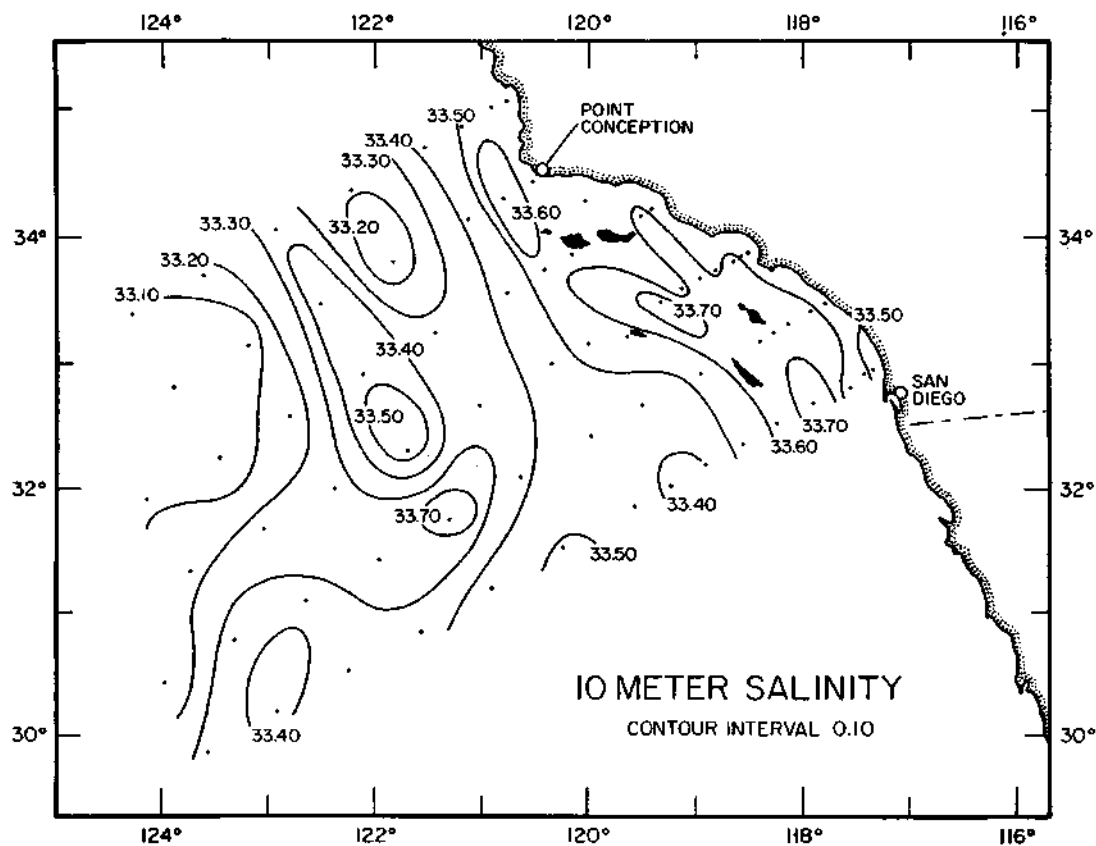


FIGURE 6

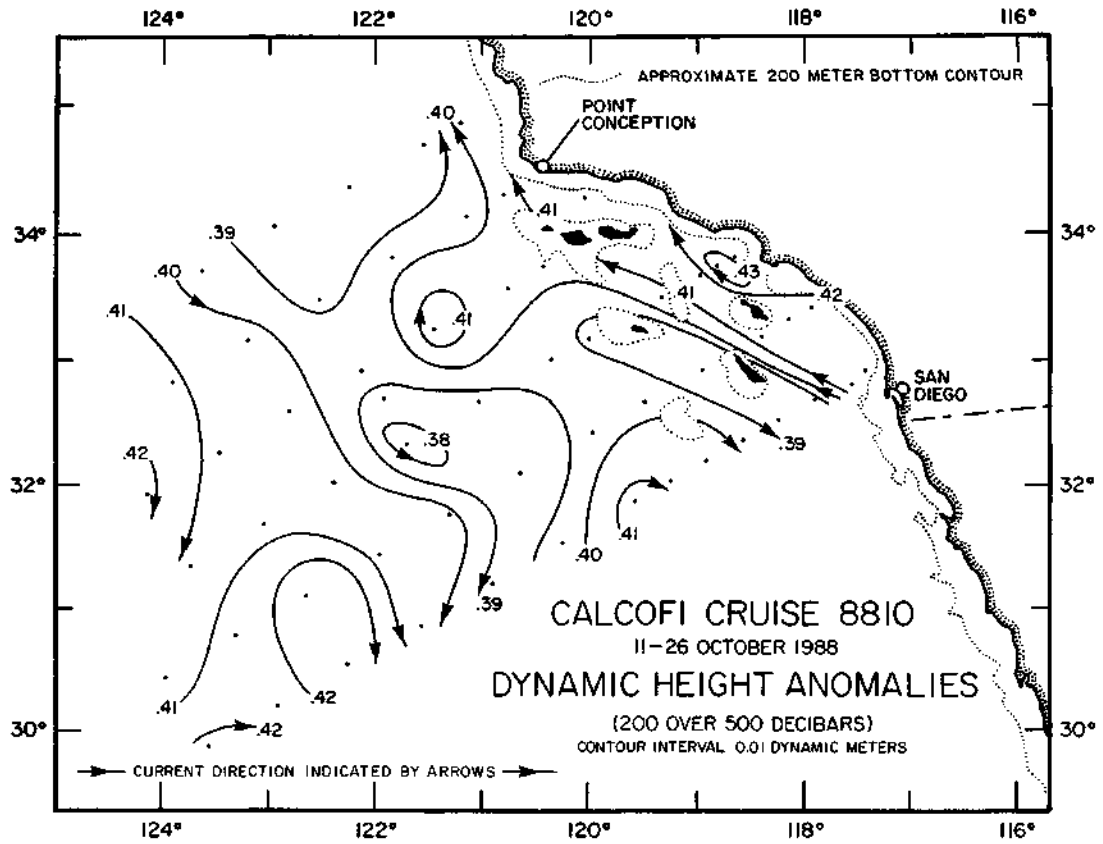


FIGURE 7

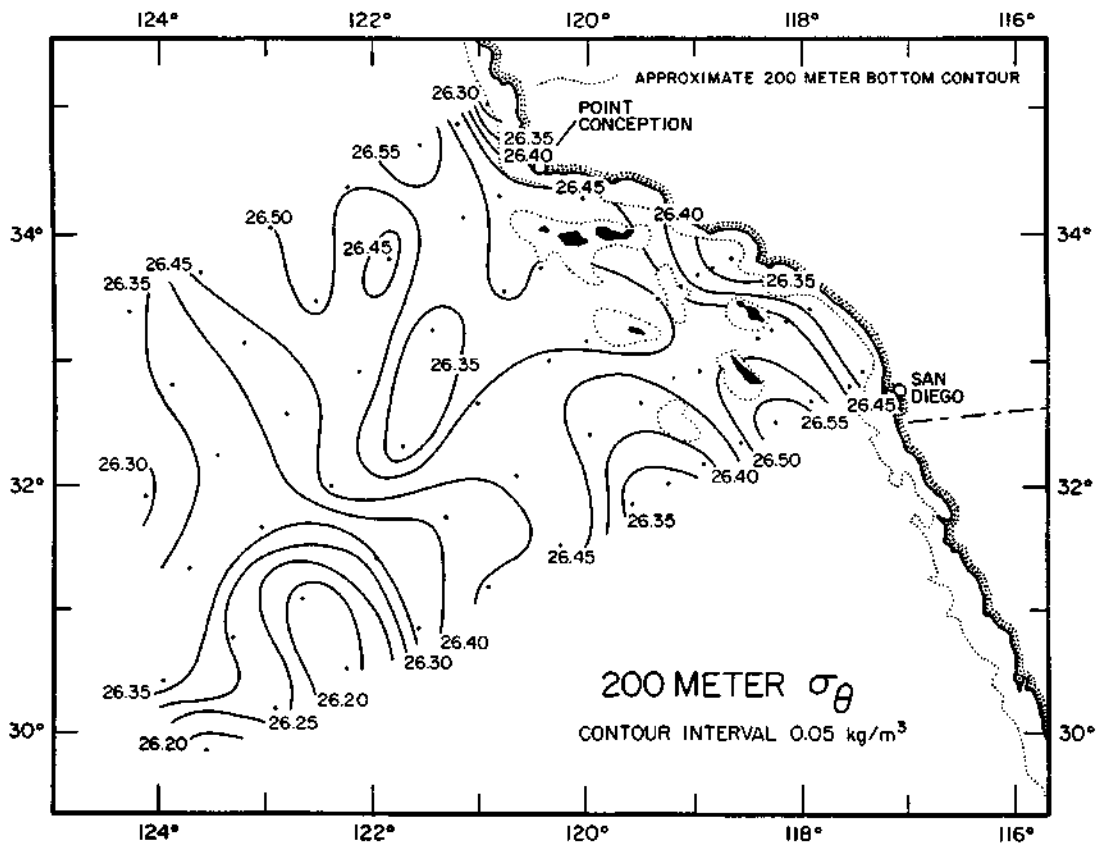


FIGURE 8

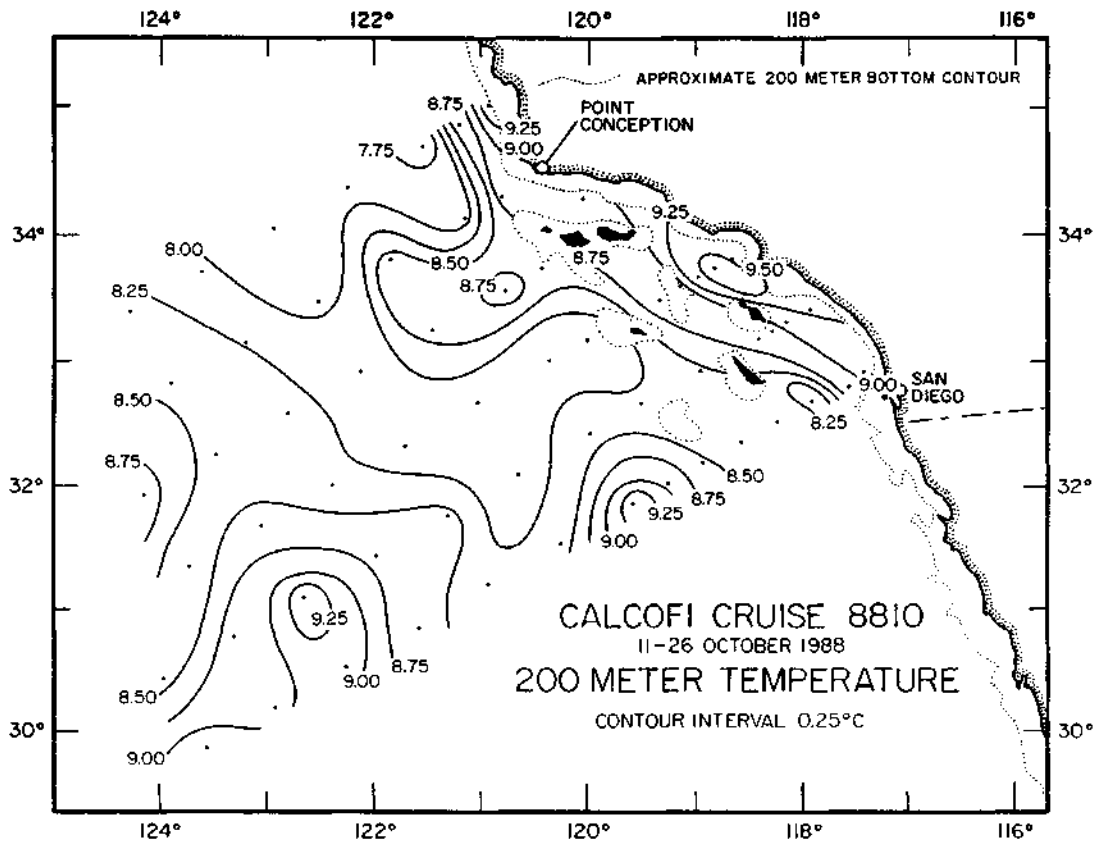


FIGURE 9

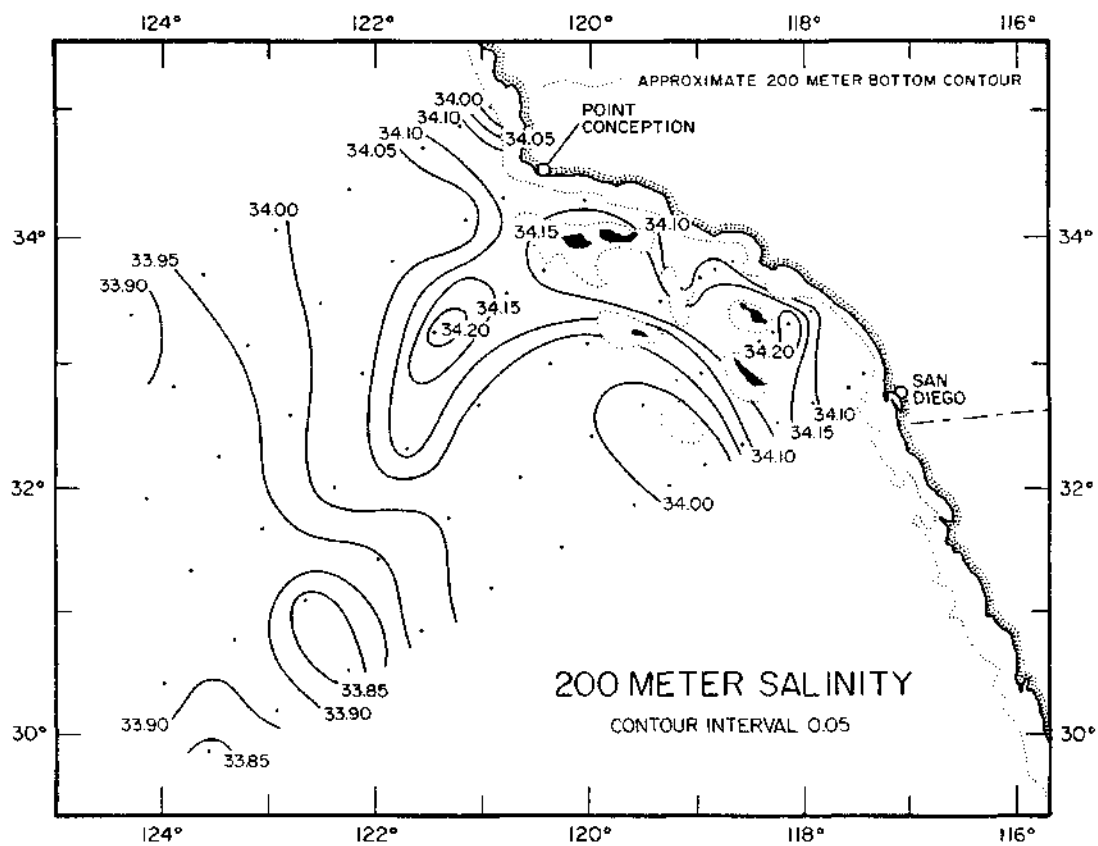


FIGURE 10

PERSONNEL

CalCOFI Cruise 8810

SHIP'S CAPTAIN

Phillip L. Munsch, *RV New Horizon*

PERSONNEL PARTICIPATING IN THE COLLECTION OF DATA

		Participation (Leg)
Hemingway, George T.	Assistant to the Director M L R G , S I O	I
Mullin, Michael M. (Chief Scientists)	Professor, Director of M L R G , S I O	II
Abramenkoff, Dimitry N.	Fishery Biologist, N M F S	I, II
Anderson, George C.	Staff Research Associate, S I O	I, II
Berger, Thomas E.	Student, U C S B	I
Brooks, Elaine R.	Staff Research Associate, S I O	I
