UNIVERSITY OF CALIFORNIA SCRIPPS INSTITUTION OF OCEANOGRAPHY

data report

PHYSICAL AND CHEMICAL DATA

CalCOFI Cruise 6707
19 June - 20 July 1967

and

CalCOFI Cruise 6712
5-20 December 1967

SIO Reference 69-8

UNIVERSITY OF CALIFORNIA

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Sponsored by

Marine Research Committee

SIO Reference 69-8

Approved for distribution:

W. A. Nierenberg

W. A. Nierenberg, Director

CONTENTS

INTRODUCTION

The data in this report were collected on Cruises 6707 and 6712 of the California Cooperative Fisheries Investigations (CalCOFI) program by the RV Ellen B. Scripps and RV Horizon of the Scripps Institution of Oceanography. The first two digits in this cruise-numbering system represent the year of the cruise; the last two digits, the month. The cruises preceding these in the series are 6607, 6609 and Special Cruise 6608 all of which appear in SIO Ref. 68-21; and 6610, 6612 and Special Cruise 6611 all of which appear in SIO Ref. 69-2.

These data were collected in part and processed completely by personnel of the Data Collection and Processing Group (DCPG, MLR), Scripps Institution of Oceanography.

TABULATED DATA

Data for both cruises presented in this report were obtained by bottle casts and by the in situ Salinity/Temperature/Depth Monitoring and Recording System (STD) and appear in two forms:

1. For each station on which an STD lowering was made, temperature and salinity values at standard levels of depth were read, corrections applied as indicated by continuing comparison with the bottle cast observations and the usual computations carried out. These data appear on the right half of the page under Standard Levels of Depth.

2. For those stations on which a bottle cast only was made or on which a bottle cast was made in addition to the STD lowering, the bottle cast data appear on the left of the page under Observed Levels of Depth, and standard depth values interpolated and computed from the bottle cast data, to the right.

The data tabulated are of the same type as have previously appeared in these reports; the column headings from the computer are explained as follows:

Z	Depth in meters	
T	Temperature	°C
S	Salinity	‰
OXY	Oxygen	ml/L
PHO	Phosphate	μg at/L
SIL	Silicate	μg at/L
NIT	Nitrite	μg at/L
D*T	δ_T	cl/ton
SIG*T	σ_t	g/L
DD	ΔD	dyn. m

STANDARD PROCEDURES

In situ Salinity/Temperature/Depth Recorder

The manufacturer of the STD claims for the temperature an accuracy of ±0.05°C on all ranges with repeatability of ±0.01°C and for the salinity an accuracy of ±0.03‰ on all ranges with repeatability of ±0.01‰. [1] Except for the depth range corresponding to the steepest part of the thermocline, where the salinity trace appears to fluctuate more widely than the bottle samples can confirm, the results of this cruise support the manufacturer's claims.

Continuing comparison of the data from each STD lowering with the sample bottle observations for the corresponding location resulted in the following corrections being applied to the standard depth values tabulated for the STD.

For Cruise 6707 the temperature was accepted without correction but attempts at adjusting the salinity resulted in corrections varying from -0.53‰ to +0.05‰. This wide range was not the result of sensor malfunction but of various adjustments made to keep the analogue recorder in operation.

Cruise 6712 required temperature corrections varying with depth of -0.07°C at the surface to -0.15°C at 500 meters. The salinity again required a greater correction varying from +0.40‰ to -0.04‰.

Hydrographic Casts

The observed data have been plotted and then evaluated using the method described by Klein. [2] This involves consideration of their variation as functions of density or depth and their relations to each other, and comparison with concurrent bathythermograph or STD observations and with previous or adjacent observations. The Nansen-bottle-cast data are tabulated at observed depths; the values at standard depths are computer interpolations according to a modified Rattray technique, [3] except that some property values at standard depths have been determined from consideration of other information such as bathythermograph traces and adjacent stations. These property values were entered in the "observed" columns to prevent instabilities or to indicate features not covered by the hydrographic cast. The values are indicated by notations (see FOOTNOTES).

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[1] In situ Salinity/Temperature/Depth Monitoring and Recording System, Model 9006, Tech. Rep. No. 102, HYTECH Marine Products, The Bissett-Berman Corporation.

[2] Klein, Hans T. A new technique for processing physical oceanographic data. MS.

[3] Rattray, Maurice (1962). Interpolation errors and oceanographic sampling. Deep-Sea Res. 9: 25-37.

To indicate degree of accuracy, temperatures are recorded in tenths of a degree when obtained by bucket thermometer, thermograph, or bathythermograph, while temperatures from reversing thermometers or the STD are recorded in hundredths of a degree. The salinity values obtained by salinometer are recorded to three decimal places, provided they meet accepted standards. The values recorded "have a reproducibility of ±0.004‰ salinity at the 95 per cent probability level, and a probable accuracy of ±0.01‰ salinity or better at the same level of probability."[4/] The values are recorded to two decimal places when only one determination per sample was obtained, or where there is doubt concerning the accuracy of a particular sample, or of all samples on a station. The accuracy of all samples obtained by salinometer and recorded to two decimal places is believed to be equal to or better than those obtained by manual titration.

On stations consisting of bottle casts only, extrapolated values and values interpolated between remote observations are not indicated but can be determined from the tabulation of observed depths. A hyphen is used to indicate a missing observed or interpolated value. The time on these stations is the time of messenger release for the bottle cast. The time listed for all STD stations is the startdown time for the lowering, usually about one-half hour before the bottle cast. When more than one bottle cast was made on station, messenger times and wire angles are given in the order of increasing depth and a significant change in position during a multiple cast is listed similarly. Multiple casts are indicated by a letter following all observed depths of each cast except the cast originating at the surface. Footnotes corresponding to each letter will explain the type of cast.

On stations where more than one cast was lowered, slight discrepancies in the property values may be noted. These may be caused by changes in geographical position, real changes with time, slight errors in measurement or a combination of these factors. Values at standard depths in the area of these discrepancies may be determined from reconciliation of the plotted observed values and entered in the "observed" columns with notations.

FOOTNOTES

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

Values which are not used in interpolation because they seem to be in error without apparent reason are indicated by the following notation.

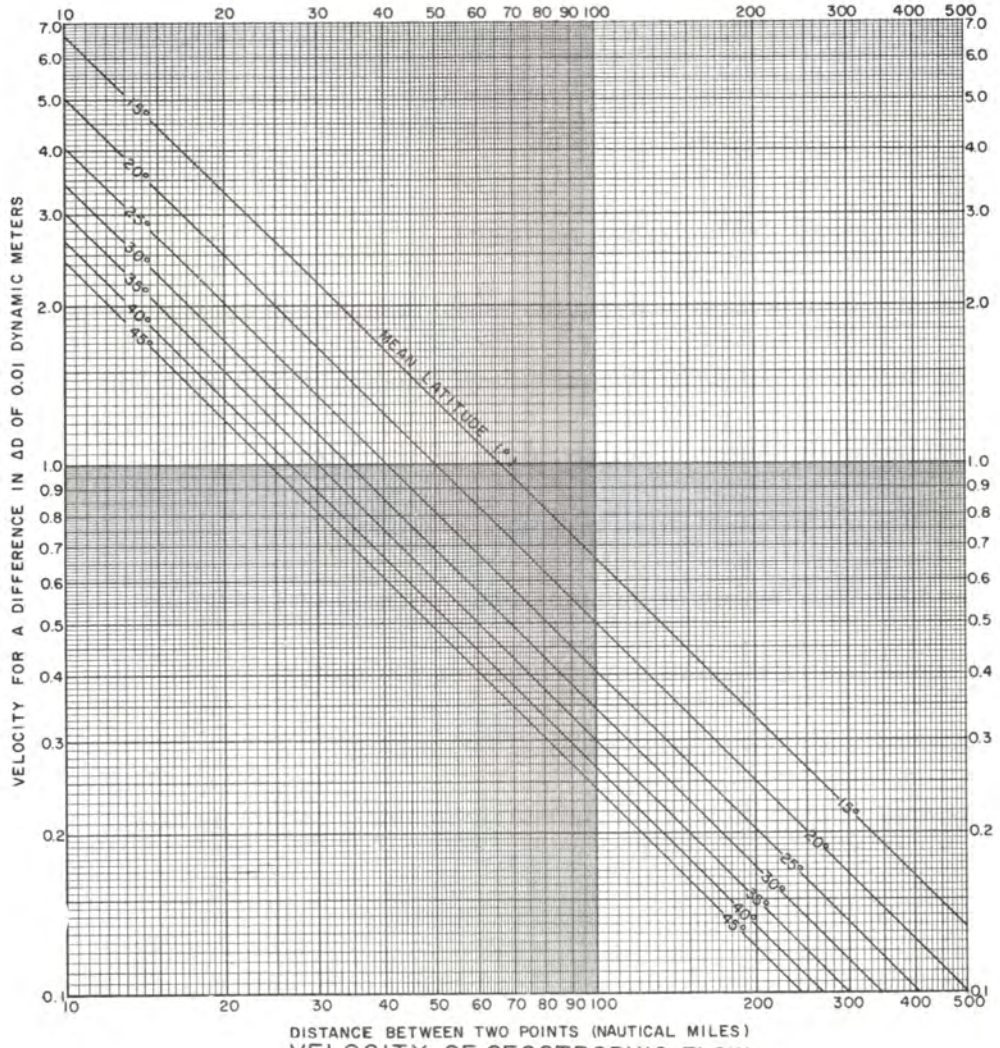
u: uncertain value

[4/] Quotation from Department of Oceanography, University of Washington, Tech. Rep. No. 66, UW Ref. 60-18, October 1960.

Values at standard levels of depth entered in the observed columns to limit machine interpolations may have either of the following notations.

k: a value determined from another measurement such as a bathythermogram or STD recording.

g: a value determined from considerations such as stability or previous or surrounding stations.



VELOCITY OF GEOSTROPHIC FLOW
(NAUTICAL MILES PER DAY)

cm/sec	0	1	2	3	4	5	6	7	8	9
0	KNOTS / N.M./DAY	0.02 / 0.47	0.04 / 0.93	0.06 / 1.40	0.08 / 1.86	0.10 / 2.33	0.12 / 2.80	0.14 / 3.26	0.16 / 3.73	0.17 / 4.20
10	0.19 / 4.66	0.21 / 5.13	0.23 / 5.59	0.25 / 6.06	0.27 / 6.53	0.29 / 6.99	0.31 / 7.46	0.33 / 7.93	0.35 / 8.39	0.37 / 8.86
20	0.39 / 9.32	0.41 / 9.79	0.43 / 10.26	0.45 / 10.72	0.47 / 11.19	0.49 / 11.66	0.51 / 12.12	0.52 / 12.59	0.54 / 13.05	0.56 / 13.52
30	0.58 / 13.99	0.60 / 14.45	0.62 / 14.92	0.64 / 15.38	0.66 / 15.85	0.68 / 16.32	0.70 / 16.78	0.72 / 17.25	0.74 / 17.72	0.76 / 18.18
40	0.78 / 18.65	0.80 / 19.11	0.82 / 19.58	0.84 / 20.05	0.85 / 20.51	0.87 / 20.98	0.89 / 21.45	0.91 / 21.91	0.93 / 22.38	0.95 / 22.84
50	0.97 / 23.31	0.99 / 23.78	1.01 / 24.24	1.03 / 24.71	1.05 / 25.17	1.07 / 25.64	1.09 / 26.11	1.11 / 26.57	1.13 / 27.04	1.15 / 27.51
60	1.17 / 27.98	1.18 / 28.44	1.20 / 28.90	1.22 / 29.37	1.24 / 29.84	1.26 / 30.30	1.28 / 30.77	1.30 / 31.24	1.32 / 31.70	1.34 / 32.17
70	1.36 / 32.63	1.38 / 33.10	1.40 / 33.57	1.42 / 34.03	1.44 / 34.50	1.46 / 34.96	1.48 / 35.43	1.50 / 35.90	1.52 / 36.36	1.53 / 36.83
80	1.55 / 37.30	1.57 / 37.76	1.59 / 38.23	1.61 / 38.69	1.63 / 39.16	1.65 / 39.63	1.67 / 40.09	1.69 / 40.56	1.71 / 41.03	1.73 / 41.49
90	1.75 / 41.96	1.77 / 42.42	1.79 / 42.89	1.81 / 43.36	1.83 / 43.82	1.85 / 44.29	1.86 / 44.76	1.88 / 45.22	1.90 / 45.69	1.92 / 46.15
100	1.94 / 46.62	1.96 / 47.09	1.98 / 47.55	2.00 / 48.02	2.02 / 48.48	2.04 / 48.95	2.06 / 49.42	2.08 / 49.88	2.10 / 50.35	2.12 / 50.82

CONVERSION TABLE
(CENTIMETERS / SECOND – KNOTS – NAUTICAL MILES / DAY)

1 cm/sec = 0.019 kts = 0.466 NAUTICAL MILES / DAY
1 kt = 24 NAUTICAL MILES / DAY = 51.48 cm/sec
1 NAUTICAL MILE / DAY = 0.042 kts = 2.14 cm/sec

FIGURES
Cruise 6712

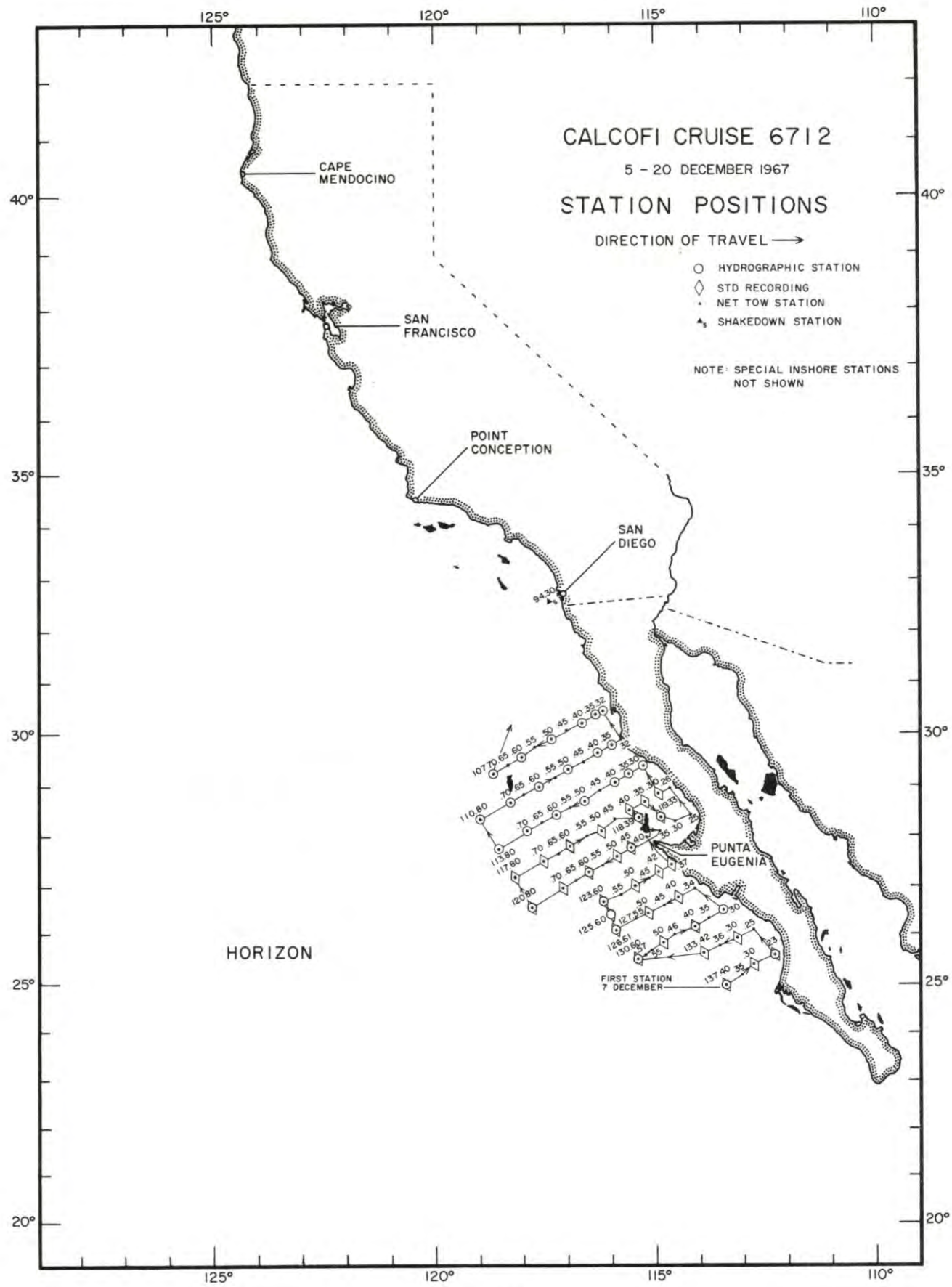

CALCOFI CRUISE 6712
5 - 20 DECEMBER 1967
STATION POSITIONS
DIRECTION OF TRAVEL →
HYDROGRAPHIC STATION
STD RECORDING
NET TOW STATION
SHAKEDOWN STATION
NOTE: SPECIAL INSHORE STATIONS NOT SHOWN
CAPE MENDOCINO
SAN FRANCISCO
POINT CONCEPTION
SAN DIEGO
PUNTA EUGENIA
HORIZON
FIRST STATION 7 DECEMBER
125°
120°
115°
110°
40°
35°
30°
25°
20°

FIGURE 1

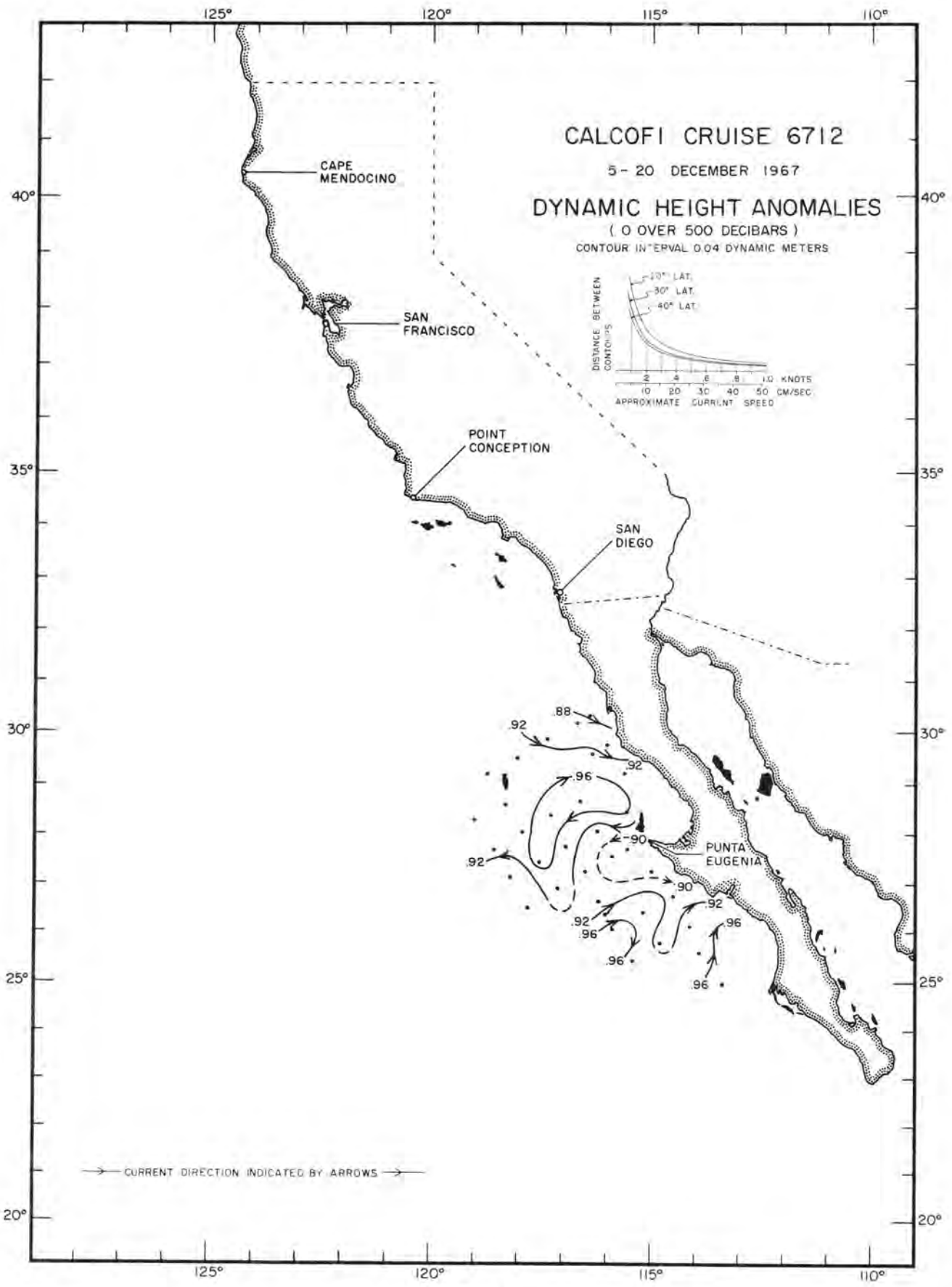

CALCOFI CRUISE 6712
5 - 20 DECEMBER 1967
DYNAMIC HEIGHT ANOMALIES
(0 OVER 500 DECIBARS)
CONTOUR INTERVAL 0.04 DYNAMIC METERS
DISTANCE BETWEEN CONTOURS
20° LAT.
30° LAT.
40° LAT.
.2 .4 .6 .8 1.0 KNOTS
10 20 30 40 50 CM/SEC
APPROXIMATE CURRENT SPEED
CAPE MENDOCINO
SAN FRANCISCO
POINT CONCEPTION
SAN DIEGO
PUNTA EUGENIA
.88
.92
.92
.96
.90
.92
.92
.90
.92
.96
.96
.96
.96
CURRENT DIRECTION INDICATED BY ARROWS
125°
120°
115°
110°
40°
35°
30°
25°
20°

