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UNIVERSITY OF CALIFORNIA SCRIPPS INSTITUTION OF OCEANOGRAPHY

data report

PHYSICAL AND CHEMICAL DATA

CCOFI Cruise 5906

3-30 June 1959

SIO Reference 60-39

15 April 1960

UNIVERSITY OF CALIFORNIA
SCRIPPS INSTITUTION OF OCEANOGRAPHY

PHYSICAL AND CHEMICAL DATA

CCOFI CRUISE 5906

3-30 June 1959

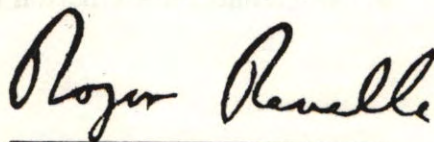
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Marine Research Committee

SIO Reference 60-39

15 April 1960

Approved for distribution:



Roger Revelle, Director

UNIVERSITY OF CALIFORNIA
SCIENCE INSTITUTION OF OCEANOGRAPHY
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FIGURES

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2. Horizontal distribution of dynamic height anomaly (0 over 500 d-bar)
3. Horizontal distribution of temperature at 10 meters
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5. Horizontal distribution of temperature at 200 meters
6. Horizontal distribution of salinity at 200 meters

INTRODUCTION

The data presented in this report were collected on the one hundred and twenty-first consecutive cruise of the California Cooperative Oceanic Fisheries Investigations program. The R/V Black Douglas of the U. S. Bureau of Commercial Fisheries, the R/V Horizon, R/V Orca and the R/V Paolina-T of Scripps Institution, participated in this cruise.

The data are tabulated at observed depths; the interpolated and computed values are tabulated at standard depths and 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

Processing of the data was carried out using the method described by Klein.^{1/} 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 ΔD . 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, messenger times and wire angles are given in the order of increasing depth. A line is left blank between the observed data of each cast.

^{1/} Klein, Hans T. A new technique for processing physical oceanographic data. MS.

FOOTNOTES

In addition to 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.

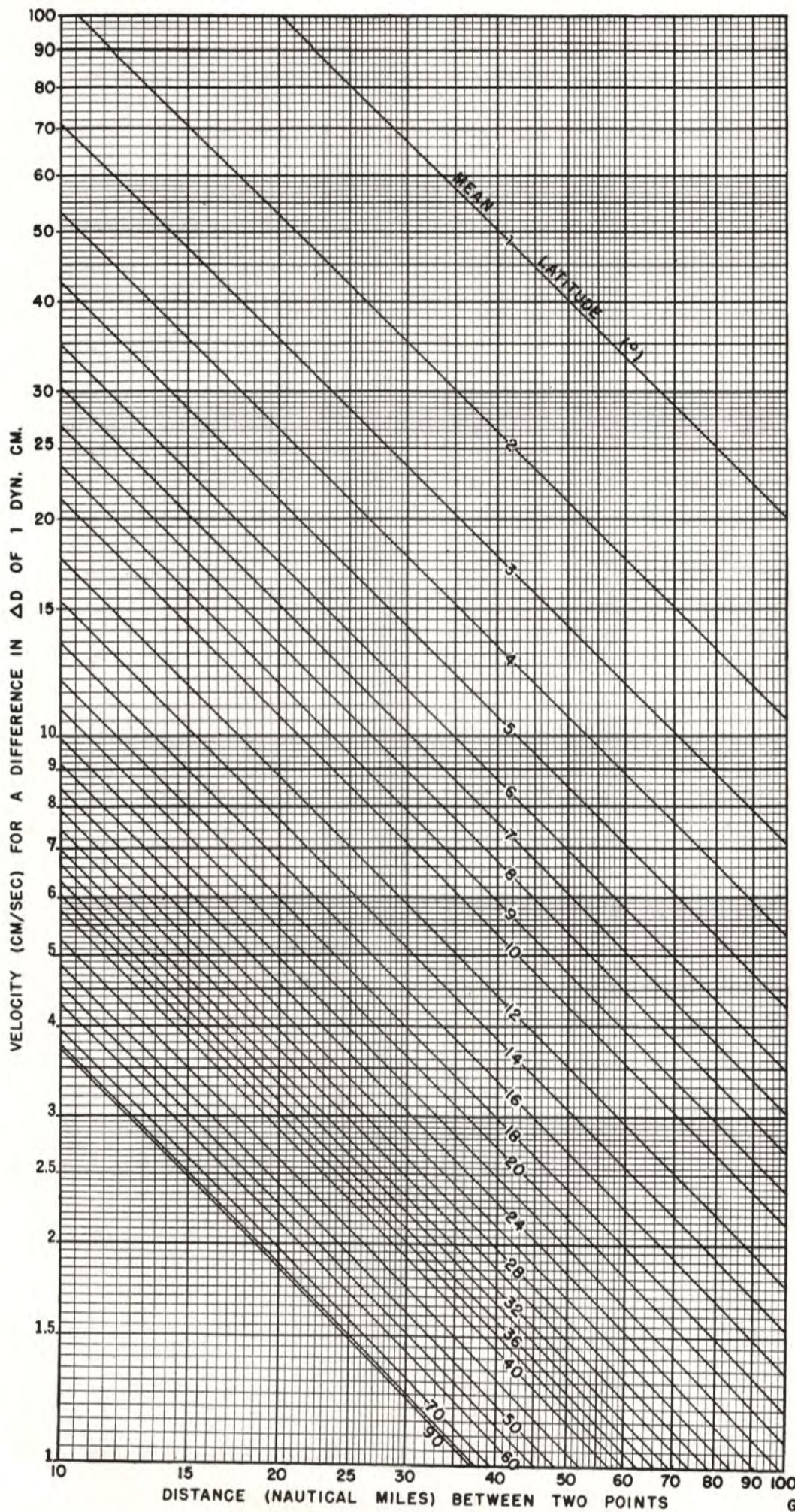
Values which are not drawn through because they seem to be in error without apparent reason are indicated by one of the following notations.

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).

FORMAT

These data are typed in the format of the University of California Press publication, Oceanic Observations of the Pacific. So that these pages can be used as copy for the 1959 volume, the first page of the Cruise 5906 data is numbered 212.



