UNIVERSITY OF CALIFORNIA SCRIPPS INSTITUTION OF OCEANOGRAPHY

data report

PHYSICAL AND CHEMICAL DATA

CCOFI Cruise 6410
2 October - 1 November 1964

and

USCG Station November
6 - 26 September 1964

SIO Reference 65-18
5 October 1965

UNIVERSITY OF CALIFORNIA

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CCOFI Cruise 6410
2 October - 1 November 1964

Sponsored by
Marine Research Committee

and

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Approved for distribution:

W. A. Nierenberg

W. A. Nierenberg, Director

CONTENTS

FIGURES

INTRODUCTION

The data presented in this report were collected by the RV Black Douglas of the Bureau of Commercial Fisheries on Cruise 6410 of the California Cooperative Oceanic Fisheries Investigations program. Also included in this report are the data collected at Station November for the September 1964 cruise of the USCGC Minnetonka of the United States Coast Guard. The first two figures in this cruise numbering system represent the year of the cruise; the last two figures, the month. The cruises preceding this one in the series are 6310, 6311 and 6311 (El Golfo) (Scripps Institution report, SIO Ref. 65-1) and 6401 (SIO Ref. 65-7).

The data are accompanied by charts of horizontal distribution. The presentation of data in this report does not constitute publication; however, the data contained in this report have been carefully edited and no modifications should be necessary before final publication.

STANDARD PROCEDURES

Hydrographic Casts

The observed data have been plotted and then evaluated using the method described by Klein. [1] This involves consideration of their variation as functions of density or depth and their relations to each other, and by comparison with concurrent bathythermograms or STD observations and with previous or adjacent observations. After this evaluation any standard depth values that we believe the computer program might not determine satisfactorily were estimated from the above considerations and entered. The other interpolations at standard depths were done by computer, using Rattray's [2] interpolation technique.

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 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

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

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

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."[3/] The values are recorded to two decimal places when obtained by chlorinity titration, or by salinometer where 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.

Tabulated Data

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

A hyphen is used to indicate a missing observed value. The time is the time of messenger release.

FOOTNOTES

Laboratory personnel note any possible imperfections in the sealing of the bottles as follows:

Loose bottle cap:	The cap is definitely loose so that it could be moved with very little applied pressure. The salinity values obtained from these samples may be usable depending on time and/or conditions of storage.

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

Possible evaporation: Either the cap was sealed with less than usual pressure, the bottle edge chipped, the rubber washer cracked, or the bale broke on opening, etc.

Use of the above values in interpolation depends upon consistency with other values of salinity and other properties and these footnotes are supplemented with "used in interpolation" or "not used in interpolation," depending on the instruction given the computer.

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

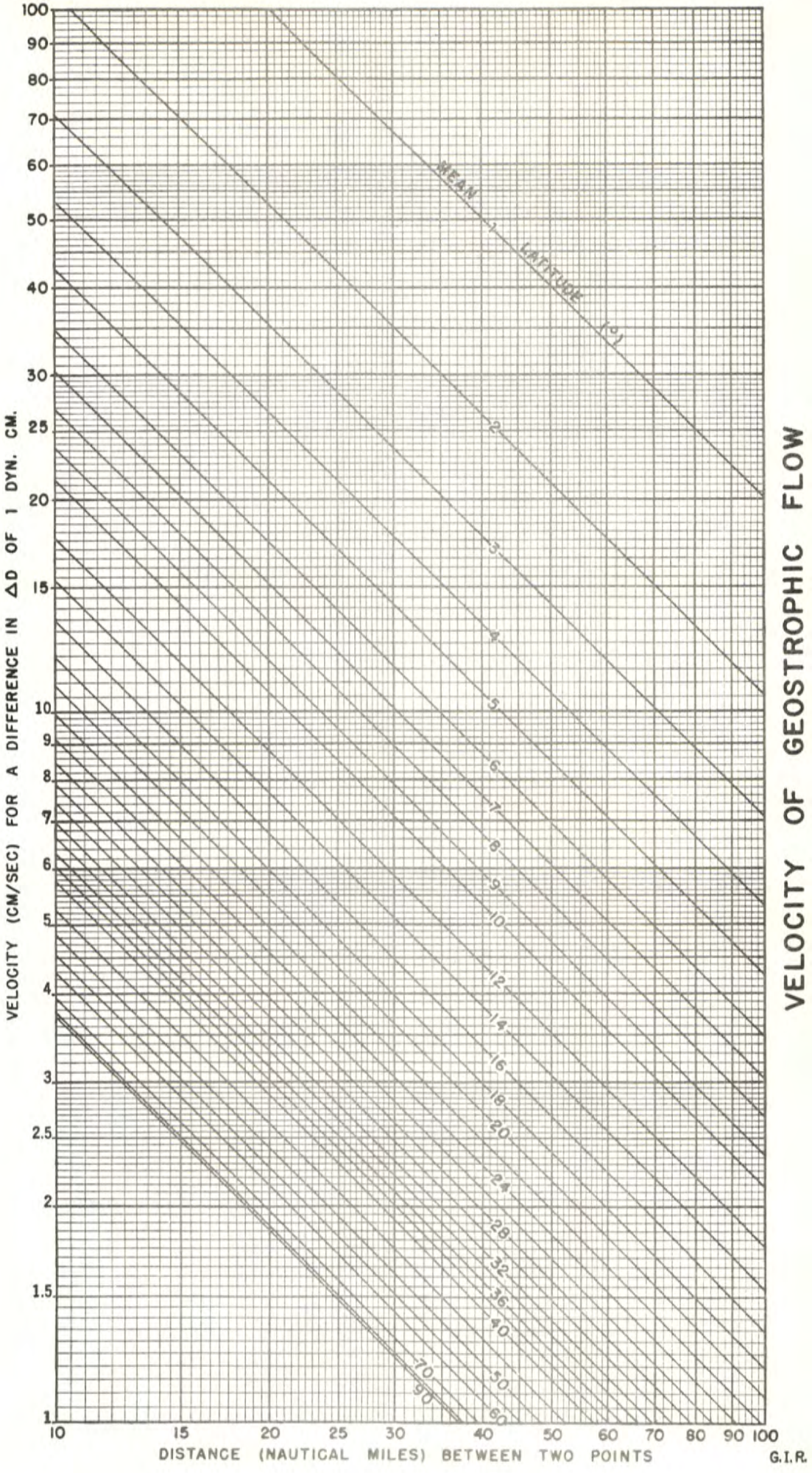
Values which are not used in interpolation because they seem to be in error without apparent reason are indicated by the following notation.

u: uncertain value.

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 a known trace such as a bathythermogram or STD recording.

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


VELOCITY OF GEOSTROPHIC FLOW
VELOCITY (CM/SEC) FOR A DIFFERENCE IN ΔD OF 1 DYN. CM.
100
90
80
70
60
50
40
30
25
20
15
10
9
8
7
6
5
4
3
2.5
2
1.5
1
MEAN LATITUDE
1°
2
3
4
5
6
7
8
9
10
12
14
16
18
20
24
28
32
36
40
50
60
70
90
10
15
20
25
30
40
50
60
70
80
90
100
DISTANCE (NAUTICAL MILES) BETWEEN TWO POINTS
G.I.R.

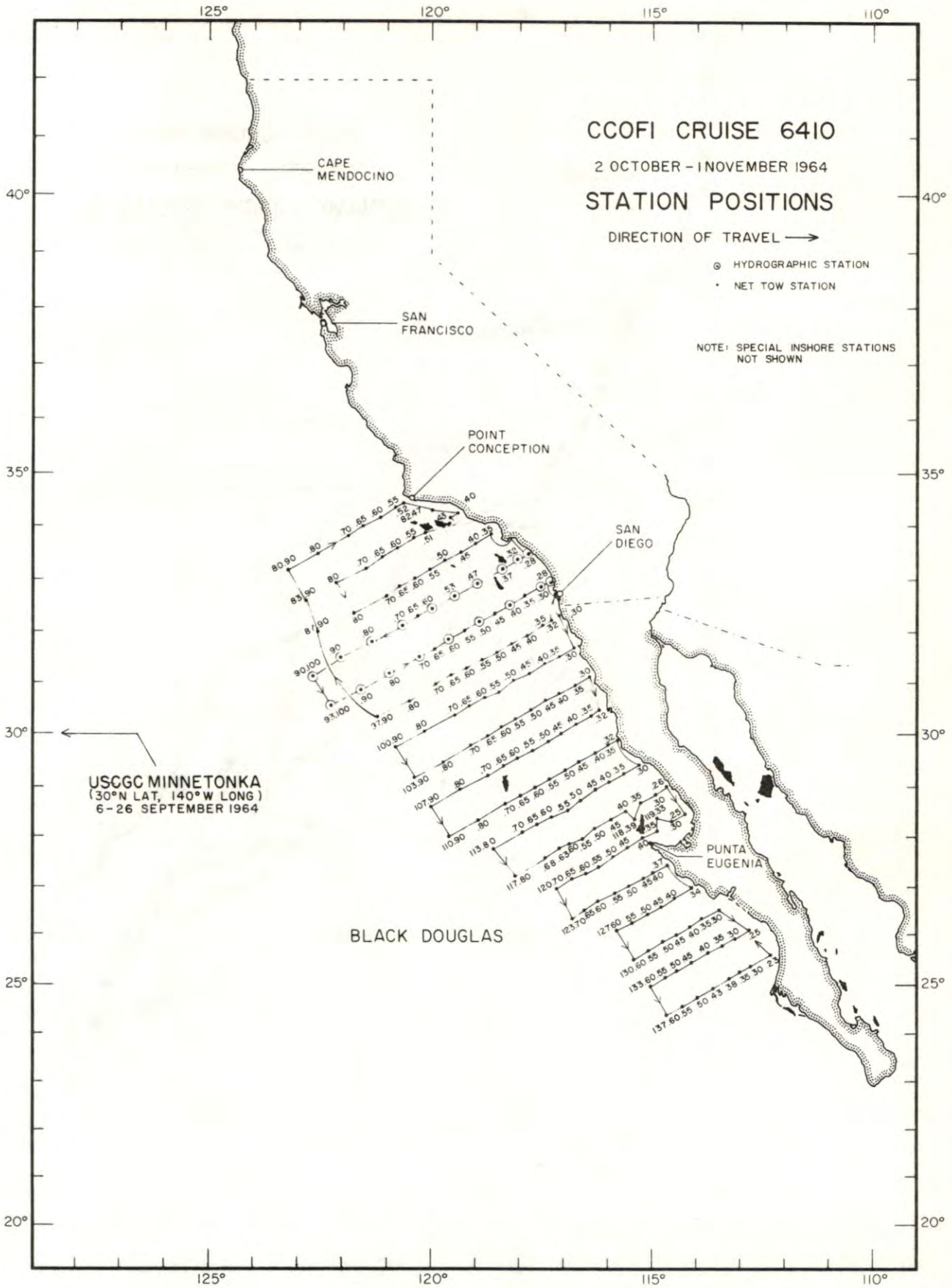

CCOFI CRUISE 6410
2 OCTOBER - 1 NOVEMBER 1964
STATION POSITIONS
DIRECTION OF TRAVEL →
HYDROGRAPHIC STATION
NET TOW STATION
NOTE: SPECIAL INSHORE STATIONS NOT SHOWN
CAPE MENDOCINO
SAN FRANCISCO
POINT CONCEPTION
SAN DIEGO
PUNTA EUGENIA
USCGC MINNETONKA
(30°N LAT, 140°W LONG)
6-26 SEPTEMBER 1964
BLACK DOUGLAS
125°
120°
115°
110°
40°
35°
30°
25°
20°

FIGURE 1

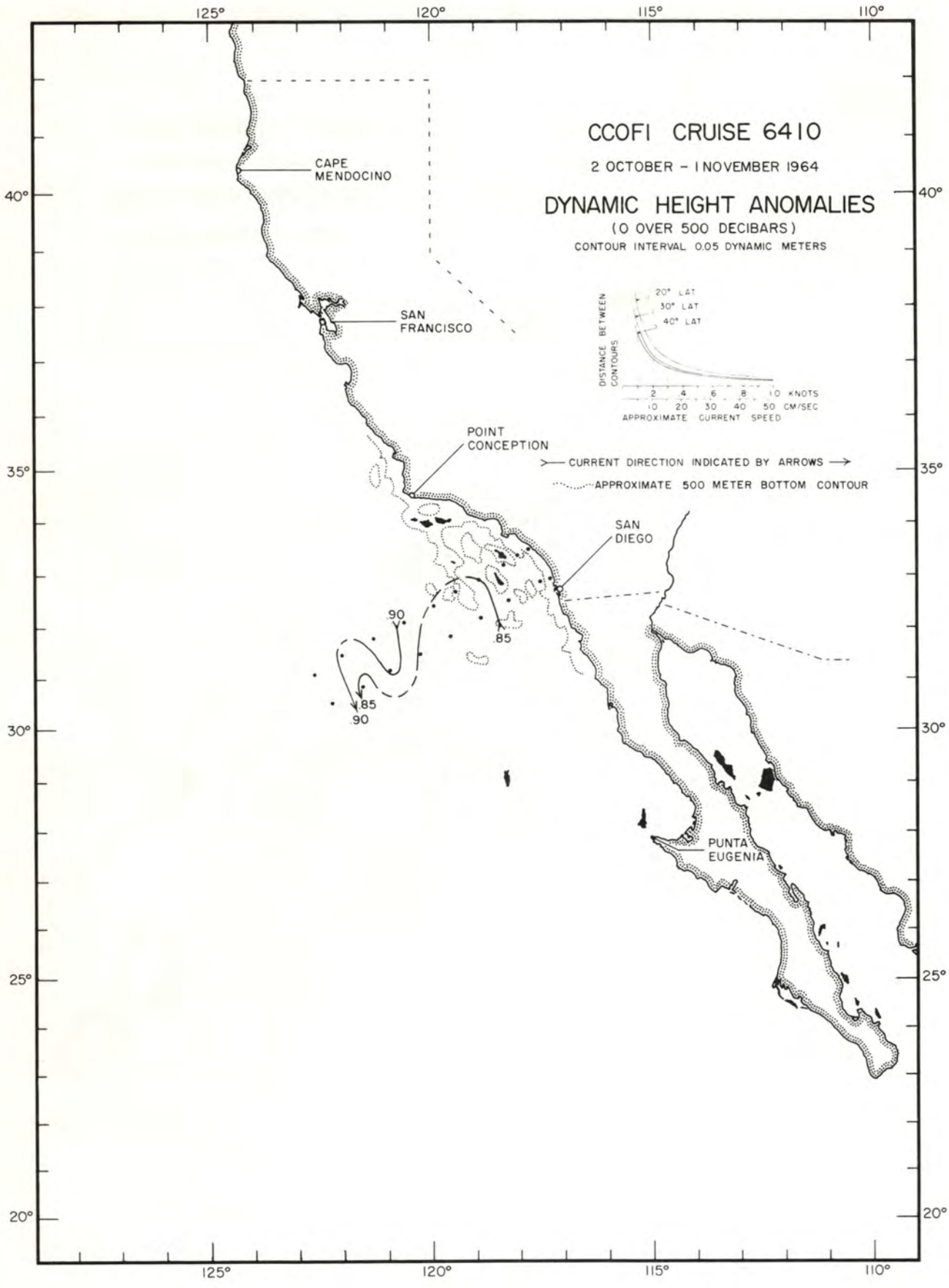

CCOFI CRUISE 6410
2 OCTOBER - 1 NOVEMBER 1964
DYNAMIC HEIGHT ANOMALIES
(0 OVER 500 DECIBARS)
CONTOUR INTERVAL 0.05 DYNAMIC METERS
20° LAT
30° LAT
40° LAT
DISTANCE BETWEEN CONTOURS
2 4 6 8 10 KNOTS
10 20 30 40 50 CM/SEC
APPROXIMATE CURRENT SPEED
CAPE MENDOCINO
SAN FRANCISCO
POINT CONCEPTION
CURRENT DIRECTION INDICATED BY ARROWS
APPROXIMATE 500 METER BOTTOM CONTOUR
SAN DIEGO
PUNTA EUGENIA
90
85
85
90
125°
120°
115°
110°
40°
35°
30°
25°
20°

FIGURE 2

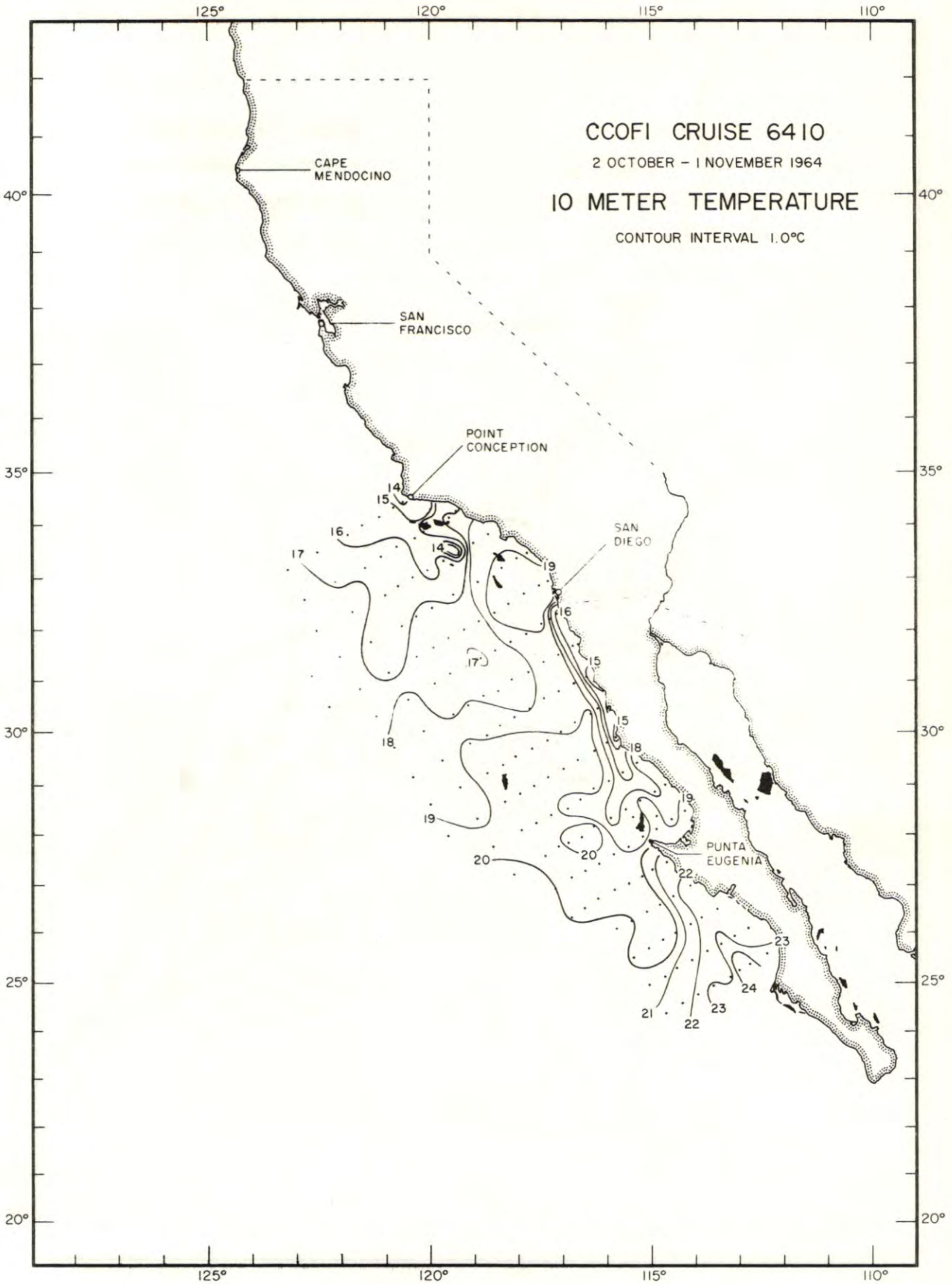

CCOFI CRUISE 6410
2 OCTOBER – 1 NOVEMBER 1964
10 METER TEMPERATURE
CONTOUR INTERVAL 1.0°C
CAPE MENDOCINO
SAN FRANCISCO
POINT CONCEPTION
SAN DIEGO
PUNTA EUGENIA
125°
120°
115°
110°
40°
35°
30°
25°
20°