FIGURE 2

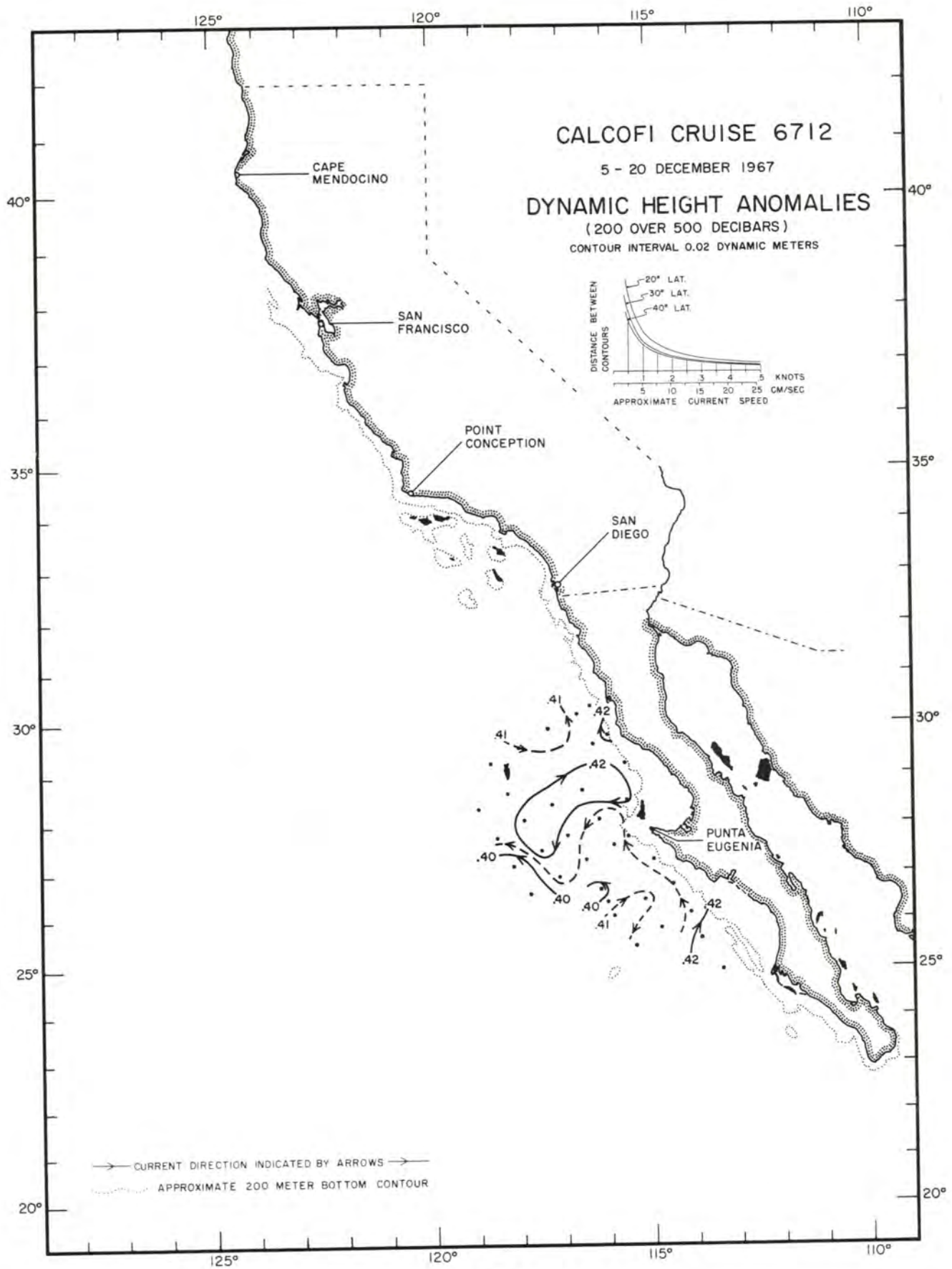

CALCOFI CRUISE 6712
5 - 20 DECEMBER 1967
DYNAMIC HEIGHT ANOMALIES
(200 OVER 500 DECIBARS)
CONTOUR INTERVAL 0.02 DYNAMIC METERS
20° LAT.
30° LAT.
40° LAT.
DISTANCE BETWEEN CONTOURS
1 2 3 4 5 KNOTS
5 10 15 20 25 CM/SEC
APPROXIMATE CURRENT SPEED
CAPE MENDOCINO
SAN FRANCISCO
POINT CONCEPTION
SAN DIEGO
PUNTA EUGENIA
125°
120°
115°
110°
40°
35°
30°
25°
20°
.41
.42
.40
CURRENT DIRECTION INDICATED BY ARROWS
APPROXIMATE 200 METER BOTTOM CONTOUR

FIGURE 3

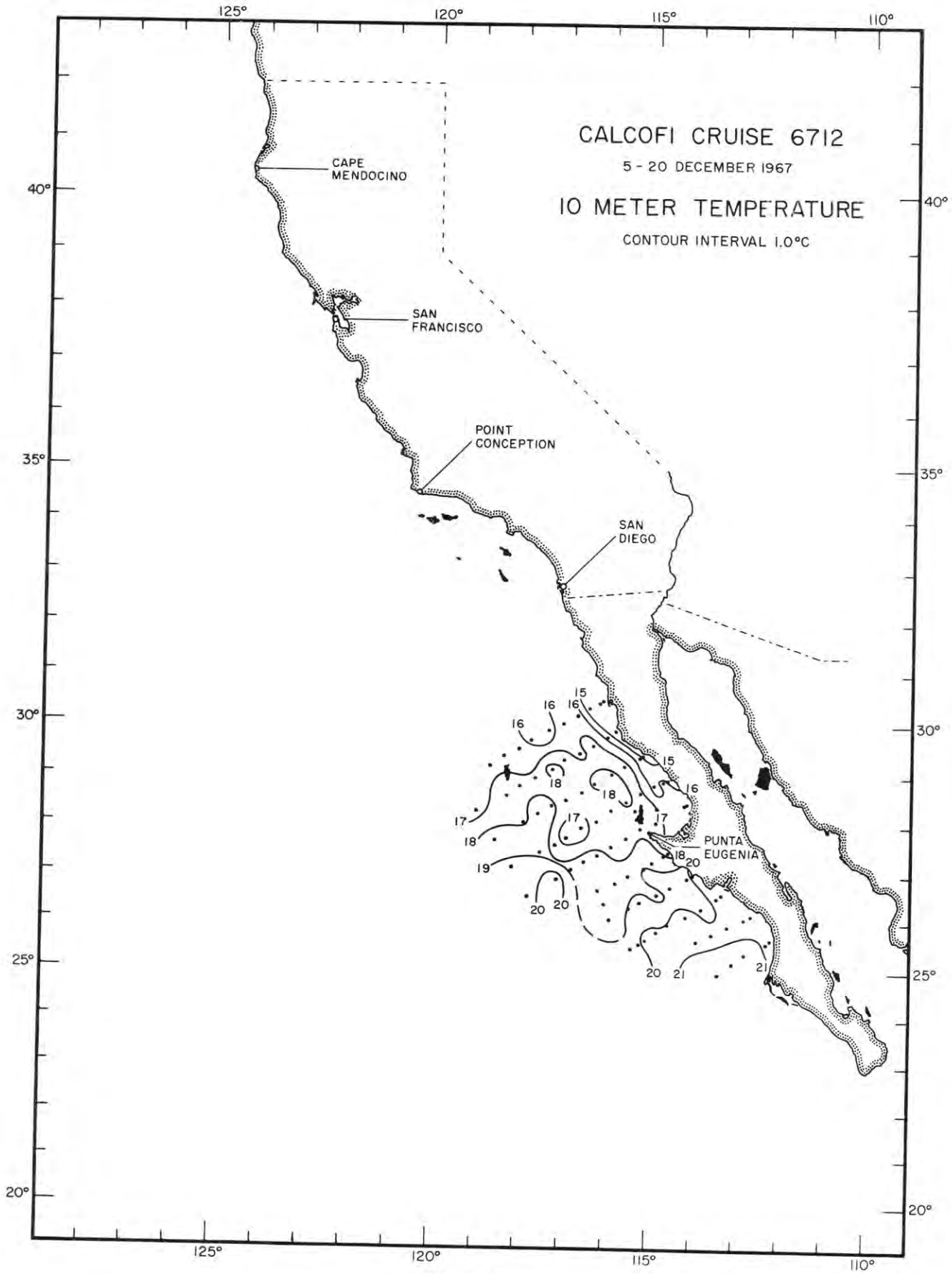

CALCOFI CRUISE 6712
5 - 20 DECEMBER 1967
10 METER TEMPERATURE
CONTOUR INTERVAL 1.0°C
CAPE MENDOCINO
SAN FRANCISCO
POINT CONCEPTION
SAN DIEGO
PUNTA EUGENIA
125°
120°
115°
110°
40°
35°
30°
25°
20°

FIGURE 4

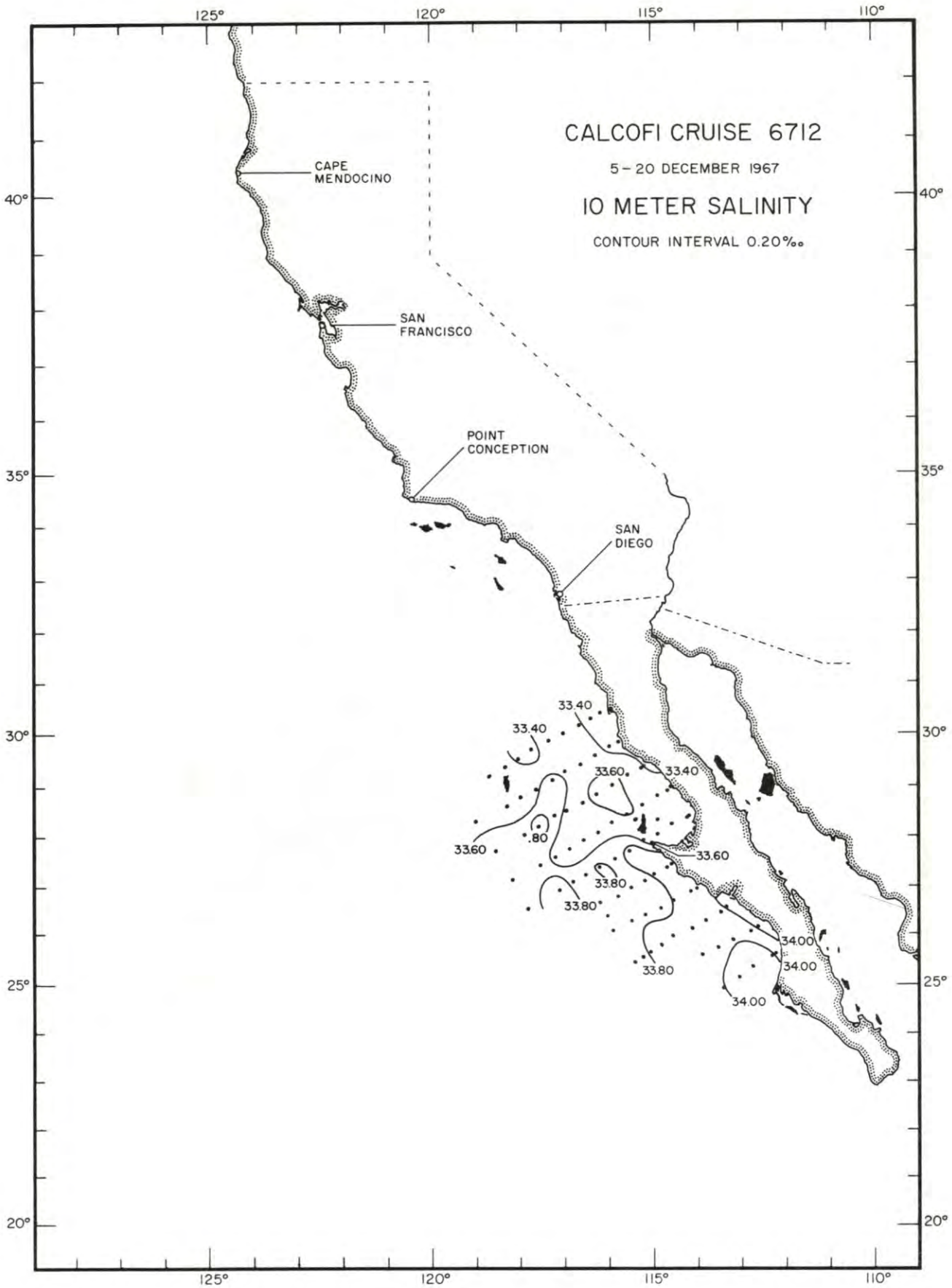

CALCOFI CRUISE 6712
5 – 20 DECEMBER 1967
10 METER SALINITY
CONTOUR INTERVAL 0.20‰
CAPE MENDOCINO
SAN FRANCISCO
POINT CONCEPTION
SAN DIEGO
125°
120°
115°
110°
40°
35°
30°
25°
20°
33.40
33.60
33.80
34.00
.80

FIGURE 5

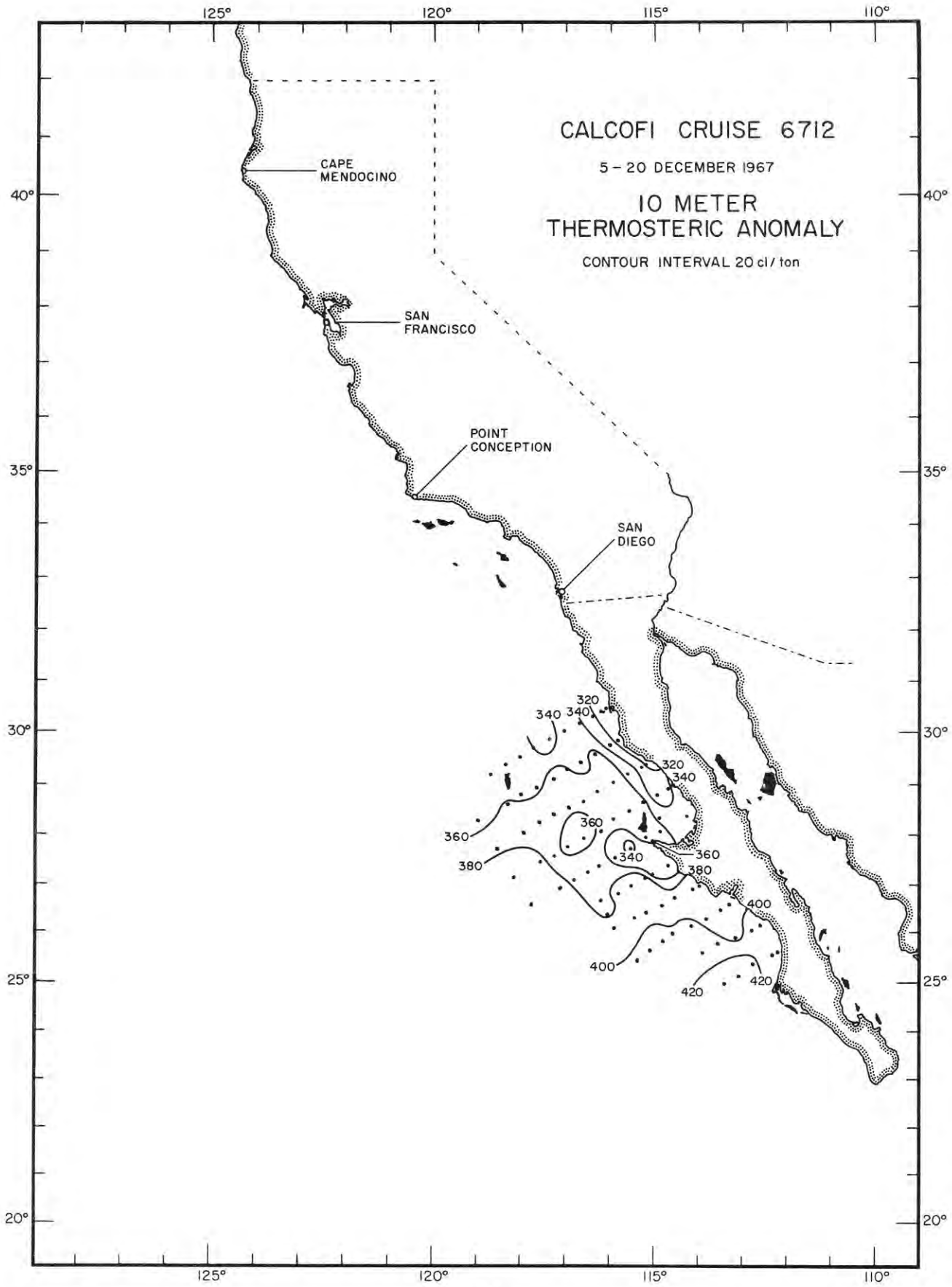

CALCOFI CRUISE 6712
5 – 20 DECEMBER 1967
10 METER
THERMOSTERIC ANOMALY
CONTOUR INTERVAL 20 cl / ton
CAPE MENDOCINO
SAN FRANCISCO
POINT CONCEPTION
SAN DIEGO
125°
120°
115°
110°
40°
35°
30°
25°
20°
320
340
340
320
340
360
360
340
360
380
380
400
400
420
420

FIGURE 6

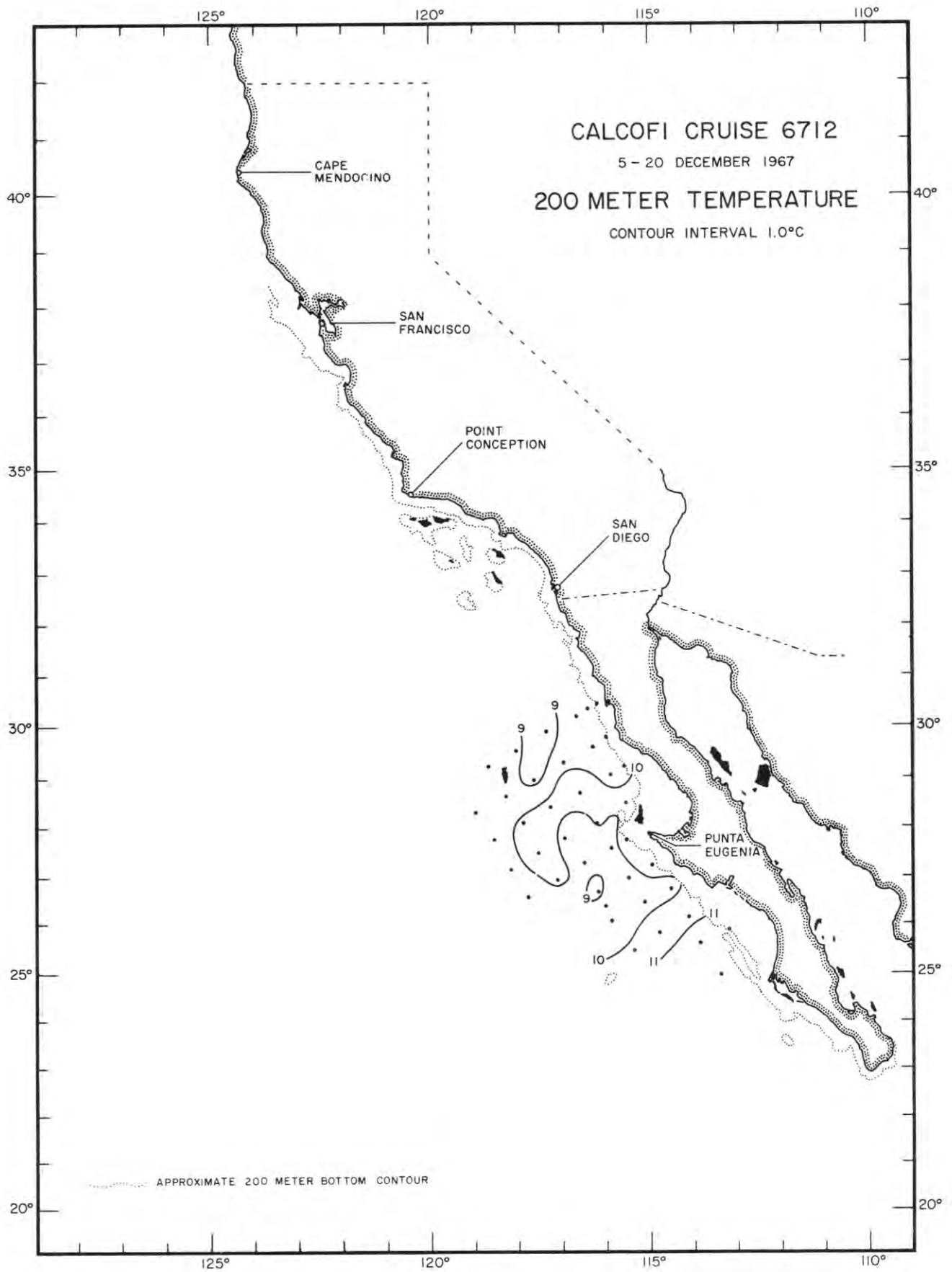

CALCOFI CRUISE 6712
5 - 20 DECEMBER 1967
200 METER TEMPERATURE
CONTOUR INTERVAL 1.0°C
CAPE MENDOCINO
SAN FRANCISCO
POINT CONCEPTION
SAN DIEGO
PUNTA EUGENIA
APPROXIMATE 200 METER BOTTOM CONTOUR
125°
120°
115°
110°
40°
35°
30°
25°
20°
9
10
11