VELOCITY OF GEOSTROPHIC FLOW

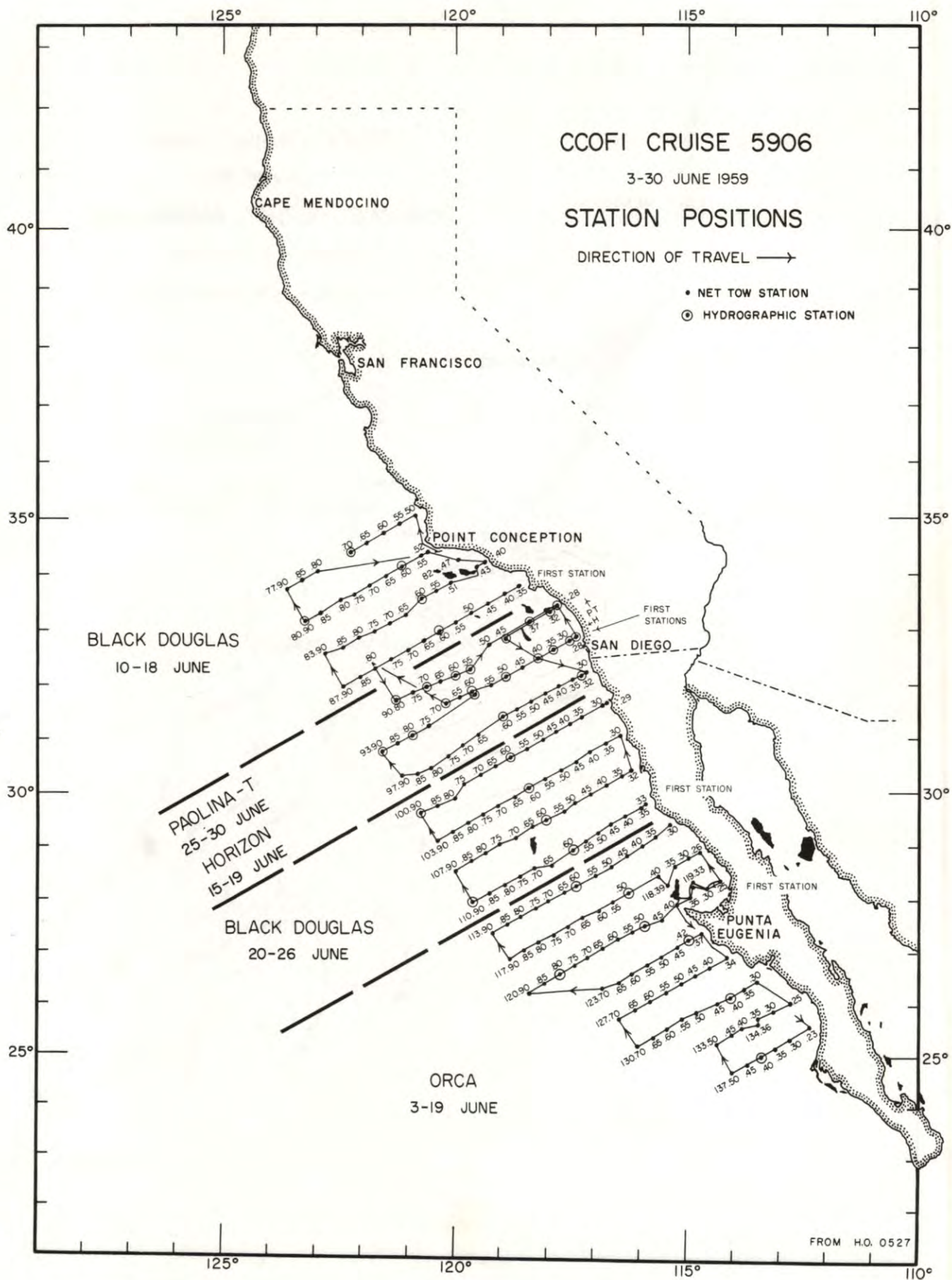


FIGURE 1

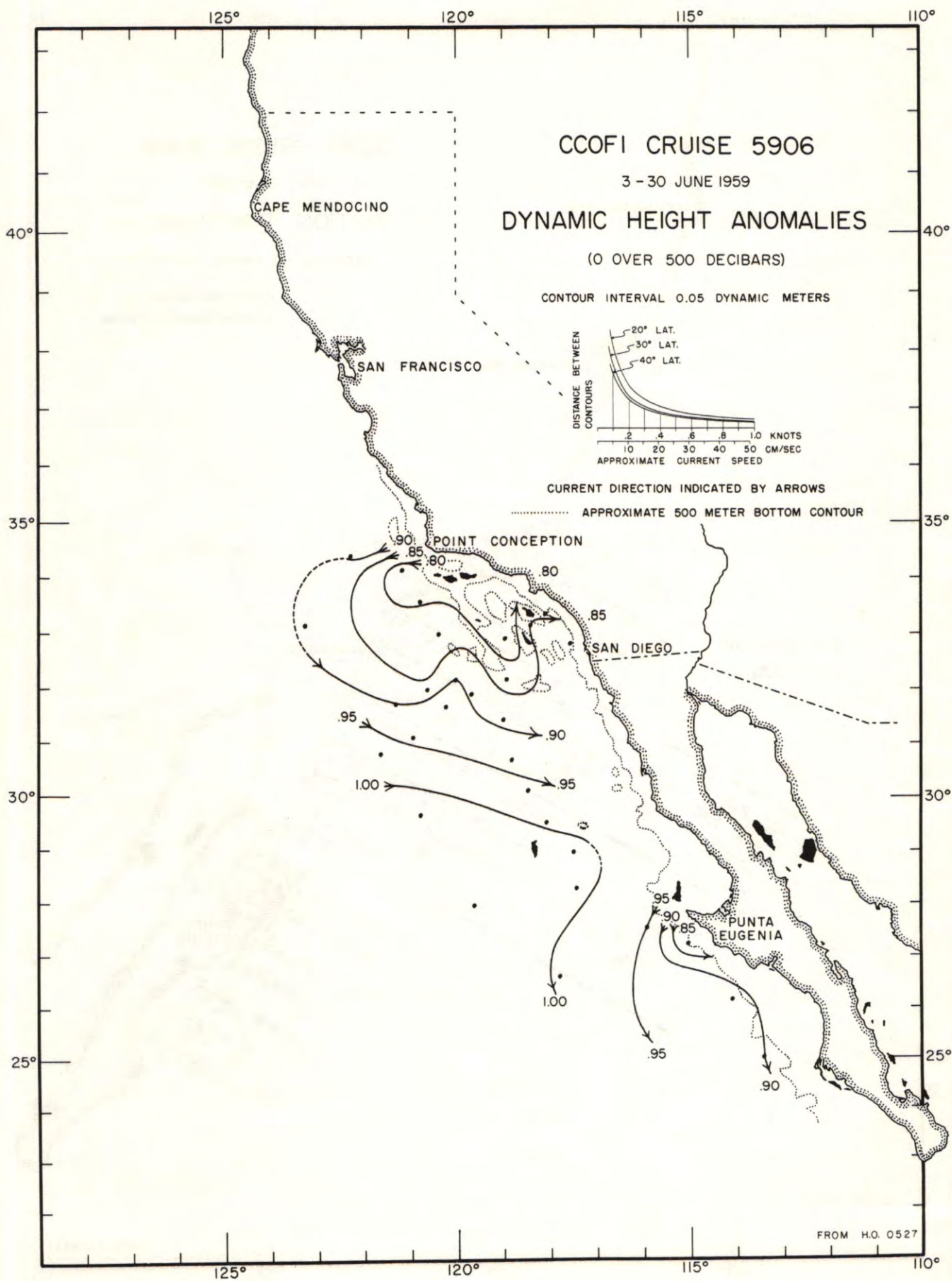


FIGURE 2

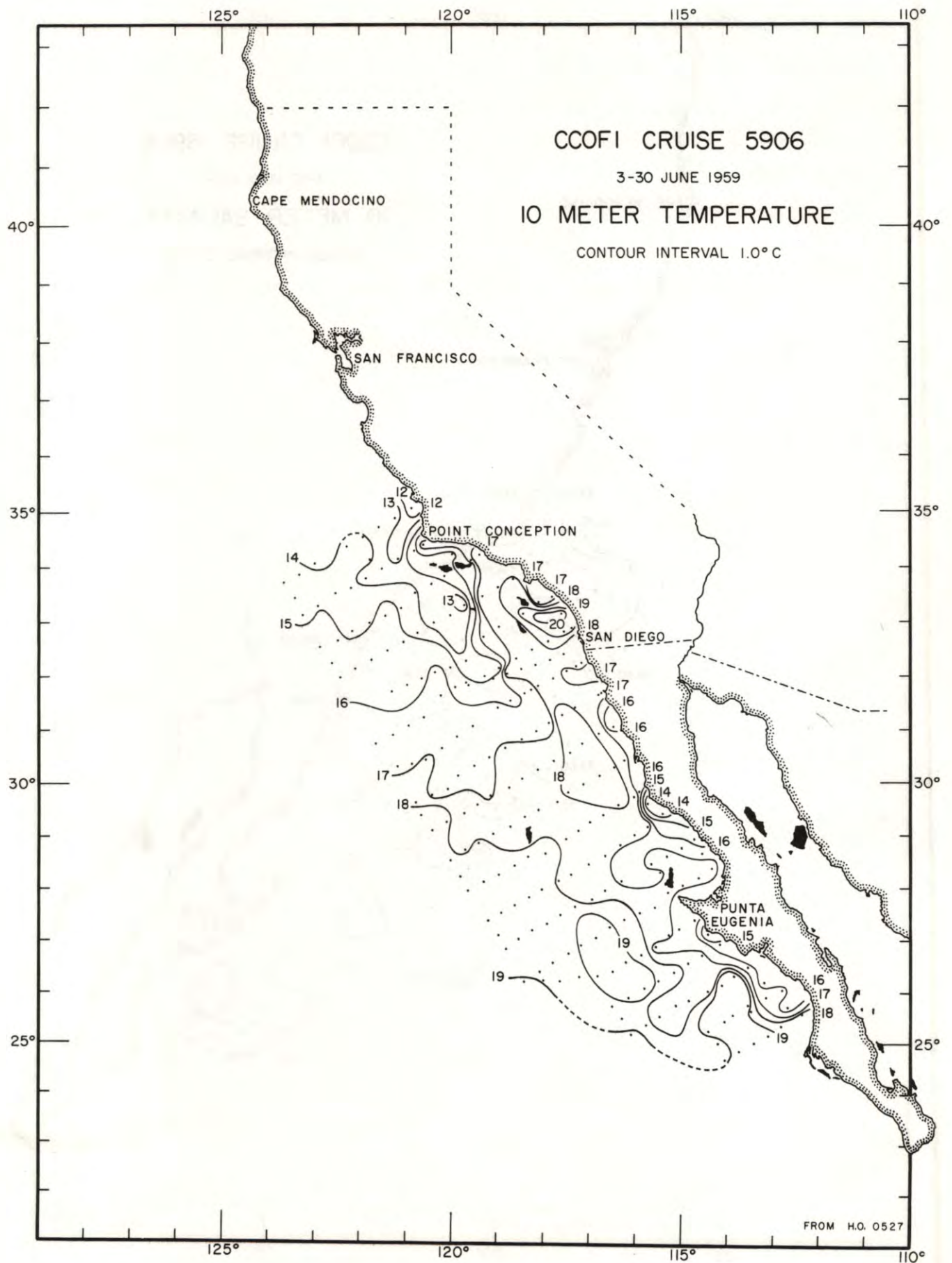


FIGURE 3

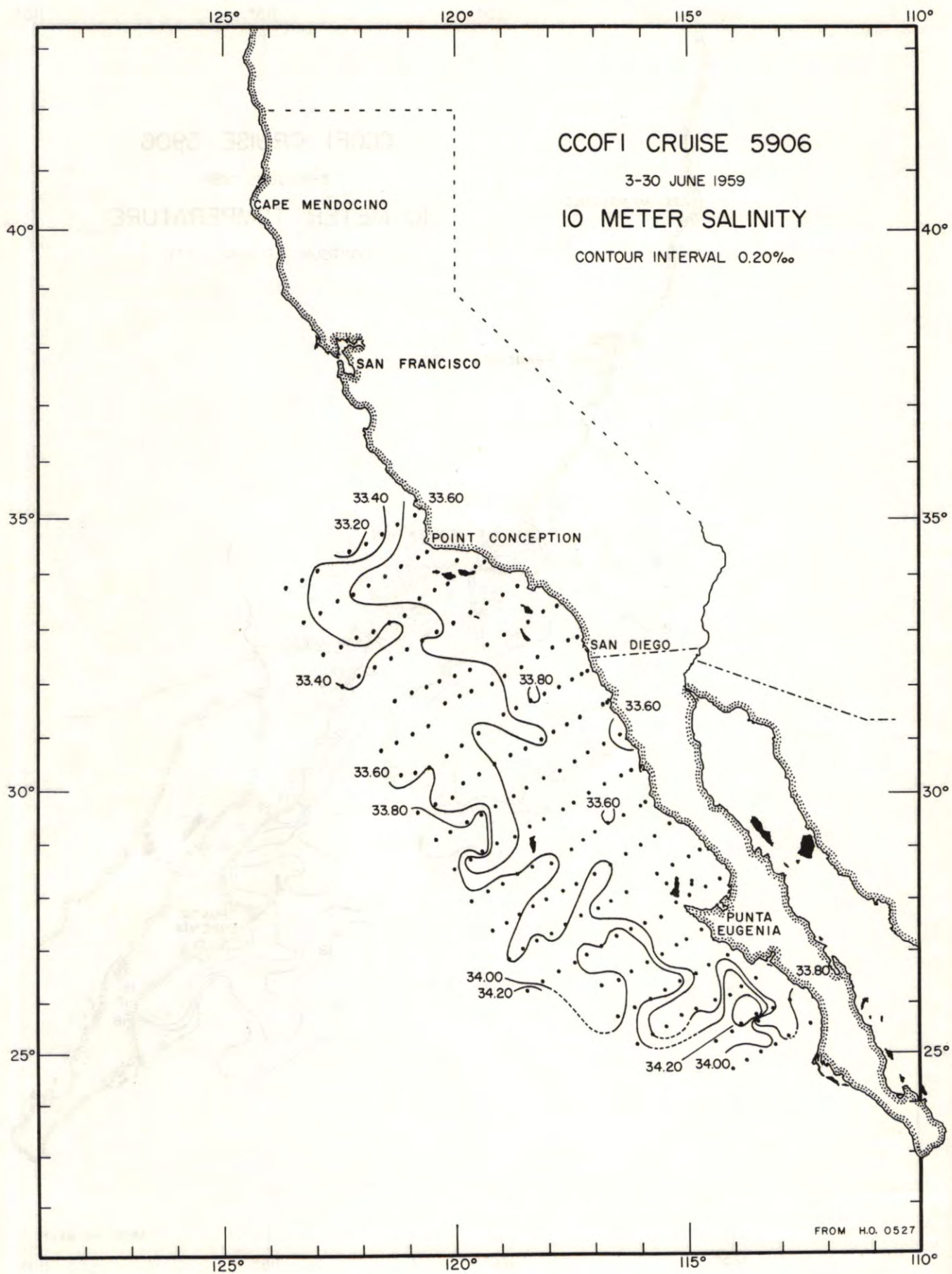


FIGURE 4

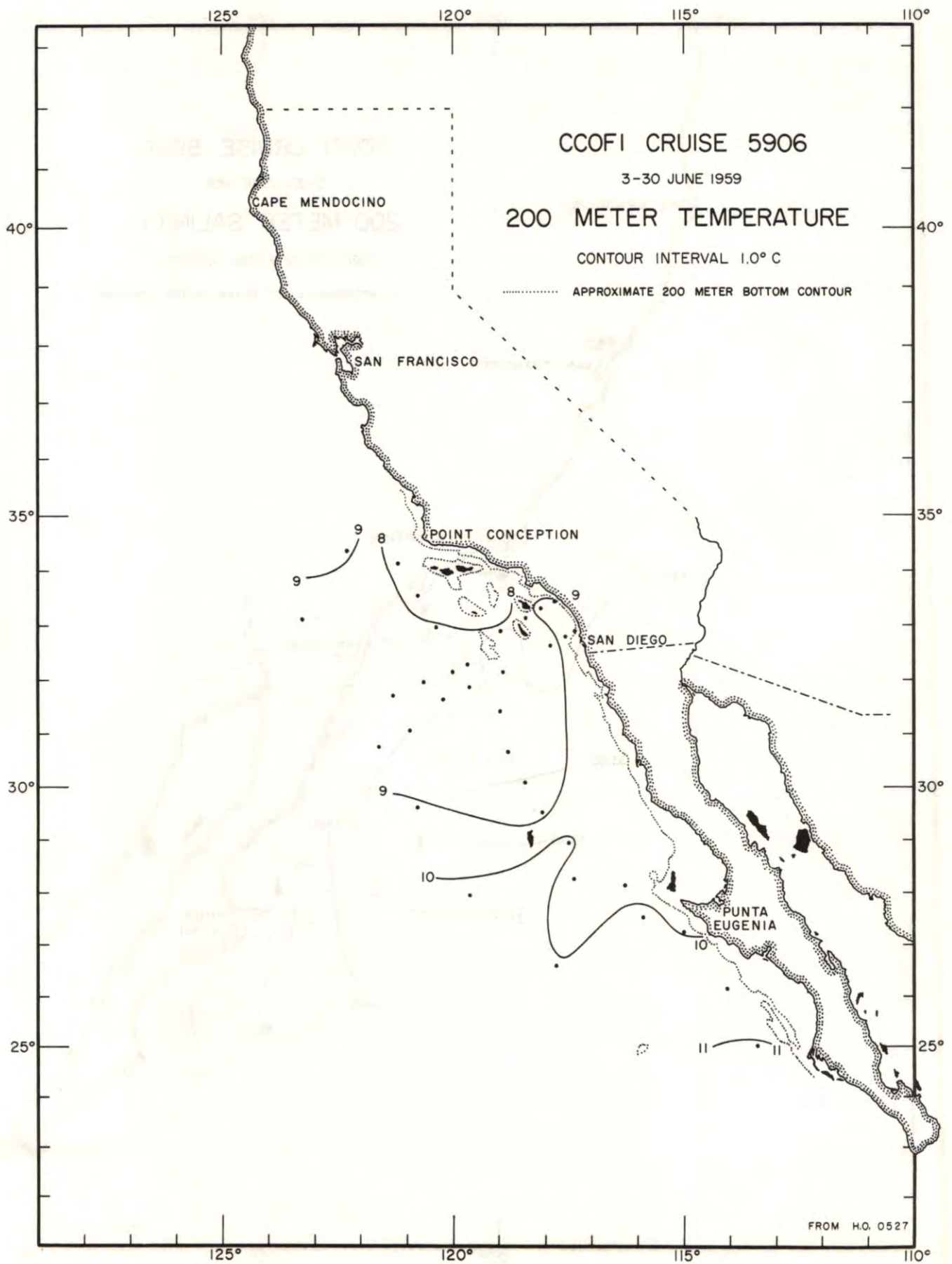


FIGURE 5

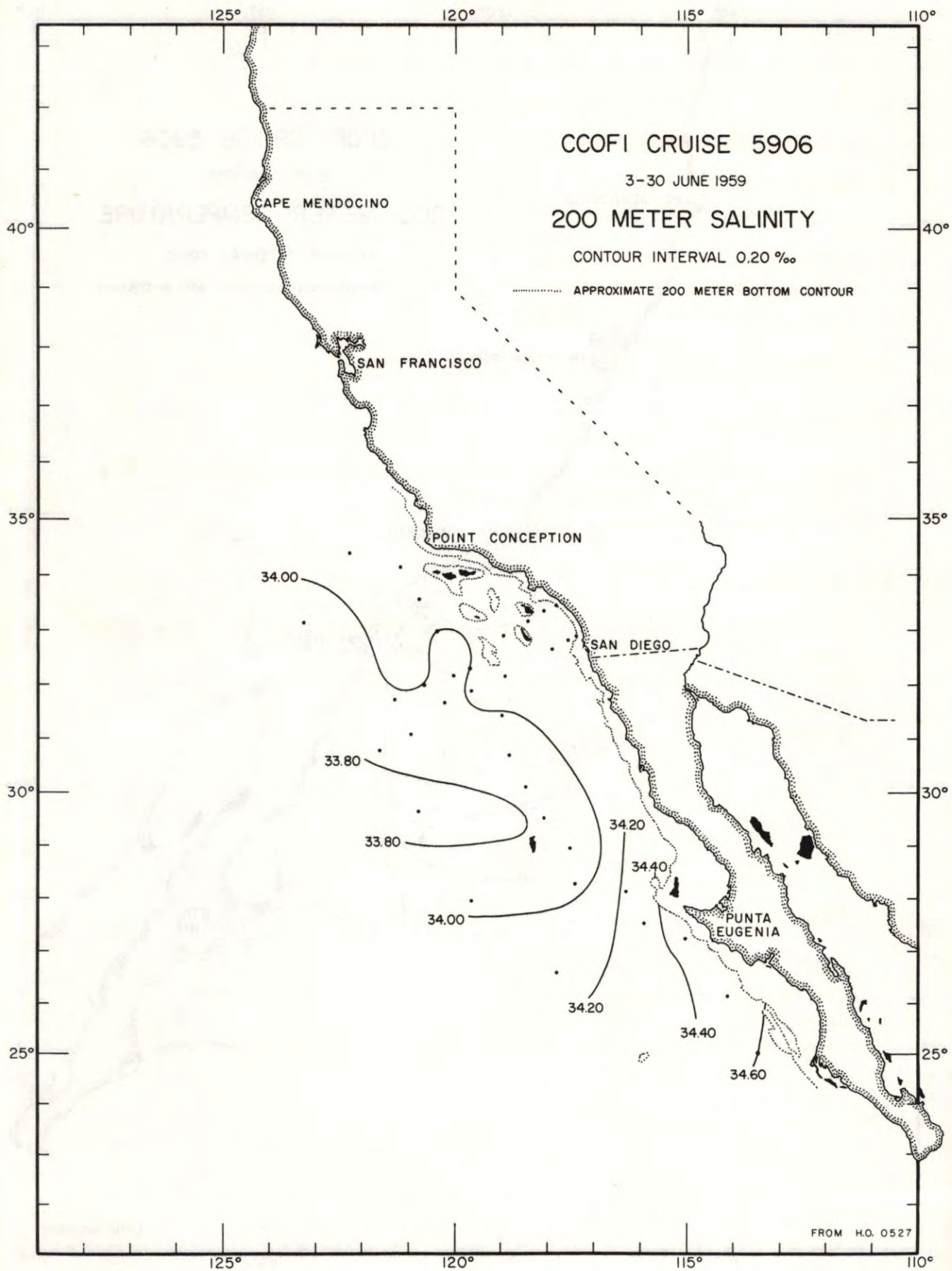


FIGURE 6

PERSONNEL

SHIPS' CAPTAINS

Forster, Charles W., R/V Black Douglas
Collinson, Barnes, R/V Horizon
Newbegin, Robert C., R/V Orca
Davis, Cleveland H., R/V Paolina-T

PERSONNEL PARTICIPATING IN THE COLLECTION OF DATA

R/V Black Douglas

Farrar, Lloyd J., Fishery Aid, Bureau of Commercial Fisheries
Hester, Arthur W., Marine Technician
*Joyal, Norman F., Marine Technician

R/V Horizon

Schwartzlose, Richard A., Assistant to the Program Director, MLR
Brown, Daniel M., Senior Marine Technician
Davoll, Peter J., Senior Marine Technician
Begnoche, Donald J., Marine Technician
Bingman, Allan R., Marine Technician

R/V Orca

Bottom, Kenneth S., Marine Technician
Old, James H., Fishery Aid, Bureau of Commercial Fisheries

R/V Paolina-T

Davoll, Peter J., Senior Marine Technician
Ballard, Robert, Summer Trainee
Bingman, Allan R., Marine Technician
Blackburn, Gene T., Fishery Aid, Bureau of Commercial Fisheries

*Participated in part of cruise.

SIO

CCOFI
5906

OBSERVED					INTERPOLATED				COMPUTED			
Z	T	S	O ₂	δT_{-5}^3	Z	T	S	O ₂	σ_t	δT_{-5}^3	ΔD	
m	°C	‰	ml/L	10 cm/g	m	°C	‰	ml/L	g/L	10 cm/g	dyn. m	

77.70 BLACK DOUGLAS; June 15, 1959; 0336 GCT; 34°24'N, 122°16'W; sounding, 2000+ fm; wind, 320°, force 7; weather, clear; sea, high; wire angle, 32°.

0	14.02	33.18	5.36	316	0	14.02	33.18	5.36	24.80	316	0.00
9	14.01	33.18	5.19	316	10	14.01	33.18	5.19	24.80	316	0.03
28	13.94	33.24	5.34	310	20	13.99	33.21	5.27	24.84	312	0.06
35	13.86	33.31	5.34	303	30	13.92	33.25	5.34	24.88	308	0.09
45	13.75	33.39	5.41	295	50	13.69	33.40	5.43	25.04	292	0.15
57	13.42	33.42	5.42	286	75	12.93	33.46	5.32	25.24	274	0.22
76	12.87	33.46	5.29	273	100	10.96	33.52	4.42	25.65	235	0.29
90	11.85	33.47	5.01	254	150	9.61	33.83	2.65	26.12	190	0.40
104	10.42	33.59	3.87	220	200	9.11	34.06	1.65	26.39	165	0.49
125	9.97	33.69	3.28	206	250	8.74	34.16	1.36	26.52	152	0.57
144	9.71	33.80	2.78	194	300	8.38	34.21	1.16	26.62	143	0.64
171	9.18	34.00	1.90	170	400	7.30	34.19	0.95	26.76	130	0.78
192	9.14	34.04	1.72	167	500	(5.97)	(34.22)		(26.96)	(110)	(0.91)
224	8.94	34.12	1.49	158							
267	8.62	34.18	1.29	149							
336	8.08	34.22	1.05	138							
403	7.28	34.19	0.93	129							
463	6.42	34.20	0.56	117							

80.60 BLACK DOUGLAS; June 13, 1959; 1037 GCT; 34°09'N, 121°09'W; sounding, 1250 fm; wind, 320°, force 6; weather, overcast; sea, high; wire angle, 20°.

1	13.00	33.77	6.24	253	0	(13.00)	(33.77)	(6.24)	(25.46)	(253)	(0.00)
8	12.99	33.73	6.24	255	10	12.97	33.73	6.20	25.44	255	0.02
30	12.08	33.66	4.85	244	20	12.80	33.71	5.82	25.46	253	0.05
37	11.17	33.61	3.99	232	30	12.08	33.66	4.85	25.55	244	0.08
51	10.44	33.67	3.67	215	50	10.49	33.67	3.70	25.85	216	0.12
64	9.96	33.68	3.31	206	75	9.72	33.74	2.98	26.04	198	0.17
85	9.54	33.82	2.77	189	100	9.09	33.84	2.75	26.22	181	0.22
102	9.08	33.84	2.73	181	150	8.49	33.98	2.16	26.42	162	0.31
118	8.94	33.89	2.46	175	200	7.88	34.07	1.73	26.58	146	0.39
143	8.60	33.96	2.20	165	250	7.83	34.16	1.23	26.67	138	0.46
167	8.20	34.01	2.02	155	300	7.59	34.22	0.95	26.74	132	0.53
201	7.88	34.07	1.71	146	400	6.33	34.19	0.62	26.90	116	0.66
226	7.92	34.14	1.41	142	500	5.98	34.34	0.32	27.06	101	0.77
267	7.74	34.18	1.08	136							
322	7.46	34.23	0.89	129							
410	6.22a)	34.19	0.59	115							
491	6.00	34.34	0.31	102							
558	5.77	34.34	0.32	99							

80.90 BLACK DOUGLAS; June 14, 1959; 0145 GCT; 33°09'N, 123°13'W; sounding, 2400 fm; wind, 320°, force 6; weather, partly cloudy; sea, very rough; wire angle, 07°.

1	14.44	33.33	5.82	313	0	(14.44)	(33.33)	(5.82)	(24.83)	(313)	(0.00)
9	14.46	33.37	5.80	311	10	14.46	33.37	5.80	24.85	311	0.03
32	14.34	33.37	5.85	308	20	14.44	33.37	5.81	24.86	310	0.06
41	14.09	33.37	5.75	304	30	14.37	33.37	5.84	24.87	309	0.09
