

UNIVERSITY OF CALIFORNIA    SCRIPPS INSTITUTION OF OCEANOGRAPHY

# data report

PHYSICAL AND CHEMICAL DATA

CCOFI Cruise 5701  
(MLR 92)  
4-19 January 1957

and

CCOFI Cruise 5702  
(MLR 93)  
6-26 February 1957

SIO Reference 58-22  
5 March 1958

UNIVERSITY OF CALIFORNIA  
SCRIPPS INSTITUTION OF OCEANOGRAPHY

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CCOFI CRUISE 5701  
(MLR 92)  
4-19 January 1957

and

CCOFI CRUISE 5702  
(MLR 93)  
6-26 February 1957

Sponsored by

Marine Research Committee

SIO Reference 58-22  
1 August 1958

Approved for distribution:



Roger Revelle, Director

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## INTRODUCTION

The data presented in this report were collected on the ninety-second and ninety-third consecutive cruises of the California Cooperative Oceanic Fisheries Investigations program. The R/V Orca of the Scripps Institution of Oceanography participated in the ninety-second cruise while the R/V Black Douglas of the U. S. Fish and Wildlife Service, the R/V Horizon and the R/V Spencer F. Baird of the Scripps Institution participated in the ninety-third cruise.

The data are tabulated at observed depths, and the interpolated and computed values are tabulated at standard depths. They are accompanied by charts of horizontal distribution. The presentation of data in this report does not constitute publication, and the interpretations herein may be subject to modification as the program continues.

The stations occupied in the Gulf of California are based on a special grid; therefore, they will appear in each report following the data obtained in the normal station pattern. In each group stations are listed in numerical order. The designation "G" in the station number is used to denote Gulf of California stations.

## STANDARD PROCEDURES

Processing of the data was carried out using the method described by Klein.<sup>1/</sup> Certain approximations have been introduced for the determination of the integrated pressure terms which may result in errors whose maximum values are less than 0.5 dynamic centimeter at 0 over 200 decibars, 1.0 dynamic centimeter at 0 over 500 decibars, and 2.0 dynamic centimeters at 0 over 1000 decibars. The 125-meter level was introduced into the integration to obtain greater accuracy in the determination of  $\Delta D$ . The interpolated values at 125 meters are not tabulated.

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. Extrapolated values and values interpolated between remote observations are entered within parentheses. A hyphen is used to indicate a missing observed value. The time is the time of messenger release. When more than one cast was made on a station, each messenger time and wire angle is given in the order of increasing depth of casts. A line is left blank between the observed data of each cast.

<sup>1/</sup>

Klein, Hans T. A new technique for processing physical oceanographic data. (MS). Contribution from the Scripps Institution of Oceanography, New Series, No. 000.

## FOOTNOTES

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

To indicate a premature or a delayed reversal of the water-sampling device which results in certain depth and property errors, the following notation is used.

p: pretrip or posttrip.

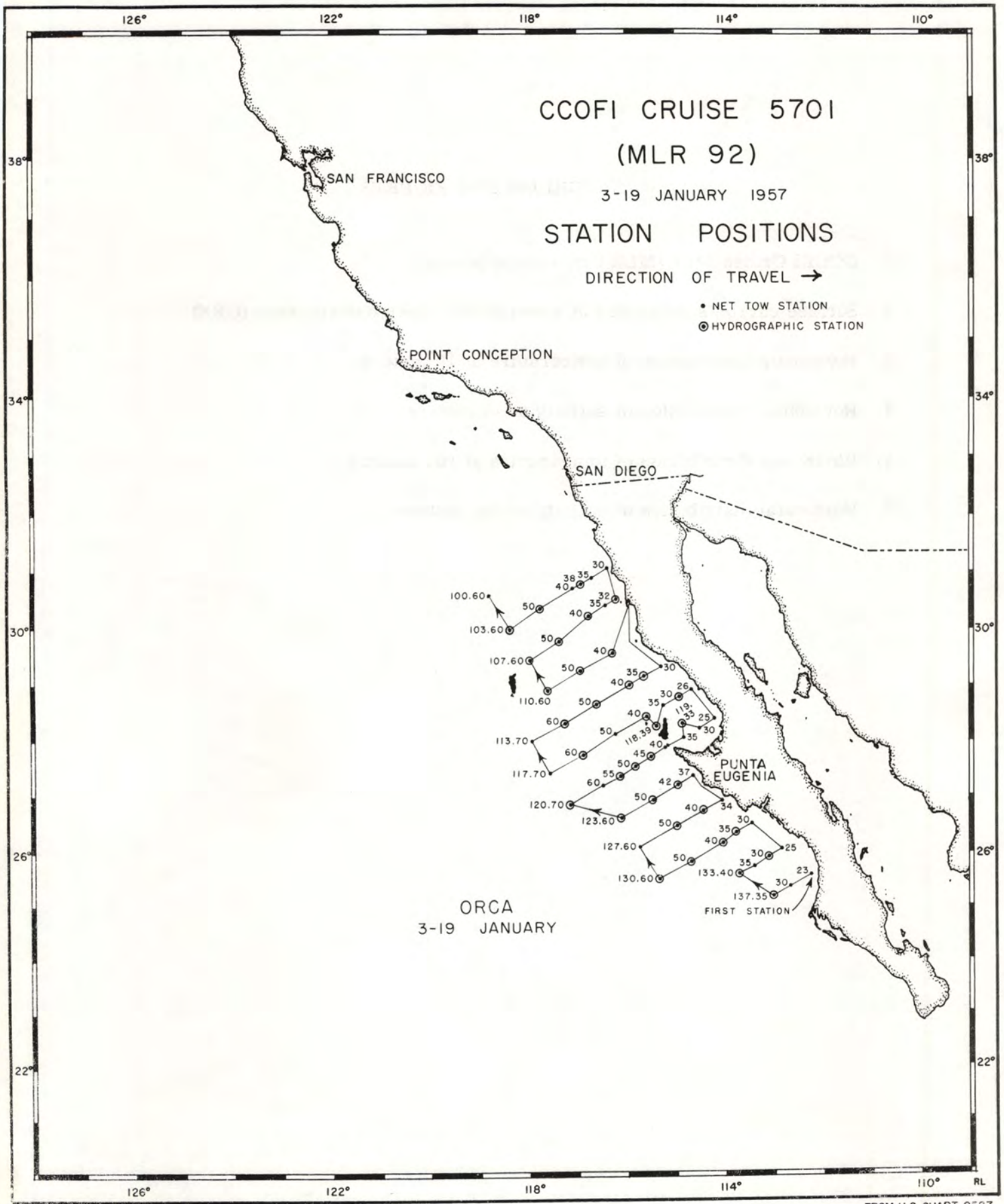
Values which are not drawn through because they seem to be in error without apparent reason are indicated by one of the following notations.

r: rejected value (value seems to be definitely wrong),

u: uncertain value (value may be correct; occasionally it can influence the drawing of the property curve).

CRUISE 5701 FIGURES

1. CCOFI Cruise 5701 (MLR 92), station positions
2. Surface currents measured by geomagnetic electrokinetograph (GEK)
3. Horizontal distribution of temperature at 10 meters
4. Horizontal distribution of salinity at 10 meters
5. Horizontal distribution of temperature at 200 meters
6. Horizontal distribution of salinity at 200 meters