Gripp, Sherry L.	Staff Research Associate, S I O	I, II
Gruber, Dennis W.	Marine Technician, S I O	I, II
Hester, Arthur W.	Staff Research Associate, S I O	I, II
Leventhal, Bruce J.	Student, U C I	I
Lowell, William R.	Staff Research Associate, S I O	I, II
Miller, Susan M.	Biological Technician, N M F S	I, II
Pineda, Jesus	Graduate Student, S I O	II
Rodriguez, Angel M.	Graduate Student, S I O	I
Roehri, Marc Cuellar	Student, F C M U A B C	II
Veit, Richard R.	Graduate Student, U C I	II

Leg I: San Diego to Dana Point, CA , 11-17 October 1988

Leg II: Dana Point to San Diego, CA , 17-26 October 1988

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD	AMT	TYPE	
34 13.5 N	119 24.9 W	22/10/88	1451 UTC	35 M	090	04 KT	270 02 04	4	1013.0 MB	16.7 c	16.0 c	8/8	ST		
CAST DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	N03	N02	CHL-A	PHAE0	PRESS
M	DEG C	DEG C	PSS 7 8	THETA			ML/L	PCT	UM/L	UM/L	UM/L	UM/L	UG/L	UG/L	D.BAR
0 ISL	18.03	18.03	33.617	24.207	370.3	0.000	5.98	110.6	1.8	0.20	0.0	0.00	1.41	0.26	0
1 1	18.03	18.03	33.617	24.207	370.3	0.004	5.98	110.6	1.8	0.20	0.0	0.00	1.41	0.26	1
10 ISL	17.07	17.07	33.556	24.391	353.1	0.036	6.03	109.5	2.3	0.26	0.0	0.00	1.00	0.67	10
1 11	16.91	16.91	33.548	24.422	350.1	0.040	6.04	109.3	2.3	0.28	0.0	0.00	0.97	0.72	11
20 ISL	15.72	15.72	33.523	24.676	326.2	0.070	5.45	96.3	5.2	0.49	1.6	0.11	1.92	0.70	20
1 22	15.38	15.38	33.516	24.746	319.6	0.077	5.29	92.9	6.0	0.56	2.3	0.14	2.07	0.70	22
30 ISL	13.33	13.33	33.458	25.134	282.8	0.101	4.83	81.3	8.6	0.93	7.8	0.28	0.82	0.45	30
1 32	12.82	12.82	33.452	25.231	273.7	0.106	4.72	78.6	9.3	1.02	9.2	0.32	0.51	0.39	32