FIGURE 3

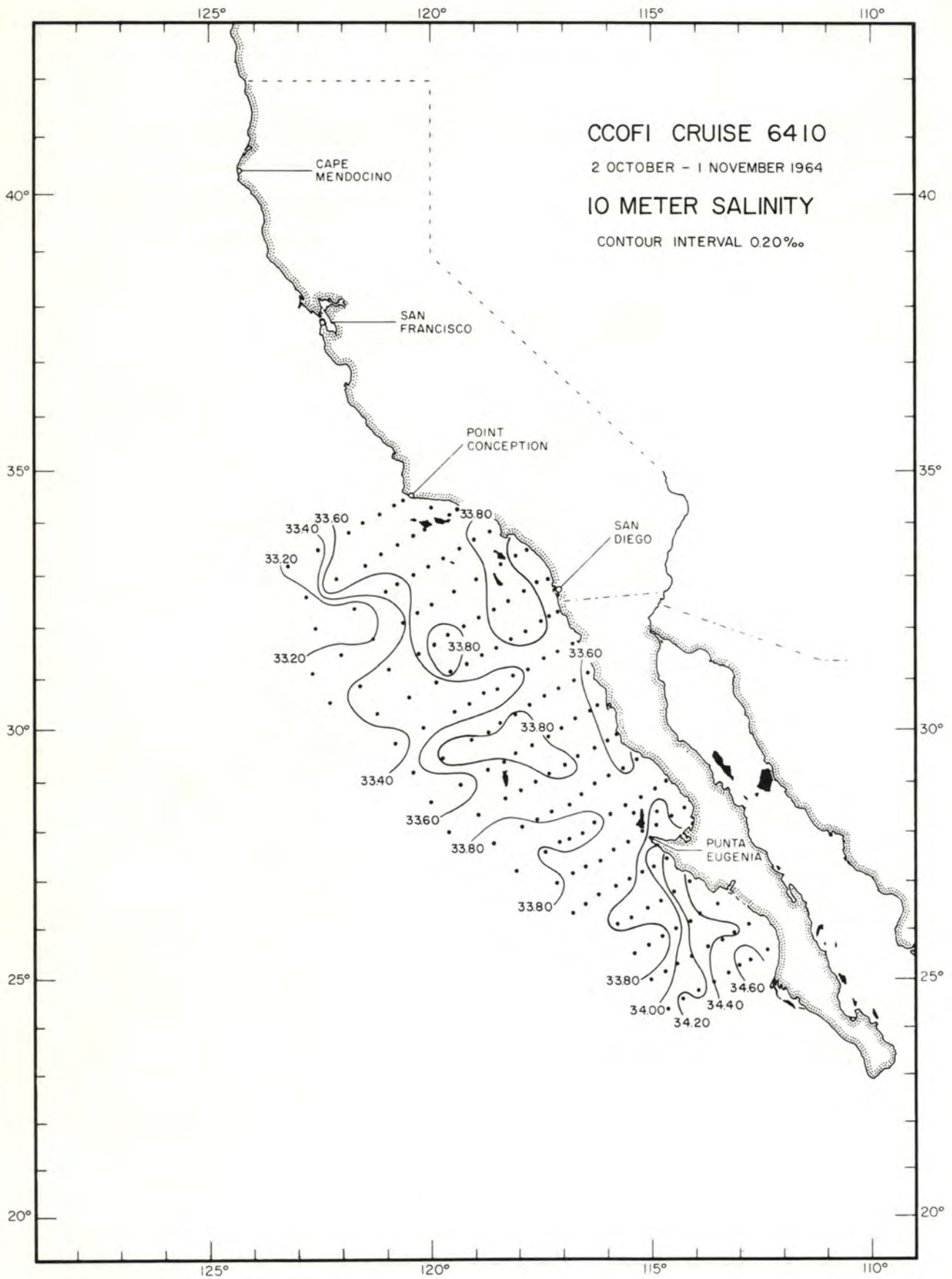

CCOFI CRUISE 6410
2 OCTOBER – 1 NOVEMBER 1964
10 METER SALINITY
CONTOUR INTERVAL 0.20‰
CAPE MENDOCINO
SAN FRANCISCO
POINT CONCEPTION
SAN DIEGO
PUNTA EUGENIA
125°
120°
115°
110°
40°
35°
30°
25°
20°
33.40
33.60
33.80
33.20
34.00
34.20
34.40
34.60

FIGURE 4

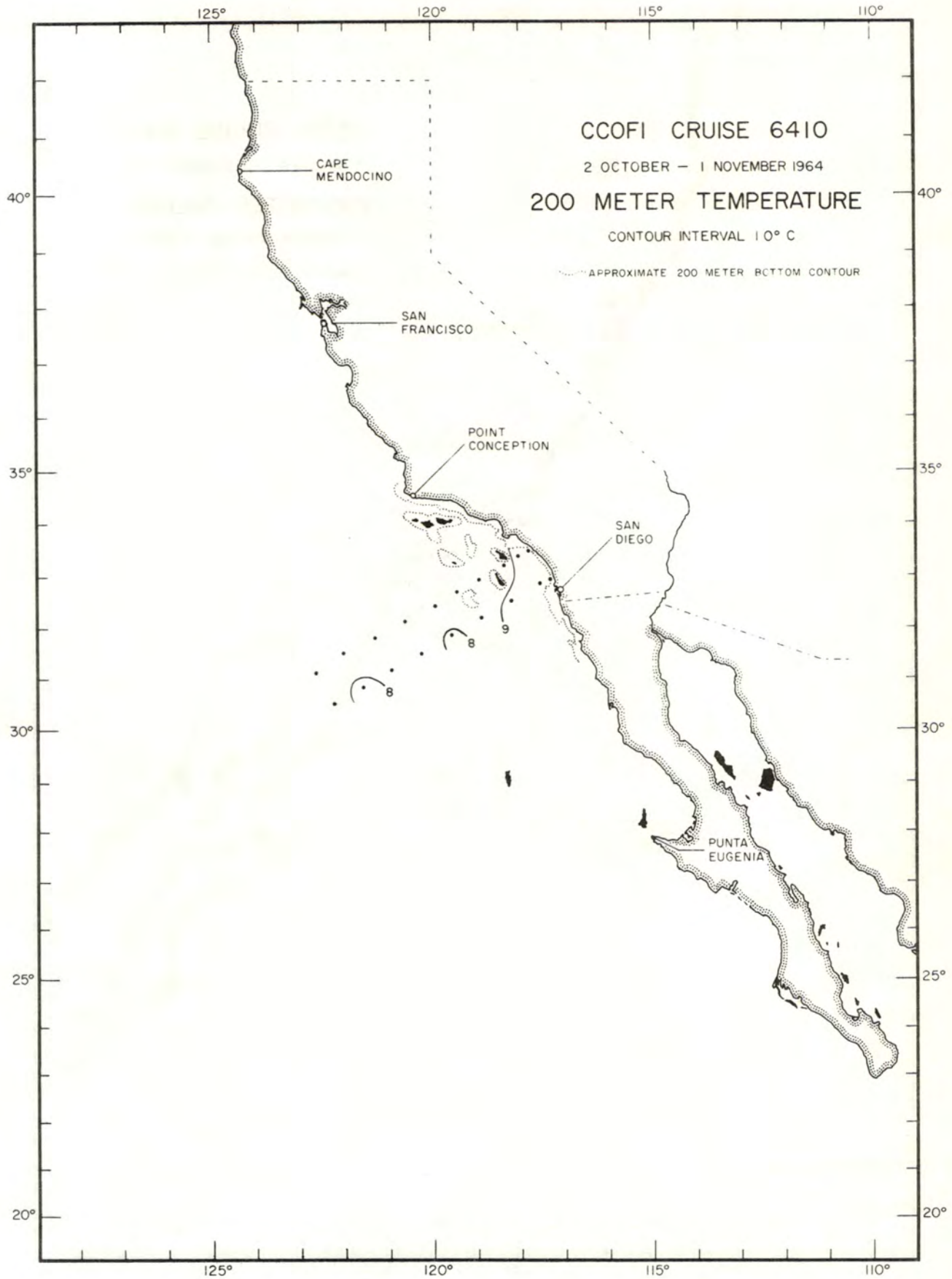

CCOFI CRUISE 6410
2 OCTOBER – 1 NOVEMBER 1964
200 METER TEMPERATURE
CONTOUR INTERVAL 1.0° C
APPROXIMATE 200 METER BOTTOM CONTOUR
CAPE MENDOCINO
SAN FRANCISCO
POINT CONCEPTION
SAN DIEGO
PUNTA EUGENIA
9
8
8
125°
120°
115°
110°
40°
35°
30°
25°
20°

FIGURE 5

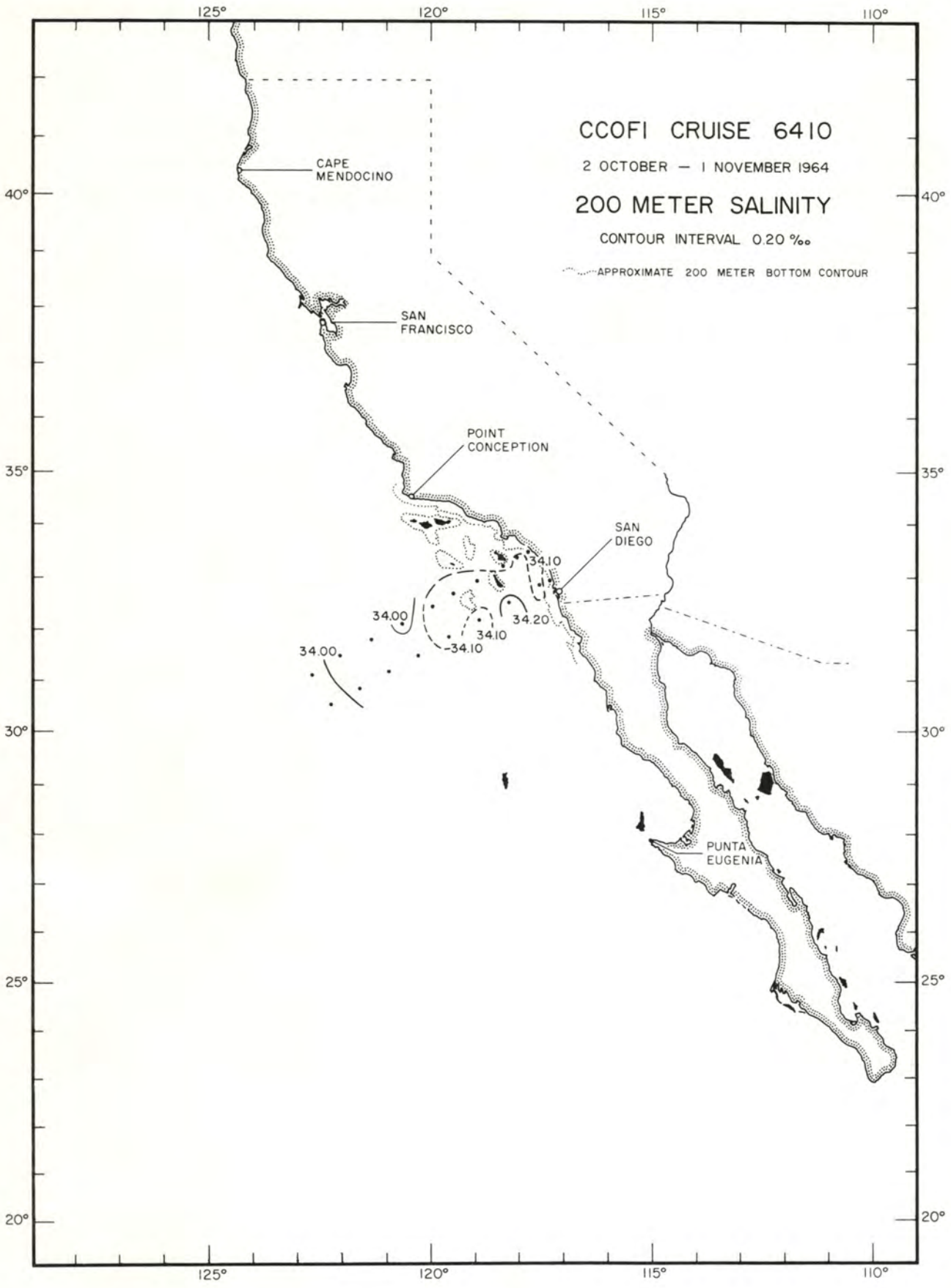

CCOFI CRUISE 6410
2 OCTOBER — 1 NOVEMBER 1964
200 METER SALINITY
CONTOUR INTERVAL 0.20 ‰
APPROXIMATE 200 METER BOTTOM CONTOUR
CAPE MENDOCINO
SAN FRANCISCO
POINT CONCEPTION
SAN DIEGO
PUNTA EUGENIA
34.10
34.00
34.20
34.10
34.10
34.00
125°
120°
115°
110°
40°
35°
30°
25°
20°

FIGURE 6

PERSONNEL

SHIPS' CAPTAINS

Alger, CDR David N., USCGC Minnetonka
Forster, Charles W., RV Black Douglas

PERSONNEL PARTICIPATING IN THE COLLECTION OF DATA

RV Black Douglas

Wagner, Vaughn, Fishery Technician, Bureau of Commercial Fisheries
*Davoll, Peter J., Marine Technician
Fankboner, Peter V., Marine Technician
*Lawson, Jan B., Senior Marine Technician

USCGC Minnetonka

Brennen, Robert E., Senior Marine Technician

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*Lines 90 and 93 only.

	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
90.28					CCOFI CRUISE 6410								90.28	
BLACK DOUGLAS, OCTOBER 9 1964, 0120 GCT, 33 28.5N 117 46.5W, SOUNDING 250 FM, WIND 320 FORCE 3, WEATHER PARTLY CLOUDY, SEA SLIGHT, WIRE ANGLE 05.														
0	20.42	33.804	5.72	-	-	-	414.8	0	20.42	33.804	5.72	23.76	414.8	0
10	18.50	33.746	6.14	-	-	-	372.0	10	18.50	33.746	6.14	24.21	372.0	.039
20	14.60K	33.650G	-	-	-	-	293.0	20	14.60	33.650	5.88	25.04	293.0	.073
30	13.29	33.622	5.23	-	-	-	269.2	30	13.29	33.622	5.23	25.29	269.2	.101
43	12.30	33.628	4.21	-	-	-	250.3	50	11.99	33.644	3.98	25.56	243.5	.152
53	11.88	33.652	3.91	-	-	-	241.0	75	11.24	33.686	3.19	25.73	227.1	.211
68	11.26	33.671	3.22	-	-	-	228.7	100	10.82	33.733	3.26	25.84	216.7	.267
82	11.19	33.702	3.24	-	-	-	225.2	125	10.26	33.831	2.93	26.02	200.1	.320
97	10.90	33.723	3.28	-	-	-	218.7	150	9.98	33.914	2.58	26.13	189.4	.370
121	10.32	33.816	3.01	-	-	-	202.2	200	9.79	34.062	2.21	26.28	175.4	.463
141	10.08	33.886	2.65	-	-	-	193.1	250	9.21	34.166	1.65	26.45	158.7	.548
170	9.83	33.974	2.48	-	-	-	182.6	300	8.68	34.212	1.31	26.57	147.2	.627
199	9.80	34.059	2.22	-	-	-	175.8	400	7.66	34.240	.89	26.75	130.6	.772
233	9.44	34.147	1.77	-	-	-	163.6							
286	8.77	34.192	1.45	-	-	-	150.1							
338	8.44	34.257	1.03	-	-	-	140.4							
398	7.68	34.237	.89	-	-	-	131.1							
400	7.66G	34.240G	-	-	-	-	130.6							
90.32					CCOFI CRUISE 6410								90.32	
BLACK DOUGLAS, OCTOBER 9 1964, 0351 GCT, 33 21N 118 01.5W, SOUNDING 400 FM, WIND 330 FORCE 3, WEATHER PARTLY CLOUDY, SEA MODERATE, WIRE ANGLE 12.														
0	19.58	33.767	5.70	-	-	-	396.5	0	19.58	33.767	5.70	23.95	396.5	0
9	19.57	33.771	5.76	-	-	-	396.0	10	19.57	33.770	5.80	23.96	396.1	.040
10	19.57K	33.770G	-	-	-	-	396.1	20	17.15	33.650	6.08	24.46	347.7	.077
20	17.15K	33.650G	-	-	-	-	347.7	30	13.51	33.471	6.09	25.13	284.6	.109
28	13.88	33.502	6.16	-	-	-	289.5	50	12.50	33.607	4.69	25.43	255.6	.163
37	12.90	33.414	5.72	-	-	-	277.1	75	11.22	33.671	3.78	25.72	228.0	.224
51	12.47	33.626	4.61	-	-	-	253.6	100	10.44	33.744	3.52	25.92	209.4	.279
66	11.58	33.661	3.81	-	-	-	235.0	125	10.01	33.892	2.77	26.11	191.4	.329
89	10.79	33.696	3.72	-	-	-	218.8	150	9.69	33.980	2.68	26.23	179.9	.377
108	10.23	33.788	3.32	-	-	-	202.8	200	9.11	34.131	2.05	26.44	159.7	.463
127	9.99	33.904	2.72	-	-	-	190.3	250	8.46	34.163	1.65	26.57	147.6	.542
147	9.72	33.967	2.75	-	-	-	181.3	300	8.03	34.207	1.26	26.67	138.2	.616
174	9.46	34.176N	2.08	-	-	-	161.8	400	7.49	34.283	.68	26.81	125.0	.753
206	9.02	34.140	2.03	-	-	-	157.7	500	6.75	34.318	.38	26.94	112.7	.879
235	8.64	34.152	1.80	-	-	-	151.1	600	6.07	34.360	.24	27.06	101.0	.994
282	8.14	34.191	1.35	-	-	-	140.9							
336	7.87	34.238	1.12	-	-	-	133.6							
416	7.38	34.292	.58	-	-	-	122.9							
499	6.76	34.318	.38	-	-	-	112.8							
582	6.18	34.348	.26	-	-	-	103.2							
600	6.07G	34.360G	-	-	-	-	101.0							
90.37					CCOFI CRUISE 6410								90.37	
BLACK DOUGLAS, OCTOBER 9 1964, 0704 GCT, 33 11N 118 22.5W, SOUNDING 600 FM, WIND 330 FORCE 3, WEATHER PARTLY CLOUDY, SEA MODERATE, WIRE ANGLE 10.														
0	19.52	33.809	5.40	-	-	-	392.0	0	19.52	33.809	5.40	24.00	392.0	0
9	19.52	33.813	5.40	-	-	-	391.7	10	19.52	33.810	5.45	24.00	391.9	.039
10	19.52K	33.810G	-	-	-	-	391.9	20	17.10	33.650	5.89	24.48	346.6	.076
20	17.10K	33.650G	-	-	-	-	346.6	30	14.01	33.462	6.05	25.02	295.0	.108
29	14.29	33.481	6.10	-	-	-	299.2	50	11.59	33.407	5.19	25.45	253.9	.163
37	12.40	33.362	5.64	-	-	-	271.7	75	11.17	33.600	4.53	25.68	232.4	.225
52	11.50	33.427	5.14	-	-	-	250.8	100	10.56	33.751	3.61	25.90	210.9	.280
66	11.32	33.505	4.87	-	-	-	242.0	125	9.99	33.818	3.31	26.05	196.7	.332
89	10.88	33.736A	3.95	-	-	-	217.4	150	9.45	33.894	2.88	26.20	182.5	.380
109	10.30	33.767	3.41	-	-	-	205.5	200	8.90	34.046	2.37	26.41	162.9	.468
129	9.92	33.832A	3.27	-	-	-	194.5	250	8.44	34.154	1.65	26.56	147.9	.548
147	9.50	33.887	2.91	-	-	-	183.8	300	8.19	34.240	1.13	26.67	138.0	.622
175	9.16	33.957	2.70	-	-	-	173.4	400	7.28	34.275	.67	26.83	122.7	.758
208	8.82	34.072	2.25	-	-	-	159.7	500	6.70	34.315	.40	26.94	112.3	.882
236	8.46	34.114	1.85	-	-	-	151.3							
282	8.38	34.231	1.27	-	-	-	141.4							
334	7.77	34.239	.95	-	-	-	132.2							
415	7.19	34.284	.62	-	-	-	120.9							
497	6.72	34.314	.41	-	-	-	112.5							
578	6.27	34.335	.31	-	-	-	105.3							

A) POSSIBLE EVAPORATION, VALUE USED IN INTERPOLATION.