FROM H.O. CHART 0527

FIGURE 1

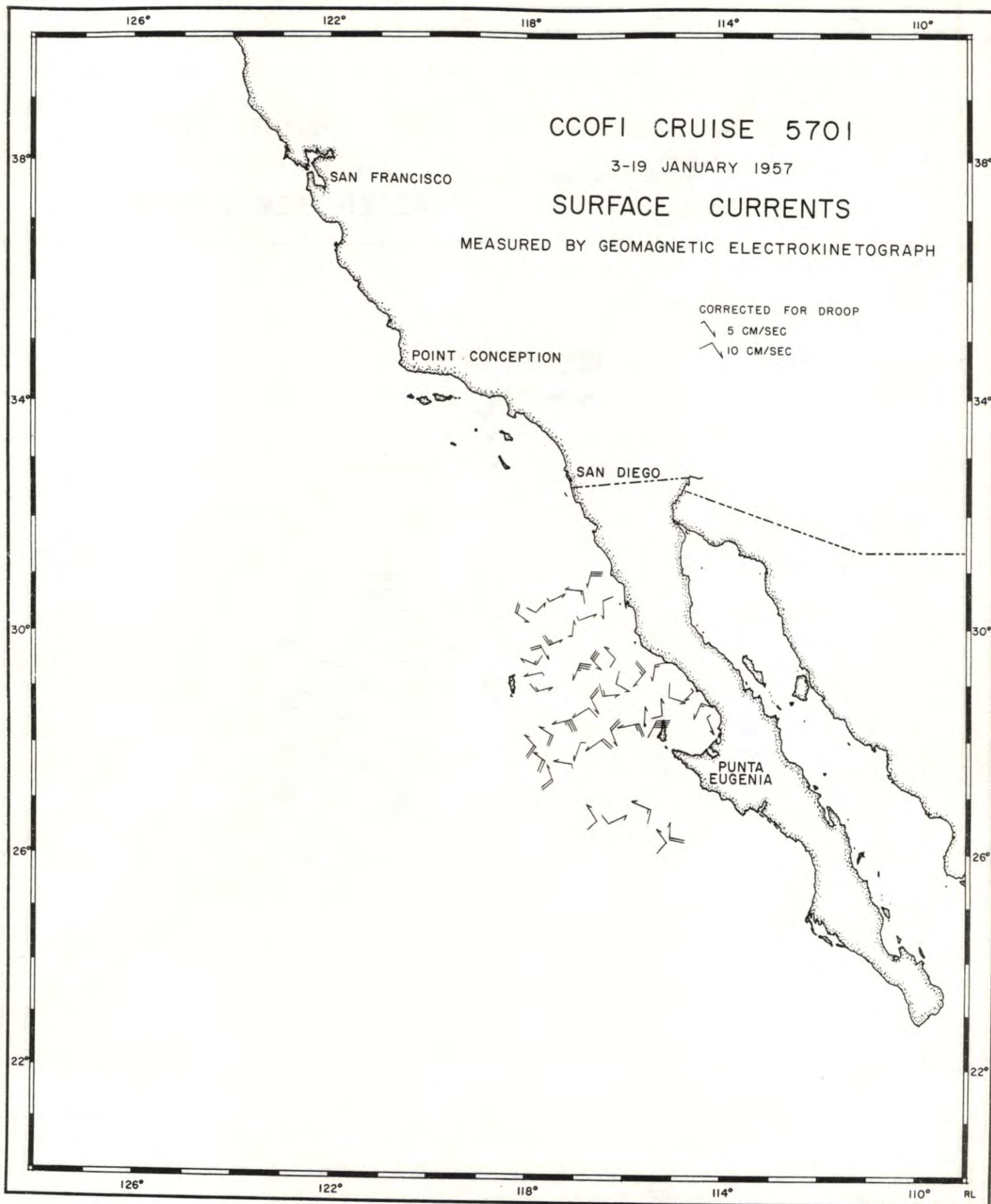
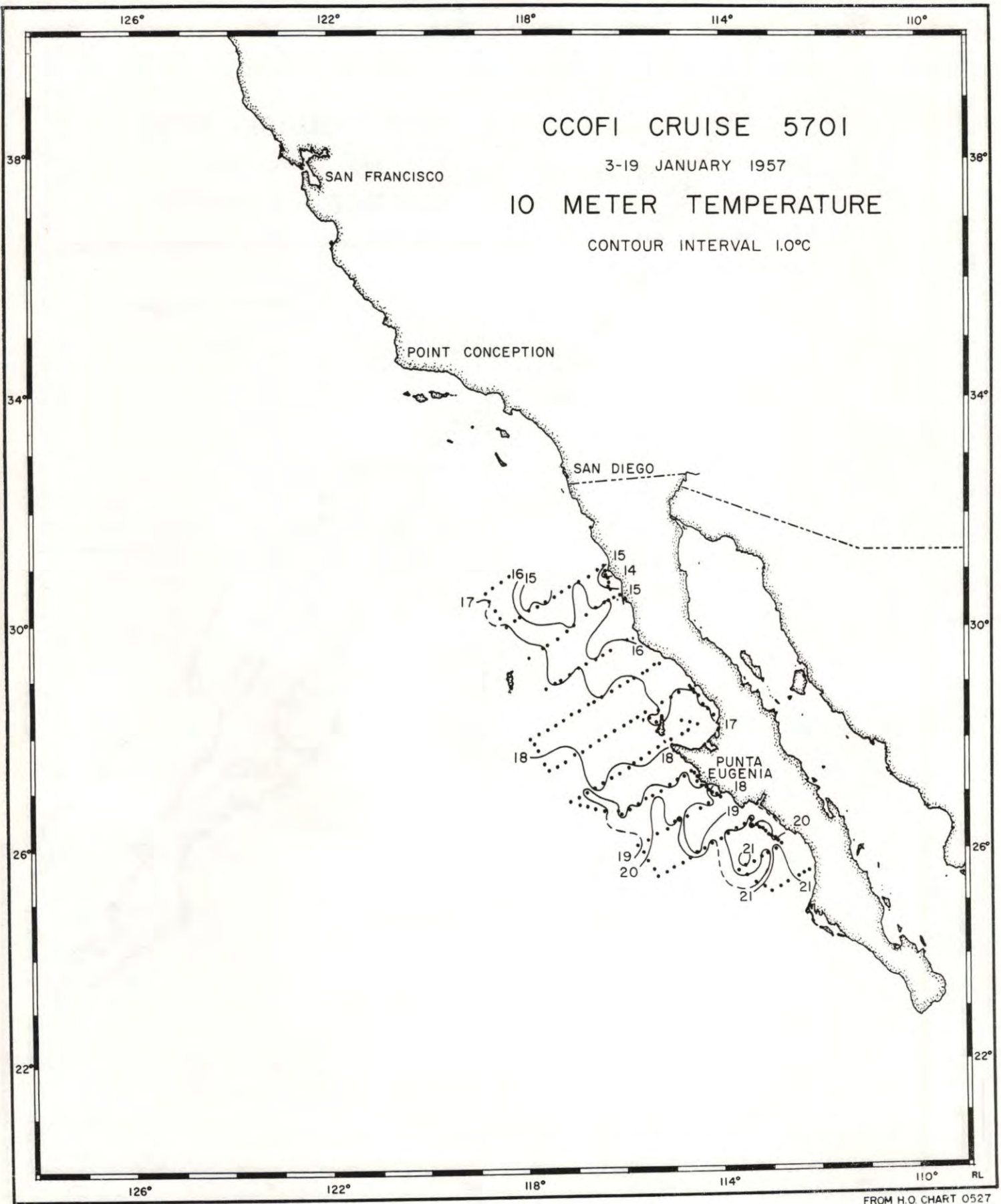