FIGURE 7

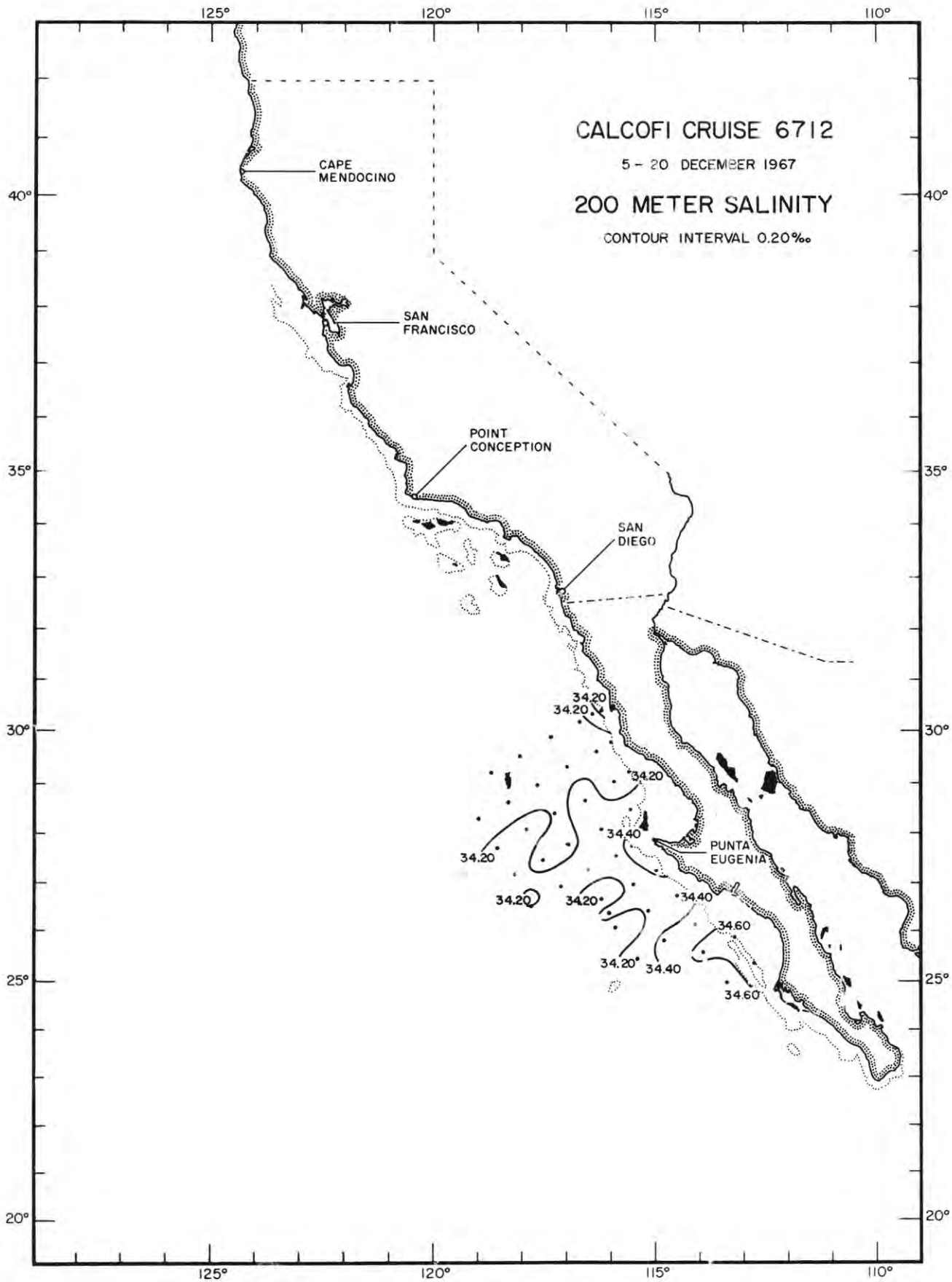

CALCOFI CRUISE 6712
5 - 20 DECEMBER 1967
200 METER SALINITY
CONTOUR INTERVAL 0.20‰
CAPE MENDOCINO
SAN FRANCISCO
POINT CONCEPTION
SAN DIEGO
PUNTA EUGENIA
34.20
34.40
34.60
125°
120°
115°
110°
40°
35°
30°
25°
20°

FIGURE 8

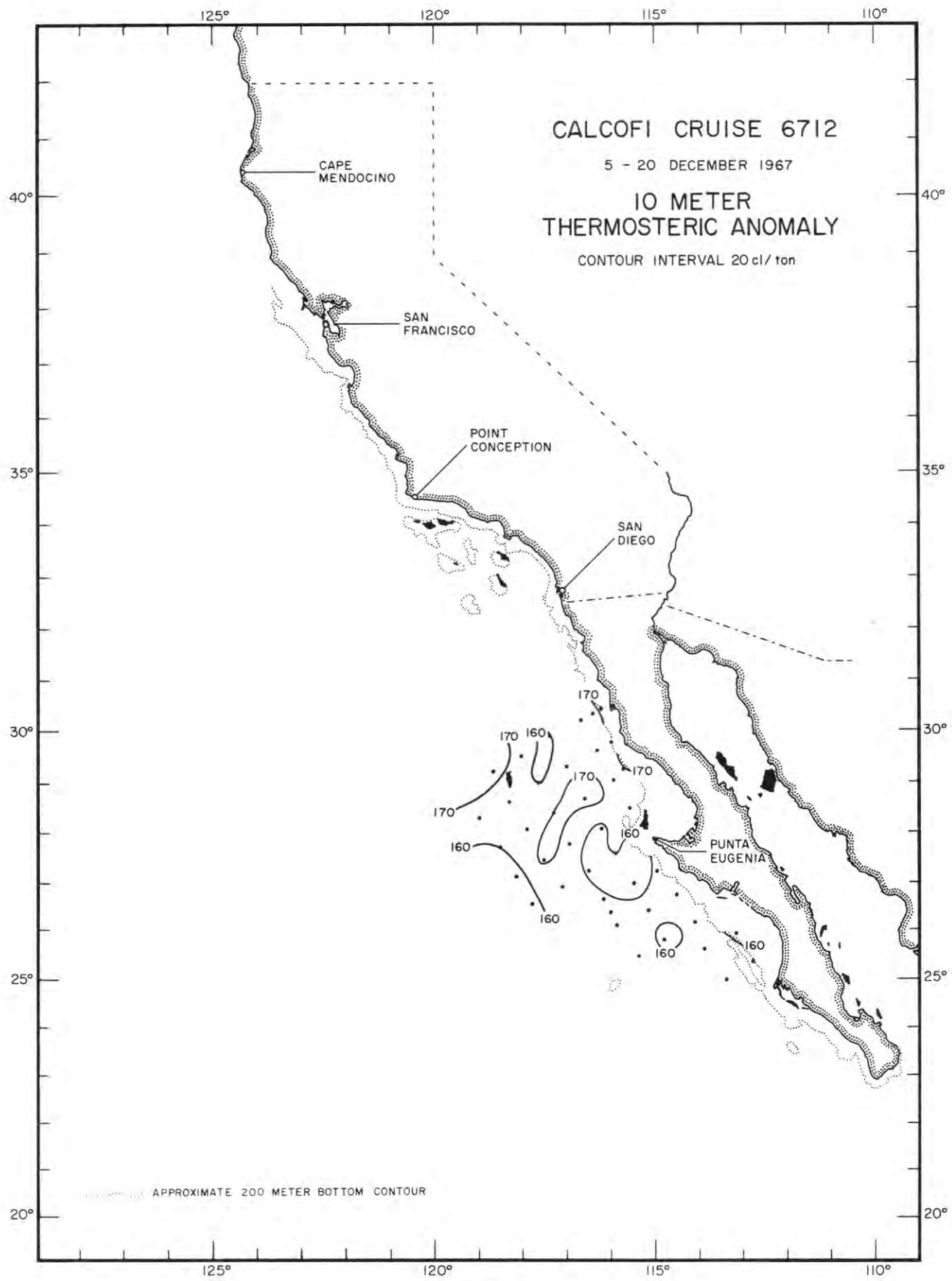

CALCOFI CRUISE 6712
5 - 20 DECEMBER 1967
10 METER
THERMOSTERIC ANOMALY
CONTOUR INTERVAL 20 cl/ ton
CAPE MENDOCINO
SAN FRANCISCO
POINT CONCEPTION
SAN DIEGO
PUNTA EUGENIA
170
160
APPROXIMATE 200 METER BOTTOM CONTOUR
125°
120°
115°
110°
40°
35°
30°
25°
20°

FIGURE 9

PERSONNEL
Cruise 6712

SHIP'S CAPTAIN

Hansen, Terry, RV Horizon

PERSONNEL PARTICIPATING IN THE COLLECTION OF DATA

RV Horizon

Mead, Richard V., Principal Marine Technician (in charge)
Anderson, George C., Marine Technician
Bryan, Walter R., Senior Marine Technician
Cooley, William M., Marine Technician
Graham, Jery B., Electronics Technician
Louda, Svata, Student, University of Washington
Mauck, William W., Marine Technician
May, Michel L., Marine Technician
Peterson, Janet, Student, University of Washington
Wagner, Vaughn M., Biological Technician (Fisheries), Bureau of Commercial Fisheries
Wells, James A., Marine Technician

OBSERVED LEVELS OF DEPTH								STANDARD LEVELS OF DEPTH						
	INPUT						COMPUTED		INPUT				COMPUTED	
Z	T	S	OXY	PHO	SIL	NIT	D*T	Z	T	S	OXY	SIG*T	D*T	DD
94.30					CALCOFI CRUISE 6712								94.30	
HORIZON, DECEMBER 5 1967, 0203 GMT, 32 42.5N 117 27W, SOUNDING 670 FM, WIND 190 3 KNOTS, WEATHER CLEAR, SEA MODERATE.														
								0	17.48	32.98	-	23.87	404.0	0
								10	17.49	32.99	-	23.88	403.5	.040
								20	17.43	32.99	-	23.89	402.2	.081
								30	17.23	32.99	-	23.94	397.6	.121
								50	13.30	32.78	-	24.64	331.3	.194
								75	11.72	32.91	-	25.04	292.8	.272
								100	10.41	33.08	-	25.41	258.1	.342
								125	9.71	33.68	-	25.99	202.4	.400
								150	9.20	33.86	-	26.21	181.2	.448
								200	8.63	34.02	-	26.43	160.8	.535
								250	7.99	34.10	-	26.59	145.6	.614
								300	7.60	34.16	-	26.69	135.7	.687
								400	6.85	34.25	-	26.87	119.0	.819
								500	6.20	34.25	-	26.96	110.8	.941
94.30					CALCOFI CRUISE 6712								94.30	
HORIZON, DECEMBER 5 1967, 0643 GMT, 32 42.5N 117 27W, SOUNDING 670 FM, WIND 190 3 KNOTS, WEATHER CLEAR, SEA MODERATE, WIRE ANGLE 08.														
533A	6.12	34.316	.34	-	-	-	104.9							
538	6.11	34.316	.33	-	-	-	104.8							
543	6.04	34.321	.33	-	-	-	103.6							
547	6.02	34.319	.31	-	-	-	103.5							
552	6.00	34.321	.32	-	-	-	103.1							
557	5.97	34.323	.33	-	-	-	102.6							
561	5.95	34.324	.28	-	-	-	102.3							
566	5.93	34.326	.31	-	-	-	101.9							
571	5.91	34.327	.30	-	-	-	101.6							
576	5.90	34.330	.32	-	-	-	101.2							
579	5.86	34.331	.30	-	-	-	100.7							
584	5.83	34.333	.29	-	-	-	100.2							
589	5.80	34.337	.19	-	-	-	99.5							
594	5.72	34.343	.26	-	-	-	98.1							
599	5.70	34.342	.34	-	-	-	97.9							
603	5.66	34.349	.32	-	-	-	97.0							
608	5.63	34.355	.25	-	-	-	96.2							
613	5.63	34.357	.28	-	-	-	96.0							
107.32					CALCOFI CRUISE 6712								107.32	
HORIZON, DECEMBER 19 1967, 2014 GMT, 30 26N 116 11W, SOUNDING 255 FM, WIND 220 7 KNOTS, WEATHER CLOUDY, SEA VERY ROUGH, WIRE ANGLE 10.														
0	14.27	33.367	6.00	-	-	-	307.1	0	14.27	33.367	6.00	24.89	307.1	0
10	14.26	33.365	6.01	-	-	-	307.1	10	14.26	33.365	6.01	24.89	307.1	.031
29	13.73	33.377	5.42	-	-	-	295.7	20	14.14	33.370	5.70	24.92	304.3	.061
43	12.17	33.459	5.50	-	-	-	260.4	30	13.61	33.383	5.43	25.04	293.0	.091
58	11.85	33.462	4.58	-	-	-	254.4	50	12.04	33.460	5.12	25.41	257.9	.147
73	11.12	33.593	3.95	-	-	-	232.0	75	11.09	33.599	3.92	25.69	231.1	.208
87	11.04	33.617	3.88	-	-	-	228.9	100	10.74	33.742	3.26	25.86	214.5	.264
106	10.60	33.808	2.92	-	-	-	207.4	125	10.66	33.907	2.28	26.01	201.1	.317
131	10.70	33.928	2.16	-	-	-	200.2	150	10.43	34.004	2.17	26.12	190.2	.366
160	10.26	34.038	2.25	-	-	-	184.8	200	9.95	34.134	2.10	26.30	172.6	.459
194	9.99	34.121	2.13	-	-	-	174.2	250	9.67	34.241	1.58	26.43	160.3	.544
227	9.79	34.192	1.89	-	-	-	165.8	300	9.36	34.300	1.10	26.53	151.0	.625
267	9.58	34.271	1.35	-	-	-	156.6							
311	9.24	34.307	1.03	-	-	-	148.7							
349	8.63	34.318	.86	-	-	-	138.6							

A) A SPECIAL CAST FOR THE VERIFICATION OF THE PRESSURE FACTORS FOR THE UNPROTECTED REVERSING THERMOMETERS.

	INPUT							OUTPUT AT STANDARD LEVELS OF DEPTH						
Z	T	S	OXY	PHO	SIL	NIT	D*T	Z	T	S	OXY	SIG*T	D*T	DD
107.35					CALCOFI CRUISE 6712								107.35	
HORIZON, DECEMBER 19 1967, 2222 2252 GMT, 30 21.5N 116 21W, SOUNDING 1042 FM, WIND 280 16 KNOTS, WEATHER PARTLY CLOUDY, SEA VERY ROUGH, WIRE ANGLE 30.														
1	14.92	33.368	5.94	-	-	-	320.2	0	14.92	33.368	5.94	24.75	320.2	0
10	14.94	33.366	6.01	-	-	-	320.8	10	14.94	33.366	6.01	24.75	320.8	.032
27	14.46	33.374	5.93	-	-	-	310.4	20	14.73	33.368	5.98	24.79	316.4	.064
54	12.54	33.459	4.60	-	-	-	267.1	30	14.28	33.380	5.82	24.90	306.3	.095
63	11.96	33.538	4.10	-	-	-	250.8	50	12.86	33.436	4.85	25.23	274.7	.153
76	11.05	33.600	3.94	-	-	-	230.3	75	11.11	33.595	3.95	25.68	231.7	.217
89	10.85	33.737	3.61	-	-	-	216.8	100	10.70	33.721	3.70	25.85	215.4	.274
100	10.70K	-	-	-	-	-	-	125	10.11	33.887	3.27	26.09	193.5	.325
103	10.23	33.713	3.73	-	-	-	208.3	150	9.79	33.973	3.35	26.21	182.0	.373
126	10.10	33.896	3.25	-	-	-	192.7	200	9.76	34.232	1.78	26.41	162.3	.461
144	9.87	33.949	3.40	-	-	-	185.0	250	9.05	34.287	1.30	26.57	147.3	.540
172	9.62	34.078	2.87	-	-	-	171.5	300	8.60	34.319	.95	26.67	138.1	.614
198	9.78	34.227	1.81	-	-	-	163.0	400	7.71	34.344	.60	26.82	123.6	.751
225	9.36	34.259	1.60	-	-	-	154.1	500	6.65	34.345	.41	26.97	109.3	.875
271	8.84	34.306	1.07	-	-	-	142.6							
311A	8.51	34.322	.93	-	-	-	136.6							
391A	7.81	34.344	.62	-	-	-	124.9							
472A	6.94	34.344	.45	-	-	-	113.2							
554A	6.09	34.350	.35	-	-	-	102.0							
107.40					CALCOFI CRUISE 6712								107.40	
HORIZON, DECEMBER 20 1967, 0152 GMT, 30 11N 116 41W, SOUNDING 1420 FM, WIND 270 19 KNOTS, WEATHER OVERCAST, SEA HIGH, WIRE ANGLE 20.														
1	16.25	33.428	5.73	-	-	-	344.0	0	16.25	33.428	5.73	24.50	344.0	0
10	16.29	33.427	5.97	-	-	-	344.9	10	16.29	33.427	5.97	24.49	344.9	.034
33	15.96	33.404	5.79	-	-	-	339.5	20	16.19	33.419	5.91	24.51	343.4	.069
42	14.71	33.319	5.96	-	-	-	319.5	30	16.14	33.416	5.82	24.52	342.4	.103
57	13.33	33.347	5.72	-	-	-	290.2	50	13.90	33.317	5.91	24.93	303.5	.168
71	12.25	33.422	4.94	-	-	-	264.5	75	12.02	33.473	4.54	25.42	256.7	.239
94	11.28	33.719	2.82	-	-	-	225.5	100	11.16	33.756	2.75	25.80	220.6	.299
114	10.92	33.824	2.63	-	-	-	211.6	125	10.64	33.897	2.60	26.00	201.4	.352
133	10.44	33.952	2.57	-	-	-	194.1	150	10.24	34.060	2.26	26.20	182.8	.401
160	10.18	34.115	2.04	-	-	-	177.8	200	9.73	34.197	1.71	26.39	164.5	.489
189	10.03	34.215	1.66	-	-	-	167.9	250	8.75	34.168	1.93	26.53	151.5	.571
226	8.99	34.139	-	-	-	-	157.3	300	8.51	34.277	1.16	26.65	139.9	.646
255	8.72	34.178	1.95	-	-	-	150.4	400	7.45	34.341	.51	26.86	120.1	.782
302	8.50	34.281	1.12	-	-	-	139.5	500	6.40	34.329	.36	26.99	107.4	.903
363	8.00	34.351	.53	-	-	-	127.1	600	5.68	34.36"	.28	27.11	95.8	1.012
459	6.59	34.310	.46	-	-	-	111.2							
548	6.10	34.349	.29	-	-	-	102.2							
621	5.48	34.373	.29	-	-	-	93.1							
107.50					CALCOFI CRUISE 6712								107.50	
HORIZON, DECEMBER 20 1967, 0717 GMT, 29 53N 117 23.5W, SOUNDING 1425 FM, WIND 220 13 KNOTS, WEATHER PARTLY CLOUDY, SEA ROUGH, WIRE ANGLE 21.														
1	15.82	33.436	5.75	-	-	-	334.1	0	15.82	33.436	5.75	24.61	334.1	0
10	15.85	33.436	5.78	-	-	-	334.8	10	15.85	33.436	5.78	24.60	334.8	.033
32	15.85	33.429	5.74	-	-	-	335.3	20	15.86	33.431	5.77	24.59	335.3	.067
42	15.83	33.438	5.73	-	-	-	334.2	30	15.85	33.429	5.75	24.59	335.4	.101
56	13.87	33.285	6.08	-	-	-	305.2	50	14.79	33.353	5.95	24.77	318.6	.166
69	12.94	33.283	5.80	-	-	-	287.5	75	12.54	33.302	5.56	25.19	278.8	.241
89	11.62	33.364	4.98	-	-	-	257.6	100	10.81	33.402	4.71	25.59	240.8	.307
104	10.55	33.426	4.60	-	-	-	234.8	125	10.04	33.705	3.66	25.96	205.8	.363
120	10.14	33.649	3.79	-	-	-	211.6	150	9.49	33.895	3.46	26.19	183.1	.412
144	9.65	33.864	3.46	-	-	-	187.9	200	8.60	34.020	3.37	26.43	160.3	.500
168	9.05	33.957	3.44	-	-	-	171.7	250	8.43	34.171	1.85	26.58	146.5	.579
200	8.60	34.020	3.37	-	-	-	160.3	300	8.07	34.230	1.26	26.68	137.1	.652
225	8.59	34.120	2.41	-	-	-	152.7	400	6.85	34.218	.87	26.84	121.4	.787
267	8.28	34.191	1.61	-	-	-	142.9	500	6.41	34.315	.38	26.98	108.6	.908
321	7.92	34.245	1.12	-	-	-	133.8							
407	6.76	34.215	.85	-	-	-	120.5							
487	6.50	34.307	.41	-	-	-	110.3							
557	5.87	34.324	.37	-	-	-	101.3							

A1 CAST II.