RV NEW HORIZON

CALCOFI CRUISE 8810

STATION 83 42

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD	AMT	TYPE	
34 10.7 N	119 30.8 W	22/10/88	1230 UTC	152 M	260	07 KT			1011.5 MB	16.8 c	15.9 c				
CAST DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	N03	N02	CHL-A	PHAE0	PRESS
M	DEG C	DEG C	PSS 7 8	THETA			ML/L	PCT	UM/L	UM/L	UM/L	UM/L	UG/L	UG/L	D.BAR
1 0	18.38	18.38	33.614	24.118	378.7	0.000	5.76	107.3	2.0	0.25	0.0	0.00	0.47	0.21	0
1 10	18.30	18.30	33.606	24.132	377.8	0.038	5.81	108.0	2.0	0.25	0.0	0.00	0.57	0.27	10
20 ISL	15.46	15.46	33.424	24.658	328.0	0.073	6.06	106.5	3.1	0.37	0.6	0.03	0.90	0.53	20
1 21	15.13	15.13	33.410	24.719	322.1	0.076	6.07	105.9	3.3	0.39	0.7	0.03	0.93	0.55	21
30 ISL	13.47	13.47	33.363	25.032	292.5	0.104	5.65	95.3	4.8	0.64	3.7	0.31	0.78	0.39	30
1 31	13.34	13.34	33.362	25.058	290.1	0.107	5.59	94.0	5.0	0.67	4.1	0.34	0.75	0.37	31
1 42	12.61	12.60	33.396	25.229	274.1	0.138	5.02	83.2	7.0	0.91	8.0	0.44	0.48	0.33	42
50 ISL	12.07	12.06	33.458	25.380	259.9	0.159	4.54	74.4	9.6	1.13	11.9	0.13	0.37	0.27	50
1 52	11.94	11.93	33.476	25.419	256.2	0.164	4.42	72.2	10.3	1.18	12.9	0.05	0.35	0.26	52
1 62	11.43	11.42	33.553	25.573	241.7	0.189	3.98	64.4	13.6	1.35	15.8	0.02	0.20	0.20	62
1 73	10.89	10.88	33.650	25.746	225.5	0.215	3.65	58.4	17.5	1.46	18.4	0.02	0.11	0.14	74
75 ISL	10.80	10.79	33.669	25.777	222.6	0.220	3.58	57.2	18.2	1.49	18.9	0.02	0.10	0.14	76
1 87	10.35	10.34	33.782	25.943	207.0	0.245	3.13	49.5	22.5	1.66	21.3	0.03	0.05	0.12	88
100 ISL	10.16	10.15	33.884	26.056	196.6	0.272	2.73	43.0	26.3	1.84	23.2	0.01	0.02	0.08	101
1 103	10.14	10.13	33.903	26.074	194.9	0.277	2.66	41.9	27.0	1.87	23.6	0.01	0.02	0.07	104
1 123	9.82	9.81	33.971	26.182	185.1	0.315	2.52	39.5	30.2	1.98	25.0	0.03	0.02	0.09	124
1 125 ISL	9.80	9.79	33.975	26.188	184.5	0.319	2.51	39.3	30.4	1.98	25.1	0.03	0.02	0.09	126
1 144	9.64	9.62	34.010	26.242	179.8	0.354	2.46	38.4	31.9	2.01	25.6	0.02	0.01	0.10	145

RV NEW HORIZON

CALCOFI CRUISE 8810

STATION 83 51

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD	AMT	TYPE	
33 52.5 N	120 8.7 W	22/10/88	0645 UTC	100 M	300	20 KT			1013.4 MB	16.1 c	15.2 c				
CAST DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	N03	N02	CHL-A	PHAE0	PRESS
M	DEG C	DEG C	PSS 7 8	THETA			ML/L	PCT	UM/L	UM/L	UM/L	UM/L	UG/L	UG/L	D.BAR
0 ISL	17.15	17.15	33.617	24.419	350.1	0.000	5.77	105.0	3.3	0.34	0.7	0.02	0.99	0.45	0
1 1	17.15	17.15	33.617	24.419	350.2	0.004	5.77	105.0	3.3	0.34	0.7	0.02	0.99	0.45	1
10 ISL	15.34	15.34	33.539	24.773	316.7	0.034	5.87	103.0	4.3	0.49	2.2	0.05	1.76	0.82	10
1 11	15.05	15.05	33.529	24.828	311.4	0.037	5.88	102.5	4.5	0.52	2.5	0.06	1.85	0.86	11
20 ISL	13.33	13.33	33.454	25.131	282.9	0.063	5.35	90.0	6.7	0.78	6.2	0.14	1.33	0.59	20
1 22	13.03	13.03	33.443	25.182	278.0	0.069	5.22	87.3	7.2	0.83	7.0	0.16	1.14	0.50	22
30 ISL	12.54	12.54	33.444	25.279	269.0	0.091	5.04	83.4	8.1	0.91	8.5	0.18	0.63	0.38	30
1 32	12.47	12.47	33.452	25.299	267.2	0.096	4.99	82.5	8.4	0.93	8.9	0.18	0.53	0.35	32
1 42	11.85	11.84	33.558	25.499	248.4	0.122	4.36	71.2	12.7	1.15	13.1	0.04	0.48	0.74	42
50 ISL	10.72	10.71	33.685	25.803	219.6	0.141	3.66	58.3	19.0	1.45	18.1	0.02	0.19	0.30	50
1 52	10.45	10.44	33.716	25.874	212.8	0.145	3.51	55.6	20.5	1.52	19.3	0.02	0.12	0.17	52
1 62	10.18	10.17	33.767	25.960	204.8	0.166	3.26	51.4	23.0	1.67	21.6	0.05	0.09	0.13	62
1 72	10.14	10.13	33.775	25.974	203.8	0.186	3.26	51.3	23.4	1.68	21.7	0.04	0.08	0.15	73
75 ISL	10.03	10.02	33.801	26.013	200.1	0.192	3.19	50.1	24.4	1.71	22.2	0.04	0.07	0.14	76
1 86	9.62	9.61	33.897	26.156	186.7	0.214	2.91	45.3	28.2	1.83	24.0	0.02	0.04	0.09	87

Table with columns: LATITUDE, LONGITUDE, DAY/MO/YR, MESSENGER, BOTTOM, WIND, SPEED, WAVES, WEATHER, BAROMETER, DRY, WET, CLOUD, AMT, TYPE. Includes sub-headers for CAST, DEPTH, TEMP, POT TEMP, SALINITY, SIGMA, SVA, DYN HT, OXYGEN, OXY, SI03, P04, N03, N02, CHL-A, PHAEO, PRESS.