FIGURE 2

FROM H.O. CHART 0527





FROM H.O. CHART 0527

FIGURE 3

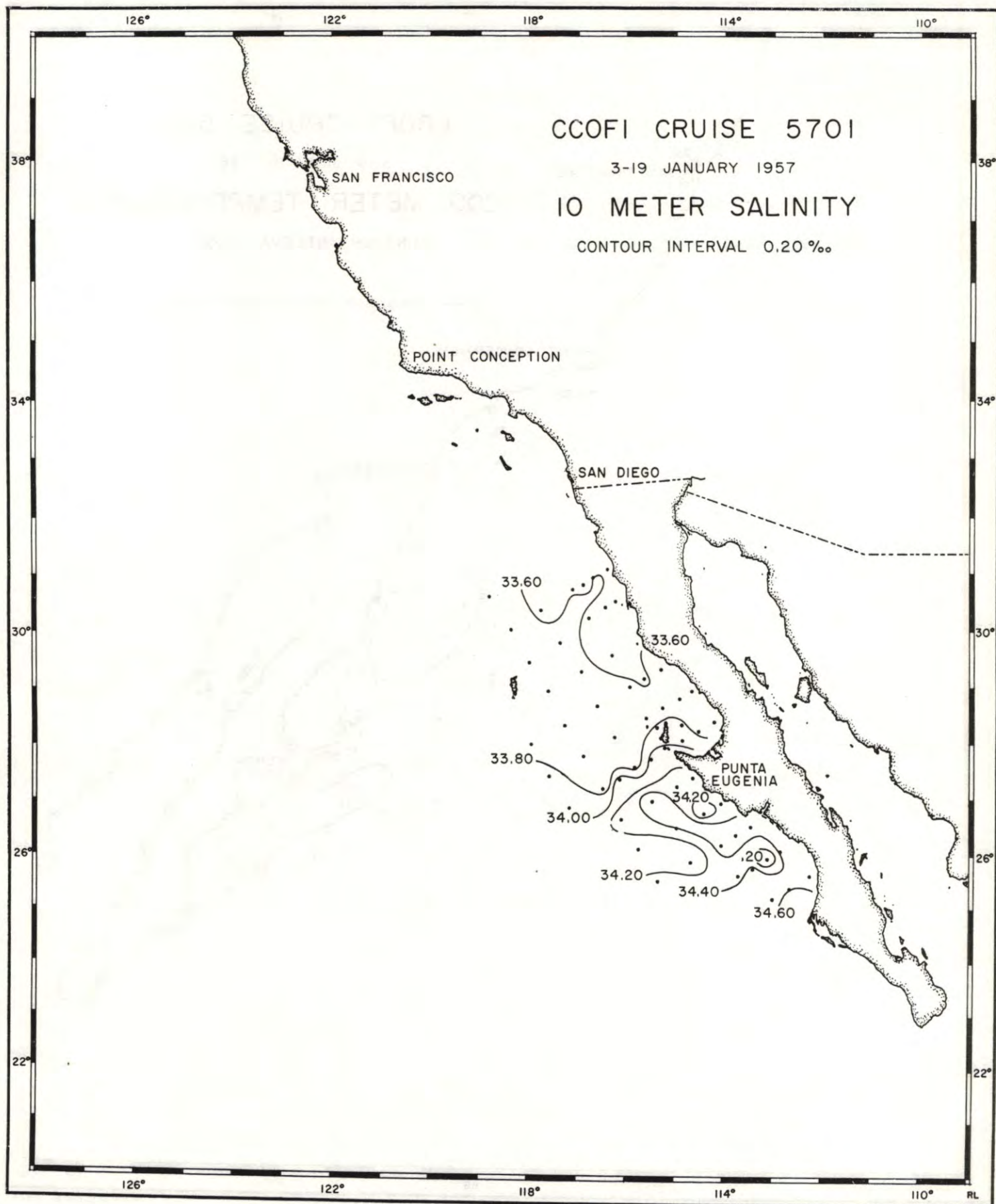


FIGURE 4

FROM H.O. CHART 0527

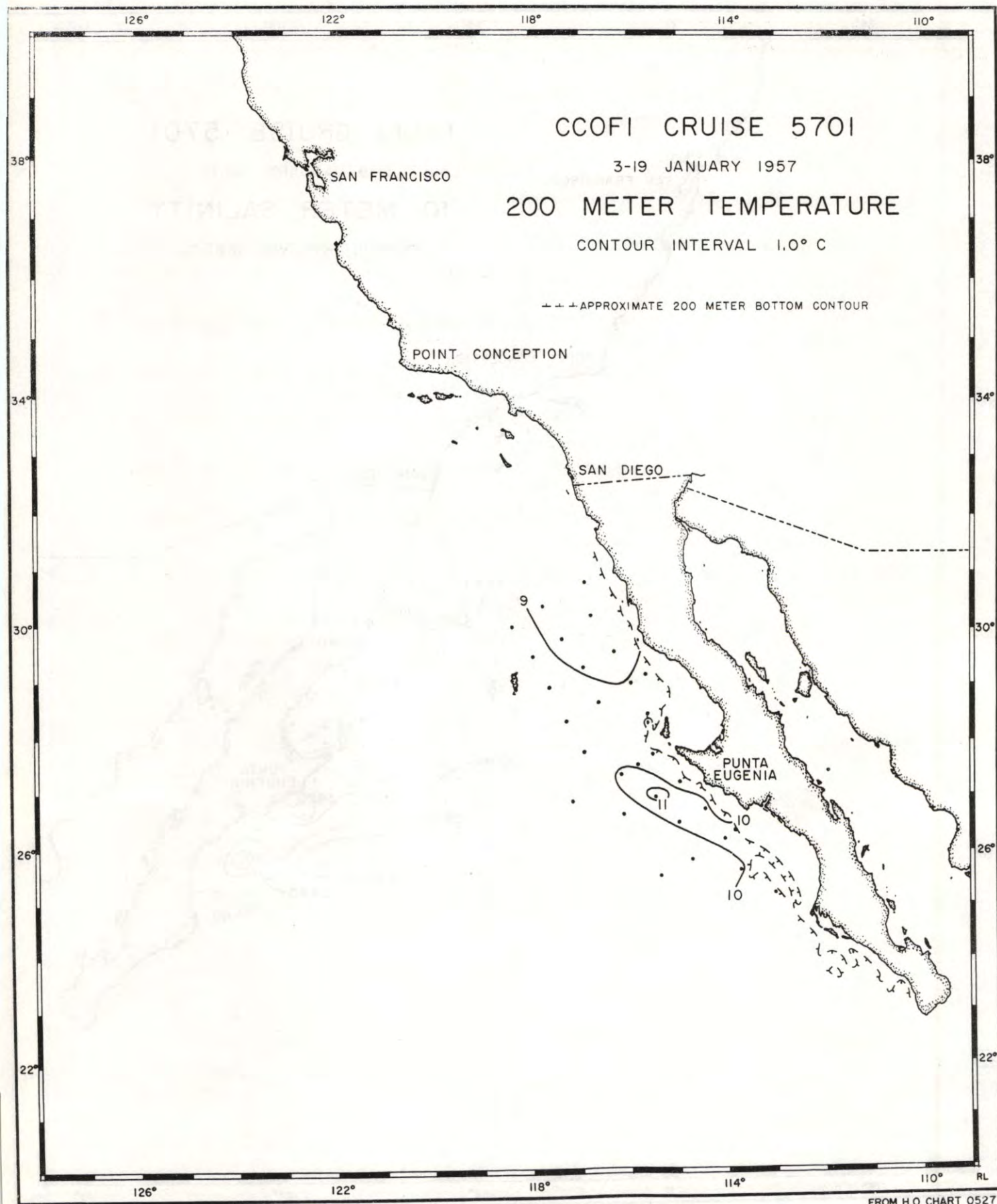


FIGURE 5

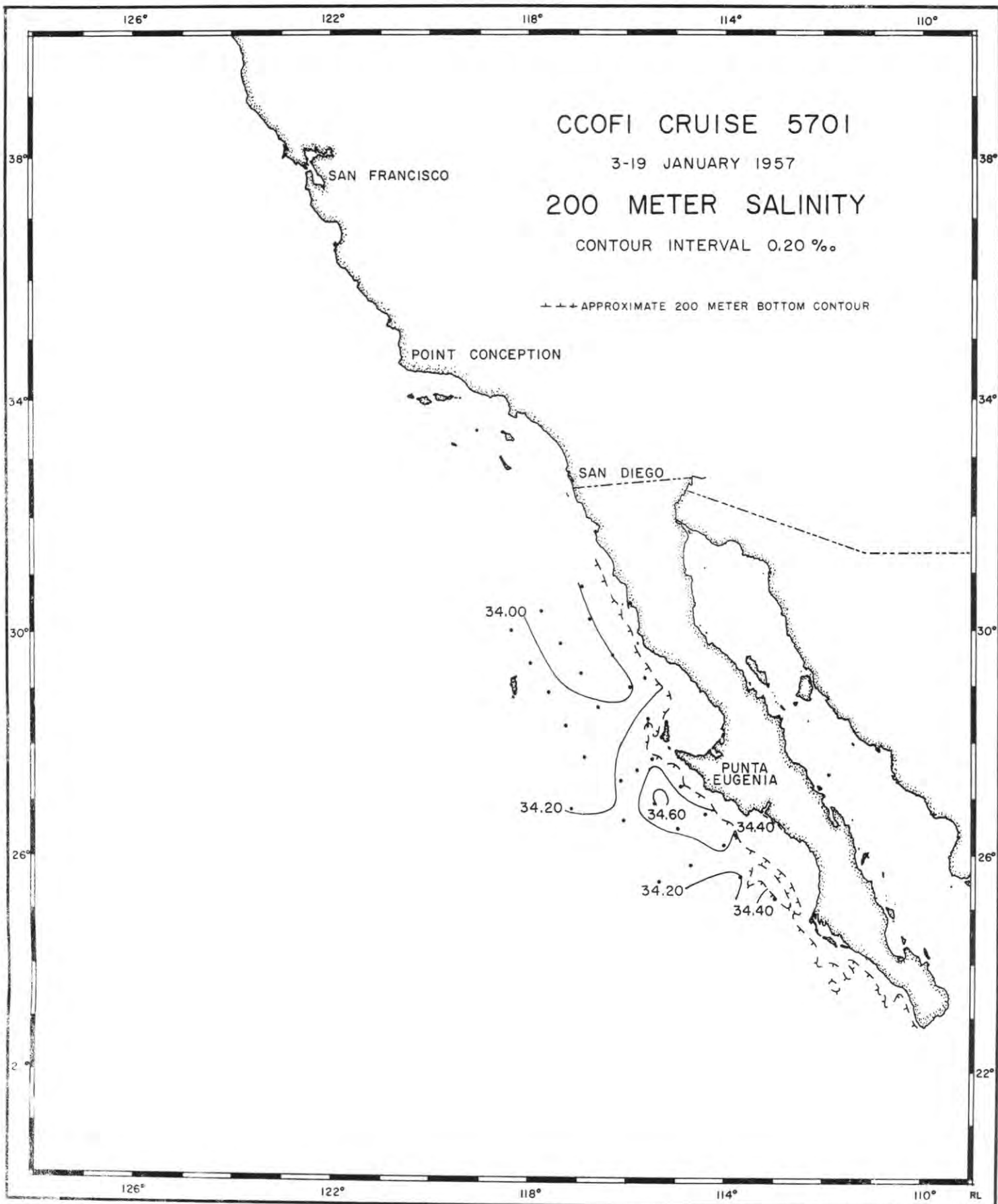


FIGURE 6

CRUISE 5701  
PERSONNEL

SHIP'S CAPTAIN

Colbeth, Clifford W., R/V Orca

PERSONNEL PARTICIPATING IN THE COLLECTION OF DATA

R/V ORCA

Worrall, Charles G., Senior Marine Technician  
Bower, Donald R., Fishery Aid, U. S. Fish and Wildlife Service  
Froerer, Arthur I., Marine Technician  
Jaynes, John M., Marine Technician

OBSERVED				INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta_T$	$\Delta D$
m	°C	‰	ml/L	m	°C	‰	ml/L	g/L	$10^{-5} \text{cm}^3/\text{g}$	dyn. m

SIO  
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5701

ORCA; January 18, 1957; 1552 GCT; 30°49'N, 116°57'W; sounding, 1100 fm; wind, calm; weather, clear; sea, slight; wire angle, 03°.

103.38

1	16.01	33.53	5.95	0	(16.02)	(33.53)	(5.95)	(24.64)	(331)	(0.00)
12	16.00	33.53	6.00	10	16.00	33.53	5.98	24.64	331	0.03
32	15.32	33.51	6.21	20	15.76	33.52	6.10	24.69	326	0.07
47	14.89	33.48	6.12	30	15.38	33.51	6.20	24.76	319	0.10
58	14.20	33.40	5.88	50	14.77	33.47	6.08	24.86	310	0.16
73	12.22	33.31	5.53	75	12.07	33.31	5.47	25.29	269	0.23
93	10.73	33.44	4.46	100	10.42	33.47	4.46	25.70	230	0.30
112	9.93	33.52	4.44	150	9.34	33.78	3.74	26.12	190	0.40
127	9.50	33.62	3.88	200	8.46	34.01	2.55	26.45	159	0.49
151	9.32	33.78	3.74	250	7.86	34.06	2.22	26.58	146	0.57
181	8.75	33.98	2.74	300	7.28	34.10	1.86	26.69	136	0.64
211	8.32	34.03	2.48	400	6.52	34.15	1.01	26.84	122	0.78
306	7.24	34.10	1.82							
356	6.76	34.12	1.32							
411	6.46	34.16	0.93							

ORCA; January 18, 1957; 2243 GCT; 30°25'N, 117°46'W; sounding, 1000+ fm; wind, 320°, force 2; weather, clear; sea, slight; wire angle, 05°.

103.50

1	15.97	33.48	5.46	0	(16.02)	(33.48)	(5.46)	(24.60)	(335)	(0.00)
11	15.51	33.48	5.45	10	15.52	33.48	5.46	24.71	324	0.03
32	15.13	33.46	5.57	20	15.35	33.47	5.51	24.74	321	0.07
48	13.80	33.33	5.46	30	15.18	33.46	5.56	24.78	318	0.10
58	12.73	33.30	5.30	50	13.65	33.32	5.44	24.99	298	0.16
72	11.97	33.28	5.13	75	11.74	33.28	5.05	25.33	265	0.23
92	10.63	33.42	4.44	100	10.34	33.44	4.30	25.70	230	0.29
111	10.04	33.46 <sup>a)</sup>	4.14	150	9.05	33.73	3.09	26.13	189	0.40
127	9.80	33.62 <sup>a)</sup>	3.31	200	8.59	33.95	2.24	26.38	165	0.49
151	9.04	33.73	3.09	250	7.84	34.12	1.57	26.63	142	0.57
180	8.68	33.89	2.55							
210	8.49	34.00	2.01							
230	8.20	34.07	1.75							
256	7.78	34.13	1.51							

ORCA; January 19, 1957; 0348 GCT; 30°04.5'N, 118°25.5'W; sounding, 2000 fm; wind, 320°, force 2; weather, clear; sea, slight; wire angle, 05°.

103.60

2	17.12	33.66	5.33	0	(17.12)	(33.66)	(5.33)	(24.48)	(346)	(0.00)
13	17.12	33.68	5.26	10	17.12	33.68	5.27	24.49	345	0.03
33	17.01	33.67	5.36	20	17.08	33.68	5.30	24.50	344	0.07
49	16.84	33.69	5.38	30	17.04	33.67	5.35	24.51	343	0.10
60	16.60	33.62	5.37	50	16.84	33.69	5.38	24.57	338	0.17
75	14.10	33.40	5.49	75	14.10	33.40	5.49	24.94	302	0.25
96	12.30	33.42	5.08	100	11.98	33.43	4.92	25.40	259	0.32
116	10.94	33.48	4.39	150	9.62	33.73	3.61	26.05	197	0.44
131	10.36	33.60	4.11	200	9.42	34.08	2.41	26.35	168	0.53
156	9.48	33.77	3.36	250	8.56	34.13	1.86	26.52	152	0.61
184	9.64	34.03	2.51							
214	9.10	34.11	2.31							
233	8.76	34.13	2.10							
257	8.49	34.13	1.77							

ORCA; January 18, 1957; 0633 GCT; 30°32'N, 116°15.5'W; sounding, missing; wind, calm; weather, clear; sea, slight; wire angle, 00°.