N) POSSIBLE EVAPORATION, VALUE NOT USED IN INTERPOLATION.

	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
90.45					CCOFI CRUISE 6410								90.45	

BLACK DOUGLAS, OCTOBER 9 1964, 1210 GCT, 32 54.5N 118 55.5W, SOUNDING 900 FM, WIND 280 FORCE 3, WEATHER MISSING, SEA ROUGH, WIRE ANGLE 05.

0	18.40	33.751	5.62	-	-	-	369.2	0	18.40	33.751	5.62	24.24	369.2	0
10	18.36	33.747	5.54	-	-	-	368.6	10	18.36	33.747	5.54	24.25	368.6	.037
20	18.20K	33.740G	-	-	-	-	365.3	20	18.20	33.740	5.75	24.28	365.3	.074
30	14.70	33.613	5.77	-	-	-	297.8	30	14.70	33.613	5.77	24.99	297.8	.107
39	12.32	33.563	5.20	-	-	-	255.4	50	11.69	33.612	4.51	25.59	240.6	.161
53	11.56	33.633	4.35	-	-	-	236.7	75	11.08	33.685	3.80	25.76	224.6	.219
69	11.23	33.665	4.00	-	-	-	228.6	100	10.29	33.774	3.24	25.97	204.8	.274
92	10.58	33.748	3.31	-	-	-	211.5	125	9.53	33.872	3.02	26.17	185.5	.323
111	9.90	33.812	3.19	-	-	-	195.7	150	8.99	34.009	2.48	26.37	166.9	.368
130	9.42	33.896	2.94	-	-	-	181.9	200	8.60	34.130	1.76	26.52	152.1	.449
149	9.00	34.006	2.50	-	-	-	167.3	250	8.12	34.171	1.42	26.63	142.2	.525
177	8.74	34.073	2.11	-	-	-	158.4	300	7.61	34.181	1.21	26.71	134.2	.596
210	8.54	34.151	1.63	-	-	-	149.7	400	7.06	34.272	.59	26.86	120.0	.729
239	8.26	34.174	1.45	-	-	-	143.9	500	6.47	34.318	.31	26.97	109.1	.850
287	7.69	34.164	1.34	-	-	-	136.6	600	5.63	34.360	.26	27.11	95.8	.960
341	7.42	34.245	.78	-	-	-	126.9							
423	6.91	34.276	.53	-	-	-	117.8							
507	6.43	34.322	.30	-	-	-	108.3							
590	5.72	34.359	.26	-	-	-	96.9							
600	5.63G	34.360G	-	-	-	-	95.8							

90.53					CCOFI CRUISE 6410								90.53	

BLACK DOUGLAS, OCTOBER 9 1964, 1705 GCT, 32 39N 119 28.5W, SOUNDING 750 FM, WIND 290 FORCE 4, WEATHER CLOUDY, SEA ROUGH, WIRE ANGLE 07.

0	16.55	33.707	5.50	-	-	-	330.2	0	16.55	33.707	5.50	24.65	330.2	0
11	16.54	33.705	5.71	-	-	-	330.1	10	16.54	33.706	5.70	24.65	330.1	.033
31	15.37	33.647	5.71	-	-	-	309.2	20	16.14	33.684	5.79	24.72	322.9	.066
40	12.60	33.419	5.45	-	-	-	271.2	30	15.53	33.658	5.73	24.84	311.7	.098
54	11.93	33.437	5.48	-	-	-	257.7	50	12.15	33.409	5.49	25.35	263.7	.155
69	10.46	33.598	4.49	-	-	-	220.6	75	10.17	33.649	4.21	25.89	212.1	.215
91	9.74	33.761	3.68	-	-	-	196.9	100	9.51	33.814	3.47	26.13	189.3	.266
110	9.28	33.869	3.28	-	-	-	181.7	125	9.00	33.958	3.01	26.32	170.9	.311
129	8.94	33.977	2.95	-	-	-	168.6	150	8.79	34.008	2.85	26.40	164.0	.354
148	8.80	34.003	2.88	-	-	-	164.5	200	8.28	34.129	2.16	26.57	147.5	.433
176	8.64	34.084	2.36	-	-	-	156.1	250	7.66	34.166	1.48	26.69	136.1	.506
208	8.14	34.139	2.10	-	-	-	144.8	300	7.38	34.230	1.03	26.78	127.5	.574
237	7.77	34.152	1.62	-	-	-	138.6	400	6.89	34.319	.50	26.92	114.4	.701
285	7.46	34.211	1.18	-	-	-	130.0	500	6.36	34.368	.35	27.03	104.0	.816
338	7.19	34.275	.69	-	-	-	121.6	600	5.89	34.380	.27	27.10	97.4	.924
421	6.79	34.329	.45	-	-	-	112.3							
504	6.34	34.370	.35	-	-	-	103.6							
587	5.96	34.381	.28	-	-	-	98.1							
600	5.89G	34.380G	-	-	-	-	97.4							

90.60					CCOFI CRUISE 6410								90.60	

BLACK DOUGLAS, OCTOBER 9 1964, 2135 GCT, 32 25N 119 57.5W, SOUNDING 500 FM, WIND 310 FORCE 4, WEATHER OVERCAST, SEA VERY ROUGH, WIRE ANGLE 10.

0	17.18	33.747	5.76	-	-	-	341.3	0	17.18	33.747	5.76	24.53	341.3	0
10	17.18	33.742	5.74	-	-	-	341.7	10	17.18	33.742	5.74	24.53	341.7	.034
30	17.16	33.739	5.78	-	-	-	341.5	20	17.17	33.740	5.75	24.53	341.7	.068
38	15.38	33.611	5.92	-	-	-	312.0	30	17.16	33.739	5.78	24.53	341.5	.103
50	12.70K	33.510G	-	-	-	-	266.3	50	12.70	33.510	5.54	25.32	266.3	.164
54	11.84	33.485	5.33	-	-	-	252.5	75	10.59	33.629	4.50	25.80	220.3	.225
67	10.98	33.588	4.78	-	-	-	230.0	100	9.76	33.748	3.94	26.04	198.2	.278
92	9.97	33.703	4.05	-	-	-	204.9	125	9.24	33.888	3.35	26.23	179.8	.325
112	9.50	33.817	3.76	-	-	-	189.0	150	8.90	33.991	2.80	26.36	166.9	.369
131	9.14	33.918	3.16	-	-	-	176.0	200	8.77	34.160	1.87	26.52	152.5	.451
150	8.90	33.991	2.80	-	-	-	166.9	250	8.22	34.189	1.53	26.63	142.2	.527
178	8.78	34.063	2.41	-	-	-	159.8	300	7.49	34.223	1.08	26.76	129.5	.597
211	8.77	34.204	1.64	-	-	-	149.2	400	6.86	34.311	.48	26.92	114.6	.724
239	8.41	34.187	1.61	-	-	-	145.1	500	6.26	34.356	.26	27.03	103.6	.840
286	7.62	34.213	1.19	-	-	-	132.9	600	5.90	34.360	.25	27.08	99.0	.949
338	7.25	34.252	.81	-	-	-	124.1							
420	6.74	34.328	.40	-	-	-	111.8							
503	6.24	34.356	.26	-	-	-	103.4							
586	5.95	34.355	.25	-	-	-	99.9							
600	5.90G	34.360G	-	-	-	-	99.0							

	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
90.70					CCOFI CRUISE 6410								90.70	

BLACK DOUGLAS, OCTOBER 10 1964, 0344 GCT, 32 04.5N 120 38.5W, SOUNDING 2000 FM, WIND 290 FORCE 4, WEATHER OVERCAST, SEA VERY ROUGH, WIRE ANGLE 21.

0	16.42	33.343	5.77	-	-	-	353.9	0	16.42	33.343	5.77	24.40	353.9	0
10	16.42	33.355	5.76	-	-	-	353.0	10	16.42	33.355	5.76	24.41	353.0	.035
20	16.20K	33.360G	-	-	-	-	347.9	20	16.20	33.360	5.82	24.46	347.9	.070
28	14.75	33.373	5.89	-	-	-	316.4	30	14.36	33.330	5.97	24.84	311.6	.103
37	13.12	33.164	6.21	-	-	-	299.6	50	11.95	33.140	5.89	25.18	279.9	.163
50	11.95	33.140	5.89	-	-	-	279.9	75	10.89	33.220	5.43	25.43	255.7	.230
64	11.46	33.113	5.77	-	-	-	273.3	100	9.94	33.472	4.83	25.79	221.5	.290
75	10.89K	33.220G	-	-	-	-	255.7	125	9.11	33.671	3.82	26.08	193.8	.343
84	10.42	33.336	5.12	-	-	-	239.3	150	8.79	33.833	3.34	26.26	177.0	.390
102	9.89	33.485	4.79	-	-	-	219.7	200	8.23	33.987	2.97	26.47	157.4	.475
118	9.28	33.604	4.18	-	-	-	201.4	250	7.62	34.045	2.37	26.60	144.6	.552
136	8.92	33.770	3.34	-	-	-	183.6	300	6.95	34.055	2.05	26.70	134.9	.624
161	8.72	33.865	3.46	-	-	-	173.6	400	5.96	34.110	1.16	26.88	118.4	.756
191	8.34	33.969	3.08	-	-	-	160.3	500	5.45	34.207	.55	27.02	105.2	.873
215	8.04	34.008	2.80	-	-	-	153.1							
260	7.50	34.051	2.26	-	-	-	142.4							
309	6.83	34.055	2.01	-	-	-	133.3							
387	6.05	34.102	1.24	-	-	-	120.1							
467	5.58	34.168	.75	-	-	-	109.6							
550	5.32	34.277	.26	-	-	-	98.5							

90.80					CCOFI CRUISE 6410								90.80	

BLACK DOUGLAS, OCTOBER 10 1964, 0912 GCT, 31 46N 120 20W, SOUNDING 2200 FM, WIND 340 FORCE 4, WEATHER OVERCAST, SEA VERY ROUGH, WIRE ANGLE 10.

0	16.78	33.196	5.36	-	-	-	372.6	0	16.78	33.196	5.36	24.20	372.6	0
11	16.77	33.200	5.47	-	-	-	372.0	10	16.77	33.200	5.46	24.21	372.1	.037
20	16.77K	33.200G	-	-	-	-	372.0	20	16.77	33.200	5.57	24.21	372.0	.074
30	16.77K	33.200G	-	-	-	-	372.0	30	16.77	33.200	5.65	24.21	372.0	.112
49	13.66	33.115	5.75	-	-	-	313.6	50	13.58	33.114	5.75	24.84	312.1	.180
75	12.44K	33.140G	-	-	-	-	288.8	75	12.44	33.140	5.67	25.08	288.8	.256
84	12.01	33.162	5.56	-	-	-	279.4	100	11.14	33.278	5.21	25.43	255.7	.324
103	11.00	33.305	5.13	-	-	-	251.2	125	10.18	33.507	4.49	25.78	222.7	.385
117	10.64	33.421	4.80	-	-	-	236.6	150	9.14	33.844	3.07	26.21	181.4	.436
136	9.54	33.646	3.95	-	-	-	202.3	200	8.81	34.049	1.65	26.42	161.3	.523
154	9.07	33.894	2.83	-	-	-	176.7	250	8.49	34.092	1.64	26.51	153.4	.604
173	8.96	34.006	2.19	-	-	-	166.7	300	7.89	34.123	1.33	26.62	142.5	.680
202	8.80	34.049	1.63	-	-	-	161.1	400	6.92	34.291	.87	26.89	116.9	.816
230	8.59	34.084	1.69	-	-	-	155.4	500	6.22	34.334	.33	27.02	104.7	.933
254	8.47	34.093	1.62	-	-	-	153.0	600	5.82	34.358	.27	27.09	98.2	1.042
286	8.07	34.105	1.47	-	-	-	146.3							
330	7.54	34.175	1.06	-	-	-	133.8							
383	7.08	34.276	1.00	-	-	-	120.1							
464	6.39	34.319	.35	-	-	-	108.0							
553	5.99	34.350	.30	-	-	-	100.8							
627	5.74	34.359	.26	-	-	-	97.1							

90.90					CCOFI CRUISE 6410								90.90	

BLACK DOUGLAS, OCTOBER 10 1964, 1442 GCT, 31 27.5N 122 01W, SOUNDING 2100 FM, WIND 320 FORCE 4, WEATHER CLOUDY, SEA ROUGH, WIRE ANGLE 02.

0	17.02	33.297	5.19	-	-	-	370.5	0	17.02	33.297	5.19	24.22	370.5	0
11	17.02	33.295	5.26	-	-	-	370.7	10	17.01	33.290	5.25	24.22	370.8	.037
20	17.20K	33.390G	-	-	-	-	367.8	20	17.20	33.390	5.30	24.25	367.8	.074
30	17.38K	33.540G	-	-	-	-	360.9	30	17.38	33.540	5.32	24.33	360.9	.111
31	17.38	33.548	5.32	-	-	-	360.4	50	12.41	33.266	5.46	25.19	278.9	.175
40	14.33	33.511	5.31	-	-	-	297.8	75	11.68	33.300	5.26	25.35	263.4	.243
55	11.90	33.149	5.53	-	-	-	278.4	100	10.35	33.522	4.45	25.76	224.5	.304
70	11.64	33.229	5.37	-	-	-	267.9	125	9.63	33.833	3.34	26.12	189.9	.357
75	11.68K	33.300G	-	-	-	-	263.4	150	8.98	33.996	2.93	26.36	167.8	.402
94	10.62	33.467	4.68	-	-	-	232.9	200	8.25	34.077	2.25	26.53	151.0	.483
114	9.86	33.669	3.87	-	-	-	205.6	250	7.39	34.056	2.44	26.64	140.6	.558
132	9.50	33.926	3.06	-	-	-	180.9	300	6.75	34.075	1.71	26.75	130.8	.628
153	8.90	33.998	2.91	-	-	-	166.4	400	6.07	34.185	.70	26.92	114.1	.755
181	8.48	34.068	2.48	-	-	-	155.0	500	5.63	34.258	.44	27.04	103.4	.870
213	8.08	34.073	2.18	-	-	-	148.9	600	5.26	34.320	.35	27.13	94.6	.975
242	7.52	34.058	2.48	-	-	-	142.2							
288	6.88	34.062	1.94	-	-	-	133.4							
341	6.39	34.128	.98	-	-	-	122.3							
423	5.98	34.204	.61	-	-	-	111.6							
506	5.60	34.262	.43	-	-	-	102.8							
589	5.28	34.309	.35	-	-	-	95.6							
600	5.26G	34.320G	-	-	-	-	94.6							

	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
90.100					CCOFI CRUISE 6410								90.100	
BLACK DOUGLAS, OCTOBER 10 1964, 2008 GCT, 31 05N 122 39W, SOUNDING 2300 FM, WIND 340 FORCE 4, WEATHER CLOUDY, SEA ROUGH, WIRE ANGLE 16.														
0	17.27	33.255	5.43	-	-	-	379.2	0	17.27	33.255	5.43	24.13	379.2	0
9	17.25	33.250	5.40	-	-	-	379.1	10	17.25	33.250	5.39	24.13	379.1	.038
10	17.25K	33.250G	-	-	-	-	379.1	20	17.26	33.260	5.35	24.14	378.6	.076
20	17.26K	33.260G	-	-	-	-	378.6	30	17.26	33.260	5.45	24.14	378.6	.114
28	17.26	33.260	5.40	-	-	-	378.6	50	13.93	33.153	5.91	24.80	316.1	.184
30	17.26K	33.260G	-	-	-	-	378.6	75	12.14	33.121	5.72	25.13	284.6	.259
38	15.94	33.223	5.68	-	-	-	352.3	100	11.29	33.273	5.14	25.40	258.6	.327
46	14.64	33.189	5.90	-	-	-	327.6	125	10.13	33.459	4.57	25.75	225.5	.388
59	12.62	33.084	5.91	-	-	-	296.2	150	9.23	33.660	3.92	26.05	196.5	.442
74	12.16	33.114	5.74	-	-	-	285.6	200	8.66	33.958	3.39	26.38	165.9	.534
90	11.72	33.241	5.32	-	-	-	268.4	250	7.87	34.035	2.58	26.56	148.7	.615
111	10.77	33.315	4.94	-	-	-	246.6	300	7.19	34.092	1.88	26.70	135.2	.688
128	10.00	33.493	4.48	-	-	-	220.9	400	6.02	34.101	1.24	26.86	119.8	.820
153	9.16	33.681	3.86	-	-	-	193.8	500	5.54	34.202	.54	27.00	106.6	.939
179	9.04	33.904	3.80	-	-	-	175.5							
205	8.56	33.962	3.28	-	-	-	164.0							
239	8.02	34.015	2.77	-	-	-	152.3							
293	7.30	34.094	1.92	-	-	-	136.5							
361	6.29	34.064	1.62	-	-	-	125.8							
432	5.83	34.132	.97	-	-	-	115.2							
510	5.51	34.212	.49	-	-	-	105.5							