	INPUT							OUTPUT AT STANDARD LEVELS OF DEPTH						
Z	T	S	OXY	PHO	SIL	NIT	D*T	Z	T	S	OXY	SIG*T	D*T	DD
107.60					CALCOFI CRUISE 6712								107.60	
HORIZON, DECEMBER 20 1967, 1228 GMT, 29 32N 118 01.5W, SOUNDING 2020 FM, WIND 290 12 KNOTS, WEATHER PARTLY CLOUDY, SEA ROUGH, WIRE ANGLE 30.														
1	16.33	33.400	5.70	-	-	-	347.8	0	16.33	33.400	5.70	24.46	347.8	0
9	16.38	33.399	5.80	-	-	-	348.9	10	16.38	33.399	5.80	24.45	349.0	.035
31	16.36	33.398	5.69	-	-	-	348.6	20	16.38	33.398	5.77	24.45	349.1	.070
58	16.14	33.381	5.76	-	-	-	345.0	30	16.36	33.398	5.70	24.45	348.7	.105
67	14.55	33.317	6.10	-	-	-	316.4	50	16.22	33.387	5.73	24.48	346.3	.174
85	12.97	33.315	5.79	-	-	-	285.7	75	13.71	33.316	6.06	24.97	299.8	.256
98	11.89	33.311	5.40	-	-	-	266.3	100	11.73	33.326	5.33	25.36	262.3	.326
111	10.96	33.440	4.92	-	-	-	240.6	125	10.36	33.603	4.36	25.82	218.5	.387
138	10.03	33.747	3.99	-	-	-	202.6	150	9.82	33.850	3.98	26.11	191.6	.439
156	9.74	33.891	4.00	-	-	-	187.3	200	9.01	34.006	3.48	26.36	167.5	.531
182	9.39	33.962	3.58	-	-	-	176.5	250	8.03	34.042	2.98	26.54	150.5	.612
214	8.69	34.029	3.43	-	-	-	161.0	300	7.79	34.152	1.80	26.66	138.9	.687
241	8.12	34.027	3.18	-	-	-	152.8	400	6.91	34.242	.73	26.86	120.3	.822
286	7.85	34.123	2.06	-	-	-	141.9	500	6.22	34.330	.39	27.02	105.1	.941
345	7.54	34.228	1.15	-	-	-	129.8							
437	6.48	34.258	.59	-	-	-	113.7							
521	6.12	34.346	.35	-	-	-	102.7							
593	5.74	34.369	.32	-	-	-	96.4							
107.70					CALCOFI CRUISE 6712								107.70	
HORIZON, DECEMBER 20 1967, 1747 GMT, 29 11N 118 41W, SOUNDING 1750 FM, WIND 280 15 KNOTS, WEATHER PARTLY CLOUDY, SEA HIGH, WIRE ANGLE 30.														
0	16.92	33.502	5.62	-	-	-	353.4	0	16.92	33.502	5.62	24.40	353.4	0
10	16.94	33.494	5.66	-	-	-	354.4	10	16.94	33.494	5.66	24.39	354.4	.035
32	16.92	33.497	5.90	-	-	-	353.7	20	16.94	33.494	5.77	24.40	354.3	.071
50	16.80K	33.490K	-	-	-	-	351.6	30	16.93	33.496	5.88	24.40	353.9	.106
57	15.63	33.449	5.88	-	-	-	329.1	50	16.80	33.490	5.87	24.42	351.6	.177
66	14.56	33.394	6.04	-	-	-	311.0	75	13.63	33.392	5.82	25.04	292.7	.258
82	13.01	33.399	5.55	-	-	-	280.3	100	11.82	33.392	4.96	25.39	259.1	.328
96	12.04	33.362	5.13	-	-	-	265.2	125	10.90	33.693	3.61	25.80	220.9	.388
109	11.41	33.490	4.52	-	-	-	244.6	150	10.32	33.793	3.41	25.98	203.9	.442
134	10.69	33.784	3.25	-	-	-	210.6	200	9.67	34.081	2.55	26.31	172.2	.538
152	10.28	33.797	3.44	-	-	-	202.9	250	8.83	34.194	2.02	26.53	150.8	.621
178	9.79	33.988	2.93	-	-	-	180.9	300	8.25	34.232	1.35	26.65	139.4	.696
207	9.63	34.101	2.46	-	-	-	170.0	400	7.46	34.316	.63	26.84	122.2	.833
233	9.06	34.160	2.32	-	-	-	156.8	500	6.65	34.347	.36	26.97	109.2	.955
275	8.56	34.230	1.55	-	-	-	144.1							
334	7.86	34.235	1.19	-	-	-	133.7							
422	7.35	34.344	.47	-	-	-	118.6							
503	6.62	34.347	.36	-	-	-	108.8							
574	6.00	34.353	.29	-	-	-	100.7							
110.35					CALCOFI CRUISE 6712								110.35	
HORIZON, DECEMBER 19 1967, 1319 GMT, 29 46N 116 00W, SOUNDING 710 FM, WIND 200 19 KNOTS, WEATHER CLOUDY, SEA ROUGH, WIRE ANGLE 00.														
1	15.16	33.386	5.89	-	-	-	323.9	0	15.16	33.386	5.89	24.71	323.9	0
11	15.07	33.380	5.91	-	-	-	322.4	10	15.10	33.381	5.91	24.72	322.9	.032
35	13.38	33.322	5.71	-	-	-	293.0	20	14.51	33.351	5.85	24.83	313.1	.064
45	12.92	33.355	5.63	-	-	-	281.8	30	13.78	33.329	5.77	24.96	300.3	.095
60	12.25	33.360	5.39	-	-	-	269.1	50	12.68	33.357	5.57	25.20	277.3	.153
75	11.78	33.431	4.97	-	-	-	255.5	75	11.78	33.431	4.97	25.43	255.5	.220
99	11.33	33.627	3.79	-	-	-	233.1	100	11.30	33.632	3.77	25.68	232.2	.281
119	10.71	33.737	3.51	-	-	-	214.5	125	10.63	33.784	3.38	25.92	209.6	.337
138	10.50	33.889	3.07	-	-	-	199.7	150	10.33	33.968	2.76	26.11	191.0	.388
167	10.11	34.063	2.35	-	-	-	180.5	200	9.94	34.199	1.77	26.36	167.7	.479
196	9.96	34.184	1.84	-	-	-	169.1	250	9.46	34.309	1.21	26.52	151.8	.562
235	9.67	34.293	1.31	-	-	-	156.4	300	8.85	34.348	.85	26.65	139.6	.637
265	9.23	34.319	1.13	-	-	-	147.6	400	7.82	34.347	.57	26.81	124.9	.776
313	8.72	34.356	.76	-	-	-	137.1	500	6.86	34.328	.43	26.93	113.3	.902
376	8.09	34.354	.60	-	-	-	128.1	600	5.92	34.357	.31	27.08	99.4	1.016
474	7.04	34.328	.48	-	-	-	115.7							
563	6.31	34.341	.34	-	-	-	105.4							
637	5.48	34.379	.29	-	-	-	92.6							

	INPUT							OUTPUT AT STANDARD LEVELS OF DEPTH						
Z	T	S	OXY	PHO	SIL	NIT	D*T	Z	T	S	OXY	SIG*T	D*T	DD
110.40					CALCOFI CRUISE 6712								110.40	
HORIZON, DECEMBER 19 1967, 1020 GMT, 29 36N 116 19.5W, SOUNDING 1330 FM, WIND 310 19 KNOTS, WEATHER CLOUDY, SEA ROUGH, WIRE ANGLE 35.														
2	17.67	33.572	5.56	-	-	-	365.2	0	17.67	33.572	5.56	24.28	365.2	0
10	17.70	33.589	5.53	-	-	-	364.7	10	17.70	33.589	5.53	24.29	364.7	.037
29	17.68	33.590	5.51	-	-	-	364.2	20	17.70	33.604	5.48	24.30	363.5	.073
52	14.77	33.276	6.16	-	-	-	323.9	30	17.57	33.575	5.55	24.31	362.8	.109
60	14.02	33.279	6.06	-	-	-	308.6	50	15.06	33.301	6.12	24.67	328.1	.179
75	12.53	33.319	5.46	-	-	-	277.2	75	12.53	33.319	5.46	25.20	277.2	.255
88	11.78	33.417	4.89	-	-	-	256.5	100	11.33	33.551	4.33	25.61	238.7	.320
99	11.36	33.540	4.37	-	-	-	240.1	125	10.65	33.790	3.59	25.92	209.6	.376
122	10.72	33.766	3.65	-	-	-	212.5	150	10.14	33.953	3.23	26.13	189.1	.427
138	10.39	33.881	3.38	-	-	-	198.5	200	9.27	34.115	2.48	26.40	163.3	.517
161	9.92	34.008	3.09	-	-	-	181.5	250	8.69	34.140	2.26	26.51	152.7	.598
188	9.48	34.092	2.59	-	-	-	168.3	300	8.24	34.224	1.38	26.65	139.9	.674
211	9.09	34.130	2.42	-	-	-	159.5	400	7.33	34.288	.72	26.83	122.5	.811
250	8.69	34.140	2.26	-	-	-	152.7	500	6.50	34.313	.45	26.97	109.8	.934
302	8.22	34.228	1.34	-	-	-	139.3							
382	7.45	34.278	.80	-	-	-	124.9							
456	6.90	34.309	.53	-	-	-	115.2							
520	6.30	34.315	.43	-	-	-	107.2							
110.50					CALCOFI CRUISE 6712								110.50	
HORIZON, DECEMBER 19 1967, 0515 GMT, 29 16.5N 116 59W, SOUNDING 1650 FM, WIND 210 12 KNOTS, WEATHER RAIN, SEA MODERATE, WIRE ANGLE 38.														
2	17.44	33.571	5.54	-	-	-	360.1	0	17.44	33.571	5.54	24.33	360.1	0
9	17.46	33.563	5.58	-	-	-	361.1	10	17.46	33.562	5.58	24.32	361.1	.036
28	17.39	33.553	5.57	-	-	-	360.2	20	17.43	33.558	5.58	24.33	360.8	.072
50	16.77	33.494	5.62	-	-	-	350.6	30	17.35	33.549	5.57	24.34	359.6	.108
56	14.32	33.324	6.02	-	-	-	311.3	50	16.77	33.494	5.62	24.43	350.6	.180
68	13.13	33.334	5.57	-	-	-	287.3	75	12.45	33.349	5.26	25.24	273.5	.258
77	12.27	33.359	5.16	-	-	-	269.6	100	11.33	33.628	4.02	25.67	233.1	.322
88	11.67	33.516	4.43	-	-	-	247.3	125	10.74	33.813	3.44	25.92	209.3	.378
107	11.20	33.678	3.87	-	-	-	227.1	150	10.29	33.985	2.97	26.13	189.1	.428
120	10.87	33.775	3.55	-	-	-	214.3	200	9.58	34.139	2.55	26.37	166.3	.519
138	10.44	33.908	3.20	-	-	-	197.3	250	8.78	34.169	2.21	26.52	152.0	.601
162	10.14	34.043	2.81	-	-	-	182.4	300	8.12	34.209	1.60	26.66	139.4	.676
180	9.76	34.078	2.83	-	-	-	173.7	400	7.07	34.246	.78	26.84	122.2	.812
214	9.47	34.176	2.32	-	-	-	161.9							
256	8.66	34.164	2.18	-	-	-	150.5							
323	7.90	34.236	1.27	-	-	-	134.2							
389	7.17	34.237	.85	-	-	-	124.2							
447	6.69	34.310	.44	-	-	-	112.5							
110.60					CALCOFI CRUISE 6712								110.60	
HORIZON, DECEMBER 19 1967, 0026 GMT, 28 56.5N 119 39W, SOUNDING 1950 FM, WIND 220 15 KNOTS, WEATHER CLOUDY, SEA ROUGH, WIRE ANGLE 25.														
1	16.97	33.549	5.66	-	-	-	351.0	0	16.97	33.549	5.66	24.43	351.0	0
10	17.01	33.557	5.69	-	-	-	351.4	10	17.01	33.557	5.69	24.43	351.4	.035
29	16.99	33.547	5.63	-	-	-	351.6	20	17.01	33.554	5.65	24.42	351.5	.070
56	14.13	33.300	6.06	-	-	-	309.2	30	16.93	33.534	5.67	24.43	351.2	.106
64	13.03	33.368	5.59	-	-	-	283.0	50	14.97	33.335	6.07	24.72	323.6	.173
78	11.92	33.415	4.84	-	-	-	259.1	75	12.08	33.405	4.99	25.36	262.7	.247
91	11.60	33.529	4.36	-	-	-	245.1	100	11.18	33.637	3.95	25.70	229.7	.309
104	10.98	33.684	3.78	-	-	-	222.9	125	10.38	33.813	3.25	25.98	203.4	.364
127	10.34	33.821	3.22	-	-	-	202.1	150	9.72	33.933	2.99	26.19	183.8	.413
144	9.87	33.911	3.05	-	-	-	187.9	200	8.99	34.107	2.39	26.44	159.7	.500
172	9.27	34.004	2.74	-	-	-	171.6	250	8.62	34.225	1.62	26.59	145.3	.579
197	9.00	34.096	2.44	-	-	-	160.6							
226	8.84	34.182	1.96	-	-	-	151.8							
270	8.37	34.242	1.38	-	-	-	140.5							

	INPUT							OUTPUT AT STANDARD LEVELS OF DEPTH						
Z	T	S	OXY	PHO	SIL	NIT	D*T	Z	T	S	OXY	SIG*T	D*T	DD
110.70					CALCOFI CRUISE 6712								110.70	
HORIZON, DECEMBER 18 1967, 1830 1900 GMT, 28 36.5N 118 17.5W, SOUNDING 1970 FM, WIND 270 9 KNOTS, SEATHER OVERCAST, SEA VERY ROUGH, WIRE ANGLE 20 28.														
1	17.13	33.473	5.60	-	-	-	360.2	0	17.13	33.473	5.60	24.33	360.2	0
10	17.15	33.474	5.66	-	-	-	360.6	10	17.15	33.474	5.66	24.33	360.6	.036
20	17.15K	-	-	-	-	-	-	20	17.15	33.473	5.64	24.33	360.6	.072
29	17.15	33.472	5.62	-	-	-	360.7	30	17.03	33.470	5.64	24.36	358.1	.108
50	14.90K	-	-	-	-	-	-	50	14.90	33.436	5.95	24.81	314.9	.176
57	15.14	33.400	6.05	-	-	-	322.4	75	13.15	33.345	5.71	25.10	286.8	.251
65	14.14	33.325	6.02	-	-	-	307.6	100	11.43	33.418	5.02	25.49	250.3	.319
79	12.80	33.364	5.56	-	-	-	278.9	125	10.55	33.669	4.26	25.84	216.9	.378
92	11.71	33.338	5.26	-	-	-	261.1	150	9.97	33.813	3.69	26.05	196.8	.430
107	11.27	33.509	4.79	-	-	-	240.8	200	9.39	34.143	2.26	26.40	163.1	.522
129	10.40	33.697	4.16	-	-	-	212.3	250	8.90	34.224	1.72	26.55	149.6	.602
148	9.99	33.792	3.80	-	-	-	198.6	300	8.48	34.290	1.13	26.66	138.5	.677
179	9.91	34.101	2.26	-	-	-	174.4	400	7.51	34.335	.54	26.84	121.4	.813
203	9.31	34.148	2.29	-	-	-	161.5	500	6.35	34.342	.35	27.01	105.8	.933
230A	9.03	34.187	1.99	-	-	-	154.3							
276A	8.73	34.269	1.37	-	-	-	143.7							
328A	8.17	34.305	.90	-	-	-	132.9							
407A	7.44	34.337	.52	-	-	-	120.3							
478A	6.55	34.341	.38	-	-	-	108.4							
568A	5.98	34.346	.33	-	-	-	101.0							
110.80					CALCOFI CRUISE 6712								110.80	
HORIZON, DECEMBER 18 1967, 1335 GMT, 28 16.5N 118 57.5W, SOUNDING 2200 FM, WIND 270 12 KNOTS, WEATHER OVERCAST, SEA MODERATE, WIRE ANGLE 26.														
1	16.87	33.491	5.58	-	-	-	353.0	0	16.87	33.491	5.58	24.41	353.0	0
9	16.89	33.492	5.60	-	-	-	353.4	10	16.89	33.492	5.60	24.40	353.4	.035
20	16.90K	-	-	-	-	-	-	20	16.90	33.491	5.61	24.40	353.7	.071
31	16.90	33.490	5.62	-	-	-	353.8	30	16.90	33.490	5.62	24.40	353.8	.106
50	16.80K	-	-	-	-	-	-	50	16.80	33.471	5.93	24.41	353.0	.177
58	15.12	33.459	5.92	-	-	-	317.7	75	13.02	33.354	5.48	25.14	283.8	.257
67	13.75	33.391	5.51	-	-	-	295.1	100	11.55	33.399	5.09	25.45	253.8	.325
84	12.47	33.342	5.45	-	-	-	274.5	125	10.57	33.560	4.47	25.75	225.2	.385
98	11.66	33.390	5.13	-	-	-	256.4	150	10.08	33.830	3.45	26.05	197.2	.439
111	11.02	33.456	4.83	-	-	-	240.4	200	9.29	34.059	2.79	26.36	167.8	.532
139	10.27	33.695	3.99	-	-	-	210.3	250	8.99	34.194	1.91	26.51	153.3	.614
155	10.00	33.887	3.23	-	-	-	191.7	300	8.34	34.226	1.44	26.64	141.3	.690
182	9.45	33.997	3.10	-	-	-	174.9	400	7.32	34.299	.69	26.84	121.6	.828
213	9.23	34.102	2.52	-	-	-	163.7	500	6.43	34.335	.35	26.99	107.3	.949
239	9.15	34.193	2.01	-	-	-	155.7							
283	8.46	34.196	1.70	-	-	-	145.2							
340	8.12	34.301	.84	-	-	-	132.5							
429	6.92	34.287	.62	-	-	-	117.1							
511	6.34	34.339	.33	-	-	-	105.9							
579	5.69	34.343	.31	-	-	-	97.8							
113.30					CALCOFI CRUISE 6712								113.30	
HORIZON, DECEMBER 17 1967, 0301 GMT, 29 22N 115 18W, SOUNDING 32 FM, WIND 190 12 KNOTS, WEATHER PARTLY CLOUDY, SEA MODERATE, WIRE ANGLE 00.														
1	15.17	33.408	5.87	-	-	-	322.5	0	15.17	33.408	5.87	24.73	322.5	0
11	15.19	33.407	5.88	-	-	-	323.0	10	15.20	33.408	5.88	24.72	323.1	.032
21	15.00	33.392	5.89	-	-	-	320.1	20	15.03	33.393	5.89	24.75	320.7	.065
31	14.49	33.401	5.64	-	-	-	309.0	30	14.55	33.399	5.68	24.86	310.4	.096
50	13.04	33.471	4.52	-	-	-	275.6	50	13.04	33.471	4.52	25.22	275.6	.155

A) CAST II.