54	13.50	33.42	5.75	288	50	13.57	33.41	5.75	25.07	290	0.15
68	12.72	33.50	5.50	267	75	12.48	33.52	5.41	25.37	262	0.22
89	11.93	33.58	5.06	247	100	10.40	33.48	4.40	25.72	228	0.28
108	9.84	33.48	4.13	220	150	9.00	33.71	4.35	26.13	189	0.39
126	9.22	33.60	4.02	201	200	8.37	33.94	3.60	26.42	162	0.48
153	8.97	33.74	4.41	186	250	7.75	34.00	2.66	26.55	149	0.56
179	8.66	33.89	4.41	171	300	7.32	34.09	1.57	26.68	137	0.63
214	8.16	33.96	3.16	158	400	6.49	34.17	0.84	26.86	120	0.76
242	7.82	33.99	2.82	152	500	5.76	34.26	0.38	27.02	105	0.88
286	7.46	34.07	1.73	140	600	(5.28)	(34.34)		(27.14)	(93)	(0.99)
343	6.93	34.13	1.28	129							
433	6.24	34.19	0.64	116							
513	5.68	34.27	0.35	103							
580	5.36	34.33	0.26	94							

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a) Mean value of 6.19 and 6.26°C.

OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δT_{3-5}	Z	T	S	O ₂	σ_t	δT_{3-5}	ΔD
m	°C	‰	ml/L	10^{-5} cm/g	m	°C	‰	ml/L	g/L	10^{-5} cm/g	dyn. m

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BLACK DOUGLAS; June 12, 1959; 1226 GCT; 33°34'N, 120°45'W; sounding, 800 fm; wind, 280°, force 2; weather, overcast; sea, moderate; wire angle, 00°.

83.60

1	14.32	33.60	5.84	290	0	(14.32)	(33.60)	(5.84)	(25.07)	(290)	(0.00)
10	14.12	33.62	5.71	286	10	14.12	33.62	5.71	25.12	286	0.03
28	13.21	33.66	5.14	265	20	13.30	33.66	5.18	25.32	267	0.06
37	12.90	33.70	5.56	256	30	13.20	33.66	5.16	25.34	264	0.08
46	11.71	33.53	4.75	247	50	11.20	33.54	4.42	25.63	237	0.13
59	10.62	33.60	4.03	223	75	10.25	33.69	3.63	25.90	211	0.19
72	10.34	33.68	3.70	212	100	9.49	33.76	3.10	26.10	192	0.24
91	9.74	33.72	3.18	200	150	8.64	33.93	2.68	26.36	167	0.33
113	9.23	33.82	3.00	185	200	7.83	34.03	1.94	26.56	148	0.41
131	9.06	33.86	2.88	179	250	7.42	34.12	1.38	26.69	136	0.48
158	8.44	33.96	2.54	163	300	6.97	34.18	1.16	26.80	126	0.55
185	8.00	34.02	1.91	152	400	6.19	34.20	0.56	26.91	115	0.68
212	7.73	34.04	1.95	146	500	5.71	34.25	0.41	27.02	105	0.79
248	7.43	34.12	1.40	137							
302	6.94	34.18	1.13	125							
369	6.32a)	34.18	0.71	117							
436	6.06	34.22	0.49	112							
508	5.66	34.25	0.39	104							

BLACK DOUGLAS; June 11, 1959; 0150 GCT; 33°00'N, 120°21.5'W; sounding, 350 fm; wind, 320°, force 4; weather, clear; sea, high; wire angle, 22°.

87.60

2	13.96	33.56	5.82	287	0	(13.96)	(33.56)	(5.82)	(25.10)	(287)	(0.00)
11	13.92	33.57	5.46	285	10	13.93	33.57	5.46	25.12	285	0.03
27	13.60	33.58	5.49	278	20	13.73	33.58	5.48	25.16	281	0.06
52	13.40	33.61	5.43	272	30	13.57	33.58	5.48	25.21	277	0.08
61	13.09	33.58	5.17	268	50	13.42	33.61	5.43	25.25	273	0.14
73	12.10	33.64	4.64	246	75	11.55	33.64	4.40	25.64	236	0.20
85	10.90	33.64	4.00	225	100	10.06	33.60	3.61	25.87	214	0.26
98	10.12	33.60	3.63	215	150	8.56	33.90	2.58	26.36	168	0.36
118	8.95	33.78	3.03	184	200	8.09	34.00	2.13	26.50	154	0.44
135	8.76	33.85	2.90	175	250	7.55	34.02	1.65	26.60	145	0.51
159	8.46	33.92	2.50	166	300	7.11	34.11	1.10	26.72	133	0.58
183	8.32	33.96	2.38	160	400	6.53	34.21	0.61	26.88	118	0.71
208	7.98	34.01	2.01	152	500	6.10	34.29	0.32	27.00	107	0.83
249	7.58	34.02	1.68	146							
295	7.15	34.10	1.16	134							
366	6.68	34.18	0.76	122							
439	6.36	34.24	0.45	113							
513	6.04	34.30	0.30	105							

HORIZON; June 19, 1959; 2040 GCT; 33°28.5'N, 117°46.5'W; sounding, 200 fm; wind, 220°, force 2; weather, clear; sea, slight; wire angle, 00°.

90.28

1	21.24	33.71	5.48	443	0	(21.24)	(33.71)	(5.48)	(23.47)	(443)	(0.00)
11	16.50	33.62	5.83	335	10	16.80	33.62	5.83	24.52	342	0.04
31	12.66	33.58	4.06	260	20	13.60	33.58	4.66	25.20	278	0.07
51	11.54	33.62	3.24	237	30	12.68	33.58	4.08	25.38	261	0.10
76	10.30	33.71	3.19	210	50	11.59	33.62	3.26	25.62	238	0.15
101	9.82	33.83	2.59	193	75	10.32	33.71	3.19	25.91	210	0.20
125	9.56	34.00	2.10	176	100	9.85	33.82	2.63	26.08	194	0.25
163	9.06	34.06	2.00	164	150	9.08	34.02	2.03	26.36	168	0.34
202	9.04	34.18	1.42	155	200	9.04	34.17	1.49	26.48	156	0.43
250	8.88	34.23	1.17	149	250	8.88	34.23	1.17	26.56	149	0.50
299	8.55	34.29	1.03	139	300	(8.54)	(34.29)	(1.03)	(26.66)	(139)	(0.58)

a) Mean value of 6.28 and 6.36°C.