93.28					CCOFI CRUISE 6410								93.28	
BLACK DOUGLAS, OCTOBER 12 1964, 2034 GCT, 32 54.5N 117 22W, SOUNDING 250 FM, WIND 320 FORCE 4, WEATHER CLOUDY, SEA MODERATE, WIRE ANGLE 13.														
0	20.04	33.823	5.10	-	-	-	403.9	0	20.04	33.823	5.10	23.88	403.9	0
10	19.45	33.809	5.12	-	-	-	390.3	10	19.45	33.809	5.12	24.02	390.3	.040
20	15.00K	33.630G	-	-	-	-	302.7	20	15.00	33.630	5.12	24.94	302.7	.074
29	12.90	33.555	5.11	-	-	-	266.8	30	12.80	33.557	5.05	25.34	264.8	.103
43	12.16	33.636	4.09	-	-	-	247.2	50	11.64	33.677	3.72	25.65	234.8	.153
58	11.12	33.717	3.41	-	-	-	222.9	75	10.92	33.757	3.06	25.84	216.6	.210
72	10.94	33.746	3.15	-	-	-	217.7	100	10.69	33.847	2.55	25.95	206.1	.263
87	10.86	33.804	2.73	-	-	-	212.0	125	10.50	33.898	2.39	26.03	199.0	.314
104	10.64	33.858	2.51	-	-	-	204.3	150	10.31	33.973	2.11	26.12	190.5	.364
128	10.48	33.904	2.37	-	-	-	198.3	200	9.72	34.141	1.74	26.35	168.5	.455
147	10.33	33.962	2.14	-	-	-	191.5	250	8.97	34.246	1.30	26.55	149.0	.537
190	9.94	34.112	1.77	-	-	-	174.1	300	8.52	34.280	.89	26.65	139.8	.612
223	9.23	34.200	1.64	-	-	-	156.4							
257	8.92	34.254	1.23	-	-	-	147.7							
293	8.57	34.278	.93	-	-	-	140.7							
300	8.52G	34.280G	-	-	-	-	139.8							

93.30					CCOFI CRUISE 6410								93.30	
BLACK DOUGLAS, OCTOBER 12 1964, 1810 GCT, 32 50.5N 117 31W, SOUNDING 420 FM, WIND 320 FORCE 4, WEATHER CLOUDY, SEA MODERATE, WIRE ANGLE 20.														
0	19.93	33.794	5.15	-	-	-	403.2	0	19.93	33.794	5.15	23.88	403.2	0
9	19.92	33.794	5.19	-	-	-	403.0	10	19.91	33.790	5.27	23.88	403.0	.040
10	19.91K	33.790G	-	-	-	-	403.0	20	18.00	33.690	5.92	24.29	364.3	.079
20	18.00K	33.690G	-	-	-	-	364.3	30	14.55	33.518	6.23	24.95	301.8	.112
28	14.87	33.529	6.30	-	-	-	307.4	50	12.68	33.492	5.08	25.31	267.3	.169
36	14.04	33.511	5.91	-	-	-	292.0	75	11.45	33.627	4.24	25.65	235.2	.232
50	12.68	33.492	5.08	-	-	-	267.3	100	10.41	33.706	3.74	25.89	211.8	.289
63	12.01	33.581	4.58	-	-	-	248.5	125	9.78	33.769	3.42	26.05	196.9	.340
84	11.06	33.651	4.04	-	-	-	226.7	150	9.35	33.879	2.93	26.21	182.1	.388
102	10.34	33.712	3.71	-	-	-	210.2	200	9.04	34.074	2.12	26.41	162.9	.476
120	9.90	33.752	3.51	-	-	-	200.1	250	8.88	34.207	1.50	26.54	150.5	.557
139	9.48	33.826	3.14	-	-	-	188.0	300	8.52	34.259	1.07	26.63	141.4	.632
164	9.25	33.946	2.68	-	-	-	175.6	400	7.32	34.284	.50	26.83	122.7	.770
196	9.04	34.056	2.18	-	-	-	164.2	500	6.53	34.325	.51	26.97	109.3	.893
223	9.04	34.167	1.82	-	-	-	156.0							
268	8.73	34.218	1.32	-	-	-	147.5							
319	8.37	34.279	.94	-	-	-	137.7							
398	7.34	34.283	.49	-	-	-	123.0							
479	6.70	34.316	.55	-	-	-	112.1							
559	6.04	34.354	.29	-	-	-	101.1							

	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
93.40					CCOFI CRUISE 6410								93.40	

BLACK DOUGLAS, OCTOBER 12 1964, 1219 GCT, 32 30N 118 11.5W, SOUNDING 950 FM, WIND 300 FORCE 4, WEATHER CLOUDY, SEA SLIGHT, WIRE ANGLE 02.

0	19.28	33.823	5.26	-	-	-	385.1	0	19.28	33.823	5.26	24.07	385.1	0
10	19.29K	33.820G	-	-	-	-	385.6	10	19.29	33.820	5.33	24.07	385.6	.039
11	19.29	33.817	5.35	-	-	-	385.8	20	18.60	33.750	5.95	24.19	374.0	.077
20	18.60K	33.750G	-	-	-	-	374.0	30	14.61	33.532	6.25	24.94	302.0	.110
31	14.20	33.512	6.26	-	-	-	295.1	50	12.49	33.538	4.96	25.38	260.4	.167
40	12.98	33.519	5.34	-	-	-	270.9	75	11.21	33.645	3.91	25.70	229.8	.229
50	12.49	33.538	4.96	-	-	-	260.4	100	10.66	33.834	3.10	25.95	206.4	.284
64	11.81	33.585	4.44	-	-	-	244.6	125	10.19	33.936	2.57	26.11	191.1	.334
78	11.07	33.665	3.77	-	-	-	225.9	150	9.89	34.074	1.97	26.27	176.1	.380
98	10.70	33.826A	3.14	-	-	-	207.7	200	9.36	34.232	1.46	26.48	156.1	.465
121	10.24	33.912	2.69	-	-	-	193.8	250	9.08	34.310	.96	26.59	145.9	.543
140	10.01	34.029	2.13	-	-	-	181.4	300	8.68	34.340	.76	26.67	137.7	.616
168	9.68	34.138	1.79	-	-	-	168.0	400	7.37	34.274	.70	26.82	124.0	.753
197	9.37	34.223	1.50	-	-	-	156.9	500	6.49	34.333	.36	26.98	108.3	.876
227	9.27	34.295	1.10	-	-	-	150.0							
266	8.92	34.313	.90	-	-	-	143.3							
323	8.49	34.350	.70	-	-	-	134.2							
395	7.41	34.271	.72	-	-	-	124.8							
469	6.78	34.317	.44	-	-	-	113.1							
548	6.02	34.354	.28	-	-	-	100.9							

93.50					CCOFI CRUISE 6410								93.50	

BLACK DOUGLAS, OCTOBER 12 1964, 0611 GCT, 32 10N 118 53.5W, SOUNDING 300 FM, WIND 280 FORCE 3, WEATHER PARTLY CLOUDY, SEA MODERATE, WIRE ANGLE 10.

0	17.76	33.729	5.46	-	-	-	355.9	0	17.76	33.729	5.46	24.38	355.9	0
10	17.75	33.731	5.45	-	-	-	355.5	10	17.75	33.731	5.45	24.38	355.5	.036
20	15.65K	33.550G	-	-	-	-	322.2	20	15.65	33.550	5.58	24.73	322.2	.070
29	13.96	33.422	5.62	-	-	-	296.9	30	13.79	33.411	5.59	25.02	294.3	.100
38	12.71	33.367	5.37	-	-	-	277.0	50	12.41	33.476	5.19	25.35	263.5	.156
48	12.48	33.458	5.25	-	-	-	266.1	75	11.26	33.631	4.31	25.68	231.6	.219
62	11.90	33.569	4.74	-	-	-	247.4	100	10.26	33.738	3.63	25.94	206.9	.274
77	11.16	33.639	4.25	-	-	-	229.3	125	9.46	33.849	3.06	26.16	186.0	.324
95	10.45	33.716	3.76	-	-	-	211.7	150	9.03	33.950	2.62	26.31	171.9	.369
119	9.62	33.822	3.17	-	-	-	195.5	200	8.65	34.089	2.00	26.48	155.9	.453
137	9.21	33.902	2.85	-	-	-	178.2	250	8.18	34.159	1.53	26.61	143.9	.530
165	8.89	33.998	2.38	-	-	-	166.2	300	7.72	34.226	1.00	26.73	132.5	.601
194	8.70	34.079	2.05	-	-	-	157.4	400	6.90	34.305	.45	26.91	115.5	.731
222	8.46	34.120	1.81	-	-	-	150.8	500	6.04	34.334	.32	27.04	102.6	.846
260	8.08	34.172	1.43	-	-	-	141.5							
317	7.58	34.247	.83	-	-	-	128.9							
386	7.08	34.311	.46	-	-	-	117.5							
460	6.29	34.308	.39	-	-	-	107.6							
539	5.91	34.375	.24	-	-	-	98.0							

93.60					CCOFI CRUISE 6410								93.60	

BLACK DOUGLAS, OCTOBER 12 1964, 0030 GCT, 31 50N 119 34W, SOUNDING 1200 FM, WIND 300 FORCE 3, WEATHER PARTLY CLOUDY, SEA MODERATE, WIRE ANGLE 02.

0	17.72	33.843	5.49	-	-	-	346.7	0	17.72	33.843	5.49	24.47	346.7	0
11	17.68	33.849	5.50	-	-	-	345.3	10	17.68	33.848	5.50	24.49	345.5	.035
20	17.65K	33.860G	-	-	-	-	343.8	20	17.65	33.860	5.66	24.50	343.8	.069
31	16.29	33.735	5.64	-	-	-	322.4	30	16.51	33.751	5.65	24.69	326.2	.103
40	12.63	33.583	5.14	-	-	-	259.7	50	11.85	33.572	4.93	25.53	246.3	.160
49	11.99	33.571	4.98	-	-	-	248.9	75	9.83	33.651	3.91	25.95	206.5	.217
64	10.02	33.606	4.15	-	-	-	212.8	100	9.19	33.819	3.39	26.18	184.1	.266
78	9.78	33.667	3.87	-	-	-	204.5	125	8.63	33.961	2.89	26.38	165.2	.311
96	9.31	33.794	3.43	-	-	-	187.8	150	8.40	34.067	2.05	26.50	153.8	.351
120	8.70	33.934	3.09	-	-	-	166.2	200	7.93	34.119	1.68	26.61	143.4	.427
139	8.50	34.027	2.31	-	-	-	158.3	250	7.62	34.193	1.15	26.72	133.5	.498
167	8.24	34.107	1.83	-	-	-	148.6	300	7.27	34.223	.74	26.79	126.5	.565
196	7.96	34.112	1.70	-	-	-	144.3	400	6.32	34.236	.48	26.93	113.4	.690
225	7.78	34.166	1.51	-	-	-	137.7	500	5.84	34.276	.34	27.02	104.5	.805
263	7.53	34.202	.96	-	-	-	131.6							
321	7.10	34.230	.69	-	-	-	123.8							
393	6.36	34.234	.49	-	-	-	114.0							
467	5.98	34.259	.38	-	-	-	107.5							
547	5.66	34.306	.29	-	-	-	100.2							

A) POSSIBLE EVAPORATION, VALUE USED IN INTERPOLATION.

93.70 CCOFI CRUISE 6410 93.70

BLACK DOUGLAS, OCTOBER 11 1964, 1804 GCT, 31 29.5N 120 15.5W, SOUNDING 2050 FM, WIND MISSING FORCE 1, WEATHER CLOUDY, SEA MODERATE, WIRE ANGLE 06.

INPUT Z	T	S	OXY	PHO	SIL	NIT	D*T	OUTPUT AT STANDARD LEVELS OF DEPTH Z	T	S	OXY	SIG*T	D*T	DD
0	17.32	33.683	5.41	-	-	-	349.2	0	17.32	33.683	5.41	24.45	349.2	0
10	17.28	33.687	5.46	-	-	-	348.0	10	17.28	33.687	5.46	24.46	348.0	.035
20	17.21K	33.680G	-	-	-	-	346.9	20	17.21	33.680	5.50	24.47	346.9	.070
30	16.76	33.657	5.55	-	-	-	338.5	30	16.76	33.657	5.55	24.56	338.5	.104
39	13.20	33.373A	5.75	-	-	-	285.8	50	11.60	33.296	5.27	25.36	262.3	.164
48	11.79	33.297	5.32	-	-	-	265.5	75	10.56	33.523	4.45	25.72	227.8	.226
63	10.88	33.338	4.99	-	-	-	246.8	100	9.76	33.789	3.34	26.07	195.1	.279
78	10.50	33.576	4.29	-	-	-	222.9	125	9.49	33.865	2.98	26.17	185.3	.327
96	9.81	33.772	3.42	-	-	-	197.2	150	8.91	33.971	2.56	26.35	168.5	.372
121	9.58	33.844	3.07	-	-	-	186.2	200	8.20	34.046	2.23	26.52	152.5	.454
140	9.13	33.944	2.67	-	-	-	173.9	250	7.64	34.094	1.72	26.64	141.1	.529
168	8.57	34.001	2.45	-	-	-	161.3	300	7.04	34.127	1.30	26.75	130.6	.599
196	8.24	34.041	2.28	-	-	-	153.5	400	6.42	34.246	.57	26.92	113.8	.727
225	7.94	34.076	1.90	-	-	-	146.7	500	5.82	34.322	.33	27.06	100.9	.840
264	7.46	34.102	1.63	-	-	-	138.1							
320	6.84	34.144	1.11	-	-	-	126.8							
390	6.47	34.234	.62	-	-	-	115.4							
463	6.06	34.304	.35	-	-	-	105.1							
542	5.52	34.328	.31	-	-	-	96.9							

93.80 CCOFI CRUISE 6410 93.80

BLACK DOUGLAS, OCTOBER 11 1964, 1219 GCT, 31 10N 120 55W, SOUNDING 2000 FM, WIND MISSING FORCE 1, WEATHER CLOUDY, SEA MODERATE, WIRE ANGLE 06.

Z	T	S	OXY	PHO	SIL	NIT	D*T	Z	T	S	OXY	SIG*T	D*T	DD
0	16.62	33.387	5.43	-	-	-	355.1	0	16.62	33.387	5.43	24.39	355.1	0
10	16.66	33.418	5.49	-	-	-	353.7	10	16.66	33.418	5.49	24.40	353.7	.035
20	16.68K	33.460G	-	-	-	-	351.1	20	16.68	33.460	5.52	24.43	351.1	.071
30	16.68	33.484	5.53	-	-	-	349.3	30	16.68	33.484	5.53	24.45	349.3	.106
39	15.00	33.310	5.77	-	-	-	326.1	50	13.32	33.137	5.90	24.91	305.5	.172
49	13.44	33.139	5.91	-	-	-	307.6	75	11.78	33.185	5.48	25.24	273.6	.244
64	12.16	33.183	5.63	-	-	-	280.5	100	10.50	33.370	4.83	25.63	236.6	.309
78	11.70	33.186	5.44	-	-	-	272.1	125	9.53	33.608	4.00	25.96	204.9	.364
98	10.60	33.370	4.90	-	-	-	239.7	150	9.04	33.757	3.52	26.16	186.4	.414
121	9.64	33.582	4.10	-	-	-	208.6	200	8.41	34.001	2.80	26.45	159.0	.502
140	9.21	33.695	3.70	-	-	-	193.6	250	7.81	34.040	2.24	26.57	147.5	.580
169	8.78	33.869	3.23	-	-	-	174.2	300	7.03	34.056	1.84	26.69	135.8	.653
198	8.44	33.996	2.83	-	-	-	159.6	400	6.37	34.221	.75	26.88	117.6	.785
226	8.08	34.023	2.41	-	-	-	152.6	500	6.09	34.329	.30	27.03	103.6	.902
265	7.63	34.048	2.16	-	-	-	144.4							
322	6.69	34.068	1.61	-	-	-	130.5							
394	6.60	34.211	.81	-	-	-	116.7							
467	6.26	34.305	.31	-	-	-	107.4							
547	5.84	34.345	.29	-	-	-	99.4							

93.90 CCOFI CRUISE 6410 93.90

BLACK DOUGLAS, OCTOBER 11 1964, 0644 GCT, 30 51N 121 35W, SOUNDING 2050 FM, WIND 330 FORCE 3, WEATHER CLOUDY, SEA ROUGH, WIRE ANGLE 03.

Z	T	S	OXY	PHO	SIL	NIT	D*T	Z	T	S	OXY	SIG*T	D*T	DD
0	17.86	33.829	5.41	-	-	-	350.9	0	17.86	33.829	5.41	24.43	350.9	0
10	17.84	33.833	5.47	-	-	-	350.2	10	17.84	33.833	5.47	24.44	350.2	.035
30	17.71	33.805	5.41	-	-	-	349.2	20	17.78	33.823	5.46	24.44	349.6	.070
39	16.28	33.749	5.30	-	-	-	321.2	30	17.71	33.805	5.41	24.45	349.2	.105
50	12.98K	33.710G	-	-	-	-	256.9	50	12.98	33.710	4.89	25.42	256.9	.166
54	12.08	33.702	4.70	-	-	-	240.9	75	10.28	33.749	3.67	25.95	206.5	.224
69	10.58	33.725	3.91	-	-	-	213.2	100	9.61	33.875	2.96	26.16	186.4	.274
92	9.82	33.835	3.14	-	-	-	192.7	125	9.03	33.973	2.53	26.33	170.3	.319
112	9.32	33.929	2.74	-	-	-	177.9	150	8.66	34.031	2.23	26.43	160.4	.361
131	8.92	33.990	2.44	-	-	-	167.3	200	7.88	34.071	2.12	26.58	146.2	.439
152	8.64	34.034	2.22	-	-	-	159.9	250	7.48	34.117	1.53	26.68	137.3	.512
180	8.13	34.038	2.40	-	-	-	152.2	300	6.98	34.150	1.26	26.77	128.1	.580
212	7.77	34.093	1.89	-	-	-	143.0	400	6.62	34.274	.47	26.92	114.2	.707
242	7.57	34.114	1.57	-	-	-	138.7	500	6.02	34.332	.30	27.04	102.5	.821
290	7.04	34.137	1.36	-	-	-	127.9	600	5.33	34.350	.28	27.14	93.1	.926
343	6.80	34.214	.79	-	-	-	121.0							
426	6.52	34.294	.40	-	-	-	111.5							
510	5.94	34.335	.29	-	-	-	101.3							
593	5.37	34.344	.28	-	-	-	94.0							
600	5.33G	34.350G	-	-	-	-	93.1							

A) POSSIBLE EVAPORATION, VALUE USED IN INTERPOLATION.

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
93.100					CCOFI CRUISE 6410								93.100	

BLACK DOUGLAS, OCTOBER 11 1964, 0112 GCT, 30 31N 122 15W, SOUNDING 2200 FM, WIND 330 FORCE 4, WEATHER CLOUDY, SEA ROUGH, WIRE ANGLE 20.