107.32

3	15.69	33.50	5.60	0	(15.70)	(33.49)	(5.60)	(24.68)	(327)	(0.00)
13	15.68	-	5.68	10	15.68	33.52	5.65	24.70	325	0.03
34	15.64	33.55	5.64	20	15.66	33.53	5.65	24.71	324	0.07
54	13.59	33.48	5.18	30	15.66	33.55	5.64	24.72	323	0.10
79	11.96	33.40	4.63	50	14.00	33.50	5.27	25.05	292	0.16
103	10.12	33.78	2.77	75	12.24	33.41	4.73	25.33	265	0.23
128	9.41	33.98	2.38	100	10.34	33.73	3.04	25.92	209	0.29
156	9.18	34.05	2.14	150	9.20	34.04	2.17	26.35	168	0.38

a) Loose bottle cap; value falls on property curve.

SIO

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5701

OBSERVED				INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T$	$\Delta D$
m	°C	‰	ml/L	m	°C	‰	ml/L	g/L	$10^{-5} \frac{3}{\text{cm}^3/\text{g}}$	dyn.m

107.40 ORCA; January 18, 1957; 0213 GCT; 30°16.5'N, 116°46.5'W; sounding, 1500 fm; wind, calm; weather, sky obscured; sea, slight; wire angle, 00°.

1	16.59	33.58	5.53	0	(16.59)	(33.58)	(5.53)	(24.54)	(340)	(0.00)
11	-	33.57	5.49	10	16.54	33.57	5.49	24.54	340	0.03
32	16.35	33.58	5.40	20	16.46	33.58	5.41	24.58	337	0.07
48	14.64	33.42	5.61	30	16.37	33.58	5.40	24.59	336	0.10
58	13.32	33.33	5.42	50	14.44	33.40	5.58	24.88	308	0.17
73	12.12	33.35	5.15	75	12.00	33.36	5.10	25.33	265	0.24
93	10.86	33.38	4.60	100	10.52	33.41	4.47	25.65	235	0.30
112	9.99	33.48	4.28	150	9.24	33.79	3.46	26.15	187	0.41
127	9.70	33.58	3.94	200	8.42	33.99	3.06	26.44	160	0.50
151	9.22	33.79	3.44	250	7.78	34.07	2.11	26.60	145	0.57
181	8.62	33.91	3.28	300	7.34	34.15	1.45	26.72	133	0.64
211	8.34	34.01	2.85							
230	8.08	34.09	2.26							
255	7.70	34.07	2.07							
299	7.35	34.15	1.46							
345	7.03	34.22	1.08							

107.50 ORCA; January 17, 1957; 2058 GCT; 29°49'N, 117°22.5'W; sounding, 1575 fm; wind, 320°, force 1; weather, partly cloudy; sea, moderate; wire angle, 05°.

1	17.10	33.67	5.30	0	(17.16)	(33.67)	(5.30)	(24.47)	(347)	(0.00)
11	16.78	33.67	5.19	10	16.78	33.67	5.20	24.57	338	0.03
30	16.72	33.68	5.11	20	16.76	33.68	5.15	24.58	337	0.07
46	15.53	33.53 <sup>a)</sup>	5.45	30	16.72	33.68	5.11	24.59	336	0.10
56	14.38	33.43 <sup>a)</sup>	5.47	50	14.83	33.46	5.53	24.84	312	0.17
71	13.87	33.58	5.10	75	13.64	33.58	5.05	25.20	278	0.24
91	12.30	33.57	4.88	100	11.97	33.59	4.76	25.52	247	0.31
112	11.54	33.62 <sup>a)</sup>	4.61	150	9.48	33.64	3.56	26.00	202	0.42
126	10.38	33.58 <sup>a)</sup>	4.45	200	8.62	33.89	2.50	26.33	170	0.51
150	9.48	33.64	3.56	250	8.13	34.04	2.23	26.52	152	0.60
180	8.88	33.80	2.94	300	7.28	34.05	2.01	26.65	140	0.67
211	8.47	33.93	2.34							
230	8.23	33.98	2.47							
256	8.08	34.05	2.20							
303	7.22	34.05	1.98							
349	7.24	34.18	1.21							

107.60 ORCA; January 17, 1957; 1424 GCT; 29°30'N, 117°57'W; sounding, 2000+ fm; wind, 320°, force 4; weather, clear; sea, rough; wire angle, 10°.

2	17.05	33.71	6.30	0	(17.05)	(33.71)	(6.30)	(24.53)	(341)	(0.00)
11	17.06	33.70	6.46	10	17.06	33.70	6.46	24.52	342	0.03
31	17.06	33.69	6.44	20	17.06	33.69	6.45	24.51	343	0.07
47	17.06	33.73	6.50	30	17.06	33.69	6.45	24.51	343	0.10
57	17.04	33.70	6.40	50	17.05	33.72	6.42	24.53	341	0.17
72	15.54	33.55	6.46	75	15.07	33.54	6.40	24.85	311	0.25
92	12.98	33.53	6.13	100	12.33	33.55	6.29	25.42	257	0.32
111	11.68	33.58	6.48	150	10.12	33.73	3.85	25.96	205	0.44
126	10.92	33.61	5.05	200	9.65	34.12	2.59	26.34	169	0.54
150	10.12	33.73	3.85	250	9.43	34.25	1.69	26.48	156	0.62
180	9.65	33.97	3.74	300	8.85	34.34	1.50	26.64	141	0.70
209	9.66	34.18	2.07							
229	9.62	34.21	1.79							
254	9.40	34.26	1.68							
299	8.88	34.34	1.52							
344	8.40	34.35 <sup>a)</sup>	1.04							

a) Loose bottle cap; value falls on property curve.

OBSERVED				INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T$	$\Delta D$
m	°C	‰	ml/L	m	°C	‰	ml/L	g/L	$10^{-5} \text{cm}^3/\text{g}$	dyn. m

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ORCA; January 16, 1957; 2054 GCT; 29°36'N, 116°19.5'W; sounding, 1300 fm; wind, 320°, force 4;  
weather, clear; sea, rough; wire angle, 10°.

110.40

1	16.56	33.58	6.47		(16.56)	(33.58)	(6.47)	(24.54)	(340)	(0.00)
11	16.43	33.57	6.31	10	16.43	33.57	6.31	24.57	338	0.03
32	16.41	33.58	6.33	20	16.42	33.57	6.33	24.58	337	0.07
42	16.39	33.55	6.39	30	16.41	33.58	6.32	24.59	336	0.10
52	16.37	33.55	6.55	50	16.38	33.55	6.53	24.58	337	0.17
72	13.27	33.36	6.18	75	13.04	33.36	6.11	25.13	284	0.25
87	12.24	33.37	5.89	100	11.43	33.40	5.48	25.47	252	0.31
102	11.34	33.40	5.42	150	9.67	33.74	4.02	26.04	198	0.43
117	10.46	33.51	4.93	200	8.84	34.00	2.73	26.38	166	0.52
141	9.88	33.68	4.28	250	8.35	34.17	2.13	26.60	145	0.60
171	9.16	33.86	3.46	300	7.93	34.21	1.50	26.69	136	0.67
205	8.80	34.02	2.64	400	7.26	34.34	0.83	26.88	118	0.80
255	8.28	34.18	2.03	500	6.46	34.30	0.60	26.96	110	0.92
305	7.90	34.22	1.42							
410	7.21	34.34	0.77							
511	6.37	34.29	0.58							

ORCA; January 17, 1957; 0237 GCT; 29°16'N, 116°59'W; sounding, 1000+ fm; wind, 320°, force 3;  
weather, clear; sea, slight; wire angle, 20°.

110.50

2	17.01	33.69	7.17	0	(17.01)	(33.69)	(7.17)	(24.52)	(342)	(0.00)
12	17.02	33.66	6.91	10	17.02	33.67	7.00	24.50	344	0.03
32	16.89	33.66	7.34	20	16.97	33.66	7.09	24.52	342	0.07
46	16.86	33.62	6.81	30	16.90	33.66	7.30	24.52	342	0.10
55	16.84	33.67	6.77	50	16.84	33.63	6.79	24.52	342	0.17
70	16.79	33.64	6.55	75	16.38	33.64	6.44	24.63	332	0.26
88	14.84	33.66	6.31	100	13.93	33.65	6.14	25.18	280	0.33
106	13.46	33.62	6.07	150	9.96	33.54	4.57	25.85	216	0.46
119	11.38	33.37	5.68	200	8.90	33.86	3.90	26.26	177	0.56
142	10.28	33.48	4.96	250	7.80	33.98	3.15	26.52	152	0.64
168	9.31	33.69	4.00	300	7.19	34.07	2.32	26.68	137	0.72
196	9.00	33.84	3.94							
215	8.48	33.91	3.58							
237	7.99	33.96	3.38							
280	7.40	34.04	2.61							
322	6.97	34.11	2.11							

ORCA; January 17, 1957; 0753 GCT; 28°56'N, 117°38'W; sounding, 2000+ fm; wind, 320°, force 3;  
weather, clear; sea, moderate; wire angle, 18°.

110.60

1	17.26	33.73	6.40	0	(17.26)	(33.73)	(6.40)	(24.50)	(344)	(0.00)
12	17.24	33.80	6.55	10	17.24	33.79	6.51	24.54	340	0.03
30	17.26	33.74	6.64	20	17.24	33.80	6.59	24.54	340	0.07
39	17.24	33.80	-	30	17.26	33.74	6.64	24.50	344	0.10
50	17.26	33.75	6.34	50	17.26	33.75	6.34	24.51	343	0.17
59	17.24	33.76	-	75	16.38	33.68	6.27	24.66	329	0.26
68	17.15	33.75	6.43	100	12.95	33.41	5.88	25.20	278	0.33
81	15.25	33.57	6.11	150	10.72	33.79	3.18	25.91	210	0.46
95	13.34	33.42	5.97	200	9.67	34.06	2.73	26.29	174	0.55
111	12.16	33.43	5.66	250	9.24	34.20	1.98	26.47	157	0.64
134	11.08	33.63	4.15	300	9.02	34.33	1.38	26.62	143	0.72
159	10.53	33.86	2.97	400	7.95	34.37	0.80	26.82	124	0.86
194	9.76	34.04	2.80	500	(6.66)	(34.31)	(0.59)	(26.94)	(112)	(0.98)
241	9.28	34.16 <sup>a)</sup>	2.14							
288	9.09	34.32	1.42							
390	8.06	34.38	0.82							
489	6.80	34.32	0.61							

a) Loose bottle cap; value falls on property curve.