Table with columns: LATITUDE, LONGITUDE, DAY/MO/YR, MESSENGER, BOTTOM, WIND, SPEED, WAVES, WEATHER, BAROMETER, DRY, WET, CLOUD, AMT, TYPE. Includes sub-headers for CAST, DEPTH, TEMP, POT TEMP, SALINITY, SIGMA, SVA, DYN HT, OXYGEN, OXY, SI03, P04, N03, N02, CHL-A, PHAEO, PRESS.

Table with 17 columns: LATITUDE, LONGITUDE, DAY/MO/YR, MESSENGER, BOTTOM, WIND, SPEED, WAVES, WEATHER, BAROMETER, DRY, WET, CLOUD AMT, TYPE. Includes data for station 87.

Table with 17 columns: LATITUDE, LONGITUDE, DAY/MO/YR, MESSENGER, BOTTOM, WIND, SPEED, WAVES, WEATHER, BAROMETER, DRY, WET, CLOUD AMT, TYPE. Includes data for station 90.

Table with columns: LATITUDE, LONGITUDE, DAY/MO/YR, MESSENGER, BOTTOM, WIND, SPEED, WAVES, WEATHER, BAROMETER, DRY, WET, CLOUD, AMT, TYPE. Includes data for STATION 87 100 with various depth measurements.

Table with columns: LATITUDE, LONGITUDE, DAY/MO/YR, MESSENGER, BOTTOM, WIND, SPEED, WAVES, WEATHER, BAROMETER, DRY, WET, CLOUD, AMT, TYPE. Includes data for STATION 87 I10 with various depth measurements.

Table with columns: LATITUDE, LONGITUDE, DAY/MO/YR, MESSENGER, BOTTOM, WIND, SPEED, WAVES, WEATHER, BAROMETER, DRY, WET, CLOUD, AMT, TYPE. Includes data for STATION 90 28 with various depth measurements.

Table with columns: LATITUDE, LONGITUDE, DAY/MO/YR, MESSENGER, BOTTOM, WIND SPEED, WAVES, WEATHER, BAROMETER, DRY, WET, CLOUD, AMT, TYPE. Includes sub-headers: CAST, DEPTH, TEMP, POT TEMP, SALINITY, SIGMA, SVA, DYN HT, OXYGEN, OXY, SI03, P04, N03, N02, CHL-A, PHAEO, PRESS.

Table with columns: LATITUDE, LONGITUDE, DAY/MO/YR, MESSENGER, BOTTOM, WIND SPEED, WAVES, WEATHER, BAROMETER, DRY, WET, CLOUD, AMT, TYPE. Includes sub-headers: CAST, DEPTH, TEMP, POT TEMP, SALINITY, SIGMA, SVA, DYN HT, OXYGEN, OXY, SI03, P04, N03, N02, CHL-A, PHAEO, PRESS.

Table with 15 columns: LATITUDE, LONGITUDE, DAY/MO/YR, MESSENGER, BOTTOM, WIND SPEED, WAVES, WEATHER, BAROMETER, DRY, WET, CLOUD AMT, TYPE. Includes a detailed data section with 15 columns: CAST DEPTH, TEMP, POT TEMP, SALINITY, SIGMA, SVA, DYN HT, OXYGEN, OXY, SI03, P04, N03, N02, CHL-A, PHAE0, PRESS.

Table with 15 columns: LATITUDE, LONGITUDE, DAY/MO/YR, MESSENGER, BOTTOM, WIND SPEED, WAVES, WEATHER, BAROMETER, DRY, WET, CLOUD AMT, TYPE. Includes a detailed data section with 15 columns: CAST DEPTH, TEMP, POT TEMP, SALINITY, SIGMA, SVA, DYN HT, OXYGEN, OXY, SI03, P04, N03, N02, CHL-A, PHAE0, PRESS.