0	17.52	33.225	5.41	-	-	-	387.1	0	17.52	33.225	5.41	24.05	387.1	0
9	17.48	33.208	5.36	-	-	-	387.4	10	17.48	33.208	5.36	24.05	387.3	.039
28	17.38	33.227	5.44	-	-	-	383.8	20	17.42	33.216	5.39	24.07	385.6	.077
36	17.33	33.227	5.46	-	-	-	382.6	30	17.37	33.226	5.45	24.09	383.5	.116
51	15.22	33.284	5.86	-	-	-	332.6	50	15.42	33.284	5.83	24.58	336.7	.188
63	12.78	33.089	5.94	-	-	-	298.8	75	12.41	33.140	5.77	25.09	288.2	.267
75	12.41K	33.140G	-	-	-	-	288.2	100	11.45	33.188	5.36	25.30	267.6	.337
85	12.08	33.169	5.56	-	-	-	280.1	125	11.12	33.567	4.72	25.66	234.0	.400
103	11.35	33.203	5.31	-	-	-	264.8	150	9.98	33.730	4.35	25.98	203.1	.455
120	11.34	33.510	4.80	-	-	-	241.9	200	8.61	33.931	3.54	26.36	167.1	.550
138	10.43	33.674	4.55	-	-	-	214.5	250	7.85	34.013	3.05	26.54	150.1	.631
163	9.58	33.773	4.11	-	-	-	193.5	300	7.08	34.035	2.23	26.67	138.0	.705
193	8.73	33.909	3.55	-	-	-	170.5	400	6.41	34.181	.84	26.87	118.6	.838
220	8.34	33.978	3.52	-	-	-	159.6	500	5.72	34.263	.42	27.03	104.1	.956
264	7.62	34.021	2.77	-	-	-	146.3							
311	6.94	34.041	2.07	-	-	-	135.8							
388	6.50	34.167	.92	-	-	-	120.7							
467	5.94	34.242	.51	-	-	-	108.3							
548	5.42	34.284	.36	-	-	-	99.1							

TEMPERATURE AND SALINITY AT 10 METERS (NET-TOW STATIONS)

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind Dir	Wind Force	Weather	Sea	10 Meters T	10 Meters S
80.50-B	X-6	0110	34°28.0'	120°29.0'	10	330°	8	partly cloudy	rough	13.98	33.709
80.51-B	6	0005	34°26.0'	120°32.5'	65	330°	8	partly cloudy	rough	12.35	33.711
80.52-B	5	2305	34°24.5'	120°36.5'	150	330°	6	cloudy	rough	13.36	33.691
80.55-B	5	2045	34°19.0'	120°48.0'	500	320°	6	cloudy	rough	15.48	33.736
80.60-B	5	1750	34°09.0'	121°09.0'	1250	320°	4	cloudy	moderate	15.14	33.752
80.65-B	5	1515	33°59.0'	121°30.0'	1900	320°	5	cloudy	rough	15.28	33.774
80.70-B	5	1215	33°48.0'	121°51.0'	1950	300°	4	cloudy	rough	15.46	33.772
80.80-B	5	0730	33°28.0'	122°32.0'	2000	320°	4	cloudy	rough	16.35	33.160a)
80.90-B	5	0245	33°09.0'	123°13.0'	2250	320°	4	cloudy	moderate	17.68	33.211
82.47-B	6	0455	34°15.0'	119°58.0'	310	280°	4	missing	rough	14.26	33.706
83.39-B	6	0850	34°15.5'	119°17.5'	8	090°	1	missing	moderate	13.92	33.667
83.40-B	6	0930	34°14.0'	119°22.0'	12	090°	1	missing	moderate	16.56	33.737
83.43-B	6	1115	34°08.0'	119°34.0'	125	280°	4	missing	moderate	17.30	33.773
83.51-B	6	1515	33°52.0'	120°07.5'	45	280°	5	cloudy	rough	16.70	33.748
83.55-B	6	1725	33°45.5'	120°21.0'	410	320°	5	cloudy	rough	15.29	33.709
83.60-B	6	2030	33°34.0'	120°45.0'	800	330°	5	cloudy	rough	16.48	33.684
83.65-B	7	0000	33°24.0'	121°06.0'	1900	320°	5	overcast	very rough	16.44	33.679

a) Possible evaporation.

TEMPERATURE AND SALINITY AT 10 METERS (NET-TOW STATIONS)

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind Dir	Wind Force	Weather	Sea	10 Meters T	10 Meters S
83.70-B	X-7	0245	33°11.0'	121°29.0'	2100	320°	5	overcast	very rough	17.00	33.730
83.80-B	7	0645	32°54.0'	122°07.5'	2100	320°	5	overcast	very rough	16.22	33.644
83.90-B	4	2125	32°33.5'	122°48.0'	2000+	320°	4	cloudy	moderate	17.62	33.103
87.33-B	8	1400	33°54.0'	118°29.5'	27	300°	1	cloudy	slight	16.84	33.709
87.33-B	8	1440	33°54.0'	118°26.5'	8	300°	1	cloudy	slight	13.39	33.625
87.34-B	8	1305	33°52.0'	118°33.5'	37	300°	1	cloudy	moderate	18.03	33.769
87.35-B	8	1140	33°50.0'	118°37.5'	300	330°	1	partly cloudy	slight	18.85	33.802
87.40-B	8	0930	33°40.0'	118°58.0'	450	340°	2	partly cloudy	moderate	18.68	33.809
87.45-B	8	0630	33°30.0'	119°19.0'	800	290°	4	partly cloudy	rough	13.44	33.631
87.50-B	8	0405	33°20.0'	119°39.5'	40	320°	6	partly cloudy	very rough	16.17	33.741
87.55-B	8	0105	33°10.0'	120°00.0'	650	320°	6	partly cloudy	very rough	15.88	33.690
87.60-B	7	2150	33°00.5'	120°21.0'	350	330°	6	cloudy	rough	16.40	33.656
87.65-B	7	1900	32°50.0'	120°43.0'	2100	330°	5	cloudy	rough	16.51	33.565
87.70-B	7	1600	32°40.0'	121°00.5'	2100	330°	5	cloudy	rough	16.34	33.540
87.80-B	7	1030	32°20.0'	121°43.5'	2200	330°	5	missing	moderate	17.06	33.113
87.90-B	4	1700	31°59.5'	122°31.5'	2050	330°	3	cloudy	rough	17.47	33.171
90.28-B	9	0040	33°29.5'	117°44.5'	10	300°	2	cloudy	slight	19.88	33.778
90.65-B	10	0100	32°15.5'	120°18.5'	1950	310°	4	overcast	very rough	17.14	33.735
93.27-B	12	2220	32°57.0'	117°16.5'	10	300°	4	cloudy	moderate	13.91	33.641

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TEMPERATURE AND SALINITY AT 10 METERS (NET-TOW STATIONS)

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind Dir	Wind Force	Weather	Sea	10 Meters T	10 Meters S
93.27-B	X-12	2120	32°56.0'	117°19.0'	50	300°	4	cloudy	moderate	17.30	33.664
93.35-B	12	1521	32°40.5'	117°51.5'	380	320°	3	cloudy	moderate	19.39	33.826
93.45-B	12	0930	32°20.0'	118°33.0'	800	290°	4	partly cloudy	moderate	19.14	33.835
93.55-B	12	0330	32°00.0'	119°14.5'	850	280°	4	partly cloudy	moderate	17.78	33.718
93.65-B	11	2130	31°38.5'	119°54.0'	2000	300°	4	cloudy	moderate	17.54	33.840
97.27-B	14	2230	32°19.5'	117°04.0'	10	280°	3	cloudy	moderate	14.58	33.588
97.29-B	14	2245	32°17.5'	117°04.5'	28	280°	3	cloudy	moderate	14.21	33.557
97.30-B	14	2340	32°16.0'	117°07.0'	35	280°	3	cloudy	moderate	15.30	33.631
97.32-B	2	2125	32°11.5'	117°16.5'	700	270°	3	cloudy	moderate	18.15	33.771
97.35-B	2	2320	32°05.5'	117°28.5'	600	270°	3	cloudy	moderate	19.31	33.868
97.40-B	3	0150	31°54.5'	117°50.0'	380	320°	4	cloudy	moderate	18.85	33.830
97.45-B	3	0415	31°45.0'	118°10.0'	780	320°	4	cloudy	moderate	18.82	33.839
97.50-B	3	0705	31°35.0'	118°30.0'	1300	320°	3	missing	moderate	17.06	33.705
97.55-B	3	0945	31°26.0'	118°51.5'	700	320°	3	missing	moderate	16.76	33.759
97.60-B	3	1155	31°16.5'	119°12.5'	1800	320°	2	fog	moderate	17.03	33.799
97.65-B	3	1425	31°08.0'	119°33.5'	1875	320°	3	cloudy	rough	17.21	33.872
97.70-B	3	1700	30°57.0'	119°53.5'	1920	320°	3	cloudy	rough	17.00	33.396
97.80-B	3	2135	30°38.0'	120°29.0'	2000	340°	4	cloudy	rough	18.02	33.587
97.90-B	4	0330	30°17.5'	121°12.5'	2000	340°	4	clear	rough	17.25	33.645

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind Dir	Wind Force	Weather	Sea	10 Meters T	10 Meters S
100.29-B	X-15	0345	31°42.0'	116°43.5'	70	330°	3	cloudy	moderate	13.14	33.595
100.30-B	15	0425	31°40.5'	116°46.5'	200	330°	3	cloudy	moderate	15.74	33.615
100.35-B	15	0700	31°30.5'	117°07.0'	650	330°	3	drizzle	moderate	18.61	33.754
100.40-B	15	0930	31°21.0'	117°27.0'	1100	310°	4	overcast	moderate	18.70	33.742
100.45-B	15	1150	31°10.5'	117°48.0'	1000	340°	4	missing	slight	17.61	33.685
100.50-B	15	1430	31°02.0'	118°08.5'	925	360°	3	drizzle	rough	17.66	33.480
100.55-B	15	1710	30°48.5'	118°29.0'	1400	320°	3	cloudy	moderate	17.64	33.408
100.60-B	15	2000	30°41.0'	118°47.0'	1600	300°	3	cloudy	slight	17.58	33.438
100.65-B	15	2300	30°31.0'	119°09.0'	1800	290°	3	cloudy	moderate	18.07	33.480
100.70-B	16	0125	30°21.0'	119°28.0'	2150	320°	4	cloudy	rough	17.88	33.419
100.80-B	16	0610	30°01.0'	120°08.5'	2000+	320°	4	partly cloudy	rough	18.12	33.394
100.90-B	16	1030	29°41.5'	120°47.5'	2000	290°	4	missing	moderate	18.11	33.296
103.29-B	XI-1	0220	31°07.0'	116°21.0'	18	280°	3	partly cloudy	moderate	13.47	33.620
103.29-B	1	0315	31°08.0'	116°19.0'	9	280°	3	fog	moderate	13.31	33.617
103.30-B	1	0150	31°05.5'	116°25.0'	40	280°	3	partly cloudy	moderate	14.56	33.563
103.30-B	X-17	2315	31°05.5'	116°25.0'	40	280°	2	cloudy	moderate	14.82	33.597
103.35-B	17	2010	30°56.0'	116°45.0'	1000	280°	2	cloudy	rough	18.58	33.666
103.40-B	17	1725	30°45.0'	117°05.5'	950	290°	4	cloudy	rough	18.70	33.728
103.45-B	17	1425	30°38.0'	117°26.0'	1150	300°	4	cloudy	rough	18.45	33.687

TEMPERATURE AND SALINITY AT 10 METERS (NET-TOW STATIONS)

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6410

TEMPERATURE AND SALINITY AT 10 METERS (NET-TOW STATIONS)

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind Dir	Wind Force	Weather	Sea	10 Meters T	10 Meters S
103.50-B	X-17	1130	30°26.5'	117°45.0'	1500	300°	4	missing	moderate	17.66	33.486
103.55-B	17	0905	30°15.5'	118°05.0'	1200	320°	5	cloudy	very rough	18.98	33.808
103.60-B	17	0625	30°06.0'	118°25.0'	1900	320°	5	cloudy	very rough	18.86	33.751
103.65-B	17	0345	29°56.0'	118°44.5'	1650	320°	5	cloudy	very rough	18.82	33.724
103.70-B	17	0110	29°46.5'	119°05.0'	1850	320°	5	cloudy	very rough	19.06	33.805
103.80-B	16	1940	29°25.5'	119°44.0'	1900	300°	4	cloudy	rough	19.18	33.852
103.90-B	16	1500	29°07.0'	120°23.5'	2150	330°	3	cloudy	rough	18.37	33.532
107.30-B	18	0335	30°30.0'	116°03.5'	8	280°	2	partly cloudy	moderate	14.76	33.599
107.31-B	18	0430	30°28.0'	116°07.0'	24	280°	2	partly cloudy	moderate	14.64	33.563
107.32-B	18	0515	30°26.0'	116°11.0'	200	280°	2	partly cloudy	slight	17.14	33.528
107.35-B	18	0655	30°20.0'	116°23.0'	950	280°	2	cloudy	slight	19.30	33.785
107.40-B	18	0925	30°10.0'	116°43.0'	1500	320°	2	partly cloudy	slight	18.64	33.723
107.45-B	18	1135	30°00.0'	117°03.5'	750	320°	2	missing	slight	18.53	33.704
107.50-B	18	1405	29°50.5'	117°22.0'	1350	300°	2	cloudy	rough	19.03	33.791
107.55-B	18	1640	29°40.0'	117°42.5'	1720	360°	2	cloudy	rough	19.24	33.812
107.60-B	18	1910	29°31.0'	118°01.5'	1950	360°	2	cloudy	rough	19.40	33.804
107.65-B	18	2155	29°21.5'	118°21.5'	1800	340°	2	cloudy	moderate	19.38	33.794
107.70-B	19	0045	29°11.0'	118°41.5'	1700	320°	3	cloudy	rough	19.28	33.776
107.80-B	19	0525	28°51.5'	119°20.5'	2000	330°	4	cloudy	rough	18.66	33.523

TEMPERATURE AND SALINITY AT 10 METERS (NET-TOW STATIONS)

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind Dir	Wind Force	Weather	Sea	10 Meters T	10 Meters S
107.90-B	X-19	0955	28°32.0'	119°59.5'	2100	320°	3	cloudy	rough	18.54	33.558
110.32-B	20	2020	29°52.0'	115°48.0'	15	140°	2	partly cloudy	moderate	14.20	33.590
110.35-B	20	1820	29°46.0'	116°00.0'	750	140°	2	partly cloudy	moderate	17.41	33.540
110.40-B	20	1610	29°37.0'	116°18.5'	1200	360°	1	partly cloudy	moderate	19.11	33.744
110.45-B	20	1310	29°26.5'	116°39.5'	550	320°	1	missing	moderate	19.52	33.799
110.50-B	20	1020	29°15.5'	116°58.5'	1900	320°	3	missing	moderate	19.60	33.819
110.55-B	20	0805	29°06.5'	117°19.5'	1950	320°	3	missing	rough	19.52	33.812
110.60-B	20	0515	28°56.5'	117°38.5'	1950	320°	3	cloudy	rough	18.74	33.724
110.65-B	20	0225	28°46.5'	117°58.0'	1850	240°	5	overcast	rough	19.18	33.795
110.70-B	19	2340	28°36.5'	118°18.0'	1900	340°	5	overcast	rough	19.04	33.757
110.80-B	19	1835	28°16.5'	118°56.5'	2050	340°	4	cloudy	rough	18.84	33.512
110.90-B	19	1400	27°57.0'	119°34.5'	2100	340°	4	cloudy	rough	19.24	33.721
113.28-B	21	0210	29°25.0'	115°11.5'	8	280°	2	partly cloudy	moderate	17.68	33.672
113.29-B	21	0235	29°24.0'	115°13.0'	14	280°	2	partly cloudy	moderate	17.22	33.669
113.30-B	21	0326	29°22.0'	115°18.0'	30	280°	2	partly cloudy	moderate	18.87	33.702
113.35-B	21	0540	29°11.5'	115°38.0'	550	280°	2	fog	moderate	16.39	33.596
113.40-B	21	0815	29°02.0'	115°57.5'	950	280°	2	fog	moderate	18.92	33.711
113.45-B	21	1045	28°52.0'	116°17.0'	1200	calm		fog	slight	19.72	33.804
113.50-B	21	1325	28°40.5'	116.36.0'	1800	320°	1	partly cloudy	slight	18.79	33.696

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6410

TEMPERATURE AND SALINITY AT 10 METERS (NET-TOW STATIONS)

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind Dir	Wind Force	Weather	Sea	10 Meters T	10 Meters S
113.55-B	X-21	1600	28°29.0'	116°54.5'	1880	var	1	partly cloudy	moderate	18.62	33.693
113.60-B	21	1840	28°20.0'	117°17.0'	1950	var	1	partly cloudy	moderate	19.30	33.782
113.65-B	21	2115	28°11.0'	117°35.5'	2000	var	1	cloudy	slight	19.74	33.786
113.70-B	21	2350	28°02.0'	117°55.5'	1600	180°	2	partly cloudy	slight	19.66	33.802
113.80-B	22	0410	27°42.0'	118°33.5'	2070	180°	2	partly cloudy	slight	19.90	33.883
117.24-B	23	1525	28°58.0'	114°37.0'	30	300°	2	overcast	rough	19.10	33.733
117.25-B	23	1550	28°58.5'	114°36.5'	10	280°	2	overcast	rough	18.60	33.722
117.26-B	23	1420	28°56.0'	114°41.5'	41	270°	3	overcast	rough	18.46	33.656
117.30-B	23	1210	28°48.0'	114°56.5'	55	340°	4	missing	rough	17.89	33.639
117.35-B	23	0940	28°38.0'	115°16.0'	130	330°	5	overcast	rough	19.44	33.745
117.40-B	23	0430	28°28.0'	115°35.5'	450	340°	5	overcast	rough	18.33	33.708a)
117.45-B	23	0140	28°18.0'	115°56.0'	1900	340°	5	cloudy	rough	17.86	33.638
117.50-B	22	2210	28°06.0'	116°18.0'	2400	340°	5	partly cloudy	rough	20.16	33.816
117.55-B	22	1920	27°54.5'	116°34.0'	1750	340°	4	partly cloudy	moderate	20.10	33.840
117.60-B	22	1635	27°48.0'	116°53.0'	1970	330°	4	partly cloudy	moderate	20.06	33.843
117.63-B	22	1505	27°43.5'	117°05.0'	1800	360°	3	partly cloudy	moderate	19.94	33.830
117.68-B	22	1240	27°32.0'	117°24.0'	2000	320°	2	partly cloudy	moderate	19.71	33.781

a) Possible evaporation.

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind Dir	Wind Force	Weather	Sea	10 Meters T	10 Meters S
117.80-B	X-22	0825	27°10.0'	118°06.5'	2100	140°	2	fog	slight	20.20	33.802
118.39-B	23	0630	28°18.5'	115°23.5'	160	320°	4	overcast	rough	18.64	33.725a)
119.33-B	24	0415	28°19.0'	114°53.0'	62	320°	6	cloudy	very rough	20.12	33.829
120.22-B	23	2045	28°28.0'	114°04.0'	10	280°	2	overcast	moderate	-	33.756
120.23-B	23	2130	28°27.0'	114°06.5'	13	280°	4	overcast	rough	19.50	33.759
120.24-B	23	2200	28°25.0'	114°10.5'	21	290°	5	overcast	rough	19.88	33.871
120.25-B	23	2320	28°23.0'	114°15.0'	32	290°	5	partly cloudy	rough	19.26	33.729
120.30-B	24	0210	28°13.0'	114°34.0'	50	320°	6	cloudy	very rough	18.92	33.796
120.35-B	24	0635	28°03.0'	114°54.0'	47	330°	6	cloudy	very rough	19.98	33.805
120.40-B	24	0840	27°56.5'	115°14.0'	22	330°	6	cloudy	very rough	18.58	33.787
120.45-B	24	1110	27°42.5'	115°33.0'	1400	340°	6	cloudy	very rough	18.62	33.710
120.50-B	24	1340	27°33.0'	115.53.0'	2200	340°	6	cloudy	very rough	19.43	33.748
120.55-B	24	1555	27°20.5'	116°13.0'	2000	340°	6	cloudy	very rough	19.66	33.706
120.60-B	24	1820	27°13.0'	116°30.0'	1950	340°	6	cloudy	very rough	19.56	33.738
120.65-B	24	2100	27°05.5'	116°49.0'	2000	340°	4	cloudy	rough	19.30	33.616
120.70-B	25	0010	26°53.0'	117°10.0'	2000	340°	5	cloudy	rough	20.11	33.818
123.36-B	26	0015	27°26.0'	114°36.0'	23	320°	6	cloudy	rough	20.94	34.332

a) Possible evaporation.