SIO

CCOFI  
5701

OBSERVED				INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta_T$	$\Delta D$
m	°C	‰	ml/L	m	°C	‰	ml/L	g/L	$10^{-5} \text{cm}^3/\text{g}$	dyn. m

113.35

ORCA; January 15, 1957; 0014 GCT; 29°11'N, 115°41'W; sounding, 550 fm; wind, 320°, force 5; weather, cloudy; sea, moderate; wire angle, 30°.

1	16.49	33.58	7.24	0	(16.49)	(33.58)	(7.24)	(24.57)	(338)	(0.00)
10	16.49	33.58	7.58	10	16.49	33.58	7.58	24.57	338	0.03
28	16.49	33.62	7.35	20	16.49	33.60	7.40	24.58	337	0.07
41	16.31	33.64	7.26	30	16.48	33.63	7.33	24.50	335	0.10
51	14.89	33.55	7.24	50	15.00	33.56	7.24	24.88	308	0.17
64	13.18	33.47	6.74	75	12.07	33.46	6.09	25.40	259	0.24
81	11.63	33.46	5.93	100	10.84	33.50	6.00	25.65	235	0.30
99	10.88	33.50	6.00	150	9.28	33.80	4.13	26.15	187	0.40
112	10.38	33.55	6.00	200	9.08	34.09	3.29	26.41	163	0.49
135	9.59	33.69	4.65	250	8.47	34.24	3.03	26.63	142	0.57
161	9.16	33.95	3.58	300	8.12	34.28	2.46	26.71	134	0.64
189	9.18	34.04	3.82							
208	8.99	34.12	3.16							
231	8.64	34.16	3.10							
272	8.34	34.27	2.94							
314	7.99	34.29	1.33							

113.40

ORCA; January 14, 1957; 1919, 1938, 2044 GCT; 29°02'N, 115°58.5'W; sounding, 1000+ fm; wind, 320°, force 4; weather, sky obscured; sea, moderate; wire angle, 21°, 25°, 34°.

2	17.23	33.70	6.53	0	(17.23)	(33.70)	(6.53)	(24.48)	(346)	(0.00)
12	17.23	33.70	6.24	10	17.23	33.70	6.24	24.48	346	0.03
31	17.17	33.69	6.17	20	17.21	33.69	6.20	24.48	346	0.07
45	17.08	33.69	6.13	30	17.17	33.69	6.16	24.50	344	0.10
55	16.18	33.62	6.17	50	16.58	33.65	6.17	24.60	335	0.17
				75	13.70	33.49	5.58	25.10	287	0.25
68	14.26	33.51	5.86	100	12.58	33.49	4.90	25.33	265	0.32
				150	9.88	33.75	2.98	26.02	200	0.43
99	12.61	33.49	4.92	200	9.02	33.99	2.76	26.34	169	0.53
110	11.70	33.54	4.44	250	8.20	34.14	1.90	26.60	145	0.61
135	10.56	33.69	3.50	300	7.88	34.20	1.41	26.68	137	0.68
160	9.62	33.78	2.88							
188	9.38	33.96	2.89							
206	8.87	34.01	2.66							
230	8.40	34.09	2.34							
274	8.06	34.17	1.59							
318	7.77	34.22	1.28							

113.50

ORCA; January 14, 1957; 1244, 1301, 1326 GCT; 28°41'N, 116°38'W; sounding, 2000+ fm; wind, 330°, force 3; weather, overcast; sea, moderate; wire angle, 11°, 12°, 10°.

1	17.10	33.68	6.41	0	(17.10)	(33.68)	(6.41)	(24.50)	(344)	(0.00)
11	17.14	33.68	6.32	10	17.14	33.68	6.34	24.49	345	0.03
				20	17.10	33.68	6.32	24.51	343	0.07
30	17.06	33.68	6.33	30	17.06	33.68	6.33	24.51	343	0.10
47	16.96	33.67	6.30	50	16.94	33.66	6.27	24.53	341	0.17
57	16.84	33.65	6.17	75	13.77	33.44	6.46	25.05	292	0.25
				100	12.19	33.38	6.10	25.31	267	0.32
64	15.52	33.62	6.59	150	9.84	33.57	4.61	25.88	213	0.44
89	12.60	33.33	6.24	200	9.50	34.09	2.41	26.35	168	0.54
119	11.44	33.48	5.80	250	9.02	34.26	1.57	26.56	148	0.62
150	9.84	33.57	4.61							
170	9.50	33.77 <sup>a)</sup>	4.17							
196	9.60	34.05 <sup>a)</sup>	6.27							
241	9.10	34.24	1.76							
287	8.74	34.34	1.09							

a) Loose bottle cap: value falls on property curve.

OBSERVED				INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T$	$\Delta D$
m	°C	‰	ml/L	m	°C	‰	ml/L	g/L	$10^{-5} \frac{3}{cm/g}$	dyn. m

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ORCA; January 14, 1957; 0712 GCT; 28°22'N, 117°15'W; sounding, 2000+ fm; wind, 320°, force 3; weather, overcast; sea, slight; wire angle, 08°.

113.60

1	17.50	33.71	6.31	0	(17.50)	(33.71)	(6.31)	(24.43)	(351)	(0.00)
11	17.48	33.73	6.76	10	17.48	33.73	6.70	24.44	350	0.04
31	17.25	33.68	6.48	20	17.37	33.71	6.65	24.46	348	0.07
46	17.24	33.68	6.68	30	17.26	33.68	6.47	24.46	348	0.10
56	17.24	33.68	6.80	50	17.24	33.68	6.74	24.46	348	0.17
71	16.93	33.68	6.52	75	16.35	33.64	6.43	24.63	332	0.26
91	14.00	33.46	6.35	100	12.99	33.46	5.81	25.23	275	0.34
109	12.19	33.51	5.16	150	10.67	33.82	3.30	25.93	208	0.46
124	11.44	33.62	4.49	200	9.82	34.16	2.30	26.34	169	0.55
148	10.74	33.81	3.32	250	9.12	34.18	2.15	26.48	156	0.64
177	9.72	33.93	3.30	300	(8.63)	(34.27)	(1.84)	(26.63)	(142)	(0.71)
207	9.82	34.18	2.12							
228	9.52	34.18	2.17							
252	9.08	34.18	2.14							
298	8.64	34.27	1.84							

ORCA; January 12, 1957; 1341 GCT; 28°48'N, 114°56'W; sounding, 55 fm; wind, 340°, force 2; weather, cloudy; sea, slight; wire angle, 05°.

117.30

1	17.07	33.80	7.29	0	(17.07)	(33.80)	(7.29)	(24.60)	(335)	(0.00)
11	17.07	33.81	6.65	10	17.07	33.81	6.70	24.60	335	0.03
31	17.03	33.82	6.58	20	17.07	33.82	6.62	24.61	334	0.07
53	16.78	33.82	6.18	30	17.04	33.82	6.58	24.62	333	0.10
78	16.36	33.82	6.14	50	16.82	33.82	6.20	24.67	328	0.17
103	12.29	33.75	4.34	75	16.44	33.82	6.13	24.76	320	0.25
				100	13.05	33.76	5.26	25.44	255	0.32

ORCA; January 13, 1957; 0430 GCT; 28°28'N, 115°35.5'W; sounding, 300 fm; wind, calm; weather, overcast; sea, missing; wire angle, 00°.

117.40

0	17.28	33.63	6.59	0	17.28	33.63	6.59	24.42	352	0.00
9	17.12	33.65	6.92	10	17.12	33.65	6.92	24.47	347	0.04
31	17.22	33.85	6.60	20	17.12	33.72	6.89	24.52	342	0.07
46	17.41	34.00	6.34	30	17.21	33.84	6.62	24.60	335	0.10
57	17.15	33.98	6.34	50	17.36	34.00	6.33	24.68	327	0.17
70	14.88	33.50	6.36	75	14.06	33.42	6.30	24.96	300	0.25
91	12.00	33.42	5.63	100	11.66	33.49	4.96	25.50	249	0.32
111	11.26	33.64	4.11	150	10.08	33.98	2.62	26.16	186	0.42
125	10.26	33.83	3.48	200	9.75	34.27	1.93	26.45	159	0.51
150	10.08	33.98	2.62	250	9.00	34.33	1.41	26.61	144	0.59
180	9.90	34.22	2.34							
210	9.62	34.29	1.65							
230	9.26	34.34	1.44							
256	8.94	34.32	1.41							

ORCA; January 13, 1957; 1450 GCT; 27°47.5'N, 116°52.5'W; sounding, 2000+ fm; wind, 080°, force 1; weather, partly cloudy; sea, moderate; wire angle, 00°.

117.60

0	17.31	33.72	6.25	0	17.31	33.72	6.25	24.48	346	0.00
11	17.32	33.73	6.22	10	17.32	33.73	6.24	24.48	346	0.03
31	16.92	33.71	6.37	20	17.15	33.72	6.28	24.52	342	0.07
47	16.86	33.78	6.16	30	16.93	33.71	6.36	24.57	338	0.10
57	15.30	33.63	5.97	50	16.64	33.77	6.11	24.67	328	0.17
72	13.40	33.46	5.36	75	13.10	33.46	5.27	25.21	277	0.25
92	11.84	33.52	4.80	100	11.34	33.55	4.59	25.61	239	0.31
112	10.84	33.60	4.30	150	10.11	33.89	3.05	26.09	193	0.42
126	10.61	33.78	3.46	200	9.14	34.13	2.40	26.43	161	0.51
151	10.10	33.89	3.04	250	8.72	34.22	1.64	26.58	147	0.59
181	9.14	34.00	2.76	300	8.73	34.40	0.83	26.71	134	0.66
211	9.18	34.17	1.93							
231	8.98	34.24	1.56							
256	8.66	34.22	1.66							
302	8.72	34.40	0.79							
348	7.88	34.33	0.85							

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OBSERVED				INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta_T$	$\Delta D$
m	°C	‰	ml/L	m	°C	‰	ml/L	g/L	$10^{-5} \text{cm}^3/\text{g}$	dyn. m

118.39

ORCA; January 12, 1957; 1921 GCT; 28°18.5'N, 115°23.5'W; sounding, 113 fm; wind, 320°, force 2; weather, cloudy; sea, slight; wire angle, 00°.