	INPUT							OUTPUT AT STANDARD LEVELS OF DEPTH						
Z	T	S	OXY	PHO	SIL	NIT	D*T	Z	T	S	OXY	SIG*T	D*T	DD
113.35					CALCOFI CRUISE 6712								113.35	
HORIZON, DECEMBER 17 1967, 0556 GMT, 29 11N 115 38.5W, SOUNDING 733 FM, WIND 240 21 KNOTS, WEATHER OVERCAST, SEA MODERATE, WIRE ANGLE 02.														
1	17.26	33.533	5.35	-	-	-	358.7	0	17.26	33.533	5.35	24.35	358.7	0
11	17.27	33.531	5.69	-	-	-	359.1	10	17.28	33.531	5.67	24.34	359.4	.036
31	16.46	33.406	5.74	-	-	-	350.2	20	16.95	33.477	5.71	24.38	355.8	.072
40	16.24	33.390	5.83	-	-	-	346.5	30	16.51	33.413	5.74	24.43	350.7	.107
55	15.33	33.350	5.93	-	-	-	330.1	50	15.74	33.363	5.91	24.57	337.7	.176
70	13.22	33.336	5.80	-	-	-	288.9	75	12.80	33.366	5.57	25.19	278.8	.254
94	11.81	33.531	4.57	-	-	-	248.6	100	11.56	33.582	4.38	25.59	240.4	.319
113	11.11	33.682	4.06	-	-	-	225.3	125	10.78	33.747	3.79	25.86	214.9	.377
132	10.63	33.779	3.64	-	-	-	210.0	150	10.38	33.857	3.26	26.01	200.2	.429
152	10.36	33.866	3.22	-	-	-	199.1	200	9.77	34.131	2.30	26.33	170.0	.524
180	9.88	34.049	2.61	-	-	-	177.8	250	9.05	34.218	1.78	26.52	152.3	.606
211	9.72	34.162	2.16	-	-	-	166.9	300	8.35	34.265	1.29	26.66	138.5	.682
240	9.27	34.211	1.85	-	-	-	156.2	400	7.71	34.370	.56	26.84	121.6	.818
286	8.36	34.230	1.51	-	-	-	141.2	500	6.64	34.349	.39	26.98	108.9	.940
339	8.33	34.363	.71	-	-	-	130.9	600	5.78	34.369	.34	27.10	96.9	1.051
420	7.45	34.356	.52	-	-	-	119.1							
503	6.61	34.349	.39	-	-	-	108.5							
585	5.90	34.364	.34	-	-	-	98.7							
113.40					CALCOFI CRUISE 6712								113.40	
HORIZON, DECEMBER 17 1967, 0910 GMT, 29 01.5N 115 56.5W, SOUNDING 995 FM, WIND 280 23 KNOTS, WEATHER OVERCAST, SEA ROUGH, WIRE ANGLE 30.														
2	18.06	33.644	-	-	-	-	369.0	0	18.06	33.644		24.24	369.0	0
10	18.07	33.641	5.55	-	-	-	369.5	10	18.07	33.641	5.55	24.24	369.5	.037
26	18.08	33.641	5.45	-	-	-	369.7	20	18.08	33.640	5.48	24.23	369.7	.074
52	18.09	33.643	5.45	-	-	-	369.8	30	18.08	33.641	5.44	24.23	369.8	.111
61	18.08	33.642	5.46	-	-	-	369.6	50	18.09	33.643	5.45	24.23	369.8	.185
73	15.10	33.437	5.54	-	-	-	318.9	75	14.75	33.416	5.55	24.83	313.2	.271
85	13.44	33.361	5.61	-	-	-	291.3	100	12.52	33.431	5.39	25.29	268.8	.344
97	12.61	33.394	5.62	-	-	-	273.2	125	11.78	33.741	3.54	25.67	232.7	.408
119	12.08	33.694	3.74	-	-	-	241.4	150	10.64	33.869	3.36	25.98	203.5	.463
134	11.31	33.796	3.39	-	-	-	220.3	200	9.45	34.110	2.49	26.37	166.5	.557
159	10.32	33.906	3.34	-	-	-	195.5	250	8.87	34.192	1.84	26.53	151.6	.639
183	9.70	34.040	2.96	-	-	-	175.6							
208	9.34	34.135	2.31	-	-	-	162.9							
249	8.88	34.191	1.84	-	-	-	151.8							
113.50					CALCOFI CRUISE 6712								113.50	
HORIZON, DECEMBER 17 1967, 1545 GMT, 28 39N 116 37W, SOUNDING 1830 FM, WIND 280 21 KNOTS, WEATHER CLOUDY, SEA VERY ROUGH, WIRE ANGLE 30.														
1	17.59	33.559	5.44	-	-	-	364.4	0	17.59	33.559	5.44	24.29	364.4	0
9	17.66	33.559	5.53	-	-	-	366.0	10	17.66	33.559	5.53	24.27	366.0	.037
26	17.67	33.559	5.52	-	-	-	366.2	20	17.67	33.559	5.54	24.27	366.2	.073
50	17.65	33.563	5.53	-	-	-	365.4	30	17.67	33.561	5.52	24.27	365.9	.110
57	17.66	33.554	5.51	-	-	-	366.3	50	17.65	33.563	5.53	24.28	365.4	.183
68	16.94	33.523	5.61	-	-	-	352.3	75	15.33	33.464	5.52	24.74	321.7	.270
79	14.33	33.434	5.43	-	-	-	303.4	100	12.11	33.593	4.15	25.50	249.5	.342
89	12.83	33.435	5.14	-	-	-	274.3	125	11.23	33.971	3.22	25.95	206.0	.399
107	11.90	33.732	3.53	-	-	-	235.4	150	11.09	33.887	2.46	25.91	209.8	.452
122	11.28	33.987	3.31	-	-	-	205.7	200	10.62	34.261	1.63	26.29	174.2	.550
145	11.11	33.825	2.59	-	-	-	214.7	250	10.03	34.355	1.15	26.46	157.5	.635
169	10.99	34.173	2.03	-	-	-	187.0	300	9.56	34.419	.66	26.59	145.3	.714
192	10.73	34.247	1.69	-	-	-	177.1	400	8.06	34.365	.53	26.79	126.9	.856
232	10.18	34.308	1.41	-	-	-	163.5	500	6.74	34.381	.32	26.99	107.8	.981
275	9.83	34.415	.80	-	-	-	149.9							
346	8.96	34.417	.58	-	-	-	136.2							
414	7.85	34.358	.51	-	-	-	124.4							
486	6.90	34.370	.36	-	-	-	110.7							

	INPUT							OUTPUT AT STANDARD LEVELS OF DEPTH						
Z	T	S	OXY	PHO	SIL	NIT	D*T	Z	T	S	OXY	SIG*T	D*T	DD
113.60					CALCOFI CRUISE 6712								113.60	

HORIZON, DECEMBER 17 1967, 2138 GMT, 28 21.5N 119 16.5W, SOUNDING 1950 FM, WIND 280 15 KNOTS, WEATHER CLOUDY, SEA VERY ROUGH, WIRE ANGLE 35.

3	18.14	33.645	5.46	-	-	-	370.8	0	18.14	33.645	5.46	24.22	370.8	0
11	18.16	33.642	5.53	-	-	-	371.5	10	18.16	33.642	5.52	24.21	371.4	.037
26	18.18	33.642	5.49	-	-	-	372.0	20	18.17	33.642	5.52	24.21	371.9	.074
51	18.16	33.640	5.47	-	-	-	371.7	30	18.18	33.642	5.48	24.21	372.0	.112
59	18.14	33.636	5.49	-	-	-	371.5	50	18.16	33.640	5.47	24.21	371.7	.186
71	15.05	33.365	6.02	-	-	-	323.1	75	14.90	33.363	5.94	24.75	320.2	.273
75	14.90K	-	-	-	-	-	-	100	12.49	33.475	5.03	25.33	265.0	.347
81	13.79	33.364	5.73	-	-	-	297.8	125	11.26	33.724	3.55	25.76	224.8	.409
93	12.97	33.406	5.37	-	-	-	279.0	150	10.69	33.921	2.81	26.01	200.6	.463
113	11.71	33.623	4.27	-	-	-	240.1	200	10.11	34.197	1.86	26.33	170.5	.557
129	11.15	33.755	3.33	-	-	-	220.6	250	8.96	34.168	2.19	26.49	154.7	.641
152	10.66	33.935	2.79	-	-	-	199.0	300	8.39	34.217	1.47	26.62	142.6	.718
177	10.18	34.065	2.43	-	-	-	181.5	400	7.47	34.303	.68	26.82	123.3	.857
201	10.10	34.202	1.84	-	-	-	170.0	500	6.59	34.344	.40	26.98	108.7	.980
241	9.11	34.164	2.27	-	-	-	157.3							
287	8.51	34.203	1.63	-	-	-	145.4							
359	7.91	34.278	.90	-	-	-	131.2							
432	7.16	34.319	.55	-	-	-	117.9							
506	6.55	34.346	.39	-	-	-	108.0							

113.70					CALCOFI CRUISE 6712								113.70	

HORIZON, DECEMBER 18 1967, 0330 GMT, 28 02N 117 55W, SOUNDING 1700 FM, WIND 320 19 KNOTS, WEATHER CLOUDY, SEA ROUGH, WIRE ANGLE 27.

2	17.93	33.652	5.50	-	-	-	365.4	0	17.93	33.652	5.50	24.28	365.4	0
10	17.95	33.641	5.58	-	-	-	366.7	10	17.95	33.641	5.58	24.26	366.7	.037
20	17.95K	-	-	-	-	-	-	20	17.95	33.640	5.54	24.26	366.8	.073
30	17.95K	-	-	-	-	-	-	30	17.95	33.639	5.51	24.26	366.8	.110
32	17.95	33.639	5.50	-	-	-	366.8	50	17.80	33.630	5.89	24.29	364.0	.183
50	17.80K	33.630K	-	-	-	-	364.0	75	13.34	33.403	5.50	25.11	286.2	.265
59	15.59	33.411	6.01	-	-	-	331.1	100	11.77	33.606	4.15	25.57	242.4	.332
67	14.35	33.390	5.86	-	-	-	307.0	125	10.72	33.815	3.14	25.92	208.9	.389
85	12.41	33.458	4.94	-	-	-	264.8	150	10.36	34.029	2.36	26.15	187.0	.439
100	11.77	33.606	4.15	-	-	-	242.4	200	10.04	34.227	1.71	26.36	167.2	.529
113	11.08	33.698	3.67	-	-	-	223.6	250	9.73	34.356	1.07	26.51	152.7	.612
140	10.48	33.959	2.56	-	-	-	194.2	300	9.17	34.376	.83	26.62	142.5	.688
159	10.28	34.081	2.23	-	-	-	181.9	400	8.12	34.402	.43	26.81	125.0	.828
188	10.18	34.192	1.82	-	-	-	172.1	500	6.71	34.336	.42	26.96	110.7	.954
219	9.82	34.277	1.53	-	-	-	160.0	600	5.85	34.361	.31	27.09	98.3	1.066
246	9.76	34.351	1.10	-	-	-	153.5							
293	9.26	34.374	.87	-	-	-	144.0							
351	8.53	34.387	.60	-	-	-	132.0							
444	7.72	34.403	.35	-	-	-	119.3							
530	6.32	34.324	.42	-	-	-	106.8							
601	5.85	34.362	.31	-	-	-	98.2							

113.80					CALCOFI CRUISE 6712								113.80	

HORIZON, DECEMBER 18 1967, 0823 GMT, 27 41N 118 34W, SOUNDING 2150 FM, WIND 300 10 KNOTS, WEATHER MISSING, SEA ROUGH, WIRE ANGLE 20.

1	18.45	33.769	5.56	-	-	-	369.1	0	18.45	33.769	5.56	24.24	369.1	0
10	18.47	33.751	5.47	-	-	-	370.9	10	18.47	33.751	5.47	24.22	370.9	.037
33	18.45	33.757	5.43	-	-	-	370.0	20	18.47	33.750	5.44	24.22	371.0	.074
50	18.40K	33.750K	-	-	-	-	369.3	30	18.46	33.755	5.43	24.23	370.3	.111
63	14.42	33.480	5.77	-	-	-	301.8	50	18.40	33.750	5.95	24.24	369.3	.186
72	12.81	33.528	4.74	-	-	-	267.1	75	12.53	33.568	4.41	25.40	258.9	.264
91	11.68	33.772	3.27	-	-	-	228.6	100	11.16	33.788	3.31	25.82	218.2	.325
105	10.90	33.803	3.40	-	-	-	212.8	125	10.40	33.949	3.07	26.08	193.6	.377
120	10.45	33.917	3.20	-	-	-	196.8	150	10.28	34.088	2.36	26.21	181.4	.424
150	10.28	34.088	2.36	-	-	-	181.4	200	9.67	34.244	1.70	26.44	160.0	.512
169	10.03	34.181	1.99	-	-	-	170.5	250	9.38	34.358	.93	26.57	147.1	.591
198	9.68	34.237	1.74	-	-	-	160.7	300	8.97	34.378	.69	26.66	139.3	.665
231	9.52	34.340	1.09	-	-	-	150.6	400	7.89	34.385	.40	26.83	122.9	.802
259	9.31	34.361	.89	-	-	-	145.7	500	6.69	34.376	.27	26.99	107.6	.925
307	8.91	34.380	.66	-	-	-	138.2	600	5.84	34.376	.24	27.10	97.1	1.035
368	8.32	34.389	.46	-	-	-	128.8							
463	7.04	34.375	.33	-	-	-	112.2							
549	6.26	34.376	.23	-	-	-	102.1							
622	5.67	34.376	.26	-	-	-	95.1							

OBSERVED LEVELS OF DEPTH								STANDARD LEVELS OF DEPTH						
	INPUT						COMPUTED		INPUT				COMPUTED	
Z	T	S	OXY	PHO	SIL	NIT	D*T	Z	T	S	OXY	SIG*T	D*T	DD
117.30					CALCOFI CRUISE 6712								117.30	
HORIZON, DECEMBER 16 1967, 2154 GMT, 28 48N 114 56.5W, SOUNDING 50 FM, WIND 250 4 KNOTS, WEATHER PARTLY CLOUDY, SEA MODERATE.														
								0	16.03	33.47	-	24.59	336.2	0
								10	15.68	33.47	-	24.66	328.7	.033
								20	15.61	33.47	-	24.68	327.2	.066
								30	13.06	33.28	-	25.07	290.0	.097
								50	12.06	33.46	-	25.40	258.3	.152
								75	11.45	33.72	-	25.72	228.4	.213
117.35					CALCOFI CRUISE 6712								117.35	
HORIZON, DECEMBER 16 1967, 0650 GMT, 28 38N 115 16W, SOUNDING 103 FM, WIND 290 17 KNOTS, WEATHER PARTLY CLOUDY, SEA ROUGH.														
								0	17.38	33.52	-	24.31	362.4	0
								10	17.38	33.52	-	24.31	362.4	.036
								20	17.37	33.52	-	24.31	362.2	.073
								30	16.86	33.45	-	24.38	355.8	.109
								50	15.23	33.30	-	24.63	331.6	.177
								75	12.57	33.33	-	25.20	277.2	.254
								100	11.31	33.51	-	25.58	241.4	.319
								125	10.63	33.79	-	25.92	209.2	.376
								150	10.12	34.10	-	26.25	177.9	.425
117.40					CALCOFI CRUISE 6712								117.40	
HORIZON, DECEMBER 16 1967, 0410 GMT, 28 28N 115 35.5W, SOUNDING 560 FM, WIND 270 21 KNOTS, WEATHER PARTLY CLOUDY, SEA ROUGH.														
								0	18.13	33.61	-	24.20	373.1	0
								10	18.13	33.61	-	24.20	373.1	.037
								20	18.13	33.61	-	24.20	373.1	.075
								30	18.13	33.61	-	24.20	373.1	.112
								50	18.13	33.61	-	24.20	373.1	.187
								75	14.35	33.24	-	24.78	318.0	.274
								100	11.26	33.56	-	25.63	236.9	.344
								125	10.69	33.78	-	25.90	210.9	.400
								150	10.40	34.08	-	26.19	184.0	.450
								200	10.43	34.37	-	26.41	163.0	.539
								250	9.93	34.39	-	26.51	153.4	.621
								300	9.19	34.39	-	26.63	141.7	.697
								400	8.05	34.39	-	26.81	124.9	.837
								500	6.57	34.36	-	26.99	107.2	.960
117.50					CALCOFI CRUISE 6712								117.50	
HORIZON, DECEMBER 14 1967, 1749 GMT, 28 03N 116 14W, SOUNDING 1830 FM, WIND 280 27 KNOTS, WEATHER RAIN, SEA VERY ROUGH.														
								0	17.53	33.57	-	24.31	362.2	0
								10	17.53	33.57	-	24.31	362.2	.036
								20	17.53	33.57	-	24.31	362.2	.073
								30	17.53	33.57	-	24.31	362.2	.109
								50	16.10	33.47	-	24.57	337.7	.179
								75	12.90	33.49	-	25.26	271.5	.256
								100	11.56	33.78	-	25.74	225.9	.318
								125	10.78	34.06	-	26.10	191.8	.371
								150	10.17	34.17	-	26.30	173.5	.418
								200	10.04	34.34	-	26.45	158.9	.502
								250	9.62	34.41	-	26.58	147.0	.581
								300	9.10	34.46	-	26.70	135.2	.655
								400	7.84	34.43	-	26.87	118.9	.788
								500	6.78	34.44	-	27.03	103.9	.907

OBSERVED LEVELS OF DEPTH								STANDARD LEVELS OF DEPTH						
	INPUT						COMPUTED		INPUT				COMPUTED	
Z	T	S	OXY	PHO	SIL	NIT	D*T	Z	T	S	OXY	SIG*T	D*T	DD
117.60					CALCOFI CRUISE 6712								117.60	
HORIZON, DECEMBER 14 1967, 1235 GMT, 27 44.5N 116 56W, SOUNDING 2100 FM, WIND 140 25 KNOTS, WEATHER RAIN, SEA HIGH.														
								0	16.80	33.50	-	24.43	350.8	0
								10	16.80	33.50	-	24.43	350.8	.035
								20	16.80	33.50	-	24.43	350.8	.070
								30	16.80	33.50	-	24.43	350.8	.105
								50	14.83	33.29	-	24.71	324.1	.173
								75	13.27	33.45	-	25.16	281.5	.249
								100	12.11	33.67	-	25.56	243.8	.315
								125	11.01	33.81	-	25.87	214.1	.373
								150	10.46	34.03	-	26.14	188.6	.424
								200	9.84	34.17	-	26.35	168.2	.515
								250	9.67	34.37	-	26.54	150.7	.597
								300	8.97	34.36	-	26.64	140.6	.673
								400	7.38	34.32	-	26.85	120.8	.810
								500	6.51	34.34	-	26.99	107.9	.931
117.70					CALCOFI CRUISE 6712								117.70	
HORIZON, DECEMBER 14 1967, 0644 GMT, 27 27.5N 117 31.5W, SOUNDING 2100 FM, WIND 080 40 KNOTS, WEATHER OVERCAST, SEA HIGH.														
								0	18.78	33.67	-	24.08	384.2	0
								10	18.78	33.67	-	24.08	384.2	.038
								20	18.78	33.67	-	24.08	384.2	.077
								30	18.78	33.67	-	24.08	384.2	.115
								50	15.63	33.33	-	24.57	337.8	.188
								75	13.42	33.38	-	25.08	289.5	.267
								100	11.83	33.49	-	25.47	252.0	.335
								125	11.20	33.79	-	25.82	218.9	.394
								150	10.46	33.93	-	26.06	196.0	.447
								200	10.18	34.19	-	26.31	172.2	.541
								250	9.65	34.31	-	26.49	154.8	.625
								300	9.21	34.37	-	26.61	143.5	.702
								400	7.77	34.36	-	26.83	123.2	.842
								500	7.05	34.40	-	26.96	110.4	.966
117.80					CALCOFI CRUISE 6712								117.80	
HORIZON, DECEMBER 14 1967, 0117 GMT, 27 07.5N 118 11W, SOUNDING 2000 FM, WIND 340 26 KNOTS, WEATHER DRIZZLE, SEA HIGH.														
								0	19.35	33.75	-	24.00	392.1	0
								10	19.35	33.75	-	24.00	392.1	.039
								20	19.35	33.75	-	24.00	392.1	.078
								30	19.35	33.75	-	24.00	392.1	.118
								50	18.93	33.66	-	24.04	388.5	.196
								75	11.82	33.62	-	25.57	242.2	.275
								100	10.86	33.85	-	25.93	208.6	.332
								125	10.56	34.07	-	26.15	187.4	.382
								150	10.20	34.13	-	26.26	177.0	.429
								200	9.84	34.32	-	26.47	157.1	.514
								250	9.32	34.36	-	26.59	146.0	.592
								300	8.46	34.37	-	26.73	132.3	.664
								400	7.21	34.38	-	26.92	114.0	.793
								500	6.44	34.38	-	27.03	104.1	.909
118.39					CALCOFI CRUISE 6712								118.39	
HORIZON, DECEMBER 15 1967, 0124 GMT, 28 18.5N 115 23.5W, SOUNDING 140 FM, WIND 280 12 KNOTS, WEATHER CLOUDY, SEA ROUGH.														
								0	17.43	33.53	-	24.31	362.8	0
								10	17.43	33.53	-	24.31	362.8	.036
								20	16.68	33.42	-	24.40	354.0	.072
								30	15.71	33.38	-	24.59	335.9	.107
								50	14.88	33.34	-	24.74	321.5	.173
								75	12.47	33.46	-	25.32	265.8	.247
								100	11.56	33.65	-	25.64	235.4	.310
								125	10.57	33.81	-	25.95	206.7	.366
								150	10.20	34.01	-	26.17	185.9	.415
								200	9.95	34.26	-	26.40	163.3	.505