TEMPERATURE AND SALINITY AT 10 METERS (NET-TOW STATIONS)

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6410

TEMPERATURE AND SALINITY AT 10 METERS (NET-TOW STATIONS)

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind Dir	Wind Force	Weather	Sea	10 Meters T	10 Meters S
123.37-B	X-25	2330	27°24.0'	114°40.0'	38	320°	6	cloudy	rough	21.34	34.321
123.42-B	25	2035	27°14.0'	114°59.0'	750	340°	6	cloudy	rough	20.26	34.168
123.45-B	25	1805	27°06.0'	115°12.0'	2050	330°	4	cloudy	rough	19.16	33.811
123.50-B	25	1530	26°58.0'	115°31.0'	2000	320°	4	cloudy	rough	19.16	33.749
123.55-B	25	1240	26°49.5'	115°50.5'	2000	340°	4	missing	rough	19.58	33.714
123.60-B	25	0955	26°39.5'	116°13.0'	2100	340°	5	cloudy	very rough	19.74	33.768
123.65-B	25	0715	26°29.0'	116°31.0'	2000	340°	4	cloudy	very rough	19.72	33.712
123.70-B	25	0425	26°19.0'	116°47.5'	2000	340°	5	cloudy	rough	19.78	33.707
124.36-B	26	0110	27°24.0'	114°32.0'	10	300°	6	cloudy	rough	20.01	34.336
127.33-B	26	0550	26°58.5'	114°00.5'	10	360°	4	cloudy	rough	20.92	34.385
127.33-B	26	0620	26°57.5'	114°02.0'	35	360°	4	cloudy	rough	21.44	34.411
127.34-B	26	0710	26°55.0'	114°06.5'	45	350°	5	partly cloudy	rough	22.27	34.509
127.40-B	26	1015	26°42.5'	114°29.0'	1400	340°	5	cloudy	rough	21.74	34.291
127.45-B	26	1230	26°32.5'	114°48.0'	1800	330°	4	missing	rough	19.84	33.803
127.50-B	26	1500	26°23.0'	115°06.0'	1800	330°	5	cloudy	rough	19.80	33.804
127.55-B	26	1750	26°12.0'	115°26.5'	2050	340°	5	cloudy	rough	20.62	33.862
127.60-B	26	2000	26°04.0'	115°47.0'	2000	330°	4	cloudy	rough	20.43	33.828
130.25-B	27	1950	26°38.0'	113°11.0'	10	270°	3	partly cloudy	moderate	21.65	34.465
130.26-B	27	1910	26°37.0'	113°13.0'	17	300°	2	partly cloudy	moderate	22.24	34.498

TEMPERATURE AND SALINITY AT 10 METERS (NET-TOW STATIONS)

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind Dir	Wind Force	Weather	Sea	10 Meters T	10 Meters S
130.28-B	X-27	1810	26°33.0'	113°21.0'	30	040°	2	partly cloudy	moderate	22.98	34.504
130.30-B	27	1700	26°29.0'	113°29.0'	35	040°	2	partly cloudy	moderate	22.70	34.540
130.35-B	27	1410	26°18.0'	113°51.5'	180	320°	3	partly cloudy	moderate	22.52	34.420
130.40-B	27	1130	26°09.0'	114°08.5'	1200	340°	5	cloudy	rough	21.88	34.217
130.45-B	27	0835	25°59.0'	114°27.0'	1800	320°	5	cloudy	rough	19.62	33.828
130.50-B	27	0605	25°49.5'	114°46.0'	2050	330°	5	cloudy	rough	19.66	33.743
130.55-B	27	0322	25°39.5'	115°05.0'	2000	320°	4	cloudy	moderate	19.60	33.728
130.60-B	27	0040	25°29.0'	115°24.0'	2050	330°	3	cloudy	moderate	19.92	33.773
133.21-B	28	0230	26°12.5'	112°32.5'	26	270°	3	partly cloudy	moderate	22.32	34.411
133.23-B	28	0345	26°08.5'	112°40.0'	40	290°	4	partly cloudy	moderate	22.70	34.398
133.25-B	28	0450	26°04.5'	112°48.0'	45	290°	4	partly cloudy	moderate	22.52	34.406
133.30-B	28	0725	25°54.5'	113°07.5'	105	300°	4	partly cloudy	rough	22.18	34.325
133.35-B	28	0955	25°44.5'	113°26.5'	400	330°	3	partly cloudy	moderate	23.14	34.440
133.40-B	28	1210	25°35.5'	113°44.5'	1500	330°	3	partly cloudy	moderate	22.34	34.374
133.45-B	28	1510	25°24.5'	114°06.5'	2050	340°	2	partly cloudy	moderate	21.85	34.338
133.50-B	28	1720	25°13.5'	114°26.0'	2050	340°	4	partly cloudy	rough	21.98	34.132
133.55-B	28	1930	25°05.0'	114°42.5'	2100	340°	4	partly cloudy	rough	20.97	33.948
133.60-B	28	2145	24°55.0'	115°02.0'	2100	320°	4	partly cloudy	moderate	20.72	33.845
134.19-B	28	0130	26°13.5'	112°26.0'	9	270°	3	partly cloudy	moderate	21.74	34.403

TEMPERATURE AND SALINITY AT 10 METERS (NET-TOW STATIONS)

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind Dir	Wind Force	Weather	Sea	10 Meters T	10 Meters S
137.20-B	X-30	0210	25°39.5'	112°08.5'	6	300°	4	partly cloudy	moderate	23.20	34.494
137.21-B	30	0110	25°37.5'	112°11.5'	15	300°	4	partly cloudy	moderate	23.44	34.554
137.22-B	30	0050	25°36.0'	112°15.0'	30	300°	4	partly cloudy	moderate	23.45	34.511
137.23-B	29	2335	25°34.0'	112°19.0'	40	300°	4	partly cloudy	moderate	23.56	34.449
137.30-B	29	2000	25°20.0'	112°46.0'	160	320°	4	cloudy	moderate	24.69	34.653
137.35-B	29	1540	25°11.5'	113°01.0'	160	320°	4	cloudy	moderate	24.38	34.672
137.38-B	29	1335	25°04.0'	113°15.0'	-	320°	4	cloudy	moderate	22.91	34.451
137.43-B	29	1110	24°53.0'	113°36.5'	1900	340°	4	partly cloudy	moderate	23.65	34.548
137.50-B	29	0820	24°41.5'	113°58.5'	1700	330°	4	partly cloudy	moderate	22.22	34.081
137.55-B	29	0502	24°30.5'	114°20.0'	1900	330°	4	partly cloudy	moderate	21.75	34.232
137.60-B	29	0230	24°20.5'	114°40.0'	2000	360°	3	partly cloudy	moderate	21.96	34.021

	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
H-1					USCG STATION NOVEMBER								H-1	

USCGC MINNETONKA, SEPTEMBER 6 1964, 2025 GCT, 30 01N 140 00.5W, SOUNDING 2600 FM, WIND 030 FORCE 4, WEATHER CLOUDY, SEA ROUGH, WIRE ANGLE 20.

0	22.80	35.314	4.97	-	-	-	368.2	0	22.80	35.314	4.97	24.25	368.2	0
10	22.76	35.296	4.80	-	-	-	368.4	10	22.76	35.296	4.80	24.25	368.4	.037
30	22.72	35.305	4.71	-	-	-	366.7	20	22.74	35.303	4.71	24.26	367.2	.074
50	21.18K	35.210G	-	-	-	-	332.5	30	22.72	35.305	4.71	24.27	366.7	.110
58	20.67	35.181	5.13	-	-	-	321.4	50	21.18	35.210	4.95	24.62	332.5	.181
67	19.96	35.134	5.36	-	-	-	306.8	75	19.34	35.077	5.41	25.01	295.6	.260
81	18.97	35.041	5.42	-	-	-	289.2	100	18.66	35.040	5.19	25.16	281.8	.333
96	18.74	35.041	5.17	-	-	-	283.6	125	18.21	35.011	5.27	25.25	273.1	.403
110	18.46	35.034	5.27	-	-	-	277.4	150	17.64	34.914	5.16	25.31	266.9	.472
132	18.08	34.992	5.26	-	-	-	271.5							
151	17.60	34.907	5.15	-	-	-	266.5							
180	15.47	34.546	5.00	-	-	-	245.6							

H-2 USCG STATION NOVEMBER H-2

USCGC MINNETONKA, SEPTEMBER 7 1964, 0325 GCT, 29 59.5N 140 01W, SOUNDING 2500 FM, WIND 040 FORCE 4, WEATHER CLOUDY, SEA ROUGH, WIRE ANGLE 40.

0	22.81	35.330G	-	-	-	-	367.3	0	22.81	35.330	5.01	24.26	367.3	0
1	22.81	35.382U	5.01	-	-	-	363.6	10	22.82	35.330	5.04	24.26	367.6	.037
9	22.82	35.327	5.04	-	-	-	367.8	20	22.82	35.340	5.06	24.26	366.9	.074
10	22.82K	35.330G	-	-	-	-	367.6	30	22.80	35.351	5.07	24.28	365.6	.110
20	22.82K	35.340G	-	-	-	-	366.9	50	22.22	35.308	5.25	24.41	352.8	.182
29	22.82	35.352	5.07	-	-	-	366.0	75	19.64	35.102	5.50	24.95	301.2	.265
51	22.13	35.300	5.26	-	-	-	351.1	100	18.68	35.017	5.33	25.13	283.9	.339
58	21.05	35.192	5.40	-	-	-	330.4	125	18.14	34.976	5.42	25.24	274.0	.409
73	19.72	35.106	5.47	-	-	-	302.9	150	17.47	34.863	4.99	25.32	266.6	.478
85	19.32	35.089	5.58	-	-	-	294.2	200	13.54	34.295	5.04	25.76	224.7	.603
96	18.79	35.026	5.34	-	-	-	285.9	250	11.33	34.115	5.14	26.05	197.2	.712
118	18.31	35.000	5.40	-	-	-	276.3	300	9.97	34.088	4.86	26.27	176.4	.808
131	17.99	34.952	5.41	-	-	-	272.3	400	8.04	34.057	3.99	26.55	149.5	.977
149	17.52	34.872	4.99	-	-	-	267.2	500	6.13	34.010	2.57	26.78	127.9	1.123
172	15.93	34.614	5.08	-	-	-	250.5							
191	14.14	34.367	4.99	-	-	-	231.2							
225	12.30	34.173	5.22	-	-	-	210.2							
270	10.72	34.096	5.01	-	-	-	188.1							
344	9.09	34.089	4.56	-	-	-	162.5							
417	7.73	34.045	3.79	-	-	-	146.0							
481	6.50	34.020	2.88	-	-	-	131.7							
500	6.13G	34.010G	-	-	-	-	127.9							

H-3 USCG STATION NOVEMBER H-3

USCGC MINNETONKA, SEPTEMBER 7 1964, 2009 GCT, 30 00N 139 58.5W, SOUNDING 2400 FM, WIND 010 FORCE 3, WEATHER OVERCAST, SEA ROUGH, WIRE ANGLE 18.

0	22.31	35.157	5.05	-	-	-	366.2	0	22.31	35.157	5.05	24.27	366.2	0
10	22.29	35.157	5.09	-	-	-	365.7	10	22.29	35.157	5.09	24.28	365.7	.037
20	22.29K	35.170G	-	-	-	-	364.8	20	22.29	35.170	5.11	24.29	364.8	.073
30	22.30K	35.180G	-	-	-	-	364.3	30	22.30	35.180	5.12	24.29	364.3	.110
34	22.30	35.197	5.12	-	-	-	363.1	50	19.95	34.960	5.47	24.76	319.2	.178
50	19.95K	34.960G	-	-	-	-	319.2	75	18.64	34.890	5.68	25.05	292.1	.255
63	19.06	34.894	5.71	-	-	-	302.0	100	18.07	34.928	5.58	25.22	275.8	.327
72	18.71	34.880	5.69	-	-	-	294.6	125	17.75	34.896	5.53	25.27	270.8	.396
91	18.32	34.943	5.61	-	-	-	280.7	150	17.58	34.891	5.44	25.31	267.2	.465
105	17.94	34.915	5.56	-	-	-	273.8	200	14.01	34.338	5.12	25.69	230.8	.592
119	17.80	34.899	5.55	-	-	-	271.7	250	11.34	34.103	5.04	26.04	198.2	.702
147	17.60	34.893	5.45	-	-	-	267.5	300	10.33	34.158	4.79	26.26	177.1	.799
165	17.48	34.880	5.39	-	-	-	265.7	400	8.27	34.044	4.34	26.51	153.0	.970
192	14.60	34.417	5.15	-	-	-	236.9	500	6.30	33.998	2.96	26.75	130.8	1.119
223	12.68	34.192	5.07	-	-	-	215.8	600	5.20	34.074	1.24	26.94	112.3	1.247
251	11.30	34.102	5.04	-	-	-	197.6							
296	10.42	34.161	4.80	-	-	-	178.3							
354	9.16	34.083	4.74	-	-	-	164.0							
447	7.32	34.021	3.74	-	-	-	142.3							
532	5.83	34.008	2.44	-	-	-	124.5							
604	5.18	34.080	1.16	-	-	-	111.7							

	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
H-4					USCG STATION NOVEMBER								H-4	
USCGC MINNETONKA, SEPTEMBER 8 1964, 1953 GCT, 30 01N 139 59W, SOUNDING 2500 FM, WIND 040 FORCE 5, WEATHER OVERCAST, SEA ROUGH, WIRE ANGLE 24.														
0	22.43	35.132	5.07	-	-	-	371.3	0	22.43	35.132	5.07	24.22	371.3	0
11	22.41	35.146	5.08	-	-	-	369.7	10	22.41	35.145	5.08	24.23	369.8	.037
20	22.39K	35.150G	-	-	-	-	368.9	20	22.39	35.150	5.15	24.24	368.9	.074
30	22.35K	35.160G	-	-	-	-	367.1	30	22.35	35.160	5.30	24.26	367.1	.111
35	21.36	35.077	5.40	-	-	-	346.8	50	19.98	34.918	5.69	24.72	322.9	.180
43	20.47	34.958	5.61	-	-	-	332.4	75	18.25	34.786	5.78	25.07	290.4	.257
57	19.55	34.892	5.72	-	-	-	314.2	100	17.88	34.899	5.59	25.24	273.5	.329
70	18.44	34.769	5.80	-	-	-	296.2	125	17.62	34.901	5.49	25.31	267.4	.397
93	17.97	34.899	5.63	-	-	-	275.7	150	17.42	34.860	5.38	25.33	265.7	.465
107	17.80	34.893	5.55	-	-	-	272.1	200	14.13	34.394	5.16	25.71	229.1	.591
127	17.60	34.901	5.48	-	-	-	266.9	250	11.19	34.088	5.05	26.05	196.7	.700
153	17.36	34.849	5.37	-	-	-	265.2	300	10.24	34.116	5.06	26.24	178.7	.797
178	16.00	34.624	5.23	-	-	-	251.3	400	8.35	34.042	4.34	26.49	155.0	.971
211	13.18	34.291	5.13	-	-	-	218.0	500	6.40	34.004	2.86	26.74	131.7	1.121
237	11.61	34.098	5.04	-	-	-	203.3							
279	10.62	34.124	5.08	-	-	-	184.4							
326	9.81	34.096	4.98	-	-	-	173.2							
421	7.92	34.029	4.07	-	-	-	149.9							
503	6.35	34.004	2.82	-	-	-	131.0							
578	5.33	34.035	1.77	-	-	-	116.7							
H-5					USCG STATION NOVEMBER								H-5	
USCGC MINNETONKA, SEPTEMBER 9 1964, 1912 GCT, 29 59N 140 00.5W, SOUNDING 2400 FM, WIND 050 FORCE 4, WEATHER PARTLY CLOUDY, SEA ROUGH, WIRE ANGLE 15.														
0	22.30	35.189	5.10	-	-	-	363.7	0	22.30	35.189	5.10	24.30	363.7	0
11	22.29	35.249U	5.12	-	-	-	359.0	10	22.29	35.187	5.12	24.30	363.6	.036
30	22.25	35.183	5.11	-	-	-	362.7	20	22.27	35.185	5.10	24.30	363.2	.073
44	20.92	35.003	-	-	-	-	340.7	30	22.25	35.183	5.11	24.31	362.7	.109
59	19.40	34.901	5.73	-	-	-	309.8	50	20.29	34.958	5.53	24.67	327.9	.179
74	18.30	34.771	5.84	-	-	-	292.7	75	18.27	34.773	5.84	25.05	291.8	.257
97	17.94	34.872	5.70	-	-	-	276.9	100	17.91	34.876	5.69	25.22	275.8	.328
117	17.74	34.882	5.67	-	-	-	271.5	125	17.65	34.881	5.63	25.28	269.7	.397
135	17.54	34.877	5.56	-	-	-	267.3	150	17.34	34.847	5.46	25.33	265.0	.465
164	17.14	34.809	5.37	-	-	-	263.1	200	13.96	34.329	5.18	25.70	230.4	.592
193	14.56	34.410	5.20	-	-	-	236.6	250	11.24	34.110	5.14	26.06	196.0	.701
231	11.84	34.108	5.15	-	-	-	206.7	300	10.22	34.117	5.12	26.25	178.2	.798
261	11.02	34.127	5.14	-	-	-	190.9	400	8.19	34.038	4.21	26.51	153.0	.970
309	10.05	34.111	5.10	-	-	-	176.0	500	6.41	34.013	2.74	26.74	131.2	1.119
371	8.80	34.063	4.54	-	-	-	160.1	600	5.31	34.089	1.35	26.94	112.5	1.248
467	6.90	34.006	3.32	-	-	-	137.8							
553	5.76	34.044	1.93	-	-	-	121.0							
627	5.11	34.121	1.07	-	-	-	107.8							
H-6					USCG STATION NOVEMBER								H-6	
USCGC MINNETONKA, SEPTEMBER 10 1964, 1920 GCT, 29 58.5N 139 57W, SOUNDING 2100 FM, WIND 040 FORCE 3, WEATHER PARTLY CLOUDY, SEA ROUGH, WIRE ANGLE 13.														
0	22.26	35.136	4.98	-	-	-	366.4	0	22.26	35.136	4.98	24.27	366.4	0
11	22.25	35.132	5.05	-	-	-	366.4	10	22.25	35.132	5.05	24.27	366.5	.037
20	22.19K	35.140G	-	-	-	-	364.2	20	22.19	35.140	5.07	24.29	364.2	.073
31	22.04	35.139	5.09	-	-	-	360.3	30	22.11	35.139	5.09	24.31	362.3	.110
40	19.78	34.881	5.65	-	-	-	320.7	50	19.31	34.878	5.70	24.87	309.2	.177
45	19.66	34.870	5.69	-	-	-	318.5	75	17.89	34.804	5.69	25.17	280.7	.251
55	18.88	34.884	5.69	-	-	-	298.4	100	17.72	34.895	5.55	25.28	270.1	.321
70	17.92	34.790	5.71	-	-	-	282.4	125	17.53	34.880	5.47	25.31	266.9	.389
94	17.77	34.894	5.57	-	-	-	271.4	150	17.25	34.830	5.36	25.34	264.0	.456
114	17.60	34.883	5.51	-	-	-	268.2	200	13.26	34.242	5.10	25.77	223.1	.581
132	17.48	34.875	5.44	-	-	-	266.0	250	10.95	34.086	5.08	26.09	192.8	.687
151	17.22	34.825	5.35	-	-	-	263.7	300	10.00	34.093	5.05	26.26	176.4	.783
181	14.82	34.447	5.17	-	-	-	239.2	400	8.18	34.036	4.19	26.51	153.1	.954
214	12.26	34.139	5.07	-	-	-	212.0	500	6.33	34.003	2.76	26.74	130.9	1.103
242	11.16	-	5.07	-	-	-	-	600	5.22	34.080	1.12	26.94	112.1	1.231
289	10.19	34.094	5.08	-	-	-	179.5							
337	9.37	34.078	4.87	-	-	-	167.6							
421	7.78	34.023	3.90	-	-	-	148.4							
503	6.28	34.003	2.71	-	-	-	130.3							
588	5.34	34.076	1.33	-	-	-	113.7							
600	5.22G	34.080G	-	-	-	-	112.1							