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OBSERVED					INTERPOLATED				COMPUTED			
Z	T	S	O ₂	δT_{-5}^3	Z	T	S	O ₂	σ_t	δT_{-5}^3	ΔD	
m	°C	‰	ml/L	10 ⁻⁵ cm ³ /g	m	°C	‰	ml/L	g/L	10 ⁻⁵ cm ³ /g	dyn. m	

90.28 PAOLINA-T; June 25, 1959; 0705 GCT; 33°28.5'N, 117°46.5'W; sounding, 220+ fm; wind, 260°, force 3; weather, cloudy; sea, slight; wire angle, 03°.

2	22.18	33.77	5.23	463	0	(22.18)	(33.77)	(5.23)	(23.26)	(463)	(0.00)
12	17.66	33.62	5.94	362	10	19.50	33.67	5.69	23.90	402	0.04
32	14.28	33.57	5.78	292	20	15.68	33.57	5.92	23.75	321	0.08
52	12.25	33.61	4.81	251	30	14.40	33.57	5.79	25.02	295	0.11
76	10.77	33.62	3.90	224	50	12.50	33.60	4.95	25.43	256	0.16
100	10.05	33.71	3.25	206	75	10.82	33.62	3.95	25.75	225	0.22
125	9.64	33.82	2.87	191	100	10.05	33.71	3.25	25.96	206	0.28
164	9.41	33.96	2.23	177	150	9.50	33.90	2.48	26.21	182	0.38
203	9.18	34.17	1.75	158	200	9.20	34.16	1.78	26.45	159	0.46
252	8.98	34.23	1.17	150	250	8.99	34.23	1.18	26.54	151	0.54
303	8.57	34.25	0.92	143	300	8.60	34.25	0.95	26.62	143	0.62
407	7.38	34.29	0.65	123	400	7.45	34.29	0.67	26.82	124	0.76

90.32 HORIZON; June 19, 1959; 1824 GCT; 33°22'N, 118°03.5'W; sounding, 460 fm; wind, direction missing, force 1; weather, fog; sea, slight; wire angle, 00°.

1	20.86	34.33r	5.72	-	0	(20.86)	(33.71)	(5.72)	(23.57)	(433)	(0.00)
11	16.54	33.71	6.10	329	10	16.80	(33.71)	6.10	(24.59)	(336)	(0.04)
31	11.76	33.61	3.75	241	20	13.04	33.64	4.29	25.36	262	(0.07)
41	11.32	33.59	3.66	235	30	11.80	33.61	3.76	25.57	242	(0.09)
51	10.89	33.61	3.52	227	50	10.92	33.61	3.53	25.73	227	(0.14)
66	10.50	33.66	3.33	217	75	10.39	33.69	3.16	25.88	212	(0.20)
81	10.29	33.71	3.07	209	100	9.82	33.75	3.01	26.03	199	(0.25)
101	9.80	33.75	3.01	199	150	9.02	33.93	2.39	26.29	174	(0.34)
126	9.54	33.78	2.63	192	200	9.38	34.19	1.32	26.44	160	(0.43)
146	9.00	33.89	2.45	176	250	9.09	34.25	1.16	26.54	150	(0.51)
176	9.43	33.95r	1.50	-	300	8.74	34.27	1.05	26.61	144	(0.58)
205	9.36	34.20	1.29	158	400	7.42	34.27	0.74	26.81	125	(0.72)
234	9.16	34.24	1.20	152	500	6.35	34.29	0.40	26.97	109	(0.84)
273	8.94	34.26	1.10	147							
331	8.44	34.27	1.00	140							
405	7.36	34.27	0.70	124							
478	6.54	34.29	0.45	111							
557	5.90	34.29	0.29	104							

90.32 PAOLINA-T; June 25, 1959; 1041 GCT; 33°22.5'N, 117°59.5'W; sounding, 300 fm; wind, 260°, force 3; weather, overcast; sea, moderate; wire angle, 05°.

1	21.46	33.77	5.25	444	0	(21.46)	(33.77)	(5.25)	(23.45)	(444)	(0.00)
11	20.36	33.73	5.68	418	10	20.68	33.74	5.57	23.65	426	0.04
31	14.06	33.57	5.72	288	20	16.08	33.60	5.79	24.68	328	0.08
41	13.08	33.57	4.99	269	30	14.12	33.57	5.74	25.08	289	0.11
51	12.22	33.60	4.14	251	50	12.29	33.60	4.20	25.47	252	0.17
61	11.38	33.60	3.80	236	75	10.96	33.66	3.56	25.76	224	0.22
71	11.10	33.64	3.73	228	100	9.66	33.71	3.54	26.02	200	0.28
86	10.47	33.69	3.16	214	150	9.10	33.94	2.48	26.30	174	0.37
101	9.62	33.72	3.54	198	200	8.72	34.12	1.82	26.50	154	0.46
115	9.42	33.84	3.18	186	250	8.39	34.21	1.29	26.62	143	0.53
140	9.23	33.91	2.60	178	300	8.14	34.31	0.92	26.73	132	0.60
170	8.82	34.01	2.30	164	400	7.16	34.29	0.76	26.86	120	0.73
204	8.70	34.13	1.78	154	500	6.46	34.31	0.49	26.97	110	0.85
255	8.35	34.22	1.26	142							
304	8.11	34.31	0.90	132							
409	7.08	34.29	0.74	119							
508	6.40	34.31	0.44	109							

OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δT_3	Z	T	S	O ₂	σ_t	δT_3	ΔD
m	°C	‰	ml/L	$10^{-5} \text{ cm}^3/\text{g}$	m	°C	‰	ml/L	g/L	$10^{-5} \text{ cm}^3/\text{g}$	dyn. m

HORIZON; June 19, 1959; 1507 GCT; 33°10.5'N, 118°23.5'W; sounding, 630 fm; wind, 240°, force 2; weather, overcast; sea, moderate; wire angle, 04°.

90.37

2	19.92	33.71	5.51	409	0	(19.92)	(33.71)	(5.51)	(23.82)	(409)	(0.00)
13	19.62	33.68	5.04	404	10	19.74	33.68	5.24	23.86	406	0.04
33	15.38	33.58	5.68	314	20	18.30	33.64	5.26	24.18	375	0.08
43	13.93	33.52	5.49	289	30	16.00	33.59	5.62	24.69	326	0.11
58	11.88	33.56	4.12	248	50	12.80	33.54	4.72	25.32	266	0.17
73	10.78	33.60	3.93	226	75	10.72	33.61	3.91	25.76	224	0.24
98	10.0a)	33.69	3.22	207	100	10.0	33.70	3.16	25.96	206	0.29
118	9.34	33.86	2.71	183	150	8.85	33.98	2.16	26.36	167	0.38
137	9.02	33.95	2.41	172	200	8.41	34.11	1.86	26.53	151	0.46
158	8.76	34.00	2.01	164	250	7.86	34.16	1.35	26.66	139	0.54
187	8.51	34.08	1.92	154	300	7.57	34.21	1.12	26.74	131	0.61
221	8.20	34.13	1.65	146	400	6.88	34.31	0.57	26.91	115	0.74
250	7.86	34.16	1.35	139	500	6.18	34.32	0.38	27.02	105	0.85
297	7.58	34.21	1.13	132	600	5.71	34.33	0.32	27.08	99	0.96
352	7.28	34.29	0.66	122							
434	6.60	34.31	0.50	111							
517	6.08	34.33	0.35	103							
602	5.70	34.33	0.32	99							

PAOLINA-T; June 25, 1959; 1512 GCT; 33°10.5'N, 118°23.5'W; sounding, 645 fm; wind, 220°, force 2; weather, cloudy; sea, rough; wire angle, 02°.

90.37

2	20.34	33.74	5.40	418	0	(20.34)	(33.74)	(5.40)	(23.73)	(418)	(0.00)
12	19.94	33.71	5.65	409	10	19.95	33.70	5.64	23.81	410	0.04
32	15.16	33.59	6.07	309	20	18.24	33.66	5.89	24.21	372	0.08
42	13.04	33.55	4.98	270	30	15.99	33.61	6.05	24.70	325	0.12
52	11.86	33.58	4.19	246	50	11.89	33.58	4.21	25.52	247	0.17
67	10.52	33.65	3.56	218	75	10.27	33.72	3.39	25.93	208	0.23
82	10.09	33.75	3.29	203	100	9.62	33.82	2.94	26.11	191	0.28
101	9.60	33.82	2.93	191	150	9.30	34.06	1.98	26.36	167	0.37
126	9.42	33.93	2.54	180	200	9.01	34.15	1.70	26.47	157	0.45
145	9.32	34.05	2.02	169	250	8.84	34.25	1.18	26.58	147	0.53
175	9.09	34.11	1.87	161	300	8.04	34.25	1.03	26.70	136	0.60
206	9.00	34.16	1.66	156	400	7.02	34.28	0.58	26.88	118	0.74
236	9.02	34.25	1.22	150	500	6.27	34.33	0.37	27.02	105	0.85
276	8.41	34.24	1.16	141							
335	7.58	34.26	0.82	128							
411	6.92	34.29	0.55	117							
486	6.34	34.33	0.39	106							
566	5.90	34.33	0.35	101							

HORIZON; June 19, 1959; 1053 GCT; 32°55'N, 118°56.5'W; sounding, 910 fm; wind, 270°, force 3; weather, overcast; sea, moderate; wire angle, 05°.

90.45

1	17.82	33.71	5.31	359	0	(17.82)	(33.71)	(5.31)	(24.34)	(359)	(0.00)
11	17.45	33.68	5.47	352	10	17.50	33.68	5.46	24.41	353	0.04
31	11.88	33.57	4.10	247	20	13.10	33.58	4.50	25.30	269	0.07
41	11.08	33.60	3.75	231	30	12.01	33.57	4.15	25.50	249	0.09
56	10.50	33.68	3.28	215	50	10.60	33.67	3.33	25.84	217	0.14
71	9.88	33.66	3.22	207	75	9.71	33.67	3.20	25.98	203	0.19
96	9.32	33.81	2.85	186	100	9.31	33.84	2.72	26.18	184	0.24
116	9.26	33.95	2.29	176	150	8.75	34.01	1.96	26.40	164	0.33
136	8.90	33.98	2.01	168	200	8.09	34.12	1.48	26.59	145	0.41
156	8.67	34.02	1.91	161	250	8.03	34.20	1.13	26.67	138	0.48
185	8.18	34.11	1.56	147	300	7.33	34.22	0.85	26.78	128	0.55
219	8.04	34.14	1.42	144	400	6.63	34.27	0.51	26.92	115	0.67
248	8.04	34.20	1.15	139	500	6.00	34.32	0.37	27.04	103	0.78
296	7.38	34.22	0.87	128	600	5.45	34.35	0.32	27.13	94	0.89
350	6.95	34.25	0.62	120							
433	6.42	34.28	0.44	111							
516	5.90	34.33	0.36	101							
601	5.44	34.35	0.32	94							

a) Temperature inferred from pressure-thermometer and wire depth.

SIO

CCOFI
5906

OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δT_{3-5}	Z	T	S	O ₂	σ_t	δT_{3-5}	ΔD
m	°C	‰	ml/L	10 cm/g	m	°C	‰	ml/L	g/L	10 cm/g	dyn. m

90.45

PAOLINA-T; June 25, 1959; 2107 GCT; 32°55.5'N, 118°55.5'W; sounding, 900 fm; wind, 290°, force 4; weather, partly cloudy; sea, rough; wire angle, 15°.

1	19.00	33.74	5.70	384	0	(19.00)	(33.74)	(5.70)	(24.08)	(384)	(0.00)
11	18.79	33.73	5.53	380	10	18.79	33.73	5.53	24.12	380	0.04
30	12.30	33.62	4.33	251	20	15.40	33.67	4.88	24.88	308	0.07
40	11.04	33.60	3.91	230	30	12.30	33.62	4.33	25.48	251	0.10
55	10.19	33.69	3.26	209	50	10.37	33.67	3.52	25.88	214	0.15
69	9.96	33.77	3.11	199	75	9.88	33.79	3.05	26.05	197	0.20
94	9.66	33.83	2.86	190	100	9.60	33.84	2.80	26.14	189	0.25
113	9.47	33.86	2.71	185	150	8.94	34.02	2.44	26.38	165	0.34
132	9.16	33.93	2.50	175	200	8.46	34.11	1.76	26.54	151	0.42
151	8.92	34.02	2.43	165	250	8.06	34.20	1.22	26.66	140	0.49
179	8.86	34.14	1.78	155	300	7.53	34.24	1.00	26.76	129	0.56
211	8.28	34.11	1.73	149	400	6.83	34.26	0.66	26.88	118	0.69
242	8.12	34.19	1.27	141	500	6.18	34.30	0.36	27.00	107	0.80
289	7.62	34.23	1.04	130	600	(5.54)	(34.36)	(0.28)	(27.13)	(94)	(0.91)
342	7.14	34.25	0.84	123							
423	6.70	34.27	0.57	116							
507	6.12	34.30	0.36	106							
591	5.60	34.36	0.28	96							

90.55

HORIZON; June 19, 1959; 0357 GCT; 32°16.5'N, 119°39.5'W; sounding, 240 fm; wind, 350°, force 4; weather, overcast; sea, very rough; wire angle, 37°.