OBSERVED LEVELS OF DEPTH								STANDARD LEVELS OF DEPTH						
		INPUT					COMPUTED		INPUT				COMPUTED	
Z	T	S	OXY	PHO	SIL	NIT	D*T	Z	T	S	OXY	SIG*T	D*T	DD
118.39					CALCOFI CRUISE 6712								118.39	
HORIZON, DECEMBER 16 1967, 0142 GMT, 28 18.5N 115 23.5W, SOUNDING 143 FM, WIND 270 19 KNOTS, WEATHER PARTLY CLOUDY, SEA ROUGH.														
								0	16.65	33.45	-	24.43	351.1	0
								10	16.65	33.45	-	24.43	351.1	.035
								20	16.63	33.45	-	24.43	350.7	.070
								30	15.73	33.40	-	24.60	334.8	.105
								50	13.85	33.30	-	24.93	303.7	.169
								75	12.34	33.47	-	25.36	262.7	.240
								100	11.38	33.66	-	25.68	231.6	.302
								125	10.71	33.79	-	25.91	210.5	.358
								150	10.20	33.90	-	26.08	194.0	.409
								200	10.04	34.22	-	26.36	167.7	.502
								250	9.60	34.32	-	26.51	153.3	.584
118.39					CALCOFI CRUISE 6712								118.39	
HORIZON, DECEMBER 16 1967, 0209 GMT, 28 18.5N 115 23.5W, SOUNDING 143 FM, WIND 270 19 KNOTS, WEATHER PARTLY CLOUDY, SEA ROUGH, WIRE ANGLE 15.														
1	16.69	33.448	5.69	-	-	-	352.2	0	16.69	33.448	5.69	24.42	352.2	0
11	16.71	33.446	5.73	-	-	-	352.8	10	16.72	33.447	5.73	24.41	352.9	.035
30	16.08	33.382	5.83	-	-	-	343.7	20	16.57	33.418	5.78	24.42	351.7	.071
44	14.53	33.360	5.89	-	-	-	312.9	30	16.08	33.382	5.83	24.51	343.7	.105
54	13.80	33.330	5.84	-	-	-	300.5	50	14.08	33.339	5.86	24.91	305.4	.171
68	12.64	33.402	5.06	-	-	-	273.2	75	12.39	33.523	4.46	25.39	259.7	.242
82	12.20	33.643	3.93	-	-	-	247.4	100	11.31	33.693	3.83	25.72	228.0	.303
101	11.26	33.696	3.82	-	-	-	226.8	125	10.47	33.853	3.64	26.00	201.9	.357
126	10.45	33.860	3.63	-	-	-	201.0	150	10.18	33.963	3.15	26.13	189.0	.407
146	10.21	33.926	3.37	-	-	-	192.2	200	9.90	34.250	1.49	26.40	163.3	.497
170	10.06	34.156	1.99	-	-	-	172.8	250	9.65	34.304	1.19	26.49	155.2	.579
210	9.85	34.271	1.38	-	-	-	160.9							
248	9.66	34.303	1.20	-	-	-	155.5							
119.33					CALCOFI CRUISE 6712								119.33	
HORIZON, DECEMBER 16 1967, 0942 GMT, 28 19N 114 53W, SOUNDING 60 FM, WIND 320 10 KNOTS, WEATHER PARTLY CLOUDY, SEA ROUGH.														
								0	17.13	33.53	-	24.38	356.0	0
								10	17.13	33.53	-	24.38	356.0	.036
								20	17.13	33.53	-	24.38	356.0	.071
								30	17.16	33.53	-	24.37	356.7	.107
								50	13.98	33.34	-	24.93	303.3	.173
								75	11.90	33.62	-	25.56	243.7	.242
								100	10.79	33.90	-	25.98	203.8	.298
119.33					CALCOFI CRUISE 6712								119.33	
HORIZON, DECEMBER 16 1967, 1004 GMT, 28 19N 114 53W, SOUNDING 60 FM, WIND 320 10 KNOTS, WEATHER PARTLY CLOUDY, SEA ROUGH, WIRE ANGLE 00.														
1	17.12	33.525	5.58	-	-	-	356.2	0	17.12	33.525	5.58	24.38	356.2	0
11	17.16	33.520	5.63	-	-	-	357.4	10	17.16	33.520	5.63	24.36	357.3	.036
26	17.16	33.521	5.57	-	-	-	357.4	20	17.17	33.520	5.60	24.36	357.6	.071
35	17.14	33.521	5.59	-	-	-	356.9	30	17.15	33.529	5.58	24.37	356.6	.107
45	15.23	33.371	5.75	-	-	-	326.4	50	14.39	33.366	5.59	24.86	309.7	.174
60	13.03	33.433	4.94	-	-	-	278.2	75	11.88	33.614	3.39	25.56	243.8	.244
75	11.88	33.614	3.39	-	-	-	243.8	100	10.89	33.862	2.49	25.93	208.2	.301
104	10.84	33.896	2.38	-	-	-	204.9							

OBSERVED LEVELS OF DEPTH								STANDARD LEVELS OF DEPTH						
	INPUT						COMPUTED		INPUT				COMPUTED	
Z	T	S	OXY	PHO	SIL	NIT	D*T	Z	T	S	OXY	SIG*T	D*T	DD
120.45					CALCOFI CRUISE 6712								120.45	

HORIZON, DECEMBER 12 1967, 2215 GMT, 27 43N 115 33W, SOUNDING 1300 FM, WIND 120 10 KNOTS, WEATHER OVERCAST, SEA VERY ROUGH.

								0	17.21	33.78	-	24.55	339.6	0
								10	17.32	33.84	-	24.57	337.7	.034
								20	17.36	33.85	-	24.57	337.9	.068
								30	16.73	33.70	-	24.60	334.7	.101
								50	13.93	33.65	-	25.18	279.6	.163
								75	12.50	33.89	-	25.65	234.7	.228
								100	11.74	33.95	-	25.84	216.5	.285
								125	11.20	34.15	-	26.10	192.3	.336
								150	11.08	34.34	-	26.27	176.2	.383
								200	10.70	34.50	-	26.46	157.9	.469
								250	10.23	34.54	-	26.57	147.2	.548
								300	9.59	34.53	-	26.67	137.6	.622
								400	8.01	34.42	-	26.84	122.1	.758
								500	7.20	34.43	-	26.96	110.2	.882

120.45					CALCOFI CRUISE 6712								120.45	

HORIZON, DECEMBER 12 1967, 2252 GMT, 27 43N 115 33W, SOUNDING 1300 FM, WIND 120 10 KNOTS, WEATHER OVERCAST, SEA VERY ROUGH, WIRE ANGLE 05.

1	17.38	33.851	5.66	-	-	-	338.3	0	17.38	33.851	5.66	24.56	338.3	0
11	17.34	33.833	5.76	-	-	-	338.7	10	17.35	33.835	5.76	24.56	338.7	.034
31	17.14	33.790	5.46	-	-	-	337.3	20	17.26	33.815	5.68	24.56	338.2	.068
40	15.90	33.692	4.81	-	-	-	317.1	30	17.19	33.795	5.50	24.56	338.1	.102
55	13.81	33.726	3.75	-	-	-	271.7	50	14.44	33.693	4.08	25.11	286.7	.164
69	12.98	33.891	3.06	-	-	-	243.6	75	12.64	33.925	2.87	25.65	234.7	.230
92	11.80	33.979	2.54	-	-	-	215.4	100	11.49	34.003	2.49	25.93	208.2	.286
111	11.17	34.045	2.39	-	-	-	199.5	125	10.97	34.138	2.01	26.13	189.1	.336
130	10.94	34.177	1.85	-	-	-	185.9	150	11.04	34.330	1.35	26.27	176.3	.383
150	11.04	34.330	1.35	-	-	-	176.3	200	10.74	34.497	.64	26.45	158.9	.468
179	10.90	34.436	.87	-	-	-	166.1	250	10.26	34.535	.48	26.56	148.1	.548
213	10.63	34.524	.55	-	-	-	155.0	300	9.56	34.500	.40	26.65	139.4	.622
243	10.34	34.536	.50	-	-	-	149.3	400	8.01	34.401	.47	26.82	123.5	.760
292	9.71	34.510	.40	-	-	-	141.0	500	7.07	34.418	.30	26.97	109.3	.884
346	8.70	34.437	.44	-	-	-	130.8	600	5.82	34.422	.37	27.14	93.3	.993
430	7.71	34.395	.46	-	-	-	119.7							
514	6.92	34.421	.29	-	-	-	107.2							
597	5.86	34.422	.36	-	-	-	93.9							

120.50					CALCOFI CRUISE 6712								120.50	

HORIZON, DECEMBER 13 1967, 0115 GMT, 27 32N 115 53W, SOUNDING 2000 FM, WIND 190 12 KNOTS, WEATHER OVERCAST, SEA ROUGH.

								0	17.68	33.83	-	24.47	346.7	0
								10	17.41	33.78	-	24.50	344.2	.035
								20	16.70	33.68	-	24.59	335.5	.069
								30	16.67	33.68	-	24.60	334.8	.102
								50	14.03	33.62	-	25.14	283.8	.164
								75	13.42	33.73	-	25.35	263.8	.233
								100	11.25	33.76	-	25.79	221.9	.294
								125	10.55	33.90	-	26.02	199.7	.348
								150	10.26	34.03	-	26.17	185.4	.397
								200	9.85	34.28	-	26.44	160.2	.485
								250	9.30	34.35	-	26.58	146.4	.564
								300	8.51	34.34	-	26.70	135.2	.637
								400	7.40	34.35	-	26.87	118.8	.770
								500	6.32	34.34	-	27.01	105.6	.889

OBSERVED LEVELS OF DEPTH								STANDARD LEVELS OF DEPTH						
	INPUT						COMPUTED		INPUT				COMPUTED	
Z	T	S	OXY	PHO	SIL	NIT	D*T	Z	T	S	OXY	SIG*T	D*T	DD
120.60					CALCOFI CRUISE 6712								120.60	

HORIZON, DECEMBER 13 1967, 0530 GMT, 27 14N 116 31W, SOUNDING 2009 FM, WIND 280 10 KNOTS, WEATHER OVERCAST, SEA MODERATE.

								0	16.39	33.68	-	24.19	374.2	0
								10	16.39	33.68	-	24.19	374.2	.037
								20	16.39	33.68	-	24.19	374.2	.075
								30	16.40	33.68	-	24.18	374.4	.112
								50	14.68	33.34	-	24.78	317.4	.182
								75	12.50	33.51	-	25.36	262.6	.255
								100	10.99	33.79	-	25.86	215.3	.315
								125	10.49	33.93	-	26.05	196.5	.367
								150	10.05	34.09	-	26.25	177.5	.415
								200	9.65	34.27	-	26.46	157.8	.500
								250	9.33	34.38	-	26.60	144.6	.578
								300	8.90	34.41	-	26.69	135.8	.651
								400	7.45	34.36	-	26.87	118.8	.784
								500	6.55	34.38	-	27.01	105.5	.903

120.60					CALCOFI CRUISE 6712								120.60	

HORIZON, DECEMBER 13 1967, 0620 GMT, 27 14N 116 31W, SOUNDING 2009 FM, WIND 280 10 KNOTS, WEATHER OVERCAST, SEA MODERATE, WIRE ANGLE 13.

1	18.36	33.662	5.49	-	-	-	374.8	0	18.36	33.662	5.49	24.18	374.8	0
10	18.40	33.659	5.52	-	-	-	375.9	10	18.40	33.659	5.52	24.17	375.9	.038
29	18.38	33.658	5.50	-	-	-	375.5	20	18.40	33.658	5.51	24.17	376.0	.075
38	18.35	33.655	5.50	-	-	-	375.0	30	18.38	33.658	5.49	24.17	375.5	.113
46	16.02	33.531	5.86	-	-	-	331.5	50	15.09	33.495	5.68	24.81	314.5	.182
61	13.46	33.476	4.83	-	-	-	283.2	75	13.43	33.612	4.16	25.25	272.7	.256
75	13.43	33.612	4.16	-	-	-	272.7	100	10.89	33.794	3.46	25.88	213.2	.317
93	11.19	33.751	3.62	-	-	-	221.6	125	10.52	33.957	2.88	26.07	195.0	.369
117	10.67	33.897	3.10	-	-	-	202.0	150	10.12	34.079	2.51	26.23	179.4	.416
136	10.33	34.033	2.62	-	-	-	186.3	200	9.67	34.279	1.56	26.46	157.5	.502
163	9.95	34.112	2.41	-	-	-	174.3	250	9.45	34.379	.90	26.58	146.6	.581
192	9.71	34.262	1.66	-	-	-	159.3	300	8.76	34.377	.71	26.69	136.2	.654
220	9.60	34.308	1.35	-	-	-	154.2	400	7.41	34.316	.61	26.84	121.5	.789
258	9.39	34.395	.79	-	-	-	144.5	500	6.43	34.354	.36	27.01	105.9	.909
315	8.50	34.358	.69	-	-	-	133.7							
387	7.58	34.316	.65	-	-	-	123.8							
459	6.76	34.331	.45	-	-	-	111.8							
536	6.22	34.383	.29	-	-	-	101.1							

120.70					CALCOFI CRUISE 6712								120.70	

HORIZON, DECEMBER 13 1967, 1105 GMT, 26 54N 117 09W, SOUNDING 2020 FM, WIND 280 16 KNOTS, WEATHER OVERCAST, SEA MISSING.

								0	20.23	33.96	-	23.93	398.7	0
								10	20.23	33.96	-	23.93	398.7	.040
								20	20.23	33.96	-	23.93	398.7	.080
								30	20.20	33.95	-	23.93	398.7	.120
								50	16.63	33.64	-	24.58	336.8	.194
								75	14.24	33.67	-	25.13	284.3	.272
								100	11.91	33.59	-	25.53	246.1	.338
								125	10.82	33.78	-	25.88	213.1	.397
								150	10.36	34.02	-	26.15	187.7	.447
								200	10.13	34.25	-	26.36	167.0	.538
								250	9.53	34.35	-	26.54	150.0	.619
								300	8.85	34.38	-	26.68	137.3	.694
								400	7.42	34.32	-	26.85	121.3	.829
								500	6.61	34.35	-	26.98	108.5	.951

OBSERVED LEVELS OF DEPTH								STANDARD LEVELS OF DEPTH						
INPUT							COMPUTED	INPUT				COMPUTED		
Z	T	S	OXY	PHO	SIL	NIT	D*T	Z	T	S	OXY	SIG*T	D*T	DD
120.80							CALCOFI CRUISE 6712						120.80	
HORIZON, DECEMBER 13 1967, 1612 GMT, 26 31.5N 117 49.5W, SOUNDING 2070 FM, WIND 260 16 KNOTS, WEATHER CLOUDY, SEA ROUGH.														
								0	19.45	33.78	-	24.00	392.4	0
								10	19.45	33.78	-	24.00	392.4	.039
								20	19.45	33.78	-	24.00	392.4	.079
								30	19.45	33.78	-	24.00	392.4	.118
								50	14.68	33.40	-	24.83	313.0	.189
								75	11.90	33.65	-	25.58	241.5	.258
								100	10.81	33.89	-	25.97	204.8	.315
								125	10.38	34.09	-	26.20	182.9	.364
								150	10.05	34.17	-	26.32	171.6	.409
								200	9.35	34.20	-	26.46	158.3	.493
								250	9.24	34.38	-	26.61	143.2	.571
								300	8.65	34.40	-	26.72	132.8	.642
								400	7.81	34.46	-	26.90	116.3	.773
								500	6.56	34.41	-	27.04	103.3	.890
120.80							CALCOFI CRUISE 6712						120.80	
HORIZON, DECEMBER 13 1967, 1635 1913 GMT, 26 31.5N 117 49.5W, SOUNDING 2070 FM, WIND 260 16 KNOTS, WEATHER CLOUDY, SEA ROUGH, WIRE ANGLE 23 25.														
1	19.39	33.760	5.41	-	-	-	392.4	0	19.39	33.760	5.41	24.00	392.4	0
10	19.40K	-	-	-	-	-	-	10	19.40	33.759	5.41	23.99	392.7	.039
20	19.43K	-	-	-	-	-	-	20	19.43	33.758	5.42	23.98	393.5	.079
25	19.44	33.758	5.42	-	-	-	393.7	30	18.88	33.707	5.57	24.09	383.8	.118
61	13.85	33.456	5.85	-	-	-	292.3	50	15.93	33.532	5.88	24.65	329.6	.189
93	11.28	33.748	3.32	-	-	-	223.3	75	12.49	33.553	4.82	25.39	259.4	.263
139	10.21	34.118	2.16	-	-	-	178.0	100	11.00	33.813	3.03	25.87	213.7	.323
185	9.81	34.285	1.45	-	-	-	159.2	125	10.48	34.019	2.33	26.12	189.7	.374
231	9.36	34.355	.98	-	-	-	147.0	150	10.09	34.172	1.96	26.31	172.1	.420
300	8.79	34.414	.51	-	-	-	133.9	200	9.66	34.315	1.28	26.49	154.7	.503
392	7.88	34.450	.22	-	-	-	118.0	250	9.20	34.375	.83	26.62	143.0	.580
487	6.71	34.410	.21	-	-	-	105.3	300	8.79	34.414	.51	26.71	133.9	.652
579	6.03	34.415	.23	-	-	-	96.4	400	7.78	34.447	.22	26.89	116.8	.783
673	5.37	34.430	.27	-	-	-	87.6	500	6.60	34.409	.21	27.03	103.9	.901
678A	5.29	34.431	.23	-	-	-	86.6	600	5.95	34.418	.24	27.12	95.3	1.008
769	4.85	34.453	.35	-	-	-	80.1	700	5.09	34.436	.29	27.24	83.9	1.106
858A	4.55	34.473	.31	-	-	-	75.4	800	4.75	34.460	.38	27.30	78.5	1.195
863	4.50	34.474	.45	-	-	-	74.8	1000	4.08	34.500	.56	27.40	68.5	1.360
981	4.11	34.496	.57	-	-	-	69.2	1200	3.51	34.538	.76	27.49	60.2	1.507
1041A	4.01	34.509	.55	-	-	-	67.2	1500	2.78	34.576	1.26	27.59	51.0	1.702
1125	3.71	34.525	.69	-	-	-	63.1	2000	2.14	34.636	1.74	27.69	41.2	1.980
1224A	3.45	34.542	.79	-	-	-	59.4	2500	1.80	34.662	2.30	27.74	36.7	2.222
1268	3.32	34.550	.90	-	-	-	57.6	3000	1.63	34.672	2.67	27.76	34.7	2.450
1409A	3.07	34.572	.92	-	-	-	53.7	3500	1.57	34.678	2.87	27.77	33.9	2.676
1414	3.04	34.571	1.04	-	-	-	53.5							
1599A	2.69	34.597	1.82U	-	-	-	48.6							
1787A	2.37	34.620	1.63	-	-	-	44.2							
1976A	2.16	34.635	1.71	-	-	-	41.5							
2165A	2.00	34.645	2.02	-	-	-	39.5							
2354A	1.89	34.659	2.26	-	-	-	37.6							
2543A	1.77	34.663	2.32	-	-	-	36.4							
2733A	1.69	34.668	2.24U	-	-	-	35.5							
2922A	1.64	34.671	2.63	-	-	-	34.9							
3113A	1.61	34.674	2.73	-	-	-	34.5							
3305A	1.59	34.677	2.85	-	-	-	34.1							
3497A	1.57	34.678	2.88	-	-	-	33.9							
3616A	1.57	34.679	2.82	-	-	-	33.8							
3688A	1.57	34.679	2.93	-	-	-	33.8							

A) CAST II.