	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
H-7					USCG STATION NOVEMBER								H-7	
USCGC MINNETONKA, SEPTEMBER 11 1964, 2010 GCT, 30 05N 140 03.5W, SOUNDING 2500 FM, WIND 050 FORCE 4, WEATHER OVERCAST, SEA ROUGH, WIRE ANGLE 12.														
0	22.18	35.071	5.04	-	-	-	369.0	0	22.18	35.071	5.04	24.24	369.0	0
11	22.16	35.068	5.09	-	-	-	368.6	10	22.16	35.067	5.09	24.24	368.7	.037
20	22.18K	35.080G	-	-	-	-	368.3	20	22.18	35.080	5.11	24.25	368.3	.074
30	22.20K	35.100G	-	-	-	-	367.4	30	22.20	35.100	5.12	24.26	367.4	.111
31	22.22	35.113	5.14	-	-	-	367.0	50	20.20	35.005	5.61	24.73	322.2	.180
36	21.59	35.085	5.39	-	-	-	352.3	75	18.61	34.873	5.71	25.04	292.8	.257
41	20.99	35.060	5.52	-	-	-	338.4	100	18.00	34.872	5.65	25.19	278.4	.329
46	20.64	35.036	5.56	-	-	-	331.1	125	17.71	34.883	5.54	25.27	270.7	.399
55	19.64	34.964	5.66	-	-	-	311.2	150	17.43	34.860	5.42	25.32	266.0	.467
70	18.82	34.885	5.71	-	-	-	296.9	200	15.00	34.480	5.24	25.59	240.5	.597
95	18.06	34.865	5.66	-	-	-	280.2	250	11.13	34.110	5.09	26.08	194.1	.708
114	17.88	34.890	5.61	-	-	-	274.2	300	9.90	34.088	5.04	26.28	175.2	.803
132	17.60	34.875	5.50	-	-	-	268.8	400	8.15	34.043	4.22	26.52	152.1	.974
151	17.42	34.859	5.42	-	-	-	265.8	500	6.35	34.006	2.80	26.74	131.0	1.122
180	16.52	34.692	5.43	-	-	-	257.7	600	5.23	34.080	1.20	26.94	112.2	1.250
200	15.00G	34.480G	-	-	-	-	240.5							
213	13.04	34.232	5.11	-	-	-	219.7							
241	11.47	34.123	5.08	-	-	-	199.0							
288	10.13	34.092	5.08	-	-	-	178.7							
341	9.24	34.076	4.80	-	-	-	165.8							
421	7.76	34.032	3.96	-	-	-	147.4							
504	6.29	34.006	2.74	-	-	-	130.2							
588	5.35A	34.073	1.40	-	-	-	114.1							
600	5.23G	34.080G	-	-	-	-	112.2							
H-8					USCG STATION NOVEMBER								H-8	
USCGC MINNETONKA, SEPTEMBER 12 1964, 1930 GCT, 30 00N 140 03W, SOUNDING 2500 FM, WIND 050 FORCE 1, WEATHER PARTLY CLOUDY, SEA MODERATE, WIRE ANGLE 05.														
0	22.30	35.094	4.96	-	-	-	370.5	0	22.30	35.094	4.96	24.22	370.5	0
11	22.18	-	4.98	-	-	-	-	10	22.19	35.093	4.98	24.26	367.6	.037
31	22.14	35.092	5.08	-	-	-	366.4	20	22.16	35.093	5.02	24.26	366.9	.074
41	20.55	35.015	5.51	-	-	-	330.4	30	22.14	35.092	5.06	24.27	366.4	.110
46	20.06	34.994	5.64	-	-	-	319.5	50	19.63	34.952	5.65	24.84	311.8	.179
56	19.06	34.891	5.66	-	-	-	302.2	75	18.38	34.914	5.62	25.13	284.1	.254
71	18.49	34.914	5.62	-	-	-	286.8	100	17.90	34.903	5.56	25.24	273.6	.324
96	17.95	34.904	5.58	-	-	-	274.8	125	17.63	34.892	5.48	25.30	268.2	.393
116	17.72	34.898	5.49	-	-	-	269.9	150	17.34	34.845	5.32	25.33	264.9	.460
135	17.52	34.880	5.45	-	-	-	266.6	200	14.09	34.345	5.09	25.68	231.9	.587
154	17.24	34.828	5.28	-	-	-	264.0	250	11.29	34.106	5.08	26.05	197.1	.697
184	15.18	34.508	5.16	-	-	-	242.2	300	10.18	34.117	5.04	26.25	177.6	.794
199	14.18	34.355	5.09	-	-	-	232.9	400	8.05	34.034	4.11	26.53	151.4	.965
219	12.50	34.198	5.09	-	-	-	212.0	500	6.25	34.016	2.44	26.77	128.8	1.112
249	11.32	34.107	5.08	-	-	-	197.6	600	5.30	34.086	1.37	26.94	112.5	1.239
299	10.20	34.118	5.04	-	-	-	177.9							
353	9.19	34.079	4.78	-	-	-	164.8							
437	7.19	34.012	3.47	-	-	-	141.2							
522	5.98	34.026	2.15	-	-	-	124.9							
608	5.25	34.094	1.31	-	-	-	111.4							
H-9					USCG STATION NOVEMBER								H-9	
USCGC MINNETONKA, SEPTEMBER 13 1964, 2215 GCT, 29 59N 140 00W, SOUNDING 2500 FM, WIND 180 FORCE 3, WEATHER CLOUDY, SEA ROUGH, WIRE ANGLE 03.														
0	22.54	35.081	5.12	-	-	-	377.9	0	22.54	35.081	5.12	24.15	377.9	0
12	22.28	35.057	4.88	-	-	-	372.7	10	22.31	35.058	4.91	24.20	373.3	.038
22	22.26	35.074	4.84	-	-	-	370.9	20	22.26	35.069	4.84	24.22	371.3	.075
32	22.24	35.090	4.98	-	-	-	369.2	30	22.24	35.088	4.94	24.24	369.5	.112
42	21.70	35.082	5.25	-	-	-	355.4	50	20.65	35.009	5.42	24.62	333.2	.183
57	19.68	34.942	5.53	-	-	-	313.7	75	18.62	34.918	5.58	25.07	289.6	.261
72	18.74	34.921	5.58	-	-	-	292.3	100	17.98	34.897	5.56	25.22	276.0	.332
97	18.03	34.899	5.56	-	-	-	277.1	125	17.65	34.881	5.48	25.29	269.5	.401
117	17.75	34.885	5.52	-	-	-	271.5	150	17.39	34.848	5.37	25.32	265.9	.470
136	17.51	34.871	5.42	-	-	-	267.0	200	14.29	34.358	5.14	25.65	234.8	.597
156	17.26	34.822	5.33	-	-	-	264.9	250	11.07	34.090	5.09	26.07	194.5	.707
171	16.40	34.668	5.15	-	-	-	256.8							
185	15.50	34.531	5.21	-	-	-	247.3							
220	12.70	34.176	5.09	-	-	-	217.4							
249	11.12	34.094	5.09	-	-	-	195.1							
250	11.07G	34.090G	-	-	-	-	194.5							

A) ALTERNATE VALUE, 5.47C, NOT USED IN INTERPOLATION.

	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
H-10					USCG STATION NOVEMBER								H-10	
USCGC MINNETONKA, SEPTEMBER 14 1964, 1928 GCT, 29 58.5N 140 01W, SOUNDING 2250 FM, WIND 090 FORCE 3, WEATHER CLOUDY, SEA ROUGH, WIRE ANGLE 04.														
0	22.34	35.051	5.06	-	-	-	374.7	0	22.34	35.051	5.06	24.18	374.7	0
11	22.26	35.052	5.01	-	-	-	372.5	10	22.27	35.052	5.01	24.20	372.6	.037
31	22.13	35.032	5.08	-	-	-	370.4	20	22.22	35.038	5.03	24.20	372.5	.075
36	22.04	35.043	5.18	-	-	-	367.2	30	22.14	35.032	5.07	24.22	370.7	.112
41	21.80	35.050	5.28	-	-	-	360.3	50	20.02	34.970	5.50	24.75	320.2	.181
50	20.02K	34.970G	-	-	-	-	320.2	75	18.67	34.970	5.59	25.10	287.1	.258
56	19.82	34.965	5.62	-	-	-	315.6	100	18.02	34.945	5.51	25.24	273.4	.329
71	18.94	34.971	5.61	-	-	-	293.5	125	17.52	34.874	5.45	25.31	267.0	.397
75	18.67K	34.970G	-	-	-	-	287.1	150	16.92	34.770	5.26	25.38	260.9	.464
96	18.14	34.963	5.51	-	-	-	275.0	200	13.25	34.255	5.07	25.79	221.9	.587
116	17.60	34.875	5.51	-	-	-	268.8	250	11.25	34.121	5.10	26.07	195.3	.694
135	17.47	34.873	5.37	-	-	-	266.0	300	10.20	34.109	5.07	26.24	178.6	.791
150	16.92G	34.770G	-	-	-	-	260.9	400	7.98	34.022	4.19	26.53	151.3	.962
155	16.69	34.734	5.22	-	-	-	258.4	500	6.22	34.013	2.64	26.77	128.8	1.109
170	15.12	34.490	5.13	-	-	-	242.3	600	5.12	34.094	1.25	26.97	109.9	1.235
185	14.26	34.371	5.10	-	-	-	233.4							
219	12.10	34.153	5.06	-	-	-	208.0							
249	11.27	34.121	5.10	-	-	-	195.7							
308	10.04	34.144N	5.06	-	-	-	173.3							
350	8.90	34.120N	4.64	-	-	-	157.3							
435	7.45	34.026	3.81	-	-	-	143.6							
516	5.98	34.019	2.38	-	-	-	125.4							
602	5.11	34.097	1.23	-	-	-	109.6							
H-11					USCG STATION NOVEMBER								H-11	
USCGC MINNETONKA, SEPTEMBER 15 1964, 1943 GCT, 30 01N 139 59.5W, SOUNDING 2500 FM, WIND 070 FORCE 3, WEATHER CLOUDY, SEA VERY ROUGH, WIRE ANGLE 04.														
0	22.28	35.063	5.06	-	-	-	372.2	0	22.28	35.063	5.06	24.21	372.2	0
12	22.22	35.061	5.10	-	-	-	370.8	10	22.23	35.061	5.10	24.22	371.0	.037
32	22.18	35.072	5.10	-	-	-	368.9	20	22.20	35.066	5.06	24.23	369.8	.074
42	21.60	35.065	5.37	-	-	-	354.0	30	22.18	35.071	5.09	24.24	369.0	.111
50	20.45K	35.040G	-	-	-	-	326.0	50	20.45	35.040	5.53	24.69	326.0	.181
57	20.11	35.023	5.63	-	-	-	318.6	75	18.84	34.934	5.68	25.03	293.8	.259
72	18.97	34.949	5.68	-	-	-	295.8	100	18.32	34.974	5.56	25.19	278.4	.331
82	18.62	34.911	5.68	-	-	-	290.2	125	17.60	34.882	5.56	25.30	268.3	.401
97	18.37	34.976	5.58	-	-	-	279.5	150	17.56	34.881	5.42	25.31	267.4	.469
107	18.16	34.960	5.54	-	-	-	275.7	200	14.99	34.472	5.16	25.59	241.0	.599
117	17.74	34.884	5.59	-	-	-	271.4	250	11.65	34.164	5.10	26.03	199.2	.711
136	-	34.902	5.49	-	-	-	-	300	10.01	34.102	5.05	26.27	176.0	.808
156	17.47	34.869	5.39	-	-	-	266.2	400	8.13	34.045	4.26	26.53	151.6	.979
185	16.19	34.664	5.16	-	-	-	252.5	500	6.24	33.993	2.70	26.75	130.5	1.126
219	13.41	34.262	5.15	-	-	-	224.6	600	5.18	34.056	1.36	26.93	113.4	1.255
248	11.74	34.168A	5.10	-	-	-	200.5							
297	10.08	34.104	5.06	-	-	-	177.0							
351	9.09	34.077	4.76	-	-	-	163.4							
434	7.46	34.114U	3.81	-	-	-	137.2							
519	5.96	33.996	2.41	-	-	-	126.9							
603	5.16	34.060	1.33	-	-	-	112.9							
H-12					USCG STATION NOVEMBER								H-12	
USCGC MINNETONKA, SEPTEMBER 16 1964, 1606 GCT, 30 00N 140 01W, SOUNDING 2500 FM, WIND 030 FORCE 2, WEATHER PARTLY CLOUDY, SEA ROUGH, WIRE ANGLE 03.														
0	22.26	35.021	5.01	-	-	-	374.7	0	22.26	35.021	5.01	24.18	374.7	0
11	22.29	35.017	4.99	-	-	-	375.8	10	22.29	35.017	4.99	24.17	375.8	.038
31	22.26	35.056	4.99	-	-	-	372.2	20	22.28	35.038	4.97	24.19	374.0	.075
41	22.28	35.033	5.10	-	-	-	374.4	30	22.26	35.055	4.99	24.21	372.3	.113
50	21.01K	35.040G	-	-	-	-	340.4	50	21.01	35.040	5.33	24.54	340.4	.184
59	19.88	35.039	5.53	-	-	-	311.7	75	19.11	35.006	5.55	25.02	295.1	.264
71	19.28	35.010	5.55	-	-	-	299.0	100	18.27	34.977	5.49	25.20	277.2	.336
86	18.70	34.999	5.53	-	-	-	285.7	125	17.90	34.934	5.39	25.27	271.4	.406
101	18.25	34.975	5.49	-	-	-	276.7	150	17.45	34.853	5.32	25.31	267.0	.474
116	18.04	34.956	5.40	-	-	-	273.2	200	13.86	34.328	5.06	25.72	228.6	.601
140	17.62	-	5.38	-	-	-	-	250	11.42	34.117	5.04	26.03	198.5	.710
159	17.20	34.816	5.25	-	-	-	263.9	300	10.10	34.084	5.01	26.24	178.7	.808
190	14.82	34.440	5.12	-	-	-	239.7	400	8.02	34.031	4.09	26.53	151.1	.979
204	13.50	34.288	5.05	-	-	-	224.4	500	6.27	34.022	2.38	26.77	128.7	1.126
219	12.52	34.175	5.10	-	-	-	214.1	600	5.18	34.095	1.15	26.96	110.6	1.252
248	11.48	34.120	5.04	-	-	-	199.4							
297	10.16	34.085	5.02	-	-	-	179.7							
352	9.10	34.072	4.71	-	-	-	163.9							
434	7.29	34.009	3.54	-	-	-	142.8							
518	6.03	34.031	2.11	-	-	-	125.1							
603	5.16	34.098	1.12	-	-	-	110.1							

A) POSSIBLE EVAPORATION, VALUE USED IN INTERPOLATION.

N) POSSIBLE EVAPORATION, VALUE NOT USED IN INTERPOLATION.