2a)	14.33	33.57	-	293	0	(14.33)	(33.57)		(25.04)	(293)	(0.00)
43	13.26	33.56	5.19	273	10	(14.29)	(33.57)		(25.05)	(292)	(0.03)
84	11.84	33.58	4.48	246	20	(14.00)	(33.56)		(25.10)	(287)	(0.06)
117	9.70	33.69	3.25	202	30	(13.71)	(33.56)		(25.16)	(282)	(0.09)
151	8.96	33.86	2.78	177	50	12.84	33.56	5.03	25.33	265	(0.14)
173	8.52	33.96	2.49	163	75	12.13	33.57	4.63	25.48	251	(0.21)
195	8.30	33.99	2.27	158	100	11.02	33.61	4.01	25.71	229	(0.27)
217	7.90	34.04	1.92	149	150	8.98	33.86	2.80	26.25	178	(0.37)
235	7.66	34.05	1.84	145	200	8.23	34.00	2.19	26.48	156	(0.45)
252	7.54	34.06	1.78	143	250	7.56	34.06	1.79	26.62	143	(0.53)
262	7.48	34.07	1.74	141							

90.60

HORIZON; June 18, 1959; 2336 GCT; 32°10'N, 120°00'W; sounding, 450 fm; wind, 320°, force 5; weather, overcast; sea, very rough; wire angle, 28°.

2	15.95	33.52	5.44	330	0	(15.95)	(33.52)	(5.44)	(24.65)	(330)	(0.00)
11	15.95	33.55	5.30	328	10	15.95	33.55	5.31	24.67	328	0.03
33	15.94	33.57	5.41	327	20	15.95	33.56	5.35	24.68	327	0.06
42	15.72	33.58	5.27	321	30	15.94	33.57	5.40	24.68	327	0.10
54	14.69	33.53	5.62	304	50	15.12	33.55	5.48	24.85	311	0.16
68	13.72	33.48	5.26	288	75	13.00	33.46	4.99	25.22	276	0.24
90	11.29	33.44	4.37	246	100	11.06	33.52	4.05	25.63	236	0.30
107	10.90	33.59	3.78	229	150	9.36	33.83	2.76	26.17	186	0.41
124	10.12	33.69	3.19	209	200	8.75	33.97	2.08	26.37	166	0.50
149	9.38	33.82	2.78	187	250	8.18	34.11	1.66	26.57	148	0.58
175	9.00	33.95	2.45	171	300	7.61	34.16	1.31	26.70	136	0.65
209	8.66	33.98	1.98	164	400	6.59	34.19	0.75	26.86	120	0.78
235	8.38	34.09	1.73	152	500	5.92	34.30	0.50	27.03	104	0.90
278	7.79	34.13	1.43	140	600	(5.37)	(34.26)		(27.07)	(100)	(1.01)
336	7.38	34.22	1.03	128							
426	6.34	34.19	0.65	117							
509	5.88	34.30	0.49	103							
581	5.48	34.27	0.30	101							

a) Spacing of Nansen bottles irregular owing to an error in list of depths furnished winch operator.

OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δT_{-5}^3	Z	T	S	O ₂	σ_t	δT_{-5}^3	ΔD
m	°C	‰	ml/L	10 cm/g	m	°C	‰	ml/L	g/L	10 cm/g	dyn. m

S10
CCOF1
5906

HORIZON; June 18, 1959; 1757 GCT; 31°58'N, 120°37'W; sounding, 2100 fm; wind, 320°, force 5; weather, overcast; sea, very rough; wire angle, 25°.

90.70

1	15.73	33.58	5.36	322	0	(15.73)	(33.58)	(5.36)	(24.74)	(322)	(0.00)
9	15.75	33.56	5.33	324	10	15.75	33.56	5.33	24.72	324	0.03
33	15.74	33.57	5.33	323	20	15.74	33.57	5.33	24.72	323	0.06
58	13.30	33.55	4.99	275	30	15.74	33.57	5.33	24.72	323	0.10
69	12.28	33.52	4.63	258	50	14.40	33.56	5.14	25.02	295	0.16
87	10.96	33.57	4.05	231	75	11.83	33.54	4.42	25.50	249	0.23
101	10.11	33.57	3.89	217	100	10.17	33.57	3.91	25.83	218	0.29
113	9.78	33.66	3.42	205	150	8.86	33.87	2.73	26.27	176	0.39
140	9.07	33.82	2.89	182	200	8.03	34.00	2.02	26.50	154	0.47
157	8.72	33.90	2.58	171	250	7.47	34.13	1.54	26.68	137	0.54
182	8.32	33.96	2.23	161	300	7.11	34.14	1.16	26.75	130	0.61
213	7.84	34.03	1.86	149	400	6.31	34.17	0.66	26.88	118	0.74
239	7.56	34.11	1.61	139	500	5.83	34.31	0.37	27.05	102	0.86
283	7.26	34.14	1.28	133	600	(5.51)	(34.31)		(27.09)	(98)	(0.96)
341	6.72	34.14	0.93	125							
432	6.12	34.20	0.50	114							
516	5.78	34.31	0.35	101							
589	5.54	34.31	0.30	98							

HORIZON; June 18, 1959; 1206 GCT; 31°44'N, 121°19'W; sounding, 2000 fm; wind, 330°, force 4; weather, clear; sea, very rough; wire angle, 26°.

90.80

2	15.28	33.51	5.67	317	0	(15.28)	(33.51)	(5.67)	(24.78)	(317)	(0.00)
11	15.29	33.49	5.59	319	10	15.28	33.49	5.60	24.77	319	0.03
29	15.28	33.51	5.56	317	20	15.28	33.50	5.57	24.78	318	0.06
38	15.32	33.48	5.66	320	30	15.28	33.51	5.56	24.78	317	0.10
52	14.75	33.43	5.67	312	50	15.00	33.47	5.66	24.82	315	0.16
65	14.09	33.42	5.89	300	75	13.71	33.45	5.70	25.07	290	0.23
87	13.08	33.50	5.36	274	100	12.22	33.53	5.01	25.42	256	0.30
105	11.80	33.54	4.86	248	150	9.07	33.72	3.87	26.12	190	0.42
122	10.44	33.58	4.37	222	200	8.23	33.98	2.80	26.46	158	0.50
139	9.36	33.58	4.20	204	250	7.49	34.05	2.12	26.63	142	0.58
163	8.74	33.81	3.50	178	300	7.15	34.14	1.47	26.74	132	0.65
193	8.34	33.95	2.92	162	400	6.40	34.19	0.74	26.89	118	0.78
219	7.90	34.04	2.44	149	500	5.64	34.25	0.54	27.03	104	0.90
262	7.38	34.06	2.00	140							
311	7.09	34.15	1.34	130							
389	6.48	34.19	0.78	119							
469	5.84	34.22	0.59	109							
552	5.36	34.34	0.48	94							

BLACK DOUGLAS; June 10, 1959; 0355 GCT; ^{a)} 32°55.5'N, 117°23'W; sounding, 325 fm; wind, 320°, force 2; weather, partly cloudy; sea, moderate; wire angle, 00°.

93.28

386	7.42	34.27	0.55	125
395	7.36	34.25	0.63	126
403	7.24	34.26	0.38	124
413	7.14	34.27	0.25	121
422	7.09	34.24	0.43	123
431	6.98	34.25	0.48	121
440	6.95	34.25	0.46	120
449	6.82	34.25	0.39	118
458	6.78	34.24	0.52	119
466	6.67	34.27	0.36	115
475	6.47	34.29	0.23	111
485	6.40	34.29	0.24	110
494	6.28	34.33	0.24	106
502	6.28	34.29	0.29	109
511	6.20	34.31	0.34	106
520	6.12	34.30	0.50	106
529	6.10	34.31	0.35	105
538	6.10	34.30	0.29	106

a) Special cast.

SIO

CCOFI
5906

OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δT_{-5}^3	Z	T	S	O ₂	σ_t	δT_{-5}^3	ΔD
m	°C	‰	ml/L	10 cm/g	m	°C	‰	ml/L	g/L	10 cm/g	dyn. m

93.28 HORIZON; June 15, 1959; 2255 GCT; 32°54.5'N, 117°22'W; sounding, 250 fm; wind, 270°, force 3; weather, partly cloudy; sea, moderate; wire angle, 17°.

1	20.90	33.73	5.53	432	0	(20.90)	(33.73)	(5.53)	(23.58)	(432)	(0.00)
11	19.07	33.68	3.08u	390	10	19.20	33.68		23.99	393	0.04
30	13.40	33.53	4.43	278	20	16.70	33.61		24.54	341	0.08
49	11.54	33.55	3.92	243	30	13.40	33.53	4.43	25.20	278	0.11
73	10.62	33.62	3.54	222	50	11.53	33.55	3.91	25.57	242	0.16
97	9.85	33.70	3.33	203	75	10.58	33.62	3.54	25.80	221	0.22
121	9.53	33.79	2.79	191	100	9.79	33.71	3.27	26.01	201	0.27
158	9.53	34.02	2.00	174	150	9.30	33.94	2.16	26.26	177	0.37
196	9.50	34.15	1.45	164	200	9.45	34.16	1.43	26.41	163	0.45
244	8.60	34.18	1.36	148	250	8.59	34.19	1.32	26.58	147	0.53
292	8.58	34.29	0.95	139	300	8.52	34.29	0.90	26.67	138	0.61
394	7.12	34.26	0.63	122	400	(7.03)	(34.26)	(0.63)	(26.85)	(121)	(0.74)

93.28 PAOLINA-T; June 24, 1959; 2302 GCT;^{a)} 32°54.5'N, 117°21.5'W; sounding, 320 fm; wind, 200°, force 3; weather, partly cloudy; sea, slight; wire angle, 07°.

325	8.33	34.26	1.19	139
335	8.12	34.27	0.71	135
345	8.04	34.27	0.46	134
355	7.91	34.27	0.48	132
365	7.71	34.27	0.37	129
375	7.58	34.28	0.42	126
384	7.42b)	34.28	0.65	125
394	7.18	34.27	0.50	122
404	7.15	34.29	0.49	120
414	7.06	34.29	0.54	119
424	7.02	34.25	0.54	121
434	6.96	34.27	0.55	119
444	6.96	34.27	0.50	119
454	6.97	34.26	0.53	120
464	6.93	34.25	0.53	120
474	6.62	34.28	0.42	114
484	6.44	34.27	0.40	112
495	6.42	34.27	0.39	112

93.28 PAOLINA-T; June 25, 1959; 0046 GCT; 32°54.5'N, 117°21.5'W; sounding, 241^{c)} fm; wind, 220°, force 3; weather, cloudy; sea, slight; wire angle, 07°.

1	22.38	33.79	5.28	467	0	(22.38)	(33.79)	(5.28)	(23.22)	(467)	(0.00)
11	17.55	33.51	5.66	367	10	19.80	33.63	5.49	23.79	412	0.04
31	13.1	33.62	5.48	266	20	15.0	33.53	5.60	24.86	310	0.08
56	11.32	33.56	3.59	238	30	13.1	33.62	5.48	25.32	266	0.11
80	10.40	33.68	3.37	214	50	11.6	33.56	3.68	25.58	242	0.16
104	10.08	33.84	2.97	196	75	10.45	33.63	3.42	25.82	218	0.22
139	9.72	33.84	2.83	191	100	10.17	33.83	2.99	26.04	198	0.27
177	9.53	33.95	2.25	180	150	9.67	33.85	2.73	26.14	188	0.37
226	9.28	34.23	1.30	155	200	9.42	34.09	1.76	26.36	167	0.46
276	9.00	34.33	0.96	143	250	9.16	34.30	1.07	26.57	148	0.54
374	7.80	34.27	0.80	130	300	8.75	34.32	0.92	26.65	140	0.61
412c)	7.10	34.25	0.38	122							

a) Special cast.

b) Alternate value, 7.49°C.

c) Ship apparently drifted into shallower water while occupying this station so that last Nansen bottle of this cast rested on the bottom.

OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δT_3	Z	T	S	O ₂	σ_t	δT_3	ΔD
m	°C	‰	ml/L	10 ⁻⁵ cm/g	m	°C	‰	ml/L	g/L	10 ⁻⁵ cm/g	dyn. m

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HORIZON; June 16, 1959; 0052 GCT; 32°50'N, 117°31.5'W; sounding, 465 fm; wind, 300°, force 3; weather, partly cloudy; sea, moderate; wire angle, 20°.

93.30

3	20.31	33.74	5.80	417	0	(20.31)	(33.74)	(5.80)	(23.74)	(417)	(0.00)
12	19.08	33.68	5.89	391	10	19.40	33.69	5.88	23.94	398	0.04
31	14.98	33.57	5.90	307	20	17.35	33.63	5.90	24.40	354	0.08
40	13.36	33.54	5.16	276	30	15.20	33.58	5.90	24.85	311	0.11
50	12.36	33.57	4.56	255	50	12.36	33.57	4.56	25.44	255	0.17
65	11.60	33.57	4.17	242	75	11.09	33.61	3.78	25.70	231	0.23
79	10.84	33.62	3.66	226	100	10.08	33.67	3.46	25.92	209	0.28
97	10.14	33.66	3.51	211	150	9.48	33.96	2.30	26.25	178	0.38
120	9.74	33.82	2.91	192	200	9.04	34.11	1.89	26.43	161	0.47
137	9.47	33.87	2.62	185	250	9.10	34.27	1.17	26.55	150	0.55
164	9.49	34.05	1.98	172	300	8.50	34.25	1.08	26.64	141	0.62
192	9.02	34.07	1.97	163	400	7.17	34.25	0.64	26.82	124	0.76
219	9.15	34.20	1.48	155	500	6.29	34.29	0.47	26.98	109	0.88
255	9.06	34.27	1.12	149							
310	8.36	34.25	1.06	140							
379	7.42	34.24	0.73	128							
449	6.66	34.27	0.45	115							
528	6.08	34.30	0.49	106							

HORIZON; June 16, 1959; 0548 GCT; 32°40'N, 117°52'W; sounding, 190 fm; wind, 290°, force 3; weather, cloudy; sea, moderate; wire angle, 08°.