1	17.12	33.80	6.32	0	(17.12)	(33.80)	(6.32)	(24.59)	(336)	(0.00)
11	16.94	33.80	6.30	10	16.94	33.80	6.30	24.63	332	0.03
32	16.00	33.80	5.73	20	16.63	33.80	6.13	24.70	325	0.07
53	14.10	33.64	5.22	30	16.14	33.80	5.80	24.82	314	0.10
78	12.10	33.59 <sup>a)</sup>	4.63	50	14.41	33.67	5.29	25.09	288	0.16
103	11.13	33.74	3.54	75	12.30	33.59	4.73	25.46	253	0.23
127	10.38	33.94	2.74	100	11.26	33.71	3.68	25.74	226	0.29
156	10.00	34.15	1.84	150	10.05	34.11	1.98	26.27	176	0.39

119.33

ORCA; January 12, 1957; 0022 GCT; 28°18'N, 114°53.5'W; sounding, 60 fm; wind, 340°, force 3; weather, partly cloudy; sea, slight; wire angle, 03°.

0	17.54	33.87	6.30	0	17.54	33.87	6.30	24.54	340	(0.00)
10	17.22	33.87	6.39	10	17.22	33.87	6.39	24.61	334	0.03
31	17.12	33.87	6.34	20	17.15	33.87	6.37	24.63	332	0.07
52	16.96	33.86	6.09	30	17.12	33.87	6.35	24.63	332	0.10
77	16.64	33.82	5.90	50	16.96	33.86	6.10	24.67	328	0.17
102	13.96	33.67	5.66	75	16.67	33.83	5.91	24.70	325	0.25
				100	14.25	33.68	5.66	25.13	284	0.32

120.45

ORCA; January 10, 1957; 2054 GCT; 27°48'N, 115°33'W; sounding, 1180 fm; wind, 320°, force 2; weather, overcast; sea, moderate; wire angle, 02°.

0	17.69	34.00	5.45	0	17.69	34.00	5.45	24.60	335	0.00
10	17.68	34.01	5.54	10	17.68	34.01	5.54	24.61	334	0.03
32	17.46	34.02	5.73	20	17.63	34.02	5.60	24.63	332	0.07
46	16.42	33.82	5.50	30	17.50	34.02	5.72	24.67	328	0.10
56	16.08	33.82	4.58	50	16.27	33.82	5.10	24.80	316	0.16
71	13.58	33.72	4.32	75	13.06	33.72	4.20	25.41	258	0.24
90	11.66	33.77	3.71	100	11.03	33.82	3.45	25.87	214	0.30
111	10.58	33.87	3.20	150	10.10	34.14	2.23	26.38	165	0.39
126	10.23	34.02	2.68	200	9.75	34.37	1.47	26.52	152	0.48
150	10.10	34.14	2.23	250	9.50	34.50	0.62	26.66	139	0.55
181	9.94	34.37	1.59	300	8.60	34.41	0.75	26.73	132	0.62
211	9.60	34.36	1.42	400	7.57	34.39	0.60	26.88	118	0.75
230	9.37	34.39	1.25							
256	9.32	34.48	0.62							
306	8.54	34.40	0.74							
357	8.16	34.40	0.69							
414	7.36	34.39	0.58							

120.50

ORCA; January 10, 1957; 1755 GCT; 27°33'N, 115°52.5'W; sounding, 2000+ fm; wind, 320°, force 2; weather, overcast; sea, moderate; wire angle, 14°.

1	17.96	33.76	6.30	0	(17.96)	(33.76)	(6.30)	(24.36)	(358)	(0.00)
11	17.88	33.78	6.05	10	17.88	33.78	6.06	24.39	355	0.04
31	17.88	33.95	5.95	20	17.88	33.84	6.01	24.44	350	0.07
41	18.18	34.10	6.32	30	17.88	33.94	5.95	24.51	343	0.11
51	17.69	34.02	6.40	50	17.75	34.04	6.40	24.61	334	0.17
61	15.25	33.64	-	75	12.82	33.47	5.79	25.27	271	0.25
70	13.20	33.46	6.19	100	11.86	33.72	5.16	25.64	236	0.31
85	12.34	33.53	5.27	150	10.30	34.09	4.12	26.22	181	0.42
98	11.93	33.71	5.16	200	9.70	34.23	2.30	26.43	161	0.50
113	11.26	33.77	5.14	250	9.48	34.29	1.93	26.50	154	0.58
135	10.34	33.93	4.17	300	8.98	34.42	1.68	26.68	137	0.66
163	10.28	34.25	4.03	400	7.51	34.36	1.47	26.87	119	0.79
193	9.74	34.23 <sup>b)</sup>	2.38	500	(6.76)	(34.39)	(0.62)	(27.00)	(107)	(0.91)
241	9.56	34.50	2.00							
285	9.19	34.42	1.72							
386	7.66	34.36	1.52							
486	6.82	34.39	0.71							

a) Loose bottle cap; value falls on property curve.

b) Loose bottle cap; value does not fall on property curve.

OBSERVED				INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta_T$	$\Delta D$
m	°C	‰	ml/L	m	°C	‰	ml/L	g/L	$10^{-5} \text{cm}^3/\text{g}$	dyn. m

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ORCA; January 10, 1957; 1452 GCT; 27°22.5'N, 116°11'W; sounding, 1000+ fm; wind, 320°, force 3; weather, overcast; sea, moderate; wire angle, 00°.

120.55

1	18.42	34.11	6.02	0	(18.42)	(34.11)	(6.02)	(24.50)	(344)	(0.00)
11	18.42	34.11	5.56	10	18.42	34.11	5.57	24.50	344	0.03
32	18.44	34.11	5.64	20	18.42	34.11	5.56	24.49	345	0.07
48	18.41	34.14	5.52	30	18.43	34.11	5.62	24.49	345	0.10
58	18.23	34.11	5.53	50	18.41	34.14	5.52	24.53	341	0.17
74	17.20	33.93	5.67	75	17.08	33.91	5.64	24.68	327	0.26
95	13.46	33.58	4.95	100	12.92	33.58	4.88	25.33	265	0.33
115	11.67	33.62	4.63	150	10.45	34.01	2.81	26.12	190	0.44
130	10.98	33.76	3.76	200	10.20	34.26	1.66	26.36	167	0.54
155	10.34	34.06	2.63	250	9.62	34.39	1.49	26.56	148	0.62
184	10.01	34.16	2.08	300	8.12	34.28	1.39	26.71	134	0.69
213	10.31	34.34	1.36	400	7.60	34.40	0.68	26.88	118	0.82
233	9.28	34.25	1.95							
257	9.66	34.42	1.36							
306	7.94	34.27	1.38							
357	8.00	34.38	0.69							
412	7.44	34.40	0.69							

ORCA; January 10, 1957; 0703 GCT; 26°53'N, 117°10.5'W; sounding, 2000+ fm; wind, 040°, force 1; weather, slight rain; sea, slight; wire angle, 00°.

120.70

1	18.39	33.81	5.43	0	(18.39)	(33.81)	(5.43)	(24.28)	(365)	(0.00)
11	18.38	33.82	5.37	10	18.38	33.82	5.37	24.29	364	0.04
31	18.36	33.83	5.39	20	18.37	33.83	5.37	24.30	363	0.07
42	18.32	33.81	5.34	30	18.36	33.83	5.39	24.31	362	0.11
53	17.21	33.62	5.47	50	17.30	33.63	5.47	24.41	353	0.18
63	17.16	33.64	5.54	75	15.18	33.50	5.75	24.80	316	0.26
73	15.50	33.52	5.75	100	12.41	33.44	5.27	25.32	266	0.34
88	13.48	33.42	5.64	150	10.19	33.76	3.27	25.98	204	0.46
103	12.16	33.45	5.12	200	9.78	34.20	1.84	26.38	165	0.55
118	11.18	33.51	4.41	250	8.84	34.25	1.53	26.58	147	0.63
143	10.32	33.71	3.47	300	8.15	34.29	1.09	26.71	134	0.70
172	9.80	34.00	2.58	400	7.61	34.39	0.42	26.87	119	0.84
207	9.76	34.22	1.80	500	6.67	34.38	0.37	27.00	107	0.95
256	8.77	34.25	1.50							
306	8.12	34.29	1.09							
412	7.57	34.39	0.39							
514	6.48	34.38	0.36							

ORCA; January 9, 1957; 1462 GCT; 27°14'N, 114°59'W; sounding, 500 fm; wind, 160°, force 1; weather, cloudy; sea, slight; wire angle, 05°.

123.42

1	18.98	34.27	5.45	0	(18.98)	(34.27)	(5.45)	(24.49)	(345)	(0.00)
11	18.98	34.25	4.97	10	18.98	34.25	4.99	24.49	345	0.03
32	18.74	34.19	5.17	20	18.93	34.21	4.99	24.48	346	0.07
47	17.76	34.09	4.91	30	18.80	34.19	5.13	24.49	345	0.10
58	15.60	33.86	4.08	50	17.24	34.04	4.70	24.74	321	0.17
73	13.36	33.76	3.54	75	13.13	33.74	3.58	25.42	257	0.24
93	11.08	33.53	4.28	100	10.68	33.56	4.16	25.73	227	0.30
112	10.32	33.64	3.84	150	10.08	34.05	2.16	26.22	181	0.41
126	10.22	33.77	3.10	200	9.67	34.23	1.51	26.43	161	0.50
151	10.08	34.05	2.12	250	9.04	34.32	1.10	26.58	146	0.57
181	10.20	34.20	1.80	300	8.82	34.39	0.57	26.69	136	0.65
211	9.38	34.23	1.45	400	7.50	34.36	0.52	26.87	119	0.78
231	9.04	34.22	1.44							
256	9.06	34.33	1.01							
306	8.78	34.40	0.53							
356	8.44	34.43	0.47							
413	7.17	34.33	0.54							

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OBSERVED				INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\frac{\delta T}{\delta z}$	$\Delta D$
m	°C	‰	ml/L	m	°C	‰	ml/L	g/L	$10^{-5} \frac{^\circ\text{C}}{\text{cm}}$	dyn. m

123.50 ORCA; January 9, 1957; 1836 GCT; 26°57.5'N, 115°30.5'W; sounding, 1990 fm; wind, 220°, force 2; weather, overcast; sea, slight; wire angle, 04°.