	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
H-13					USCG STATION NOVEMBER								H-13	
USCGC MINNETONKA, SEPTEMBER 17 1964, 1912 GCT, 30 03N 139 59W, SOUNDING 2200 FM, WIND 050 FORCE 4, WEATHER CLOUDY, SEA MODERATE, WIRE ANGLE 08.														
0	22.23	34.990	4.96	-	-	-	376.1	0	22.23	34.990	4.96	24.17	376.1	0
12	22.20	34.989	4.98	-	-	-	375.4	10	22.20	34.986	4.98	24.17	375.7	.038
20	22.20K	35.010G	-	-	-	-	373.9	20	22.20	35.010	4.99	24.19	373.9	.075
30	22.35K	35.140G	-	-	-	-	368.5	30	22.35	35.140	4.99	24.25	368.5	.112
37	22.36	35.171	4.99	-	-	-	366.6	50	21.14	35.099	5.41	24.55	339.4	.183
42	22.28	35.181	5.13	-	-	-	363.7	75	18.75	34.953	5.61	25.07	290.3	.263
47	21.57	35.124	5.33	-	-	-	348.9	100	17.97	34.932	5.55	25.25	273.3	.334
61	19.76	35.029	5.59	-	-	-	309.4	125	17.56	34.867	5.45	25.30	268.5	.403
77	18.66	34.948	5.61	-	-	-	288.4	150	17.34	34.832	5.34	25.32	266.0	.470
87	18.26	34.969	5.59	-	-	-	277.4	200	13.58	34.284	5.15	25.74	226.3	.596
102	17.94	34.923A	5.54	-	-	-	273.2	250	11.07	34.120	5.06	26.10	192.3	.703
120	17.60	34.872	5.47	-	-	-	269.0	300	10.03	34.101	5.02	26.27	176.3	.799
140	17.44	34.848	5.40	-	-	-	267.1	400	8.18	34.034	4.18	26.51	153.1	.970
169	16.69	34.725	5.24	-	-	-	259.1	500	6.19	34.009	2.69	26.77	128.7	1.118
197	13.82	34.311	5.16	-	-	-	229.0	600	5.14	34.096	1.21	26.97	110.0	1.244
237	11.48	34.121	5.06	-	-	-	199.3							
266	10.69	34.129	5.07	-	-	-	185.2							
315	9.78	34.084	4.96	-	-	-	173.6							
377	8.69	34.054	4.44	-	-	-	159.1							
476	6.56	34.001	3.14	-	-	-	133.9							
566	5.41	34.058	1.64	-	-	-	115.9							
639	4.94	34.149	.81	-	-	-	103.9							
H-14					USCG STATION NOVEMBER								H-14	
USCGC MINNETONKA, SEPTEMBER 18 1964, 1907 GCT, 29 55N 140 01W, SOUNDING 2350 FM, WIND 100 FORCE 4, WEATHER RAIN, SEA ROUGH, WIRE ANGLE 18.														
0	22.31	35.051	5.06	-	-	-	373.9	0	22.31	35.051	5.06	24.19	373.9	0
11	22.28	35.057	5.03	-	-	-	372.7	10	22.28	35.057	5.03	24.20	372.7	.037
20	22.28K	35.050G	-	-	-	-	373.2	20	22.28	35.050	5.04	24.20	373.2	.075
30	22.28	35.061	5.08	-	-	-	372.4	30	22.28	35.061	5.08	24.21	372.4	.112
40	-	35.058	5.42	-	-	-	-	50	20.42	35.098	5.54	24.74	321.0	.182
50	20.42	35.098	5.54	-	-	-	321.0	75	18.81	34.990	5.61	25.08	289.0	.258
54	-	35.117	5.57	-	-	-	-	100	17.90	34.901	5.60	25.24	273.7	.330
59	19.62	35.061	5.59	-	-	-	303.6	125	17.54	34.863	5.52	25.30	268.2	.398
68	19.12	35.022	5.60	-	-	-	294.2	150	17.21	34.828	5.23	25.35	263.2	.466
75	18.81K	34.990G	-	-	-	-	289.0	200	13.93	34.325	5.14	25.70	230.1	.592
92	18.07	34.906	5.61	-	-	-	277.5	250	11.16	34.112	5.09	26.07	194.5	.701
111	17.74	34.892	5.58	-	-	-	270.8	300	10.07	34.089	5.05	26.25	177.9	.797
131	17.46	34.851	5.48	-	-	-	267.3	400	8.15	34.064	4.25	26.54	150.5	.967
148	17.27	34.838	5.24	-	-	-	263.9	500	6.31	34.013	2.61	26.75	129.9	1.114
177	15.82	34.603	5.18	-	-	-	248.9	600	5.21	34.080	1.30	26.94	112.0	1.242
211	13.02	34.215	5.12	-	-	-	220.5							
240	11.50	34.124	5.10	-	-	-	199.5							
287	10.30	34.094	5.07	-	-	-	181.3							
340	9.43	34.076	4.90	-	-	-	168.7							
420	7.71	34.061	3.96	-	-	-	144.6							
501	6.30	34.013	2.59	-	-	-	129.8							
584	5.38	34.065	1.48	-	-	-	115.0							
600	5.21G	34.080G	-	-	-	-	112.0							
H-15					USCG STATION NOVEMBER								H-15	
USCGC MINNETONKA, SEPTEMBER 19 1964, 1939 GCT, 29 59N 140 02.5W, SOUNDING 2300 FM, WIND 060 FORCE 5, WEATHER PARTLY CLOUDY, SEA VERY ROUGH, WIRE ANGLE 32.														
0	22.29	35.087	5.02	-	-	-	370.8	0	22.29	35.087	5.02	24.22	370.8	0
12	22.26	35.089	4.99	-	-	-	369.8	10	22.26	35.088	4.99	24.23	369.9	.037
33	22.25	35.100	5.02	-	-	-	368.7	20	22.26	35.096	5.00	24.24	369.2	.074
50	20.68	35.072	5.50	-	-	-	329.5	30	22.25	35.100	5.01	24.24	368.8	.111
59	19.76	35.022	5.62	-	-	-	309.9	50	20.68	35.072	5.50	24.65	329.5	.181
67	19.26	35.007	5.61	-	-	-	298.7	75	19.01	35.028	5.58	25.06	291.1	.259
75	19.01	35.028	5.58	-	-	-	291.1	100	18.32	34.971	5.52	25.19	278.8	.331
84	18.68	35.015	5.55	-	-	-	284.1	125	17.73	34.892	5.50	25.27	270.6	.401
97	18.42	34.982	5.52	-	-	-	280.2	150	17.32	34.833	5.38	25.33	265.4	.469
108	18.06	34.940	5.51	-	-	-	274.8	200	14.56	34.408	5.08	25.63	236.7	.597
135	17.59	34.869	5.47	-	-	-	269.0	250	11.20	34.107	5.08	26.06	195.4	.708
150	17.32	34.833	5.38	-	-	-	265.4	300	9.95	34.081	4.97	26.26	176.6	.804
173	16.58	34.699	5.28	-	-	-	258.5	400	8.08	34.030	4.15	26.52	152.1	.975
200	14.56	34.408	5.08	-	-	-	236.7	500	6.19	34.002	2.82	26.76	129.2	1.122
225	12.34	34.171	5.07	-	-	-	211.1							
264	10.82	34.102	5.07	-	-	-	189.4							
315	9.67	34.076	4.90	-	-	-	172.5							
400	8.08	34.030	4.15	-	-	-	152.1							
482	6.46	33.995	3.14	-	-	-	133.1							
552	5.58	34.047	1.69	-	-	-	118.6							

A) POSSIBLE EVAPORATION, VALUE USED IN INTERPOLATION.

H-16 USCG STATION NOVEMBER H-16

USCGC MINNETONKA, SEPTEMBER 21 1964, 1946 GCT, 30 01N 140 02.5W, SOUNDING 2450 FM, WIND 080 FORCE 6, WEATHER OVERCAST, SEA VERY ROUGH, WIRE ANGLE 40.

INPUT Z	T	S	OXY	PHO	SIL	NIT	D•T	OUTPUT AT STANDARD LEVELS OF DEPTH Z	T	S	OXY	SIG•T	D•T	DD
0	22.06	35.029	-	-	-	-	368.8	0	22.06	35.029	5.24	24.24	368.8	0
12	22.06	35.028	4.96	-	-	-	368.8	10	22.06	35.028	4.99	24.24	368.9	.037
30	22.04	35.029	4.92	-	-	-	368.2	20	22.05	35.028	4.89	24.24	368.6	.074
38	21.93	35.035	5.05	-	-	-	364.7	30	22.04	35.029	4.92	24.25	368.2	.111
46	20.86	35.088	5.49	-	-	-	333.0	50	20.21	35.047	5.54	24.76	319.4	.180
49	20.32	35.061	5.53	-	-	-	321.2	75	18.67	34.964	5.58	25.10	287.6	.256
61	19.48	34.953	5.64	-	-	-	308.0	100	17.96	34.887	5.56	25.21	276.4	.327
65	19.18	34.975	5.64	-	-	-	299.1	125	17.58	34.850	5.44	25.28	270.2	.397
80	18.50	34.943	5.55	-	-	-	285.0	150	17.26	34.819	5.33	25.33	265.1	.465
96	18.06	34.894	5.58	-	-	-	278.1	200	14.03	34.333	5.09	25.69	231.4	.591
111	17.74	34.873	5.50	-	-	-	272.2	250	11.20	34.124	5.03	26.06	195.7	.701
134	17.49	-	5.40	-	-	-	-	300	10.08	34.090	5.02	26.25	178.0	.797
157	17.08	34.786	5.29	-	-	-	263.4	400	8.16	34.029	4.17	26.51	153.2	.970
187	15.20	34.487	5.10	-	-	-	244.2	500	6.27	34.005	2.71	26.75	130.0	1.118
210	13.14	34.233	5.08	-	-	-	221.5							
248	11.26	34.106	5.03	-	-	-	196.6							
298	10.12	34.091	5.03	-	-	-	178.6							
374	8.78	34.056	4.51	-	-	-	160.3							
449	7.13	34.003	3.48	-	-	-	141.1							
513	6.09A	34.009	2.50	-	-	-	127.5							

H-17 USCG STATION NOVEMBER H-17

USCGC MINNETONKA, SEPTEMBER 22 1964, 2223 GCT, 30 20N 140 03W, SOUNDING 2500 FM, WIND 060 FORCE 5, WEATHER CLOUDY, SEA VERY ROUGH, WIRE ANGLE 26.

INPUT Z	T	S	OXY	PHO	SIL	NIT	D•T	OUTPUT AT STANDARD LEVELS OF DEPTH Z	T	S	OXY	SIG•T	D•T	DD
0	22.08	35.030G	-	-	-	-	369.2	0	22.08	35.030	5.04	24.24	369.2	0
2	22.08	-	5.06	-	-	-	-	10	22.06	35.034	5.11	24.25	368.5	.037
11	22.06	35.034	5.11	-	-	-	368.4	20	22.05	35.035	5.10	24.25	368.0	.074
33	22.04	35.037	5.10	-	-	-	367.7	30	22.05	35.037	5.10	24.25	367.9	.111
42	21.96	35.039	5.16	-	-	-	365.4	50	20.90	35.060	5.38	24.54	340.4	.182
50	20.90K	35.000G	-	-	-	-	340.4	75	18.77	34.920	5.66	25.04	293.1	.262
60	19.56	34.957	5.64	-	-	-	309.7	100	17.83	34.867	5.57	25.23	274.7	.333
69	19.17	34.949	5.67	-	-	-	300.7	125	17.59	34.860	5.46	25.28	269.6	.402
75	18.77K	34.920G	-	-	-	-	293.1	150	17.23	34.833	5.35	25.35	263.4	.470
83	18.12	34.873	5.63	-	-	-	281.1	200	13.72	34.298	5.07	25.72	227.9	.595
87	17.98	34.862	5.61	-	-	-	278.6	250	10.97	34.073	5.04	26.10	192.5	.703
101	17.82	34.864	5.57	-	-	-	274.3	300	9.95	34.048	4.99	26.27	176.1	.798
114	17.70	34.869	5.49	-	-	-	271.6	400	8.07	34.036	4.06	26.53	151.5	.969
139	17.40	34.844	5.42	-	-	-	266.5	500	6.27	34.004	2.80	26.75	130.0	1.116
156	17.08	-	5.31	-	-	-	-							
182	15.44	34.525	5.09	-	-	-	246.5							
212	12.62	34.183	5.06	-	-	-	215.4							
236	11.41	34.105	5.05	-	-	-	199.3							
278	10.36	34.094	5.03	-	-	-	182.3							
333	9.40	34.075	4.84	-	-	-	168.3							
421	7.65	34.025	3.76	-	-	-	146.4							
503	6.22	34.005	2.76	-	-	-	129.4							
573	5.31	34.067	1.58	-	-	-	114.1							

H-18 USCG STATION NOVEMBER H-18

USCGC MINNETONKA, SEPTEMBER 23 1964, 1915 GCT, 30 03N 140 02.5W, SOUNDING 2300 FM, WIND 050 FORCE 4, WEATHER OVERCAST, SEA VERY ROUGH, WIRE ANGLE 13.

INPUT Z	T	S	OXY	PHO	SIL	NIT	D•T	OUTPUT AT STANDARD LEVELS OF DEPTH Z	T	S	OXY	SIG•T	D•T	DD
0	22.04	35.064	5.04	-	-	-	365.7	0	22.04	35.064	5.04	24.28	365.7	0
12	22.02	35.064	5.07	-	-	-	365.2	10	22.02	35.064	5.07	24.28	365.2	.037
36	22.02	35.064	5.10	-	-	-	365.2	20	22.02	35.064	5.08	24.28	365.3	.073
46	21.99	35.064	5.16	-	-	-	364.4	30	22.02	35.064	5.09	24.28	365.2	.110
50	20.48K	34.980G	-	-	-	-	331.1	50	20.48	34.980	5.27	24.64	331.1	.180
66	19.08	34.890	5.69	-	-	-	302.8	75	18.84	34.880	5.71	24.99	297.7	.259
75	18.84	34.880	5.71	-	-	-	297.7	100	18.02	34.891	5.66	25.20	277.3	.331
94	18.12	34.895	5.69	-	-	-	279.5	125	17.64	34.882	5.53	25.29	269.2	.401
109	17.90	34.884	5.60	-	-	-	275.1	150	17.49	34.866	5.42	25.31	267.0	.469
123	17.66	34.883	5.54	-	-	-	269.6	200	14.95	34.454	5.10	25.58	241.4	.599
152	17.47	34.863	5.41	-	-	-	266.7	250	11.59	34.122	5.10	26.00	201.1	.712
171	16.96	34.774	5.30	-	-	-	261.6	300	10.20	34.097	5.07	26.23	179.4	.810
201	14.86	34.441	5.10	-	-	-	240.5	400	8.50	34.100	4.39	26.51	152.9	.983
216	13.32	34.252	5.11	-	-	-	223.6	500	6.66	34.052	3.06	26.74	131.4	1.133
236	12.22	34.149	5.09	-	-	-	210.5	600	5.32	34.052	1.58	26.91	115.3	1.263
265	11.03	34.114	5.11	-	-	-	192.0							
313	9.98	34.094	5.03	-	-	-	176.1							
377	8.92	34.099	4.61	-	-	-	159.2							
475	7.13	34.088	3.48	-	-	-	134.7							
563	5.72	34.027	2.09	-	-	-	121.8							
635	5.04	34.100	1.13	-	-	-	108.6							

A) ALTERNATE VALUE, 6.15 C, NOT USED IN INTERPOLATION.

	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
H-19					USCG STATION NOVEMBER								H-19	
USCGC MINNETONKA, SEPTEMBER 25 1964, 0020 GCT, 30 01N 140 00W, SOUNDING 2300 FM, WIND 050 FORCE 3, WEATHER OVERCAST, SEA ROUGH, WIRE ANGLE 17.														
0	21.88	35.021	-	-	-	-	364.6	0	21.88	35.021	5.01	24.29	364.6	0
10	21.87	35.005	5.04	-	-	-	365.4	10	21.87	35.005	5.04	24.28	365.4	.037
30	21.84	35.002	5.08	-	-	-	364.9	20	21.85	35.003	5.06	24.28	365.2	.073
39	21.84	35.042U	5.09	-	-	-	362.0	30	21.84	35.002	5.08	24.28	364.9	.110
44	21.82	35.005	5.13	-	-	-	364.1	50	20.35	34.940	5.39	24.64	330.7	.180
50	20.35K	34.940G	-	-	-	-	330.7	75	18.41	34.845	5.65	25.07	290.0	.258
54	19.75	34.908	5.58	-	-	-	318.0	100	17.94	34.882	5.57	25.22	276.2	.329
68	18.71	34.845	5.66	-	-	-	297.1	125	17.60	34.860	5.44	25.28	269.8	.398
92	18.02	34.872	5.59	-	-	-	278.8	150	17.27	34.815	5.37	25.33	265.5	.466
112	17.84	34.886	5.53	-	-	-	273.6	200	14.56	34.406	5.14	25.63	237.0	.595
130	17.50	34.847	5.41	-	-	-	268.5	250	11.40	34.120	5.04	26.04	198.0	.706
148	17.30	34.820	5.38	-	-	-	265.9	300	10.05	34.093	4.98	26.26	177.3	.803
175	16.77	34.745	5.26	-	-	-	259.4	400	7.98	34.069	3.97	26.57	147.7	.972
208	13.74	34.299	5.11	-	-	-	228.3	500	6.06	34.007	2.60	26.78	127.4	1.116
236	11.68	34.132	5.03	-	-	-	202.0							
250	11.40G	34.120G	-	-	-	-	198.0							
281	10.50	34.097	5.04	-	-	-	184.4							
330	9.42	34.091	4.81	-	-	-	167.4							
408	7.82	34.065	3.85	-	-	-	145.8							
488	6.23	34.005	2.77	-	-	-	129.5							
569	5.46	34.057	1.54	-	-	-	116.5							
H-20					USCG STATION NOVEMBER								H-20	
USCGC MINNETONKA, SEPTEMBER 25 1964, 2219 GCT, 30 00N 140 01W, SOUNDING 2400 FM, WIND 070 FORCE 4, WEATHER PARTLY CLOUDY, SEA ROUGH, WIRE ANGLE 08.														
0	22.08	35.103	5.00	-	-	-	364.0	0	22.08	35.103	5.00	24.29	364.0	0
13	21.94	35.084	5.04	-	-	-	361.6	10	21.96	35.087	5.03	24.31	361.9	.036
20	21.92K	35.080G	-	-	-	-	361.4	20	21.92	35.080	5.05	24.32	361.4	.073
30	21.92K	35.080G	-	-	-	-	361.4	30	21.92	35.080	5.06	24.32	361.4	.109
33	21.92	35.084	5.06	-	-	-	361.1	50	20.30	34.970	5.55	24.68	327.3	.178
50	20.30K	34.970G	-	-	-	-	327.3	75	18.85	34.961	5.63	25.05	291.9	.256
53	19.80	34.933	5.63	-	-	-	317.4	100	17.99	34.891	5.55	25.21	276.8	.328
63	19.29	34.971	5.64	-	-	-	302.0	125	17.69	34.886	5.48	25.28	270.1	.397
73	18.92	34.963	5.64	-	-	-	293.6	150	17.44	34.866	5.37	25.32	265.8	.465
88	18.38	34.947	5.57	-	-	-	281.8	200	15.20	34.484	5.12	25.55	244.3	.595
102	17.94	34.882	5.55	-	-	-	276.2	250	11.50	34.118	5.02	26.02	199.9	.709
117	17.79	34.888	5.51	-	-	-	272.3	300	10.24	34.101	5.04	26.23	179.8	.807
140	17.51	34.874	5.41	-	-	-	266.8	400	8.34	34.039	4.24	26.49	155.1	.981
159	17.34	34.849	5.34	-	-	-	264.7	500	6.37	34.014	2.69	26.75	130.6	1.131
189	16.28	34.653	5.18	-	-	-	255.3	600	5.28	34.080	1.30	26.94	112.8	1.260
218	13.32	34.241	5.05	-	-	-	224.4							
247	11.61	34.122	5.01	-	-	-	201.5							
296	10.33	34.104	5.06	-	-	-	181.0							
350	9.26	34.067	4.69	-	-	-	166.7							
432	7.75	34.025	3.86	-	-	-	147.8							
515	6.10	34.017	2.46	-	-	-	127.0							
599	5.28	34.078	1.31	-	-	-	112.9							
600	5.28G	34.080G	-	-	-	-	112.8							
H-21					USCG STATION NOVEMBER								H-21	
USCGC MINNETONKA, SEPTEMBER 26 1964, 1913 GCT, 29 59.5N 140 01W, SOUNDING 2300 FM, WIND 090 FORCE 4, WEATHER OVERCAST, SEA ROUGH, WIRE ANGLE 04.														
0	21.92	35.080	5.03	-	-	-	361.4	0	21.92	35.080	5.03	24.32	361.4	0
11	21.94	35.080	5.07	-	-	-	361.9	10	21.94	35.080	5.07	24.32	361.9	.036
31	21.92	35.078	5.04	-	-	-	361.5	20	21.94	35.079	5.03	24.32	361.8	.072
41	21.38	35.058	5.26	-	-	-	348.7	30	21.92	35.079	5.04	24.32	361.5	.109
50	20.61K	35.000G	-	-	-	-	333.0	50	20.61	35.000	5.54	24.62	333.0	.178
56	19.28	34.919	5.69	-	-	-	305.6	75	18.34	34.876	5.67	25.11	286.1	.256
67	18.94	34.904	5.69	-	-	-	298.4	100	17.84	34.869	5.58	25.23	274.7	.327
71	18.56	34.885	5.68	-	-	-	290.6	125	17.56	34.860	5.44	25.29	269.1	.396
96	17.90	34.870	5.60	-	-	-	276.1	150	17.30	34.818	5.39	25.32	266.1	.464
116	17.64	34.869	5.48	-	-	-	270.2	200	13.22	34.260	5.09	25.80	221.1	.588
136	17.46	34.841	5.41	-	-	-	268.1	250	11.11	34.096	5.09	26.07	194.7	.695
156	17.12	34.785	5.38	-	-	-	264.4	300	10.10	34.095	5.03	26.25	177.9	.791
185	14.22	-	5.10	-	-	-	-	400	8.33	34.034	4.28	26.49	155.3	.964
200	13.22G	34.260G	-	-	-	-	221.1	500	6.30	34.011	2.66	26.75	130.0	1.114
220	12.18	34.172	5.08	-	-	-	206.1	600	5.31	34.070	1.41	26.92	113.9	1.243
250	11.11	34.096	5.09	-	-	-	194.7							
300	10.10	34.095	5.03	-	-	-	177.9							
356	9.24	34.070	4.81	-	-	-	166.2							
439	7.48	34.010	3.67	-	-	-	145.2							
524	5.96	34.020	2.31	-	-	-	125.1							
609	5.28	34.077	1.32	-	-	-	113.0							