LATITUDE		LONGITUDE		DAY/MO/YR	MESSENGER		BOTTOM	KIND	SPEED	WAVES	WEATHER	BAROMETER	DRY	WET	CLOUD	AMT	TYPE
29 50.8 N		123 34.8 W		14/10/88	1213	UTC	4011 M	230	13 KT			1017.0 MB	20.0 C	18.9 C			
CAST	DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN	HT	OXYGEN	OXY	SI03	P04	N03	N02	CHL-A	PHAE0	PRESS
	M	DEG C	DEG C	PSS 78	THETA				ML/L	PCT	UM/L	UM/L	UM/L	UM/L	UG/L	UG/L	D.BAR
1	0 ISL	19.47	19.47	33.316	23.616	426.7	0.000		5.38	102.1	2.5	0.29	0.1	0.00	0.06	0.02	0
	2	19.47	19.47	33.316	23.616	426.7	0.009		5.38	102.1	2.5	0.29	0.1	0.00	0.06	0.02	2
	10 ISL	19.47	19.47	33.320	23.620	426.7	0.043		5.39	102.3	2.5	0.29	0.1	0.00	0.06	0.01	10
1	18	19.47	19.47	33.334	23.631	425.9	0.077		5.40	102.5	2.5	0.29	0.1	0.00	0.06	0.01	18
	20 ISL	19.45	19.45	33.331	23.634	425.7	0.085		5.40	102.5	2.5	0.29	0.1	0.00	0.06	0.01	20
	30 ISL	19.29	19.28	33.312	23.660	423.5	0.128		5.42	102.5	2.4	0.28	0.1	0.00	0.07	0.02	30
1	33	19.23	19.22	33.306	23.671	422.6	0.140		5.43	102.6	2.4	0.28	0.1	0.00	0.07	0.02	33
1	44	18.95	18.94	33.308	23.744	416.0	0.187		5.51	103.5	2.2	0.29	0.1	0.00	0.09	0.02	44
	50 ISL	17.57	17.56	33.322	24.094	382.7	0.211		5.84	106.9	2.2	0.28	0.1	0.00	0.09	0.03	50
1	54	16.62	16.61	33.348	24.338	359.6	0.225		6.05	108.7	2.2	0.27	0.1	0.00	0.09	0.03	54
1	64	16.01	16.00	33.405	24.522	342.3	0.260		6.02	106.9	2.2	0.27	0.1	0.00	0.11	0.03	64
1	75	15.11	15.10	33.341	24.672	328.2	0.297		6.01	104.8	2.1	0.29	0.1	0.00	0.13	0.05	76
1	84	14.56	14.55	33.301	24.760	320.1	0.327		5.97	102.9	2.3	0.31	0.1	0.00	0.14	0.07	85
1	99	14.30	14.29	33.290	24.807	316.0	0.374		5.78	99.1	2.6	0.33	0.2	0.04	0.24	0.15	100
	100 ISL	14.26	14.25	33.299	24.822	314.6	0.377		5.77	98.9	2.6	0.33	0.3	0.05	0.24	0.15	101
1	115	13.48	13.46	33.430	25.084	289.9	0.423		5.62	94.8	3.4	0.44	1.8	0.13	0.22	0.15	116
	125 ISL	12.88	12.86	33.433	25.207	278.4	0.451		5.48	91.3	4.3	0.53	3.7	0.06	0.18	0.13	126
1	130	12.55	12.53	33.425	25.265	272.9	0.465		5.39	89.2	4.9	0.59	4.8	0.02	0.16	0.12	131
	150 ISL	11.02	11.00	33.455	25.573	243.8	0.517		4.95	79.3	9.7	0.91	10.5	0.00	0.07	0.07	151
1	156	10.59	10.57	33.479	25.667	234.8	0.531		4.79	76.0	11.6	1.02	12.4	0.00	0.05	0.06	157
1	182	9.60	9.58	33.684	25.995	204.0	0.588		3.87	60.2	21.2	1.50	20.3	0.00	0.01	0.03	183
	200 ISL	9.07	9.05	33.820	26.187	185.9	0.623		3.72	57.2	25.6	1.64	22.8	0.00	0.00	0.02	202
1	212	8.79	8.77	33.895	26.290	176.3	0.645		3.62	55.4	27.6	1.67	23.6	0.00	0.00	0.02	214
1	242	8.37	8.34	33.974	26.417	164.7	0.696		3.81	57.7	30.3	1.66	23.7	0.00			244
	250 ISL	8.21	8.18	33.980	26.446	162.0	0.709		3.75	56.6	31.8	1.70	24.3	0.00			252
1	283	7.55	7.52	33.986	26.547	152.6	0.761		3.32	49.4	39.5	1.93	27.8	0.00			285
	300 ISL	7.27	7.24	33.993	26.592	148.4	0.787		3.06	45.2	43.6	2.05	29.4	0.00			302
1	339	6.75	6.72	34.016	26.682	140.2	0.843		2.41	35.2	52.9	2.31	32.9	0.00			342
1	400	6.24	6.20	34.086	26.805	129.1	0.925		1.37	19.8	66.4	2.68	37.5	0.00			403
1	464	5.66	5.62	34.150	26.928	117.7	1.004		0.75	10.7	79.3	2.94	40.6	0.00			468
	500 ISL	5.45	5.41	34.178	26.976	113.4	1.046		0.62	8.8	84.0	3.00	41.4	0.00			504
1	534	5.26	5.22	34.205	27.020	109.5	1.083		0.50	7.1	88.5	3.06	42.2	0.00			539

PRIMARY PRODUCTIVITY CASTS

RV NEW HORIZON

CALCOFI CRUISE 8810

STATION 91 120

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI	DEPTH	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE							
30 15.3 N	123 53.2 W	14/10/88	1936 UTC		32 M	1206 - 1809 PST	1200 PST	1809 PST	87.3 MG C/M2							
DEPTH	TEMP	SALINITY	SIGMA	DISS O2	OXY	SI03	P04	N03	N02	CHL	PHAE0	LIGHT	UPTAKE (MG C/M3)			
M	DEG C	PSS 7 8	THETA	ML/L	PCT	UM/L	UM/L	UM/L	UM/L	UG/L	UG/L	PCT	1	2	MEAN	DARK
0	18.66	33.117	23.669	5.50	102.7	2.8	0.30	0.1	0.00	0.07	0.02	99.	0.63	0.49	0.56	0.06
23	18.55	33.115	23.696	5.50	102.5	2.6	0.31	0.1	0.00	0.09	0.01	35.	1.7	1.7	1.7	0.07
39	18.21	33.147	23.805	5.58	103.3	2.5	0.30	0.1	0.00	0.09	0.02	16.	1.2	1.1	1.2	0.12
71	14.57	33.162	24.650	6.16	106.1	2.8	0.30	0.0	0.00	0.17	0.09	3.7	0.21	0.21	0.21	0.06
102	12.98	33.378	25.144	5.60	93.5	4.2	0.47	2.5	0.11	0.21	0.18	0.79	0.41	0.38	0.40	0.02
129	11.30	33.300	25.401	5.12	82.4	8.8	0.85	9.2	0.02	0.09	0.11	0.22	0.06	0.04	0.05	0.03
143	10.67	33.469	25.645	4.83	76.8	11.5	0.98	11.8	0.01	0.05	0.10					
173	9.23	33.674	26.047	4.27	65.8	20.2	1.39	19.0	0.01	0.01	0.05					
205	8.56	33.889	26.320	3.86	58.7	27.5	1.61	22.8	0.00	0.00	0.03					

RV NEW HORIZON

CALCOFI CRUISE 8810

STATION 93 26.7

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI	DEPTH	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE							
32 57.5 N	117 18.6 W	11/10/88	1911 UTC		12 M	1136 - 1749 PST	1136 PST	1748 PST	1000.8 MG C/M2							
DEPTH	TEMP	SALINITY	SIGMA	DISS O2	OXY	SI03	P04	N03	N02	CHL	PHAE0	LIGHT	UPTAKE (MG C/M3)			
M	DEG C	PSS 7 8	THETA	ML/L	PCT	UM/L	UM/L	UM/L	UM/L	UG/L	UG/L	PCT	1	2	MEAN	DARK
0	19.81	33.593	23.740	6.29	120.3	5.2	0.16	0.1	0.00	2.03	0.02	99.	92.2	84.6	88.4	0.37
9	17.64	33.519	24.227	6.77	124.2	4.8	0.20	0.1	0.00	1.77	0.17	35.	25.6	25.9	25.7	0.42
14	14.70	33.351	24.767	6.45	111.6	5.9	0.55	0.2	0.05	2.69	0.62	16.	41.6	40.0	40.8	0.47
27	12.58	33.376	25.219	4.98	82.5	8.5	0.83	7.0	0.32	1.11	0.37	3.7	4.2	3.9	4.0	0.18
39	11.55	33.453	25.473	4.56	73.9	11.6	1.11	13.0	0.04	0.26	0.23	0.79	0.54	0.42	0.48	0.03
50	11.53	33.509	25.520	4.25	68.9	14.0	1.21	14.6	0.08	0.18	0.21	0.22	0.06	0.06	0.06	0.03