1	19.90	34.47	5.28	0	(19.90)	(34.47)	(5.28)	(24.41)	(353)	(0.00)
12	19.76	34.47	5.40	10	19.77	34.47	5.39	24.44	350	0.04
32	19.70	34.42	5.35	20	19.74	34.45	5.38	24.43	351	0.07
46	19.58	34.42	5.40	30	19.72	34.42	5.36	24.42	352	0.11
57	16.36	34.02	4.13	50	18.98	34.36	5.27	24.54	340	0.17
72	13.78	33.87	3.60	75	13.46	33.90	3.41	25.47	252	0.25
92	12.39	34.07	2.47	100	11.94	34.12	2.20	25.93	208	0.30
111	11.66	34.18	1.97	150	11.86	34.55	0.73	26.29	174	0.40
125	11.63	34.30	1.43	200	11.02	34.60	0.57	26.48	156	0.49
151	11.85	34.55	0.71	250	10.14	34.57	0.43	26.61	144	0.56
180	11.35	34.61	0.50	300	9.25	34.51	0.46	26.71	134	0.64
210	10.84	34.59	0.58	400	7.92	34.43	0.43	26.86	120	0.77
229	10.54	34.59	0.47							
256	10.00	34.56 <sup>a)</sup>	0.45							
306	9.19	34.48 <sup>a)</sup>	0.46							
355	8.52	34.47	0.33							
411	7.77	34.42	0.48							

123.60 ORCA; January 9, 1957; 2351 GCT; 26°39'N, 116°08'W; sounding, 1000+ fm; wind, 200°, force 1; weather, overcast; sea, slight; wire angle, 02°.

0	19.17	34.31	5.46	0	19.17	34.31	5.46	24.47	347	0.00
10	18.94	34.25	5.78	10	18.94	34.25	5.78	24.48	346	0.03
30	18.84	34.27	5.55	20	18.88	34.26	5.69	24.50	344	0.07
46	18.31	34.24	5.28	30	18.84	34.27	5.55	24.52	342	0.10
56	14.35	33.80	4.63	50	17.72	34.18	5.09	24.73	322	0.17
71	12.16	33.65	4.22	75	11.89	33.65	4.14	25.58	241	0.24
91	11.10	33.68	3.79	100	10.74	33.73	3.47	25.86	215	0.30
110	10.36	33.78	3.20	150	10.07	34.03	2.27	26.21	182	0.40
126	9.87	33.80	3.35	200	9.48	34.23	1.93	26.46	158	0.48
151	10.04	34.03	2.25	250	8.98	34.28	1.55	26.58	146	0.56
180	9.90	34.22	2.22	300	8.60	34.33	1.16	26.68	137	0.64
211	9.32	34.23 <sup>a)</sup>	1.72	400	7.84	34.35	0.51	26.82	124	0.77
230	-	34.22 <sup>a)</sup>	1.63							
254	8.94	34.31 <sup>a)</sup>	5.25r							
306	8.55	34.33	1.11							
356	8.14	34.34	0.58							
414	7.75	34.36	0.49							

127.40 ORCA; January 9, 1957; 0332 GCT; 26°38.5'N, 114°29'W; sounding, 1000+ fm; wind, 140°, force 1; weather, sky obscured; sea, slight; wire angle, 00°.

1	18.56	34.10	5.99	0	(18.55)	(34.10)	(5.99)	(24.46)	(348)	(0.00)
11	18.58	34.16	5.84	10	18.58	34.16	5.84	24.50	344	0.03
32	18.94	34.36	5.52	20	18.72	34.24	5.71	24.52	342	0.07
48	19.02	34.43	5.16	30	18.94	34.35	5.54	24.57	338	0.10
58	17.10	34.05	4.98	50	19.01	34.43	5.13	24.61	334	0.17
73	15.30	33.87	4.47	75	15.00	33.87	4.37	25.11	286	0.25
94	12.61	33.86	3.46	100	12.42	33.88	3.28	25.66	234	0.31
113	12.12	34.05	2.67	150	11.52	34.33	1.30	26.18	184	0.42
128	11.98	34.18	1.73	200	10.50	34.41	1.33	26.43	161	0.51
153	11.43	34.34 <sup>a)</sup>	1.29	250	9.99	34.47	0.95	26.55	149	0.58
181	10.82	34.38 <sup>a)</sup>	1.40	300	9.37	34.44	0.77	26.64	141	0.66
211	10.33	34.42 <sup>a)</sup>	1.22	400	7.60	34.33	0.78	26.83	123	0.80
231	10.10	34.43	0.92							
255	9.96	34.47	0.98							
304	9.28	34.43 <sup>a)</sup>	0.72							
354	8.25	34.36 <sup>a)</sup>	0.56							
412	7.43	34.32	0.82							

a) Loose bottle cap; value falls on property curve.

OBSERVED				INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta_T$	$\Delta D$
m	°C	‰	ml/L	m	°C	‰	ml/L	g/L	10 <sup>-5</sup> cm/g	dyn.m

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ORCA; January 8, 1957; 2251 GCT; 26°27.5'N, 114°59.5'W; sounding, 1500 fm; wind, 020°, force 1; weather, overcast; sea, slight; wire angle, 00°.

127.50

0	19.88	34.38	5.14	0	19.88	34.38	5.14	24.34	360	0.00
10	19.78	34.40	4.92	10	19.78	34.40	4.92	24.40	355	0.04
31	19.95	34.50	4.93	20	19.86	34.45	4.92	24.40	354	0.07
42	19.36	34.42	4.87	30	19.95	34.50	4.93	24.42	352	0.11
52	17.14	34.04	4.82	50	17.74	34.14	4.82	24.69	326	0.17
62	14.46	33.69	4.65	75	13.25	33.87	3.39	25.49	250	0.25
72	13.35	33.84	3.59	100	11.90	34.05	2.12	25.89	212	0.30
87	12.71	34.02	2.24	150	11.18	34.40	1.20	26.29	174	0.40
102	11.88	34.05	2.10	200	10.12	34.43	1.09	26.51	153	0.49
117	12.48	34.43	0.98	250	9.82	34.50	0.60	26.62	143	0.56
142	11.28	34.34	1.26	300	9.03	34.43	0.55	26.69	136	0.63
171	11.00	34.47	0.86	400	7.60	34.33	0.54	26.84	122	0.77
206	9.92	34.42	1.13	500	6.60	34.34	0.32	26.98	109	0.89
256	9.84	34.52	0.56							
305	8.94	34.42	0.55							
411	7.43	34.33	0.52							
514	6.51	34.34	0.30							

ORCA; January 7, 1957; 2207 GCT; 26°19'N, 113°48.5'W; sounding, 304 fm; wind, 310°, force 1; weather, cloudy; sea, slight; wire angle, 00°.

130.35

0	20.05	34.50	5.18	0	20.05	34.50	5.18	24.39	355	0.00
10	19.89	34.50	5.27	10	19.89	34.50	5.27	24.43	351	0.04
31	19.86	34.53	5.17	20	19.86	34.51	5.22	24.44	350	0.07
47	19.20	34.45	4.62	30	19.85	34.53	5.18	24.46	348	0.10
57	16.14	33.93	4.22	50	18.20	34.28	4.39	24.69	326	0.17
72	13.74	33.82	3.62	75	13.48	33.83	3.42	25.41	258	0.25
92	12.80	33.99	2.56	100	12.74	34.06	2.30	25.74	226	0.31
113	12.66	34.26	1.31	150	11.64	34.51	0.72	26.29	174	0.41
127	12.72	34.43	0.87	200	10.05	34.37	1.20	26.47	157	0.49
152	11.56	34.51	0.71	250	9.48	34.48	0.68	26.66	139	0.57
181	10.31	34.36	1.25	300	8.92	34.49	0.56	26.75	130	0.64
211	9.96	34.38	1.11	400	7.81	34.44	0.42	26.88	118	0.77
231	9.74	34.47	0.78							
256	9.40	34.48	0.65							
307	8.85	34.49	0.54							
357	8.18	34.45	0.44							
413	7.69	34.43	0.40							

ORCA; January 8, 1957; 0106 GCT; 26°09'N, 114°06.5'W; sounding, 1065 fm; wind, 320°, force 1; weather, cloudy; sea, moderate; wire angle, 00°.

130.40

0	19.94	34.58	5.31	0	19.94	34.58	5.31	24.47	347	0.00
10	19.78	34.55	5.06	10	19.78	34.55	5.06	24.49	345	0.03
31	19.72	34.54	5.00	20	19.73	34.54	5.03	24.50	344	0.07
41	19.71	34.52	5.12	30	19.72	34.54	5.01	24.50	344	0.10
52	17.92	34.25	4.60	50	18.43	34.32	4.74	24.67	328	0.17
62	15.08	33.86	4.26	75	14.09	34.18	1.92	25.55	244	0.24
72	14.32	34.18	1.99	100	13.11	34.22	1.60	25.78	222	0.30
87	13.34	34.18	1.84	150	11.68	34.50	0.94	26.28	175	0.40
102	13.08	34.22	1.55	200	10.87	34.56	0.72	26.48	156	0.48
117	12.70	34.40	1.28	250	10.00	34.53	0.72	26.61	144	0.56
141	11.99	34.51	0.92	300	8.70	34.39	1.04	26.71	134	0.63
172	10.94	34.47	0.99	400	7.61	34.44	0.47	26.90	116	0.76
207	10.85	34.57	0.64	500	6.74	34.44	0.37	27.04	103	0.88
256	9.86	34.52	0.74							
306	8.58	34.38	1.05							
412	7.53	34.44	0.43							
515	6.60	34.44	0.34							

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OBSERVED				INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta_T$	$\Delta D$
m	°C	‰	ml/L	m	°C	‰	ml/L	g/L	$10^{-5} \frac{3}{\text{cm}^3/\text{g}}$	dyn. m

130.50 ORCA: January 8, 1957; 0426 GCT; 25°49'N, 114°45'W; sounding, 1000 fm; wind, 320°, force 2; weather, sky obscured; sea, slight; wire angle, 07°.