93.35

1	19.60	33.71	5.51	401	0	(19.60)	(33.71)	(5.51)	(23.90)	(401)	(0.00)
12	18.28	33.68	5.55	371	10	18.48	33.68	5.55	24.17	376	0.04
33	14.19	33.56	5.67	291	20	16.90	33.63	5.59	24.51	343	0.07
52	12.42	33.56	4.67	258	30	14.92	33.57	5.66	24.91	305	0.11
76	10.47	33.64	3.93	218	50	12.58	33.56	4.73	25.38	260	0.16
100	9.73	33.78	3.12	195	75	10.51	33.63	3.96	25.82	219	0.22
125	9.35	33.86	3.20	184	100	9.73	33.78	3.12	26.07	195	0.28
165	9.25	34.06	1.94	167	150	9.30	33.99	2.38	26.30	173	0.37
204	8.82	34.14	1.64	155	200	8.89	34.13	1.66	26.48	156	0.45
252	7.98	34.16	1.41	141	250	8.01	34.16	1.44	26.63	142	0.53
303	7.78	34.22	1.02	134	300	7.79	34.22	1.07	26.72	134	0.60

HORIZON; June 16, 1959; 0745 GCT; 32°31.5'N, 118°12.5'W; sounding, 810 fm; wind, 320°, force 4; weather, partly cloudy; sea, rough; wire angle, 18°.

93.40

1	17.42	33.68	4.75	352	0	(17.42)	(33.68)	(4.75)	(24.42)	(352)	(0.00)
10	17.35	33.66	5.38	352	10	17.35	33.66	5.38	24.42	352	0.04
34	12.56	33.56	4.78	260	20	15.15	33.60	5.21	24.88	308	0.07
44	11.54	33.56	3.92	242	30	13.20	33.56	4.96	25.26	272	0.10
57	10.54	33.61	3.52	221	50	11.09	33.57	3.75	25.67	233	0.15
71	10.14	33.73	3.05	206	75	10.11	33.77	2.96	26.00	202	0.20
94	9.63	33.82	2.66	191	100	9.59	33.86	2.57	26.15	187	0.25
112	9.50	33.93	2.35	181	150	8.83	34.02	2.00	26.40	164	0.34
131	9.14	33.97	2.15	172							
158	8.74	34.04	1.93	161							
187	8.48	34.12	1.65	151							

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OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δT_3	Z	T	S	O ₂	σ_t	δT_3	ΔD
m	°C	‰	ml/L	10 ⁻⁵ cm/g	m	°C	‰	ml/L	g/L	10 ⁻⁵ cm/g	dyn. m

93.40

PAOLINA-T; June 26, 1959; 1425 GCT; 32°29.5'N, 118°12.5'W; sounding, 800 fm; wind, 320°, force 4; weather, partly cloudy; sea, very rough; wire angle, 15°.

2	18.46	33.75	5.32	371	0	(18.46)	(33.75)	(5.32)	(24.22)	(371)	(0.00)
12	18.49	33.77	5.41	370	10	18.48	33.77	5.40	24.23	370	0.04
36	11.10	33.66	3.70	227	20	14.24	33.70	4.47	25.16	282	0.07
46	10.36	33.71	3.00	210	30	11.58	33.66	3.84	25.65	235	0.10
60	9.78	33.78	3.28	196	50	10.15	33.74	3.10	25.96	205	0.14
75	9.51	33.78	2.93	192	75	9.51	33.78	2.93	26.10	192	0.19
99	9.20	33.98	2.26	172	100	9.20	33.98	2.24	26.31	172	0.24
118	9.18	34.05	1.91	167	150	8.76	34.10	1.67	26.48	156	0.32
137	9.02	34.07	1.82	163	200	8.22	34.18	1.25	26.62	143	0.40
164	8.44	34.14	1.49	150	250	7.61	34.18	1.07	26.71	134	0.46
194	8.28	34.18	1.26	144	300	7.20	34.22	0.88	26.81	125	0.53
232	7.83	34.16	1.23	139	400	6.75	34.28	0.49	26.91	116	0.66
261	7.48	34.20	0.98	131	500	6.01	34.32	0.36	27.04	103	0.77
310	7.13	34.23	0.85	124	600	5.46	34.36	0.31	27.14	93	0.87
373	6.96	34.26	0.57	119							
471	6.19	34.31	0.37	106							
561	5.66	34.35	0.34	97							
635	5.28	34.38	0.27	90							

93.50

HORIZON; June 16, 1959; 1325 GCT; 32°10'N, 118°53.5'W; sounding, 800 fm; wind, 320°, force 5; weather, cloudy; sea, very rough; wire angle, 28°.

4	14.86	33.60	5.60	303	0	14.9	(33.60)		(24.94)	(303)	(0.00)
13	14.87	33.61	5.63	301	10	14.86	33.61	5.63	24.95	301	0.03
35	13.88	33.57	-	285	20	14.87	33.62	5.62	24.96	301	0.06
45	13.44	33.58	4.82	275	30	14.70	33.60	5.57	24.98	298	0.09
57	12.44	33.56	4.46	258	50	13.09	33.57	4.65	25.29	269	0.15
70	11.62	33.57	4.31	243	75	11.28	33.58	4.10	25.64	235	0.21
91	10.31	33.62	3.47	216	100	9.99	33.64	3.36	25.92	209	0.27
108	9.70	33.67	3.24	203	150	8.41	33.92	2.60	26.39	165	0.36
124	9.06	33.75	2.95	187	200	8.24	34.03	1.85	26.50	154	0.44
149	8.42	33.92	2.60	165	250	7.59	34.14	1.22	26.68	137	0.52
175	8.27	33.94	2.30	161	300	7.09	34.22	0.88	26.82	124	0.58
209	8.20	34.07	1.68	151	400	6.60	34.29	0.51	26.94	113	0.71
270p	7.29	34.16	1.05	131	500	6.14	34.29	0.43	27.00	107	0.82
326p	6.96	34.26	0.73	120							
425p	6.48	34.29	0.45	111							
497p	6.16	34.29	0.43	107							
569p	5.83	34.33	0.40	100							

93.60

HORIZON; June 16, 1959; 1912 GCT; 31°54'N, 119°38'W; sounding, 1040 fm; wind, 320°, force 5; weather, partly cloudy; sea, very rough; wire angle, 19°.

2	15.23	33.53	5.55	315	0	(15.23)	(33.53)	(5.55)	(24.81)	(315)	(0.00)
12	15.22	33.53	5.59	315	10	15.22	33.53	5.59	24.81	315	0.03
35	15.03	33.51	5.60	312	20	15.17	33.52	5.60	24.82	314	0.06
64	14.01	33.45	5.39	296	30	15.09	33.51	5.60	24.83	313	0.09
74	12.96	33.39	5.13	280	50	14.80	33.49	5.56	24.88	308	0.16
93	11.12	33.51	4.03	238	75	12.94	33.39	5.12	25.18	279	0.23
107	10.47	33.62	3.57	219	100	10.83	33.56	3.80	25.70	230	0.29
121	9.84	33.66	3.52	206	150	9.39	33.83	2.82	26.16	186	0.40
148	9.42	33.82	2.86	188	200	8.70	34.02	2.02	26.42	162	0.49
167	9.07	33.91	2.51	176	250	8.13	34.13	1.76	26.60	145	0.57
194	8.77	34.00	2.10	164	300	7.65	34.19	1.33	26.71	134	0.64
226	8.36	34.09	1.75	151	400	6.68	34.26	0.80	26.90	116	0.77
254	8.09	34.14	1.77	144	500	5.96	34.31	0.56	27.04	103	0.88
300	7.65	34.19	1.33	134	600	5.28	34.34	0.51	27.14	93	0.99
360	6.97	34.23	0.95	122							
454	6.34	34.29	0.64	109							
542	5.62	34.33	0.51	98							
616	5.20	34.34	0.52	92							

OBSERVED					INTERPOLATED				COMPUTED			
Z	T	S	O ₂	δT_{3-5}	Z	T	S	O ₂	σ_t	δT_{3-5}	ΔD	
m	°C	‰	ml/L	10 ⁻⁵ cm/g	m	°C	‰	ml/L	g/L	10 ⁻⁵ cm/g	dyn. m	

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PAOLINA-T; June 30, 1959; 0035 GCT; 31°50'N, 119°34'W; sounding, 1250 fm; wind, 320°, force 3; weather, cloudy; sea, moderate; wire angle, 06°.

93.60

2	16.12	33.58	5.62	330	0	(16.12)	(33.58)	(5.62)	(24.65)	(330)	(0.00)
12	15.76	33.55	5.85	324	10	15.78	33.55	5.85	24.71	325	0.03
33	15.44	33.58	5.62	316	20	15.62	33.56	5.75	24.75	320	0.06
43	15.31	33.57	5.82	314	30	15.47	33.58	5.63	24.79	316	0.10
53	15.08	33.60	5.76	307	50	15.14	33.59	5.76	24.87	309	0.16
66	14.92	33.60	5.88	303	75	13.90	33.52	5.48	25.08	289	0.23
81	13.10	33.47	5.11	277	100	11.14	33.51	4.05	25.62	238	0.30
101	11.09	33.51	4.03	238	150	9.29	33.85	2.77	26.20	183	0.41
125	9.96	33.69	3.39	205	200	8.53	34.02	2.05	26.44	160	0.49
143	9.42	33.82	2.91	188	250	7.68	34.10	1.63	26.64	141	0.57
173	8.88	33.93	2.46	171	300	7.23	34.18	1.27	26.76	129	0.64
202	8.51	34.02	2.03	159	400	6.68	34.27	0.66	26.91	116	0.77
231	8.06	34.09	1.71	147	500	6.03	34.34	0.47	27.05	102	0.88
270	7.28	34.11	1.54	135							
328	7.20	34.23	1.08	125							
401	6.68	34.27	0.66	116							
475	6.20	34.32	0.49	105							
554	5.70	34.37	0.47	96							

HORIZON; June 17, 1959; 0414 GCT; 31°40'N, 120°12.5'W; sounding, 2000 fm; wind, 330°, force 5; weather, clear; sea, high; wire angle, 35°.

93.70

2	16.00	33.57	5.48	328	0	(16.00)	(33.57)	(5.48)	(24.67)	(328)	(0.00)
9	16.02	33.57	5.55	328	10	16.02	33.57	5.55	24.67	328	0.03
30	16.02	33.57	5.58	328	20	16.02	33.57	5.57	24.67	328	0.06
54	15.92	33.55	5.57	328	30	16.02	33.57	5.58	24.67	328	0.10
63	15.82	33.57	5.62	324	50	15.94	33.56	5.57	24.68	328	0.16
79	13.84	33.48	5.37	290	75	14.42	33.50	5.51	24.97	300	0.24
89	12.55	33.52	4.55	263	100	11.20	33.48	4.31	25.58	242	0.31
102	10.94	33.48	4.25	237	150	9.59	33.79	3.07	26.10	192	0.42
123	10.14	33.68	3.55	210	200	8.51	33.95	2.60	26.40	164	0.51
137	9.82	33.73	3.28	201	250	7.90	34.05	2.10	26.56	148	0.59
158	9.42	33.82	2.96	188	300	7.33	34.10	1.63	26.68	137	0.66
184	8.84	33.91	2.69	172	400	6.38	34.15	0.97	26.86	120	0.80
206	8.42	33.96	2.57	162	500	5.82	34.25	0.49	27.00	107	0.92
249	7.92	34.05	2.11	148							
383	6.49	34.14	1.07	123							
462	6.03	34.21	0.66	112							
533	5.64	34.29	0.36	101							

PAOLINA-T; June 29, 1959; 1307 GCT; 31°05'N, 120°55'W; sounding, 2000 fm; wind, 320°, force 5; weather, cloudy; sea, rough; wire angle, 10°.

93.80

0	16.29	33.49	5.49	340	0	16.29	33.49	5.49	24.55	340	0.00
10	16.30	33.50	5.50	340	10	16.30	33.50	5.50	24.55	340	0.03
30	15.89a)	33.55	5.50	328	20	16.29	33.51	5.50	24.56	339	0.07
40	15.50	33.51	5.55	322	30	15.89	33.55	5.50	24.68	328	0.10
54	15.18	33.49	5.53	316	50	15.28	33.50	5.55	24.77	318	0.16
68	14.48	33.48	5.43	303	75	14.24	33.50	5.37	25.01	296	0.24
93	13.06	33.53	-	271	100	12.56	33.53	5.01	25.36	263	0.31
113	11.67	33.53	4.86	246	150	9.63	33.66	4.67	25.99	203	0.43
133	10.72	33.57	-	227	200	8.54	33.89	3.04	26.34	169	0.53
152	9.53	33.67	4.62	200	250	7.88	34.03	2.21	26.56	149	0.61
180	8.76	33.78	3.62	180	300	7.49	34.08	1.61	26.64	140	0.68
215	8.39	33.95	2.72	162	400	6.60	34.16	0.96	26.84	122	0.82
243	7.95	34.02	2.33	151	500	5.92	34.24	0.55	26.98	108	0.94
293	7.57	34.07	1.70	142	600	(5.33)	(34.33)	(0.38)	(27.13)	(94)	(1.05)
346	6.96	34.11	1.37	131							
430	6.41	34.19	0.79	118							
513	5.82	34.25	0.51	106							
598	5.34	34.33	0.39	95							

a) Alternate value, 16.08°C, not used in interpolation.