OBSERVED LEVELS OF DEPTH								STANDARD LEVELS OF DEPTH						
	INPUT					COMPUTED			INPUT				COMPUTED	
Z	T	S	OXY	PHO	SIL	NIT	D*T	Z	T	S	OXY	SIG*T	D*T	DD
123.37				CALCOFI CRUISE 6712									123.37	
HORIZON, DECEMBER 11 1967, 1450 GMT, 27 24N 114 40W, SOUNDING 37 FM, WIND 360 6 KNOTS, WEATHER CLEAR, SEA MODERATE.														
								0	18.01	33.92	-	24.46	347.8	0
								10	18.01	33.92	-	24.46	347.8	.035
								20	18.00	33.92	-	24.47	347.6	.070
								30	15.23	33.67	-	24.92	304.6	.102
								50	14.03	33.85	-	25.31	266.9	.160
123.42				CALCOFI CRUISE 6712									123.42	
HORIZON, DECEMBER 11 1967, 1206 GMT, 27 14N 114 59W, SOUNDING 1020 FM, WIND 320 19 KNOTS, WEATHER PARTLY CLOUDY, SEA MODERATE.														
								0	18.26	33.91	-	24.39	354.4	0
								10	18.26	33.91	-	24.39	354.4	.035
								20	18.26	33.91	-	24.39	354.4	.071
								30	17.23	33.83	-	24.58	336.4	.106
								50	13.64	33.70	-	25.28	270.3	.166
								75	12.37	33.83	-	25.63	236.7	.230
								100	11.59	34.05	-	25.95	206.5	.286
								125	11.13	34.17	-	26.13	189.6	.336
								150	10.78	34.26	-	26.26	177.0	.383
								200	10.58	34.43	-	26.43	161.1	.469
								250	10.25	34.54	-	26.57	147.5	.549
								300	9.45	34.51	-	26.68	136.9	.623
								400	8.24	34.48	-	26.85	120.9	.759
								500	7.12	34.44	-	26.98	108.4	.881
123.50				CALCOFI CRUISE 6712									123.50	
HORIZON, DECEMBER 11 1967, 0735 GMT, 26 57N 115 30W, SOUNDING 2025 FM, WIND 290 21 KNOTS, WEATHER MISSING, SEA MODERATE.														
								0	18.84	33.72	-	24.10	382.0	0
								10	18.84	33.72	-	24.10	382.0	.038
								20	18.85	33.72	-	24.10	382.2	.076
								30	18.82	33.71	-	24.10	382.2	.115
								50	14.23	33.40	-	24.92	303.9	.184
								75	11.93	33.58	-	25.52	247.2	.253
								100	11.17	33.73	-	25.78	222.8	.312
								125	10.47	33.97	-	26.09	193.2	.365
								150	10.06	34.09	-	26.25	177.7	.412
								200	9.67	34.31	-	26.49	155.1	.497
								250	10.09	34.54	-	26.60	144.9	.574
								300	9.43	34.54	-	26.71	134.3	.647
								400	7.82	34.43	-	26.87	118.6	.780
123.60				CALCOFI CRUISE 6712									123.60	
HORIZON, DECEMBER 11 1967, 0129 GMT, 26 39N 116 12W, SOUNDING 2016 FM, WIND 360 14 KNOTS, WEATHER PARTLY CLOUDY, SEA VERY ROUGH.														
								0	18.65	33.74	-	24.17	376.0	0
								10	18.65	33.74	-	24.17	376.0	.038
								20	18.67	33.74	-	24.16	376.4	.075
								30	18.68	33.75	-	24.17	375.9	.113
								50	15.75	33.71	-	24.83	312.6	.182
								75	13.34	33.60	-	25.26	271.8	.256
								100	11.86	33.67	-	25.60	239.3	.320
								125	10.82	33.87	-	25.95	206.5	.376
								150	10.18	33.97	-	26.14	188.5	.426
								200	8.69	34.03	-	26.43	160.9	.515
								250	8.17	34.10	-	26.56	148.1	.595
								300	8.28	34.34	-	26.73	131.9	.667
								400	7.21	34.36	-	26.91	115.5	.797
								500	6.22	34.33	-	27.02	105.1	.914

OBSERVED LEVELS OF DEPTH								STANDARD LEVELS OF DEPTH						
	INPUT						COMPUTED		INPUT				COMPUTED	
Z	T	S	OXY	PHO	SIL	NIT	D*T	Z	T	S	OXY	SIG*T	D*T	DD
123.60							CALCOFI CRUISE 6712						123.60	
HORIZON, DECEMBER 11 1967, 0230 GMT, 26 39N 116 12W, SOUNDING 2016 FM, WIND 360 14 KNOTS, WEATHER PARTLY CLOUDY, SEA VERY ROUGH, WIRE ANGLE 15.														
0	18.67	33.771	5.33	-	-	-	374.2	0	18.67	33.771	5.33	24.19	374.2	0
10	18.75	33.771	5.49	-	-	-	376.1	10	18.75	33.771	5.49	24.17	376.1	.038
33	18.74	33.770	5.38	-	-	-	375.9	20	18.76	33.771	5.49	24.16	376.4	.075
41	17.59	33.694	5.00	-	-	-	354.5	30	18.75	33.770	5.45	24.17	376.1	.113
55	15.68	33.751	4.14	-	-	-	308.1	50	16.28	33.718	4.44	24.72	323.5	.183
68	15.03	33.784	3.68	-	-	-	292.1	75	14.16	33.715	3.84	25.18	279.3	.259
89	12.40	33.585	4.16	-	-	-	255.3	100	11.87	33.638	3.70	25.58	241.8	.325
107	11.66	33.702	3.35	-	-	-	233.4	125	10.87	33.862	3.08	25.93	207.9	.381
125	10.87	33.862	3.08	-	-	-	207.9	150	10.17	34.012	2.94	26.17	185.1	.431
151	10.14	34.016	2.94	-	-	-	184.4	200	8.68	34.068	3.09	26.46	157.9	.519
178	9.06	34.016	3.50	-	-	-	167.5	250	8.01	34.123	2.18	26.61	144.1	.596
213	8.54	34.100	2.72	-	-	-	153.5	300	8.20	34.230	1.41	26.66	138.9	.669
240	8.11	34.115	2.31	-	-	-	146.2	400	7.54	34.371	.50	26.87	119.2	.804
285	8.00	34.177	1.72	-	-	-	140.0	500	6.28	34.334	.41	27.01	105.5	.924
300	8.20K	-	-	-	-	-	-	600	5.91	34.408	.27	27.12	95.5	1.031
344	-	34.378	.57	-	-	-	-							
436	6.93	34.329	.46	-	-	-	114.1							
519	6.15	34.342	.39	-	-	-	103.3							
591	5.91	34.398	.29	-	-	-	96.2							
125.60							CALCOFI CRUISE 6712						125.60	
HORIZON, DECEMBER 10 1967, 2243 2120 GMT, 26 22N 116 02W, SOUNDING 3791 FM, WIND 010 24 KNOTS, WEATHER PARTLY CLOUDY, SEA VERY ROUGH, WIRE ANGLE 26.														
0A	18.83	33.760	-	-	-	-	378.8	0	18.83	33.760		24.14	378.8	0
10	18.83	33.760	-	-	-	-	378.8	10	18.83	33.760		24.14	378.8	.038
20	18.83	33.760	-	-	-	-	378.8	20	18.83	33.760		24.14	378.8	.076
30	18.81	33.760	-	-	-	-	378.3	30	18.81	33.760		24.14	378.3	.114
50	15.81	33.540	-	-	-	-	326.3	50	15.81	33.540		24.69	326.3	.184
75	12.70	33.360	-	-	-	-	277.4	75	12.70	33.360		25.20	277.4	.260
100	11.46	33.610	-	-	-	-	236.6	100	11.46	33.610		25.63	236.6	.325
125	10.68	33.830	-	-	-	-	207.1	125	10.68	33.830		25.94	207.1	.381
150	10.24	34.010	-	-	-	-	186.5	150	10.24	34.010		26.16	186.5	.431
200	9.64	34.230	-	-	-	-	160.6	200	9.64	34.230		26.43	160.6	.520
250	8.82	34.190	-	-	-	-	151.0	250	8.82	34.190		26.53	151.0	.600
300	8.43	34.330	-	-	-	-	134.8	300	8.43	34.330		26.70	134.8	.674
400	7.50	34.400	-	-	-	-	116.5	400	7.50	34.400		26.90	116.5	.805
500	6.66	34.390	-	-	-	-	106.1	500	6.66	34.390		27.01	106.1	.924
600	5.72	34.380	-	-	-	-	95.3	600	5.72	34.380		27.12	95.3	1.032
700	5.13	34.430	-	-	-	-	84.9	700	5.13	34.430		27.23	84.9	1.130
800	4.81	34.470	-	-	-	-	78.4	800	4.81	34.470		27.30	78.4	1.220
908B	4.38	34.486	.42	-	-	-	72.6	1000	4.08	34.504	.50	27.41	68.2	1.384
1096B	3.81	34.525	.59	-	-	-	64.0	1200	3.55	34.545	.69	27.49	60.1	1.531
1281B	3.36	34.559	.79	-	-	-	57.3	1500	2.87	34.588	1.21	27.59	50.7	1.726
1467B	2.94	34.584	1.14	-	-	-	51.7	2000	2.10	34.636	1.99	27.69	40.9	2.003
1653B	2.57	34.606	1.49	-	-	-	46.9	2500	1.80	34.659	2.45	27.74	37.0	2.245
1840B	2.29	34.625	1.73	-	-	-	43.2	3000	1.64	34.671	2.76	27.76	34.9	2.474
2028B	2.07	34.638	2.04	-	-	-	40.5	3500	1.60	34.674	2.90	27.76	34.4	2.702
2215B	1.94	34.653	2.27	-	-	-	38.4	4000	1.58	34.678	3.04	27.77	33.9	2.934
2402B	1.85	34.656	-	-	-	-	37.5							
2591B	1.76	34.662	2.49	-	-	-	36.4							
2779B	1.70	34.667	2.61	-	-	-	35.6							
2971B	1.64	34.671	2.75	-	-	-	34.9							
3161B	1.62	34.672	2.79	-	-	-	34.7							
3352B	1.61	34.673	2.88	-	-	-	34.5							
3547B	1.60	34.675	2.90	-	-	-	34.3							
127.40							CALCOFI CRUISE 6712						127.40	
HORIZON, DECEMBER 10 1967, 0625 GMT, 26 44N 114 30W, SOUNDING 1620 FM, WIND 080 19 KNOTS, WEATHER MISSING, SEA MODERATE.														
								0	19.52	33.86	-	24.04	388.3	0
								10	19.53	33.86	-	24.04	388.5	.039
								20	19.53	33.86	-	24.04	388.5	.078
								30	19.54	33.86	-	24.03	388.8	.117
								50	14.58	33.36	-	24.82	313.9	.187
								75	12.06	33.61	-	25.52	247.3	.258
								100	11.10	33.73	-	25.79	221.6	.317
								125	10.61	33.99	-	26.08	194.1	.369
								150	10.85	34.33	-	26.30	173.0	.416
								200	9.69	34.21	-	26.41	162.9	.502
								250	9.37	34.35	-	26.57	147.5	.582
								300	8.93	34.41	-	26.69	136.3	.655
								400	8.13	34.45	-	26.84	121.5	.791
								500	6.87	34.42	-	27.00	106.6	.912

A) STANDARD DEPTH VALUES FROM THE S/T/D AND ACCEPTED DEPTH VALUES FROM THE SAMPLE BOTTLE CAST WERE COMBINED TO COMPUTE DYNAMIC HEIGHTS FROM THE SURFACE TO 3500 METERS.
B) SAMPLE BOTTLE CAST.

OBSERVED LEVELS OF DEPTH								STANDARD LEVELS OF DEPTH						
	INPUT						COMPUTED		INPUT				COMPUTED	
Z	T	S	OXY	PHO	SIL	NIT	D*T	Z	T	S	OXY	SIG*T	D*T	DD
127.50					CALCOFI CRUISE 6712								127.50	
HORIZON, DECEMBER 10 1967, 1120 GMT, 26 26N 115 10.5W, SOUNDING 2200 FM, WIND 300 24 KNOTS, WEATHER MISSING, SEA ROUGH.														
								0	19.53	33.79	-	23.98	393.6	0
								10	19.53	33.79	-	23.98	393.6	.039
								20	19.53	33.79	-	23.98	393.6	.079
								30	19.53	33.78	-	23.97	394.3	.118
								50	15.33	33.52	-	24.78	317.6	.190
								75	12.62	33.50	-	25.33	265.6	.263
								100	11.36	33.67	-	25.70	230.5	.326
								125	10.76	33.73	-	25.85	215.8	.382
								150	10.20	34.01	-	26.17	185.9	.433
								200	9.81	34.21	-	26.39	164.8	.522
								250	9.35	34.36	-	26.58	146.4	.602
								300	8.60	34.33	-	26.68	137.3	.676
								400	7.70	34.38	-	26.85	120.7	.811
								500	6.90	34.40	-	26.98	108.5	.933
126.61					CALCOFI CRUISE 6712								126.61	
HORIZON, DECEMBER 10 1967, 1638 GMT, 26 05N 115 54W, SOUNDING 2050 FM, WIND 360 22 KNOTS, WEATHER PARTLY CLOUDY, SEA ROUGH. A)														
								0	18.80	33.62	-	24.04	388.3	0
								10	18.80	33.62	-	24.04	388.3	.039
								20	18.80	33.62	-	24.04	388.3	.078
								30	18.80	33.62	-	24.04	388.3	.117
								50	18.78	33.60	-	24.03	389.2	.195
								75	14.20	33.35	-	24.89	307.0	.282
								100	11.96	33.52	-	25.47	252.1	.353
								125	11.26	33.76	-	25.78	222.1	.412
								150	10.45	33.86	-	26.01	201.0	.466
								200	9.54	34.13	-	26.37	166.4	.560
								250	9.35	34.33	-	26.56	148.7	.641
								300	8.90	34.38	-	26.67	138.1	.715
								400	7.83	34.39	-	26.84	121.8	.851
								500	6.49	34.36	-	27.01	106.2	.972
126.61					CALCOFI CRUISE 6712								126.61	
HORIZON, DECEMBER 10 1967, 1725 GMT, 26 05N 115 54W, SOUNDING 2050 FM, WIND 360 22 KNOTS, WEATHER PARTLY CLOUDY, SEA ROUGH, WIRE ANGLE 25. A)														
2A	18.77	33.614	5.47	-	-	-	388.0	0	18.77	33.614	5.47	24.04	388.0	0
10	18.79	33.609	5.50	-	-	-	388.8	10	18.79	33.609	5.50	24.03	388.8	.039
20	18.79K	-	-	-	-	-	-	20	18.79	33.608	5.51	24.03	388.9	.078
30	18.79K	-	-	-	-	-	-	30	18.79	33.607	5.51	24.03	389.0	.117
31	18.79	33.607	5.51	-	-	-	389.0	50	18.70	33.600	5.96	24.05	387.3	.195
50	18.70K	33.600K	-	-	-	-	387.3	75	14.07	33.382	5.74	24.94	302.0	.281
58	15.68	33.363	6.10	-	-	-	336.5	100	11.99	33.539	4.47	25.48	251.3	.351
65	15.13	33.366	6.04	-	-	-	324.7	125	11.06	33.753	3.60	25.81	219.2	.410
84	13.10	33.416	5.33	-	-	-	280.8	150	10.51	33.904	3.03	26.03	198.7	.463
97	12.11	33.508	4.63	-	-	-	255.7	200	9.68	34.140	2.25	26.35	168.0	.557
109	11.72	33.635	4.05	-	-	-	239.4	250	9.48	34.324	1.14	26.53	151.1	.639
135	10.70	33.811	3.40	-	-	-	208.8	300	8.85	34.361	.83	26.66	138.8	.714
153	10.48	33.921	2.97	-	-	-	197.0	400	7.74	34.380	.42	26.85	121.3	.850
180	9.86	34.020	2.77	-	-	-	179.6	500	6.45	34.347	.30	27.00	106.7	.971
211	9.65	34.207	1.91	-	-	-	162.5	600	6.00	34.450	.27	27.14	93.4	1.079
237	9.63	34.317	1.28	-	-	-	154.0							
282	9.01	34.343	.96	-	-	-	142.5							
340	8.53	34.394	.57	-	-	-	131.5							
430	7.31	34.363	.39	-	-	-	116.6							
513	6.34	34.352	.29	-	-	-	104.9							
583	6.01	34.422	.27	-	-	-	95.7							
130.30					CALCOFI CRUISE 6712								130.30	
HORIZON, DECEMBER 9 1967, 2148 GMT, 26 29N 113 29.5W, SOUNDING 44 FM, WIND 050 25 KNOTS, WEATHER PARTLY CLOUDY, SEA MODERATE, WIRE ANGLE 15.														
1	20.21	33.998	5.23	-	-	-	395.4	0	20.21	33.998	5.23	23.96	395.4	0
10	20.22	33.997	5.27	-	-	-	395.7	10	20.22	33.997	5.27	23.96	395.7	.040
20	20.19	33.998	5.26	-	-	-	394.9	20	20.19	33.998	5.26	23.97	394.9	.079
29	16.23	33.774	4.37	-	-	-	318.3	30	16.17	33.774	4.36	24.79	317.1	.115
48	15.12	33.832	4.11	-	-	-	290.4	50	15.00	33.845	4.01	25.10	286.9	.175
72	13.57	34.075	2.00	-	-	-	241.4							

A) THE UNUSUAL NUMBER FOR THIS STATION RESULTS FROM THE CAST BEING LOWERED SO FAR FROM THE DESIRED POSITION FOR STATION 127.60.

OBSERVED LEVELS OF DEPTH								STANDARD LEVELS OF DEPTH						
	INPUT						COMPUTED		INPUT				COMPUTED	
Z	T	S	OXY	PHO	SIL	NIT	D*T	Z	T	S	OXY	SIG*T	D*T	DD
130.40					CALCOFI CRUISE 6712								130.40	
HORIZON, DECEMBER 9 1967, 1545 GMT, 26 09N 114 07W, SOUNDING 1320 FM, WIND 380 14 KNOTS, WEATHER PARTLY CLOUDY, SEA MODERATE.														
								0	20.66	33.95	-	23.81	410.3	0
								10	20.66	33.95	-	23.81	410.3	.041
								20	20.66	33.95	-	23.81	410.3	.082
								30	20.66	33.95	-	23.81	410.3	.123
								50	16.01	33.37	-	24.51	343.0	.199
								75	14.89	33.68	-	25.00	296.8	.279
								100	12.26	33.66	-	25.52	247.2	.348
								125	11.36	33.94	-	25.91	210.6	.406
								150	10.53	34.00	-	26.10	192.0	.457
								200	10.71	34.45	-	26.42	161.8	.547
								250	10.04	34.46	-	26.54	150.0	.628
								300	9.63	34.54	-	26.68	137.5	.702
								400	7.86	34.42	-	26.86	120.0	.838
								500	7.25	34.46	-	26.98	108.6	.959
130.40					CALCOFI CRUISE 6712								130.40	
HORIZON, DECEMBER 9 1967, 1640 GMT, 26 09N 114 07W, SOUNDING 1320 FM, WIND 380 14 KNOTS, WEATHER PARTLY CLOUDY, SEA MODERATE, WIRE ANGLE 12.														
1	20.66	33.952	5.28	-	-	-	410.2	0	20.66	33.952	5.28	23.81	410.2	0
11	20.68	33.957	5.22	-	-	-	410.3	10	20.68	33.957	5.22	23.81	410.3	.041
30	20.67	33.955	5.33	-	-	-	410.2	20	20.68	33.957	5.25	23.81	410.3	.082
39	18.79	33.681	5.73	-	-	-	383.6	30	20.67	33.955	5.33	23.81	410.2	.123
54	15.50	33.438	6.01	-	-	-	327.2	50	16.26	33.467	6.04	24.53	341.3	.199
68	14.81	33.640	4.74	-	-	-	298.1	75	14.29	33.672	4.54	25.12	285.2	.277
91	13.02	33.715	4.25	-	-	-	257.3	100	12.38	33.791	3.67	25.60	239.7	.344
111	11.71	33.897	2.94	-	-	-	219.9	125	11.16	34.017	2.45	26.00	201.4	.399
130	11.02	34.053	2.34	-	-	-	196.4	150	10.71	34.133	2.05	26.17	185.2	.448
149	10.72	34.126	2.08	-	-	-	185.9	200	10.62	34.460	.83	26.44	159.6	.537
176	10.58	34.334	1.34	-	-	-	168.2	250	9.99	34.494	.51	26.58	146.6	.616
209	10.61	34.488	.70	-	-	-	157.3	300	9.41	34.516	.33	26.69	135.8	.689
237	10.15	34.483	.58	-	-	-	150.1	400	7.95	34.441	.31	26.86	119.7	.823
284	9.61	34.522	.34	-	-	-	138.5	500	7.21	34.457	.22	26.98	108.4	.945
336	8.92	34.488	.32	-	-	-	130.4	600	6.35	34.465	.23	27.11	96.6	1.055
418	7.71	34.432	.30	-	-	-	117.0							
502	7.20	34.457	.22	-	-	-	108.2							
589	6.46	34.464	.22	-	-	-	98.1							
130.50					CALCOFI CRUISE 6712								130.50	
HORIZON, DECEMBER 8 1967, 1025 GMT, 25 49N 114 50W, SOUNDING 1950 FM, WIND 340 16 KNOTS, WEATHER PARTLY CLOUDY, SEA ROUGH.														
								0	20.28	33.88	-	23.86	405.7	0
								10	20.30	33.88	-	23.85	406.2	.041
								20	20.30	33.88	-	23.85	406.2	.081
								30	19.93	33.88	-	23.95	397.0	.122
								50	14.76	33.55	-	24.93	303.6	.192
								75	12.84	33.71	-	25.45	254.2	.262
								100	11.66	33.91	-	25.83	218.0	.322
								125	11.36	34.03	-	25.98	203.9	.375
								150	10.56	34.22	-	26.27	176.3	.423
								200	10.36	34.44	-	26.47	156.7	.508
								250	10.04	34.54	-	26.61	144.1	.586
								300	9.53	34.56	-	26.71	134.4	.659
								400	8.14	34.50	-	26.88	118.0	.791
								500	7.18	34.48	-	27.01	106.2	.911