RV NEW HORIZON

CALCOFI CRUISE 8810

STATION 93 50

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI	DEPTH	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE							
32 11.7 N	118 55.1 W	12/10/88	1857 UTC		26 M	1148 - 1756 PST	1142 PST	1753 PST	159.1 MG C/M2							
DEPTH	TEMP	SALINITY	SIGMA	DISS O2	OXY	SI03	P04	N03	N02	CHL	PHAE0	LIGHT	UPTAKE (MG C/M3)			
M	DEG C	PSS 7 8	THETA	ML/L	PCT	UM/L	UM/L	UM/L	UM/L	UG/L	UG/L	PCT	1	2	MEAN	DARK
1	18.16	33.400	24.009	5.51	102.1	2.8	0.28	0.0	0.00	0.14	0.03	99.	3.1	3.0	3.0	0.27
20	18.12	33.409	24.026	5.52	102.2	2.1	0.29	0.0	0.00	0.16	0.04	35.	3.0	3.1	3.1	0.05
33	16.94	33.301	24.227	5.87	106.1	2.0	0.29	0.0	0.00	0.21	0.08	16.	2.1	2.1	2.1	0.04
59	13.62	33.114	24.810	6.13	103.6	2.5	0.33	0.0	0.00	0.25	0.19	3.7	0.80	0.81	0.80	0.03
85	12.65	33.235	25.097	5.66	93.8	3.7	0.53	3.5	0.07	0.31	0.29	0.79	0.63	0.66	0.64	0.01
108	11.64	33.413	25.427	4.94	80.2	8.7	0.93	10.7	0.02	0.12	0.14	0.22	0.05	0.05	0.05	0.02

RV NEW HORIZON

CALCOFI CRUISE 8810

STATION 93 90

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI	DEPTH	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE							
30 50.6 N	121 35.4 W	13/10/88	1915 UTC		33 M	1203 - 1810 PST	1152 PST	1804 PST	103.4 MG C/M2							
DEPTH	TEMP	SALINITY	SIGMA	DISS O2	OXY	SI03	P04	N03	N02	CHL	PHAE0	LIGHT	UPTAKE (MG C/M3)			
M	DEG C	PSS 7 8	THETA	ML/L	PCT	UM/L	UM/L	UM/L	UM/L	UG/L	UG/L	PCT	1	2	MEAN	DARK
0	18.92	33.354	23.785	5.44	102.2	2.7	0.30	0.1	0.00	0.07	0.01	99.	1.2	1.1	1.2	0.05
23	18.80	33.352	23.815	5.46	102.3	2.7	0.31	0.1	0.00	0.08	0.01	35.	1.5	1.6	1.5	0.08
41	15.89	33.171	24.368	6.14	108.6	2.7	0.29	0.1	0.01	0.12	0.02	16.	1.1	1.0	1.1	0.07
74	13.82	33.312	24.923	5.89	100.0	3.0	0.35	0.1	0.01	0.30	0.17	3.7	0.39	0.55	0.47	0.03
107	11.47	33.251	25.332	5.31	85.8	7.0	0.82	8.0	0.02	0.19	0.15	0.79	0.50	0.49	0.50	0.01
135	10.30	33.612	25.820	4.24	66.9	16.8	1.31	16.9	0.01	0.04	0.05	0.22	0.01	-0.01	0.00	0.03

Secchi Disk Observations

CalCOFI Cruise 8810

Line	Sta.	Day	Mo	Local Time (+8: PST)	Secchi Depth (m)	Forel Water Color	Weather	Clouds Type/Amt
77	49	25	10	1147	10	6	2	ST 8/8
77	51	25	10	1030	12	5	2	ST 8/8
77	80	24	10	1337	16	3	2	SC 8/8
77	86	24	10	1040	15	3	2	SC 8/8
77	90	24	10	0802	18	2	2	SC 8/8
80	90	23	10	1107	23	2	1	ST 7/8
82	47	22	10	1025	11	6	4	ST 8/8
83	40.6	22	10	0658	15	5	4	ST 8/8
83	60	21	10	1435	19	2	1	SC 7/8
83	70	21	10	0845	25	3	2	ST 8/8
83	70	21	10	1014	21	3	2	ST 8/8
83	100	20	10	1355	25	2	2	SC 8/8
83	106	20	10	1042	26	2	2	SC 8/8
83	110	20	10	0738	25	2	1	SC 7/8
87	33	17	10	1605	12	4	0	— 0
87	50	18	10	1048	11	4	2	ST 8/8
87	55	18	10	1450	11	4	2	SC 8/8
87	87	19	10	1040	24	2	2	SC 8/8
87	90	19	10	1251	24	2	2	SC 8/8
90	28	17	10	0730	17	3	1	ST 7/8
90	45	16	10	1615	11	4	1	CI 1/8
90	50	16	10	1040	40	1	0	— 0
90	53	16	10	0825	30	2	0	— 0
90	80	15	10	1525	26	2	1	SC 5/8
90	90	15	10	1104	22	1	2	ST 8/8
90	120	14	10	1450	32	1	1	AS 5/8
91	120	14	10	1115	32	1	1	AS 5/8
93	26.7	11	10	1057	12	4	2	ST 8/8
93	28	11	10	1317	16	3	1	ST 7/8
93	30	11	10	1618	17	2	2	SC 8/8
93	50	12	10	0925	26	3	2	ST 8/8
93	50	12	10	1040	26	3	2	ST 8/8
93	55	12	10	1310	23	2	2	SC 8/8
93	90	13	10	1100	33	1	1	SC 7/8
93	100	13	10	1645	32	1	1	CC 6/8