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OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δT_{-5}^3	Z	T	S	O ₂	σ_t	δT_{-5}^3	ΔD
m	°C	‰	ml/L	10 cm/g	m	°C	‰	ml/L	g/L	10 cm/g	dyn. m

93.90

PAOLINA-T; June 29, 1959; 0518 GCT; 30°46'N, 121°36.5'W; sounding, 2140 fm; wind, 320°, force 6; weather, cloudy; sea, high; wire angle, 13°.

2	16.64	33.50	5.32	348	0	(16.64)	(33.50)	(5.32)	(24.46)	(348)	(0.00)
13	16.69	33.48	5.25	350	10	16.67	33.49	5.27	24.45	349	0.03
32	16.68	33.49	5.30	349	20	16.69	33.48	5.25	24.44	350	0.07
42	16.57	33.51	5.34	345	30	16.69	33.49	5.27	24.45	349	0.10
56	15.94	33.44	5.43	336	50	15.94	33.43	5.43	24.58	337	0.17
70	15.82	33.48	5.35	331	75	15.76	33.50	5.34	24.67	328	0.26
95	14.76	33.62	5.39	298	100	14.45	33.62	5.33	25.06	292	0.34
114	13.22	33.57	5.11	272	150	10.12	33.59	4.37	25.86	216	0.46
134	11.60	33.52	4.72	246	200	8.74	33.82	3.40	26.26	177	0.56
153	9.90	33.60	4.31	212	250	8.01	33.98	2.36	26.49	155	0.65
183	8.98	33.77	3.73	185	300	7.29	34.06	1.84	26.66	139	0.73
215	8.54	33.86	3.08	171	400	6.34	34.15	0.83	26.86	120	0.86
245	8.08	33.96	2.42	157	500	5.76	34.22	0.47	26.99	108	0.98
293	7.39	34.05	1.93	141	600	5.26	34.29	0.34	27.10	97	1.09
347	6.72	34.10	1.05	129							
430	6.14	34.18	0.71	115							
514	5.69	34.23	0.43	106							
600	5.26	34.29	0.34	97							

97.32

ORCA; June 3, 1959; 0240, 0320 GCT;^{a)} 32°11.5'N, 117°17'W; sounding, 720 fm; wind, 270°, force 2; weather, cloudy; sea, moderate; wire angle, 29°, 29°.

400b)	6.89	34.27	0.59	118							
409	6.84	34.33	0.42	112							
419	6.76	34.31	0.40	113							
429	6.66	34.30	0.36	113							
440	6.63	34.32	0.40	111							
448	6.54	34.33	0.39	109							
458	6.48	34.32	0.35	109							
469	6.38	34.34	0.33	106							
478	6.32	34.33	0.30	106							
487	6.25	34.34	0.32	104							
498	6.18	34.34	0.32	104							
497 c)	6.22	34.34	0.34	104							
507b)	6.15	34.27	0.65	109							
517	6.10	34.33	0.28	104							
527b)	6.03	34.31	0.55	104							
537	5.98	34.34	0.34	101							
547	5.90	34.36	0.27	99							
559	5.88	34.35	0.29	100							

97.60

PAOLINA-T; June 27, 1959; 2035 GCT; 31°26.5'N, 118°59'W; sounding, 800 fm; wind, 300°, force 5; weather, cloudy; sea, very rough; wire angle, 15°.

2	16.54	33.58	5.39	340	0	(16.54)	(33.58)	(5.39)	(24.55)	(340)	(0.00)
11	16.56	33.58	5.36	340	10	16.56	33.58	5.36	24.55	340	0.03
30	16.48	33.58	5.33	338	20	16.54	33.58	5.35	24.56	339	0.07
40	16.06	33.55	5.30	331	30	16.48	33.58	5.33	24.57	338	0.10
54	14.01	33.45	5.41	296	50	14.20	33.46	5.43	24.98	299	0.16
69	12.50	33.41	4.73	270	75	12.14	33.45	4.50	25.38	260	0.24
92	11.02	33.58	3.88	231	100	10.47	33.63	3.76	25.82	218	0.30
111	9.90	33.68	3.63	206	150	9.35	33.84	2.94	26.18	184	0.40
130	9.62	33.75	3.44	196	200	8.49	33.99	2.10	26.43	161	0.49
149	9.37	33.84	2.95	185	250	8.08	34.12	1.58	26.60	145	0.56
177	8.74	33.96	2.45	167	300	7.56	34.17	1.16	26.71	134	0.64
211	8.38	34.00	1.95	158	400	6.72	34.26	0.62	26.90	117	0.77
240	8.18	34.11	1.66	148	500	6.16	34.33	0.41	27.03	104	0.88
288	7.67	34.16	1.24	137	600	(5.49)	(34.34)	(0.33)	(27.12)	(95)	(0.99)
342	7.16	34.22	0.89	125							
425	6.53	34.27	0.50	114							
507	6.11	34.33	0.40	104							
592	5.54	34.34	0.33	96							

222

a) Special cast.

b) It seems possible that these Nansen bottles failed to close tightly at the time of reversal.

c) Overlapping casts; reconciliation of property curves when necessary

OBSERVED					INTERPOLATED				COMPUTED			
Z	T	S	O ₂	δT_3	Z	T	S	O ₂	σ_t	δT_3	ΔD	
m	°C	‰	ml/L	$10^{-5} \text{cm}^3/\text{g}$	m	°C	‰	ml/L	g/L	$10^{-5} \text{cm}^3/\text{g}$	dyn. m	

S10
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5906

BLACK DOUGLAS; June 25, 1959; 2312 GCT; 30°41'N, 118°47.5'W; sounding, 1500 fm; wind, 320°, force 6; weather, clear; sea, high; wire angle, missing.

100.60

2	17.30	33.68	5.54	349	0	(17.30)	(33.68)	(5.54)	(24.45)	(349)	(0.00)
11	17.30	33.68	5.29	349	10	17.30	33.68	5.30	24.45	349	0.03
33	17.02	33.68	5.38	343	20	17.21	33.68	5.30	24.47	347	0.07
41	16.96	33.68	5.45	342	30	17.07	33.68	5.35	24.50	344	0.10
54	16.36	33.60	5.56	334	50	16.59	33.63	5.56	24.58	336	0.17
67	14.92	33.52	5.61	309	75	13.86	33.48	5.32	25.07	290	0.25
89	12.50	33.47	4.63	266	100	12.19	33.48	4.51	25.39	259	0.32
106	11.40	33.51	4.29	243	150	9.37	33.81	3.20	26.15	188	0.43
123	10.24	33.57	3.95	220	200	8.47	33.96	2.50	26.41	163	0.52
148	9.41	33.80	3.23	189	250	7.68	34.06		26.61	144	0.60
173	8.94	33.88	2.95	176	300	7.20	34.09		26.70	135	0.67
206	8.36	33.98	2.40	160	400	6.60	34.19	0.78	26.86	120	0.81
230	7.92	34.04	2.16	149	500	6.04	34.31	0.37	27.03	104	0.92
272	7.44	34.07	0.88u	140							
328	6.96	34.12	1.31	130							
415	6.53	34.21	0.67	118							
494	6.08	34.31	0.39	105							
559	5.70	34.33	0.34	99							

BLACK DOUGLAS; June 25, 1959; 0710 GCT; 29°38'N, 120°45'W; sounding, 2000+ fm; wind, 320°, force 6; weather, cloudy; sea, very rough; wire angle, 22°.

100.90

2	17.88	33.84	5.33	351	0	(17.88)	(33.84)	(5.33)	(24.44)	(351)	(0.00)
10	17.91	33.82	5.29	352	10	17.91	33.82	5.29	24.41	352	0.04
31	17.94	33.84	5.30	352	20	17.93	33.83	5.30	24.42	352	0.07
56	18.08	33.95	5.32	348	30	17.94	33.84	5.30	24.42	352	0.10
64	18.07	33.94	5.33	348	50	18.08	33.94	5.32	24.46	348	0.18
81	17.96	33.95	5.29	345	75	18.00	33.95	5.29	24.48	346	0.26
93	16.50	33.77	5.29	325	100	15.84	33.72	5.37	24.82	314	0.35
105	15.39	33.69	5.41	306	150	11.47	33.58	4.64	25.60	239	0.49
129	13.26	33.62	5.03	269	200	9.12	33.79	3.55	26.18	185	0.59
145	11.85	33.58	4.72	246	250	8.22	33.98	2.57	26.46	158	0.68
169	10.32	33.64	4.24	215	300	7.60	34.07	2.04	26.62	143	0.76
197	9.22	33.77	3.63	188	400	6.66	34.14	1.10	26.81	125	0.90
221	8.66	33.89	3.01	171	500	6.03	34.24	0.50	26.97	109	1.02
261	8.08	34.00	2.45	155							
317	7.41	34.09	1.82	138							
403	6.63	34.14	1.08	124							
483	6.12	34.22	0.56	112							
550	5.70	34.31	0.35	100							

BLACK DOUGLAS; June 24, 1959; 1148 GCT; 30°06'N, 118° 25.5'W; sounding, 1750 fm; wind, 300°, force 3; weather, overcast; sea, moderate; wire angle, 00°.

103.60

1	17.74	33.66	5.06	360	0	(17.74)	(33.66)	(5.06)	(24.33)	(360)	(0.00)
10	17.68	33.64	5.23	360	10	17.68	33.64	5.23	24.33	360	0.04
28	16.86	33.57	5.37	347	20	17.08	33.59	5.33	24.44	350	0.07
37	16.48	33.54	5.42	341	30	16.80	33.57	5.37	24.48	346	0.11
46	16.30	33.52	5.42	338	50	16.22	33.51	5.43	24.58	337	0.17
59	15.62	33.48	5.50	326	75	14.89	33.46	5.58	24.83	313	0.26
73	14.98	33.46	5.59	315	100	12.47	33.43	5.04	25.30	268	0.33
90	13.66	33.44	5.42	290	150	9.92	33.60	3.94	25.89	212	0.45
113	11.80	33.43	4.75	256	200	8.66	33.90	2.80	26.33	170	0.55
131	10.44	33.55	4.07	224	250	8.00	34.00	2.03	26.51	153	0.63
159	9.72	33.62	3.87	207	300	7.40	34.07	1.56	26.65	140	0.71
185	9.01	33.80	3.14	183	400	6.62	34.16	0.80	26.84	122	0.84
211	8.46	33.93	2.64	165	500	5.87	34.26	0.36	27.01	106	0.96
248	8.02	33.99	2.13	154							
300	7.40	34.07	1.56	140							
368	6.91	34.14	1.02	128							
436	6.28	34.20	0.58	115							
507	5.83	34.27	0.34	105							

S10

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OBSERVED					INTERPOLATED				COMPUTED			
Z	T	S	O ₂	δT_3	Z	T	S	O ₂	σ_t	δT_3	ΔD	
m	°C	‰	ml/L	10 ⁻⁵ cm/g	m	°C	‰	ml/L	g/L	10 ⁻⁵ cm/g	dyn. m	

1107.60

BLACK DOUGLAS; June 22, 1959; 2317 GCT; 29°31'N, 118°03'W; sounding, 1850 fm; wind, 320°, force 4; weather, overcast; sea, rough; wire angle, 12°.

1	17.68	33.70	5.29	356	0	(17.68)	(33.70)	(5.29)	(24.38)	(356)	(0.00)
10	17.67	33.69	5.35	357	10	17.67	33.69	5.35	24.37	357	0.04
27	17.37	33.69	5.38	350	20	17.49	33.69	5.37	24.42	352	0.07
36	17.28	33.69	5.49	348	30	17.34	33.69	5.40	24.45	349	0.11
62	16.80	33.64	5.66	341	50	17.08	33.67	5.58	24.50	345	0.18
84	15.81	33.53	5.80	327	75	16.32	33.58	5.74	24.61	334	0.26
102	13.76	33.60	5.37	280	100	14.20	33.59	5.51	25.08	289	0.34
119	12.58	33.61	4.79	256	150	10.44	33.64	4.40	25.84	217	0.47
136	11.52	33.63	4.69	236	200	8.91	33.81	3.39	26.23	180	0.57
161	9.82	33.66	4.10	206	250	8.09	33.99	2.60	26.49	155	0.66
193	9.08	33.77	3.55	186	300	7.48	34.04	2.10	26.61	144	0.73
218	8.57	33.89	3.07	169	400	6.54	34.17	1.08	26.85	121	0.87
262	7.92	34.01	2.41	151	500	5.84	34.23	0.63	26.99	108	0.99
311	7.34	34.05	1.93	140							
385	6.66	34.16	1.18	124							
460	6.12	34.21	0.77	113							
537	5.54	34.25	0.51	103							

110.60

BLACK DOUGLAS; June 21, 1959; 1225 GCT; 28°57'N, 117°27.5'W; sounding, 1700 fm; wind, 300°, force 3; weather, cloudy; sea, moderate; wire angle, 12°.