OBSERVED LEVELS OF DEPTH								STANDARD LEVELS OF DEPTH						
	INPUT						COMPUTED		INPUT				COMPUTED	
Z	T	S	OXY	PHO	SIL	NIT	D*T	Z	T	S	OXY	SIG*T	D*T	DD
130.60					CALCOFI CRUISE 6712								130.60	
HORIZON, DECEMBER 9 1967, 0418 GMT, 25 29N 115 24W, SOUNDING 2000 FM, WIND 290 15 KNOTS, WEATHER CLOUDY, SEA ROUGH.														
								0	19.80	33.74	-	23.87	403.9	0
								10	19.80	33.74	-	23.87	403.9	.040
								20	19.80	33.74	-	23.87	403.9	.081
								30	19.80	33.74	-	23.87	403.9	.121
								50	16.38	33.55	-	24.57	337.9	.196
								75	13.49	33.42	-	25.09	287.9	.274
								100	12.11	33.52	-	25.44	254.8	.343
								125	11.16	33.79	-	25.83	218.2	.403
								150	10.53	33.97	-	26.08	194.2	.455
								200	10.05	34.24	-	26.37	166.4	.547
								250	9.40	34.39	-	26.60	145.0	.627
								300	9.10	34.45	-	26.69	135.9	.700
								400	7.85	34.44	-	26.88	118.3	.833
								500	6.95	34.44	-	27.01	106.1	.953
130.60					CALCOFI CRUISE 6712								130.60	
HORIZON, DECEMBER 9 1967, 0512 GMT, 25 29N 115 24W, SOUNDING 2000 FM, WIND 290 15 KNOTS, WEATHER CLOUDY, SEA ROUGH, WIRE ANGLE 13.														
0	19.79	33.756	5.36	-	-	-	402.5	0	19.79	33.756	5.36	23.89	402.5	0
10	19.80	33.750	5.43	-	-	-	403.2	10	19.80	33.750	5.43	23.88	403.2	.040
29	19.80	33.755	5.39	-	-	-	402.8	20	19.80	33.754	5.42	23.88	403.0	.081
30	19.80K	-	-	-	-	-	-	30	19.80	33.754	5.38	23.89	402.9	.121
38	19.80	33.745	5.39	-	-	-	403.5	50	17.10	33.607	5.90	24.44	349.7	.197
52	16.54	33.582	5.97	-	-	-	339.1	75	13.67	33.555	5.58	25.16	281.6	.276
63	14.75	33.550	5.70	-	-	-	303.4	100	12.47	33.552	5.06	25.40	259.1	.344
89	12.98	33.574	5.41	-	-	-	266.9	125	11.36	33.787	3.60	25.79	221.8	.405
109	12.10	33.565	4.66	-	-	-	251.3	150	10.64	33.988	2.79	26.07	194.8	.458
127	11.27	33.818	3.47	-	-	-	218.0	200	9.78	34.239	1.77	26.42	162.1	.549
147	10.73	33.967	2.86	-	-	-	197.8	250	9.33	34.352	.99	26.58	146.6	.628
175	10.01	34.140	2.29	-	-	-	173.2	300	9.05	34.434	.49	26.69	136.3	.702
208	9.73	34.262	1.62	-	-	-	159.7	400	7.83	34.429	.29	26.87	118.9	.836
236	9.38	34.320	1.19	-	-	-	149.9	500	6.94	34.444	.18	27.01	105.7	.955
284	9.22	34.418	.60	-	-	-	140.1	600	6.03	34.351	.54	27.06	101.2	1.066
337	8.57	34.449	.35	-	-	-	128.0							
420	7.62	34.420	.27	-	-	-	116.6							
502	6.92	34.443	.18	-	-	-	105.5							
584	6.18	34.375	.45	-	-	-	101.2							
133.30					CALCOFI CRUISE 6712								133.30	
HORIZON, DECEMBER 8 1967, 1505 GMT, 25 55N 113 10W, SOUNDING 120 FM, WIND 330 17 KNOTS, WEATHER PARTLY CLOUDY, SEA ROUGH.														
								0	20.25	33.99	-	23.95	397.0	0
								10	20.26	33.99	-	23.94	397.3	.040
								20	20.25	33.99	-	23.95	397.0	.079
								30	20.25	33.99	-	23.95	397.0	.119
								50	16.43	33.53	-	24.54	340.5	.193
								75	14.42	33.61	-	25.05	292.3	.273
								100	12.51	34.08	-	25.80	220.9	.338
								125	12.11	34.25	-	26.01	201.1	.391
								150	12.11	34.55	-	26.24	179.0	.439
								200	11.33	34.63	-	26.45	159.2	.526
133.42					CALCOFI CRUISE 6712								133.42	
HORIZON, DECEMBER 6 1967, 2006 GMT, 25 36N 113 55.6W, SOUNDING 2160 FM, WIND 320 4 KNOTS, WEATHER CLOUDY, SEA ROUGH.														
								0	20.88	33.98	-	23.77	413.8	0
								10	20.86	33.98	-	23.78	413.2	.041
								20	20.85	33.98	-	23.78	413.0	.083
								30	19.03	33.77	-	24.09	382.9	.123
								50	17.07	33.76	-	24.57	337.9	.195
								75	14.72	33.51	-	24.90	305.7	.276
								100	13.09	34.22	-	25.79	221.5	.342
								125	12.66	34.38	-	26.00	201.6	.396
								150	12.05	34.46	-	26.18	184.5	.445
								200	11.52	34.61	-	26.40	164.0	.534
								250	10.65	34.57	-	26.52	151.9	.616
								300	10.00	34.56	-	26.63	141.9	.692
								400	8.43	34.48	-	26.82	123.7	.832
								500	7.26	34.45	-	26.97	109.5	.956

OBSERVED LEVELS OF DEPTH								STANDARD LEVELS OF DEPTH						
	INPUT						COMPUTED		INPUT				COMPUTED	
Z	T	S	DXY	PHO	SIL	NIT	D*T	Z	T	S	DXY	SIG*T	D*T	DD
137.23					CALCOFI CRUISE 6712								137.23	
HORIZON, DECEMBER 8 1967, 0615 GMT, 25 34N 112 19W, SOUNDING 35 FM, WIND 320 16 KNOTS, WEATHER MISSING, SEA MISSING.														
								0	20.96	34.01	-	23.77	413.6	0
								10	20.96	34.01	-	23.77	413.6	.041
								20	20.78	33.96	-	23.78	412.6	.083
								30	18.83	33.74	-	24.12	380.3	.122
								50	16.00	33.82	-	24.86	310.0	.192
137.23					CALCOFI CRUISE 6712								137.23	
HORIZON, DECEMBER 8 1967, 0633 GMT, 25 34N 112 19W, SOUNDING 35 FM, WIND 320 16 KNOTS, WEATHER MISSING, SEA MISSING, WIRE ANGLE 03.														
1	20.97	34.016	5.07	-	-	-	413.5	0	20.97	34.016	5.07	23.77	413.5	0
10	20.97K	-	-	-	-	-	-	10	20.97	34.015	5.66	23.77	413.5	.041
20	20.98K	-	-	-	-	-	-	20	20.98	34.014	5.72	23.77	413.9	.083
21	20.98	34.014	5.69	-	-	-	413.9	30	19.97	33.916	5.13	23.96	395.4	.123
31	19.77	33.903	5.07	-	-	-	391.3	50	16.20	33.804	4.50	24.80	315.5	.195
40	17.42	33.779	4.93	-	-	-	344.5							
50	16.20	33.804	4.50	-	-	-	315.5							
137.30					CALCOFI CRUISE 6712								137.30	
HORIZON, DECEMBER 8 1967, 0234 GMT, 25 21.5N 112 47W, SOUNDING 170 FM, WIND 320 19 KNOTS, WEATHER PARTLY CLOUDY, SEA MODERATE.														
								0	21.44	34.04	-	23.66	423.9	0
								10	21.45	34.04	-	23.66	424.2	.042
								20	21.45	34.04	-	23.66	424.2	.085
								30	21.38	34.02	-	23.67	423.8	.127
								50	15.68	33.76	-	24.89	307.5	.201
								75	14.02	34.13	-	25.53	246.2	.270
								100	13.52	34.32	-	25.78	222.4	.330
								125	13.34	34.49	-	25.95	206.5	.384
								150	13.02	34.60	-	26.10	192.3	.435
								200	11.64	34.62	-	26.38	165.4	.526
								250	11.09	34.61	-	26.47	156.5	.609
137.40					CALCOFI CRUISE 6712								137.40	
HORIZON, DECEMBER 7 1967, 2012 GMT, 24 59N 113 24W, SOUNDING 1380 FM, WIND 280 14 KNOTS, WEATHER PARTLY CLOUDY, SEA VERY ROUGH, WIRE ANGLE 25.														
1	21.65	34.022	5.14	-	-	-	430.7	0	21.65	34.022	5.14	23.59	430.7	0
10	21.65	34.010	5.19	-	-	-	431.6	10	21.65	34.010	5.19	23.58	431.6	.043
27	21.49	34.004	5.20	-	-	-	427.8	20	21.57	34.006	5.20	23.60	429.7	.086
35	18.67	33.800	5.73	-	-	-	372.1	30	20.46	33.928	5.40	23.85	406.7	.128
48	16.94	33.713	5.89	-	-	-	338.4	50	16.79	33.712	5.89	24.60	335.1	.203
61	16.10	33.731	5.75	-	-	-	318.6	75	14.88	33.756	5.33	25.06	290.9	.281
81	14.33	33.760	5.10	-	-	-	279.5	100	12.89	33.722	4.21	25.45	254.2	.350
98	13.04	33.708	4.39	-	-	-	258.2	125	11.97	34.051	2.32	25.88	213.3	.409
115	12.03	33.898	2.87	-	-	-	225.5	150	11.96	34.345	1.37	26.11	191.3	.461
132	12.03	34.157	2.03	-	-	-	206.5	200	11.14	34.514	.65	26.39	164.4	.552
161	11.86	34.424	1.08	-	-	-	183.7	250	10.77	34.579	.36	26.51	153.3	.634
187	11.42	34.523	.66	-	-	-	168.6	300	10.03	34.584	.24	26.64	140.7	.710
213	10.89	34.497	.64	-	-	-	161.4	400	8.77	34.530	.13	26.81	125.0	.850
257	10.73	34.597	.30	-	-	-	151.3	500	7.52	34.450	.34	26.93	113.0	.977
306	9.92	34.578	.23	-	-	-	139.3							
382	8.97	34.537	.17	-	-	-	127.5							
460	8.05	34.490	.17	-	-	-	117.4							
536	7.00	34.404	.60	-	-	-	109.5							
137.40					CALCOFI CRUISE 6712								137.40	
HORIZON, DECEMBER 7 1967, 2059 GMT, 24 59N 113 24W, SOUNDING 1380 FM, WIND 280 14 KNOTS, WEATHER PARTLY CLOUDY. SEA VERY ROUGH.														
								0	21.65	33.99	-	23.57	433.0	0
								10	21.55	33.99	-	23.60	430.4	.043
								20	21.55	34.00	-	23.60	429.7	.086
								30	19.93	33.73	-	23.83	407.9	.128
								50	16.88	33.71	-	24.57	337.3	.203
								75	15.67	33.76	-	24.89	307.3	.284
								100	13.16	33.62	-	25.31	266.9	.356
								125	11.61	34.11	-	25.99	202.4	.416
								150	11.88	34.32	-	26.10	191.8	.466
								200	11.14	34.53	-	26.40	163.2	.557
								250	10.52	34.56	-	26.54	150.5	.638
								300	9.92	34.59	-	26.67	138.4	.713
								400	8.61	34.52	-	26.82	123.3	.851
								500	7.42	34.47	-	26.96	110.2	.975

DATA AT NET TOW STATIONS

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind Dir	Wind Knots	Weather	Sea	Z m	T °C	S ‰	O_2 ml/L	PO_4-P µgat/L	SiO_3-Si µgat/L	NO_2-N µgat/L	δ_T cl/ton
107.31-H	XII-19	1900	30°28.0'	116°07.0'	27	300°	21	drizzle	rough	10	14.40	33.349	5.92				311
107.45-H	20	0435	30°02.0'	117°02.5'	840	320°	16	drizzle	rough	10	16.47	33.446	-				348
107.55-H	20	0950	29°43.0'	117°44.5'	1850	280°	15	partly cloudy	rough	10	15.87	33.374	5.74				340
107.65-H	20	1510	29°21.0'	118°21.0'	1600	240°	16	partly cloudy	very rough	10	16.94	33.479	5.62				356
110.32-H	19	1505	29°52.0'	115°48.0'	15	180°	19	rain	rough	10	14.59	33.361	-				314
110.45-H	19	0730	29°26.5'	116°39.0'	270	160°	22	overcast	moderate	10	16.90	33.531	5.63				351
110.55-H	19	0235	29°06.5'	117°18.0'	1850	220°	18	missing	moderate	10	18.04	33.638	-				369
110.65-H	18	2135	28°46.0'	117°59.0'	1800	220°	15	overcast	rough	10	17.12	33.531	5.65				356
113.29-H	17	0148	29°24.0'	115°13.0'	-	-	-	missing	missing	10	14.40	33.400	-				307
113.45-H	17	1205	28°51.0'	116°16.5'	1200	280°	19	cloudy	rough	10	18.02	33.638	5.47				368
113.55-H	17	1835	28°30.0'	116°58.0'	1800	310°	21	cloudy	very rough	10	17.50	33.570	5.48				362
113.65-H	18	0025	28°12.0'	117°36.0'	2050	340°	17	cloudy	very rough	10	18.80	33.862	-				371
117.25-H	16	1950	28°58.0'	114°37.0'	16	250°	6	partly cloudy	moderate	10	15.96	33.444	5.75				336
117.26-H	16	2020	28°56.0'	114°41.5'	40	260°	2	partly cloudy	moderate	10	16.41	33.491	5.71				343
117.30-H	16	2207	28°48.0'	114°56.5'	50	250°	4	partly cloudy	moderate	10	15.78	33.476	-				330
117.35-H	16	0657	28°38.0'	115°16.0'	103	290°	17	partly cloudy	rough	10	17.37	33.514	5.58				363
117.40-H	16	0410	28°28.0'	115°35.5'	560	270°	21	partly cloudy	rough	10	18.14	33.587	5.53				375
117.45-H	14	2100	28°18.0'	115°56.0'	1860	220°	19	drizzle	very rough	10	17.68	33.538	5.55				368
117.50-H	14	1810	28°03.0'	116°14.0'	1830	280°	27	rain	very rough	10	17.56	33.548	5.58				364

DATA AT NET TOW STATIONS																	
Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind Dir	Wind Knots	Weather	Sea	Z m	T °C	S ‰	O_2 ml/L	PO_4-P µg at/L	SiO_3-Si µg at/L	NO_2-N µg at/L	δ_T cl/ton
117.55-H	XII-14	1530	27°55.5'	116°33.5'	1850	240°	38	rain	very rough	10	16.69	33.482	5.81				350
117.60-H	14	1230	27°44.5'	116°56.0'	2100	140°	25	rain	high	10	16.80	33.483	5.67				352
117.65-H	14	1003	27°36.0'	117°13.5'	2200	260°	30	missing	high	10	17.60	33.547	5.57				366
117.80-H	14	0140	27°07.5'	118°11.0'	2000+	340°	26	drizzle	high	10	19.44	33.753	5.43				394
120.24-H	16	1525	28°25.0'	114°10.5'	20	300°	1	cloudy	moderate	10	16.80	33.506	5.64				350
120.25-H	16	1430	28°22.5'	114°15.0'	32	240°	7	cloudy	moderate	10	16.84	33.520	5.20				350
120.30-H	16	1200	28°14.0'	114°33.5'	50	300°	10	partly cloudy	moderate	10	-	33.544	5.49				-
120.35-H	12	1630	28°03.0'	114°55.0'	42	190°	8	overcast	slight	10	17.44	33.516	5.64				364
120.40-H	11	2020	27°56.5'	115°14.0'	20	300°	14	clear	moderate	10	17.84	33.551	5.64				371
120.50-H	13	0130	27°32.0'	115°53.0'	2000	190°	12	overcast	moderate	10	17.36	33.777	5.62				343
120.55-H	13	0330	27°22.0'	116°12.5'	2260	210°	5	overcast	moderate	10	18.62	33.810	5.46				370
120.65-H	12	0845	27°04.0'	116°49.0'	2420	280°	12	overcast	moderate	10	18.41	33.707	5.16				373
120.70-H	12	1133	26°54.0'	117°09.0'	2020	280°	16	overcast	moderate	10	20.26	33.967	5.20				399
123.36-H	11	1545	27°26.0'	114°36.0'	28	330°	12	clear	moderate	10	17.54	33.890	5.31				339
123.37-H	11	1500	27°24.0'	114°40.0'	37	360°	6	clear	moderate	10	17.90	33.915	5.40				346
123.42-H	11	1215	27°14.0'	114°59.0'	1020	320°	19	partly cloudy	moderate	10	18.24	33.903	5.35				354
123.45-H	11	1025	27°07.0'	115°10.0'	2230	330°	19	clear	moderate	10	19.00	33.654	5.40				391
123.50-H	11	0830	26°57.0'	115°30.0'	2025	290°	21	missing	moderate	10	18.78	33.727	5.51				380
123.55-H	11	0515	26°47.0'	115°49.0'	2010	340°	19	missing	moderate	10	18.76	33.677	5.52				383

DATA AT NET TOW STATIONS

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind Dir	Wind Knots	Weather	Sea	Z m	T °C	S ‰	O_2 ml/L	PO_4-P µgat/L	SiO_3-Si µgat/L	NO_2-N µgat/L	δT cl/ton
127.33-H	XII-10	0330	26°57.5'	114°02.0'	35	340°	12	partly cloudy	moderate	10	20.09	33.964	5.27				395
127.34-H	10	0400	26°55.0'	114°06.5'	45	340°	19	partly cloudy	moderate	10	19.84	33.921	4.97				392
127.40-H	10	0650	26°44.0'	114°30.0'	1620	080°	19	missing	moderate	10	19.40	33.826	5.41				388
127.45-H	10	0915	26°35.0'	114°48.0'	1620	120°	22	missing	moderate	10	18.74	33.638	5.48				385
127.55-H	10	1400	26°18.0'	115°28.0'	2120	020°	23	clear	rough	10	19.00	33.684	5.44				388
130.28-H	9	2240	26°33.0'	113°21.0'	30	360°	24	partly cloudy	moderate	10	20.22	34.019	5.23				394
130.35-H	9	1918	26°19.0'	113°49.0'	368	020°	14	clear	rough	10	19.66	33.952	5.31				385
130.46-H	9	1300	25°59.0'	114°34.0'	1750	360°	19	overcast	rough	10	20.04	33.853	5.27				402
130.50-H	9	1045	25°49.0'	114°50.0'	1950	340°	16	partly cloudy	rough	10	20.30	33.883	5.23				406
130.55-H	9	0759	25°39.0'	115°06.0'	2020	320°	20	missing	moderate	10	20.32	33.901	5.28				405
130.57-H	9	0655	25°33.0'	115°14.0'	2020	320°	21	missing	rough	10	19.54	33.666	5.44				403
133.23-H	8	1140	26°08.5'	112°40.0'	40	310°	27	missing	moderate	10	20.74	34.042	5.16				406
133.25-H	8	1252	26°04.5'	112°48.0'	45	320°	29	missing	moderate	10	20.44	33.982	5.21				402
133.30-H	8	1510	25°55.0'	113°10.0'	120	330°	17	partly cloudy	rough	10	20.25	33.985	5.13				397
133.36-H	8	1800	25°46.0'	113°32.0'	680	340°	22	partly cloudy	rough	10	20.52	33.954	5.27				406
133.42-H	8	2043	25°36.0'	113°56.0'	2160	310°	14	cloudy	rough	10	20.89	33.973	5.26				414
137.22-H	8	0737	25°36.0'	112°15.0'	-	-	-	missing	missing	10	20.42	33.975	5.34				402
137.30-H	8	0235	25°21.5'	112°47.0'	170	320°	19	partly cloudy	moderate	10	21.47	34.039	5.06				425
137.35-H	8	0015	25°09.0'	113°03.5'	757	310°	21	partly cloudy	high	10	21.86	34.068	5.11				433

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