3	20.04	34.14	5.36	0	(20.04)	(34.14)	(5.36)	(24.12)	(381)	(0.00)
13	20.04	34.16	5.18	10	20.04	34.15	5.18	24.12	380	0.04
34	18.82	34.10	5.35	20	19.91	34.16	5.18	24.17	376	0.08
49	17.68	33.89	5.36	30	18.94	34.11	5.35	24.38	356	0.11
59	16.08	33.77	5.63	50	17.40	33.86	5.40	24.57	338	0.18
72	13.71	33.58	5.21	75	13.34	33.56	5.18	25.24	274	0.26
94	11.42	33.49	4.92	100	11.47	33.60	4.70	25.62	238	0.32
113	10.60	33.73	3.65	150	10.24	34.04	2.35	26.18	184	0.43
128	10.18	33.80	3.42	200	9.55	34.26	1.70	26.47	157	0.52
152	10.25	34.05	2.31	250	9.63	34.46	0.87	26.61	144	0.59
183	9.68	34.16	2.18	300	9.32	34.52	0.47	26.71	134	0.66
211	9.52	34.27	1.54	400	8.14	34.43	0.34	26.83	123	0.80
231	9.50	34.33	1.26							
256	9.66	34.47	0.82							
305	9.27	34.52	0.43							
355	8.65	34.47	0.34							
410	8.06	34.43	0.34							

130.60 ORCA: January 8, 1957; 1125 GCT; 25°29.5'N, 115°23'W; sounding, 1000 fm; wind, 320°, force 3; weather, sky obscured; sea, moderate; wire angle, 07°.

0	20.67	34.29	5.33	0	20.67	34.29	5.33	24.06	386	0.00
10	20.78	34.29	5.34	10	20.78	34.29	5.34	24.04	388	0.04
31	20.80	34.31	5.21	20	20.79	34.30	5.32	24.04	388	0.08
41	20.80	34.29	5.30	30	20.80	34.30	5.21	24.04	388	0.12
51	20.76	34.28	5.37	50	20.78	34.28	5.34	24.03	389	0.19
62	18.22	33.86	5.92	75	16.20	33.68	6.19	24.70	325	0.28
72	16.55	33.69	6.24	100	13.52	33.62	5.40	25.23	275	0.36
87	14.58	33.64	5.73	150	10.68	33.94	3.12	26.03	199	0.48
103	13.26	33.61	5.29	200	9.68	34.22	1.95	26.42	162	0.57
116	12.16	33.60 <sup>a)</sup>	4.41	250	9.08	34.31	1.35	26.58	146	0.65
140	11.03	33.87 <sup>a)</sup>	3.34	300	8.67	34.38	0.92	26.70	135	0.72
170	10.10	34.04	2.79	400	7.62	34.42	0.49	26.89	117	0.85
203	9.63	34.23	1.85							
254	9.06	34.32	1.34							
302	8.66	34.38	0.91							
408	7.54	34.42	0.47							

133.30 ORCA: January 7, 1957; 1050 GCT; 25°54.5'N, 113°07.5'W; sounding, 60 fm;<sup>b)</sup> wind, 320°, force 1; weather, partly cloudy; sea, slight; wire angle, 00°.

0	19.77	34.14	5.04	0	19.77	34.14	5.04	24.19	374	0.00
11	19.77	34.45r	5.07	10	19.77	34.14	5.07	24.19	374	0.04
32	19.80	34.15	5.19	20	19.79	34.14	5.15	24.19	374	0.07
52	16.56	33.78	4.94	30	19.80	34.14	5.18	24.19	374	0.11
78	14.94	34.00	3.08	50	16.72	33.79	4.99	24.66	329	0.18
104	13.46	34.13	1.94	75	15.18	33.97	3.38	25.15	282	0.26
				100	13.72	34.11	2.11	25.58	241	0.33

a) Loose bottle cap; value falls on property curve.

b) Fathometer reading questionable.

OBSERVED				INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta_T$	$\Delta D$
m	°C	‰	ml/L	m	°C	‰	ml/L	g/L	$10^5 \text{ cm}^3/\text{g}$	dyn.m

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ORCA; January 7, 1957; 0400 GCT; 25°34.5'N, 133°45.5'W; sounding, 1000 fm; wind, 320°, force 2;  
weather, partly cloudy; sea, slight; wire angle, 08°.

133.40

1	20.37	34.33	5.18	0	(20.38)	(34.34)	(5.18)	(24.18)	(375)	(0.00)
11	20.38	34.34	5.53	10	20.38	34.34	5.51	24.18	375	0.04
32	19.02	34.04	5.34	20	19.24	34.08	5.37	24.27	366	0.07
47	16.76	33.72	5.88	30	19.06	34.04	5.36	24.29	364	0.11
57	14.66	33.49	5.85	50	15.88	33.61	5.90	24.73	322	0.18
72	13.62	33.53	5.66	75	13.42	33.55	5.53	25.21	277	0.25
92	12.11	33.62	4.62	100	11.62	33.62	4.26	25.62	238	0.32
108	11.18	33.64	3.95	150	9.97	34.00	2.96	26.20	183	0.43
127	10.40	33.78	3.66	200	9.57	34.20	2.05	26.42	162	0.51
151	9.94	34.00	2.85	250	9.22	34.36	1.45	26.61	144	0.59
179	9.72	34.13	2.06	300	9.12	34.47	0.62	26.70	135	0.67
209	9.52	34.23	2.05	400	7.81	34.44	0.53	26.88	118	0.80
228	9.60	34.34	1.68							
252	9.20	34.37	1.42							
303	9.09	34.48	0.61							
351	8.48	34.47	0.66							
406	7.74	34.44	0.38							

ORCA; January 6, 1957; 2130 GCT; 25°10'N, 113°05'W; sounding, 600 fm; wind, 320°, force 3;  
weather, cloudy; sea, slight; wire angle, 10°.

137.35

1	21.19	34.58	4.94	0	(21.19)	(34.57)	(4.94)	(24.15)	(378)	(0.00)
11	21.18	34.55	5.15	10	21.18	34.56	5.09	24.13	380	0.04
31	21.14	34.58	4.97	20	21.17	34.57	5.00	24.15	378	0.08
47	21.10	34.56	4.99	30	21.14	34.58	4.97	24.16	377	0.11
57	20.01	34.56	4.69	50	21.06	34.56	4.99	24.17	376	0.19
72	16.38	34.07	3.46	75	16.03	34.07	3.28	25.05	292	0.27
92	14.78	34.14	2.44	100	14.27	34.16	2.10	25.50	249	0.34
111	13.63	34.19	1.68	150	11.64	34.34	1.37	26.16	186	0.45
126	13.00	34.30	1.36	200	10.76	34.51	0.70	26.46	158	0.54
150	11.64	34.34	1.37	250	10.26	34.55	0.48	26.58	147	0.62
178	10.94	34.42	0.97	300	9.53	34.51	0.46	26.67	138	0.69
208	10.69	34.53	0.65	400	8.08	34.43	0.35	26.84	122	0.83
227	10.49	34.56	0.65							
251	10.25	34.55	0.48							
300	9.53	34.51	0.46							
349	9.00	34.50	0.27							
405	7.99	34.42	0.36							



Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	10 Meters		50 Meters	
						Dir	Force			T	S	T	S
100.60-O	19	0930	30°39.5'	118°50.0'	2000+	320°	2	partly cloudy	slight	16.52	33.70	14.94	33.70
103.30-O	18	1115	31°05.0'	116°25.0'	36	calm		clear	slight	15.36	33.53	12.11	33.42
103.35-O	18	1355	30°55.0'	116°45.0'	1000	calm		clear	slight	15.90	33.60	15.86	33.60
103.40-O	18	1734	30°45.0'	117°05.5'	1000	calm		clear	slight	15.86	33.59	13.51	33.46
107.35-O	18	0445	30°26.0'	116°25.5'	600	090°	1	clear	slight	16.13	33.55	13.32	33.39
113.30-O	14	0410	29°20.0'	115°23.0'	56	320°	6	cloudy	very rough	16.72	33.68	15.28	33.57
113.70-O	14	0155	28°02.5'	117°55.5'	2000+	320°	3	foggy	slight	17.55	33.78	16.87	33.79
117.26-O	12	1115	28°55.5'	114°41.0'	40	340°	3	clear	slight	16.73	33.64	15.17	33.65
117.35-O	12	1625	28°38.0'	115°15.5'	104	320°	2	partly cloudy	slight	16.85	33.68	16.11	33.76
117.50-O	13	0935	28°08.0'	116°15.0'	2400	calm		partly cloudy	calm	17.24	33.67	16.75	33.80
117.70-O	13	2010	27°27.0'	117°32.8'	2000+	270°	1	partly cloudy	moderate	18.27	33.81	17.38	33.69
120.25-O	12	0540	28°23.0'	114°15.0'	32	340°	3	clear	slight	17.00	33.72	16.15	33.78
120.30-O	12	0230	28°13.0'	114°34.0'	50	340°	2	partly cloudy	slight	17.14	33.77	16.26	33.78
120.35-O	11	2225	28°03.0'	114°54.0'	46	340°	2	clear	slight	17.22	-	16.26	33.78
120.40-O	11	1915	27°53.0'	115°13.0'	20	300°	1	partly cloudy	slight	17.99	34.05	-	-
120.60-O	9	1204	27°13.0'	116°30.5'	1000+	040°	2	slight rain	slight	17.49	33.72	17.07	33.72
123.37-O	9	1145	27°24.0'	114°40.0'	40	calm		clear	slight	18.66	34.36	15.75	33.80
127.34-O	9	0450	26°55.0'	114°06.0'	44	calm		sky obscured	calm	18.70	34.31	18.58	34.31
127.60-O	8	1650	26°05.0'	115°45.5'	-	320°	1	overcast	slight	18.65	-	17.46	33.89

TEMPERATURE AND SALINITY AT 10 AND 50 METERS (NET-TOW STATIONS)

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	10 Meters		50 Meters	
						Dir	Force			T	S	T	S
130.30-O	7	1930	26°29.0'	113°29.0'	44	calm		overcast	slight	20.05	34.42	14.84	33.73
133.25-O	7	1345	26°02.5'	112°51.5'	50	calm		partly cloudy	slight	20.55	34.41	17.54	33.86
133.35-O	7	0730	25°44.5'	113°27.0'	-	320°	2	clear	slight	20.69	-	19.19	34.14
137.23-O	6	1415	25°34.0'	112°18.0'	38	320°	2	cloudy	slight	20.44	34.52	17.64	34.15
137.30-O	6	1805	25°20.0'	112°45.0'	252	320°	2	partly cloudy	slight	21.51	34.60	20.99	-

TEMPERATURE AND SALINITY AT 10 AND 50 METERS (NET-TOW STATIONS)

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