CaLCOFI Cruise 8810

MACROZOOPLANKTON BIOMASS
Net Mesh Size: 0.505 mm

Line	Stt.	Position		Date Mo/Day	Time(UTC)		Water Volume Strained (m)	Max. Tow Depth (m)	Volume per 1000 m Strained	
					Start	End			Total (cm)	Small (cm)
77	49	35 05.4N	120 47.2W	10/25	2045	2052	124	54	32	32
77	51	35 02.1N	120 55.7W	10/25	1754	1816	439	208	157	157
77	55	34 53.8N	121 12.5W	10/25	1445	1507	417	214	101	101
77	60	34 43.1N	121 33.3W	10/25	0845	0907	440	205	80	80
77	70	34 23.6N	122 15.0W	10/25	0425	0447	425	211	33	33
77	80	34 04.0N	122 57.2W	10/24	2252	2314	453	214	29	29
77	90	33 43.4N	123 37.9W	10/24	1630	1652	431	210	28	28
77	100	33 23.7N	124 19.5W	10/24	1051	1113	439	218	18	18
80	51	34 26.7N	120 32.1W	10/26	0155	0202	145	64	55	55
80	55	34 19.4N	120 49.3W	10/26	0500	0522	433	209	162	162
80	60	34 09.6N	121 09.6W	10/23	0255	0317	427	212	405	405
80	70	33 49.3N	121 51.8W	10/23	0844	0906	451	216	38	38
80	80	33 29.5N	122 32.8 W	10/23	1358	1420	431	216	37	37
80	90	33 09.2N	123 13.9W	10/23	1950	2012	447	225	31	31
80	100	32 49.5N	123 55.2W	10/24	0520	0542	445	212	25	25
82	47	34 17.7N	120 01.5W	10/22	2006	2028	411	212	78	66
83	40.6	34 13.3N	119 25.5W	10/22	1520	1524	77	35	26	26
83	42	34 10.9N	119 31.8W	10/22	1330	1346	255	149	35	35
83	51	33 52.5N	120 08.8W	10/22	0700	0710	182	82	5	5
83	55	33 45.5N	120 26.0W	10/22	0400	0422	410	210	110	110
83	60	33 33.9N	120 46.0W	10/21	2355	0017	413	212	143	143
83	70	33 14.4N	121 27.0W	10/21	1710	1732	426	210	42	42
83	80	32 55.0N	122 07.8W	10/21	1133	1155	424	212	61	61
83	90	32 34.5N	122 49.1W	10/21	0520	0542	444	211	36	36
83	100	32 15.4N	123 29.4W	10/20	2322	2345	449	226	11	11
83	110	31 55.3N	124 10.7W	10/20	1627	1649	429	213	5	5
87	33	33 53.1N	118 29.7W	10/18	0040	0046	105	48	38	38
87	35	33 49.8N	118 38.0W	10/18	0408	0430	416	213	60	48
87	39.5	33 41.4N	118 56.6W	10/18	1018	1040	413	214	303	303
87	45	33 29.9N	119 18.4W	10/18	1506	1528	402	211	27	27
87	50	33 19.0N	119 39.3W	10/18	1828	1835	129	55	109	109
87	55	33 09.6N	120 01.2W	10/19	0030	0052	427	209	260	260
87	60	32 59.9N	120 19.9W	10/19	0420	0442	435	209	80	80
87	70	32 40.1N	121 03.1W	10/19	1003	1025	442	209	120	41
87	80	32 19.6N	121 43.3W	10/19	1528	1550	426	212	33	33
87	90	31 59.4N	122 24.2W	10/19	2200	2222	437	211	16	16
87	100	31 39.7N	123 04.1W	10/20	0340	0402	484	214	19	19
87	110	31 20.3N	123 45.5W	10/20	0954	1016	459	212	15	15
90	28	33 28.7N	117 45.7W	10/17	1556	1602	118	50	34	34
90	30	33 24.7N	117 53.9W	10/17	1347	1409	405	217	42	42
90	35	33 14.4N	118 15.1W	10/17	0840	0902	413	207	34	34
90	37	33 10.6N	118 23.3W	10/17	0540	0602	426	214	26	26
90	45	32 54.6N	118 56.2W	10/17	0035	0057	408	213	64	64
90	53	32 39.7N	119 28.8W	10/16	1632	1654	441	206	5	5
90	60	32 25.5N	119 58.2W	10/16	1224	1246	433	214	35	35
90	70	32 05.5N	120 39.2W	10/16	0615	0637	457	212	72	72
90	80	31 45.0N	121 19.1W	10/16	0020	0042	439	216	9	9
90	90	31 25.6N	121 59.8W	10/15	1808	1830	440	211	2	2
90	100	31 05.7N	122 40.2W	10/15	1140	1202	439	217	7	7
90	110	30 46.5N	123 20.5W	10/15	0625	0647	461	218	11	11
90	120	30 25.8N	124 01.0W	10/15	0030	0052	458	214	2	2
93	26.8	32 57.3N	117 18.9W	10/11	1947	1954	145	55	110	110
93	28	32 54.5N	117 23.7W	10/11	2223	2245	435	209	28	28
93	30	32 50.7N	117 32.5W	10/12	0140	0202	414	216	63	63
93	35	32 41.0N	117 53.4W	10/12	0540	0602	442	224	165	95
93	40	32 30.7N	118 13.3W	10/12	0948	1010	444	204	101	101
93	45	32 20.9N	118 33.7W	10/12	1316	1338	403	215	52	52
93	50	32 11.0N	118 54.1W	10/12	1746	1808	423	211	12	12
93	55	32 00.7N	119 14.3W	10/12	2228	2250	415	217	7	7
93	60	31 51.1N	119 34.7W	10/13	0225	0247	415	216	31	31
93	70	31 31.2N	120 16.7W	10/13	0824	0846	442	210	183	183
93	80	31 10.6N	120 55.3W	10/13	1319	1341	408	210	32	32
93	90	30 50.4N	121 35.4W	10/13	2015	2037	410	218	34	34
93	100	30 30.4N	122 15.9W	10/14	0140	0202	437	214	9	9
93	110	30 10.2N	122 56.2W	10/14	0725	0747	433	211	12	12
93	120	29 50.6N	123 34.9W	10/14	1241	1303	433	213	7	7