1	17.92	33.73	5.07	360	0	(17.92)	(33.73)	(5.07)	(24.34)	(360)	(0.00)
10	17.94	33.73	5.94u	360	10	17.94	33.73		24.34	360	0.04
28	18.05	33.83	4.85	355	20	18.02	33.78		24.36	358	0.07
36	17.96	33.81	4.75	355	30	18.04	33.83	4.83	24.39	355	0.11
44	17.80	33.78	5.05	353	50	17.65	33.75	5.04	24.42	352	0.18
57	17.53	33.73	4.99	350	75	17.58	33.78		24.46	348	0.26
70	17.60	33.77	-	349	100	15.90	33.77	5.18	24.85	311	0.35
87	17.24	33.80	5.25	339	150	11.31	33.66	4.10	25.70	230	0.48
104	15.33	33.75	5.11	300	200	10.11	33.90	2.67	26.10	192	0.59
126	13.17	33.66	4.64	264	250	9.49	34.16	1.69	26.40	164	0.68
152	11.18	33.66	4.06	228	300	8.88	34.27	1.10	26.58	146	0.76
178	10.30	33.76	3.43	206	400	7.73	34.30	0.60	26.79	127	0.91
203	10.08	33.93	2.56	190	500	(6.63)	(34.33)	(0.40)	(26.96)	(110)	(1.03)
237	9.68	34.12	1.87	170							
289	8.99	34.25	1.18	149							
354	8.32	34.33	0.72	133							
420	7.47	34.29	0.56	125							
490	6.72	34.32	0.41	112							

110.90

BLACK DOUGLAS; June 22, 1959; 0340 GCT; 27°56.5'N, 119°36'W; sounding, 2000+ fm; wind, 320°, force 3; weather, overcast; sea, rough; wire angle, 08°.

1	18.50	33.83	5.19	366	0	(18.50)	(33.83)	(5.19)	(24.27)	(366)	(0.00)
10	18.50	33.82	5.11	367	10	18.50	33.82	5.11	24.26	367	0.04
28	18.33	33.82	5.10	362	20	18.42	33.82	5.10	24.28	364	0.07
36	18.36	33.84	5.19	362	30	18.34	33.83	5.12	24.31	362	0.11
50	17.92	33.84	5.20	351	50	17.92	33.84	5.20	24.43	351	0.18
63	17.86	33.88	5.33	347	75	17.69	33.87	5.30	24.50	344	0.27
85	16.96	33.80a)	5.08	333	100	15.95	33.76	5.26	24.83	313	0.35
103	15.38	33.75a)	5.34	302	150	11.49	33.68	3.87	25.68	232	0.49
121	13.96	33.74a)	4.50	273	200	10.21	33.98	2.36	26.12	189	0.60
137	12.34	33.65a)	4.27	249	250	9.39	34.20	1.60	26.45	159	0.68
165	10.92	33.77a)	3.31	216	300	8.78	34.29	1.19	26.62	143	0.76
195	10.32	33.95a)	2.46	192	400	7.64	34.29	0.62	26.79	126	0.90
222	9.67	34.10	1.98	171	500	6.44	34.32	0.41	26.98	108	1.03
265	9.26	34.23	1.44	155							
315	8.54	34.30	1.08	138							
390	7.78	34.29a)	0.64	128							
465	6.75	34.31a)	0.48	113							
541	6.20	34.33a)	0.31	105							

a) The silver nitrate used to titrate these samples appears to have been poorly mixed. These salinity values may be as much as 0.04‰ higher.

OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δT_3	Z	T	S	O ₂	σ_t	δT_3	ΔD
m	°C	‰	ml/L	10^{-5} cm/g	m	°C	‰	ml/L	g/L	10^{-5} cm/g	dyn. m

S10
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5906

ORCA; June 16, 1959; 2338 GCT; 28°17'N, 117°21.5'W; sounding, 2000+ fm; wind, 310°, force 5; weather, partly cloudy; sea, very rough; wire angle, 23°.

113.60

2	17.76	33.67	5.29	360	0	(17.76)	(33.67)	(5.29)	(24.33)	(360)	(0.00)
10	17.73	33.67	5.33	359	10	17.73	33.67	5.33	24.34	359	0.04
30	17.57	33.67	5.34	356	20	17.67	33.67	5.34	24.36	358	0.07
59	17.14	33.63	5.11	349	30	17.57	33.67	5.34	24.38	356	0.11
68	16.92	33.62	5.51	344	50	17.31	33.64	5.18	24.43	351	0.18
82	16.52	33.63	5.64	335	75	16.72	33.62	5.59	24.54	340	0.26
94	15.54	33.55	5.57	320	100	14.67	33.50	5.50	24.90	306	0.35
105	13.94	33.48	5.39	292	150	10.68	33.63	4.14	25.78	222	0.48
134	11.91	33.58	4.70	246	200	9.48	33.92	2.59	26.22	181	0.58
153	10.49	33.64	4.01	218	250	9.02	34.13	1.96	26.46	158	0.67
181	9.78	33.86	2.97	190	300	7.58	34.06	1.73	26.62	143	0.75
207	9.40	33.95	2.47	178	400	6.61	34.14	1.05	26.82	124	0.89
236	9.32	34.13	2.04	163	500	6.35	34.32	0.40	26.99	108	1.01
283	7.88	34.05	1.79	148	600	(5.71)	(34.32)		(27.07)	(100)	(1.12)
336	7.12	34.09	1.63	134							
415	6.55	34.16	0.90	122							
494	6.36	34.31	0.41	108							
581	5.84	34.32	0.28	102							

ORCA; June 15, 1959; 0049 GCT; 28°08'N, 116°16'W; sounding, 2500 fm; wind, 310°, force 4; weather, cloudy; sea, rough; wire angle, 40°.

117.50

1	16.80	33.67	5.75	338	0	(16.80)	(33.67)	(5.75)	(24.56)	(338)	(0.00)
9	16.76	33.66	5.82	338	10	16.75	33.66	5.83	24.56	338	0.03
24	16.63	33.64	5.97	338	20	16.68	33.64	5.96	24.57	338	0.07
32	16.27	33.62	5.93	330	30	16.46	33.62	5.94	24.65	330	0.10
43	15.30	33.72	5.50	302	50	14.75	33.75	5.23	25.08	289	0.16
54	14.52	33.75	5.14	284	75	11.88	33.61	4.16	25.56	244	0.23
73	11.93	33.61	4.18	245	100	10.80	33.66	3.86	25.79	222	0.29
88	11.38	33.64	3.95	233	150	9.63	33.94	2.58	26.21	182	0.39
102	10.72	33.66	3.84	221	200	9.53	34.25	1.37	26.47	157	0.48
116	10.16	33.75	3.58	204	250	8.69	34.26	1.09	26.61	144	0.55
134	9.78	33.85	3.12	190	300	7.73	34.20	1.24	26.71	134	0.62
156	9.59	33.98	2.37	178	400	7.12	34.32	0.54	26.89	117	0.75
174	9.74	34.14	1.90	169							
205	9.46	34.26	1.32	156							
242	8.86	34.27	1.07	146							
303	7.70	34.20	1.24	134							
371	7.35	34.29	0.66	123							
446	6.67	34.37	0.41	108							

ORCA; June 12, 1959; 0913 GCT; 27°31.5'N, 115°52'W; sounding, 2000+ fm; wind, 310°, force 2; weather, cloudy; sea, very rough; wire angle, missing.

120.50

1	17.78	33.74	5.30	356	0	(17.78)	(33.74)	(5.30)	(24.38)	(356)	(0.00)
10	17.77	33.73	5.38	356	10	17.77	33.73	5.38	24.37	356	0.04
30	17.65	33.70	5.33	356	20	17.69	33.71	5.37	24.38	356	0.07
39	17.63	33.73	5.39	353	30	17.65	33.70	5.33	24.38	356	0.11
53	17.06	33.71	5.58	341	50	17.42	33.72	5.50	24.46	348	0.18
67	16.20	33.69	5.60	324	75	15.09	33.68	5.45	24.96	301	0.26
90	13.48	33.68	5.02	269	100	12.92	33.68	4.82	25.40	258	0.33
108	11.82	33.68	4.36	238	150	10.47	34.03	2.40	26.14	188	0.44
125	10.44	33.73	3.55	210	200	10.66	34.36	1.10	26.36	168	0.53
145	10.44	33.98	2.62	192	250	10.46	34.63	0.62	26.60	144	0.61
173	10.68	34.25	1.50	176	300	9.52	34.46	0.65	26.63	142	0.68
205	10.66	34.39	1.00	166	400	8.39	34.40	0.37	26.77	128	0.82
232	10.66	34.63	0.63	148	500	(7.06)	(34.42)	(0.34)	(26.97)	(109)	(0.95)
279	9.86	34.53	0.61	142							
331	9.10	34.38	0.70	142							
411	8.28	34.41	0.34	127							
494	7.14	34.42	0.34	110							

S10
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5906

OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δT	Z	T	S	O ₂	σ_t	δT	ΔD
m	°C	‰	ml/L	$10^{-5} \text{cm}^3/\text{g}$	m	°C	‰	ml/L	g/L	$10^{-5} \text{cm}^3/\text{g}$	dyn. m

120.80

ORCA; June 11, 1959; 1535 GCT; 26°35'N, 117°45'W; sounding, 2000+ fm; wind, 320°, force 1; weather, overcast; sea, high; wire angle, 10°.

0	18.55	33.99	5.29	356	0	18.55	33.99	5.29	24.38	356	0.00
9	18.56	33.99	5.13	356	10	18.56	33.99	5.13	24.38	356	0.04
29	18.56	33.96	5.29	358	20	18.56	33.97	5.18	24.37	357	0.07
59	18.50	34.07	5.29	348	30	18.56	33.96	5.29	24.36	358	0.11
68	17.81	34.02	5.36	336	50	18.60	33.98	5.29	24.36	358	0.18
85	17.35	34.22	5.33	311	75	17.58	34.12	5.36	24.72	323	0.26
100	15.69	33.95	5.06	294	100	15.69	33.95	5.06	25.03	294	0.34
114	14.00	33.78	4.68	272	150	10.95	33.72	3.81	25.81	220	0.47
139	11.43	33.69	4.07	230	200	10.03	34.05	2.26	26.22	180	0.57
159	10.64	33.77	3.58	211	250	9.60	34.34	1.20	26.52	152	0.66
189	10.06	33.98	2.54	186	300	8.68	34.33	0.94	26.67	138	0.73
219	10.00	34.18	1.83	170	400	7.57	34.35	0.55	26.85	121	0.87
248	9.63	34.34	1.22	152	500	6.62	34.40	0.35	27.02	105	0.99
298	8.70	34.33	0.95	139	600	5.93	34.39	0.27	27.10	97	1.09
352	8.05	34.34	0.70	128							
437	7.20	34.36	0.43	116							
523	6.42	34.40	0.31	102							
608	5.88	34.39	0.26	96							

123.42

ORCA; June 10, 1959; 0655 GCT; 27°13.5'N, 115°00'W; sounding, 600 fm; wind, 320°, force 6; weather, missing; sea, high; wire angle, 14°.

1	16.84	33.74	5.66	334	0	(16.84)	(33.74)	(5.66)	(24.61)	(334)	(0.00)
10	16.84	33.75	5.73	334	10	16.84	33.75	5.73	24.61	334	0.03
35	13.55	33.57	4.87	278	20	15.50	33.68	5.35	24.86	310	0.06
46	12.66	33.68	4.48	253	30	13.74	33.57	4.90	25.16	282	0.10
60	11.25	33.76	3.45	222	50	11.90	33.74	3.85	25.65	235	0.15
74	10.48	33.78	3.40	207	75	10.35	33.81	3.24	25.98	203	0.20
99	10.02	33.96	2.49	187	100	10.01	33.96	2.47	26.16	186	0.25
119	9.94	34.20	2.09	168	150	10.29	34.31	1.33	26.38	166	0.34
138	10.25	34.27	1.54	168	200	9.97	34.44	0.83	26.54	151	0.42
168	10.29	34.38	1.06	160	250	9.25	34.44	0.66	26.66	139	0.49
197	10.00	34.43	0.85	152	300	8.73	34.43	0.60	26.74	132	0.56
237	9.44	34.45	0.66	141	400	7.65	34.42	0.37	26.88	118	0.69
267	9.03	34.43	0.65	136	500	6.69	34.40	0.31	27.01	106	0.81
317	8.57	34.43	0.56	129	600	5.85	34.42	0.38	27.14	94	0.91
381	7.84	34.42	0.40	120							
480	6.88	34.39	0.28	109							
570	6.04	34.42	0.43	96							
646	5.64	34.43	0.25	90							

130.40

ORCA; June 7, 1959; 2205 GCT; 26°08'N, 114°03.5'W; sounding, 1050 fm; wind, 310°, force 4; weather, partly cloudy; sea, rough; wire angle, 19°.

1	19.58	34.14	5.04	370	0	(19.58)	(34.14)	(5.04)	(24.23)	(370)	(0.00)
11	19.55	34.11	5.00	371	10	19.56	34.11	5.00	24.22	371	0.04
30	19.51	34.13	5.09	368	20	19.52	34.12	5.04	24.23	370	0.07
39	20.09	34.40	5.05	363	30	19.51	34.13	5.09	24.25	368	0.11
53	17.32	33.97	5.05	328	50	17.80	34.03	5.05	24.60	335	0.18
68	15.26	33.87	4.09	290	75	14.84	33.86	3.89	25.15	282	0.26
90	13.00	33.86	3.12	246	100	12.49	33.96	2.70	25.70	230	0.32
108	12.12	34.04	2.36	217	150	10.88	34.23	1.60	26.22	181	0.43
125	11.34	34.03	2.05	204	200	10.53	34.43	0.69	26.44	160	0.51
145	10.94	34.22	1.68	182	250	9.92	34.47	0.54	26.58	147	0.59
172	10.55	34.27	1.25	172	300	9.29	34.45	0.41	26.66	139	0.67
203	10.52	34.45	0.68	158	400	7.99	34.44	0.32	26.86	120	0.80
230	10.10	34.47	0.67	150	500	6.82	(34.39)	0.23	(26.98)	(108)	(0.92)
274	9.73	34.47	0.45	144							
324	8.88	34.43	0.40	134							
401	7.98	34.44	0.31	120							
481	7.00	34.40	0.25	110							
564	6.35	34.23r	0.22	-							

OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δT_3	Z	T	S	O ₂	σ_t	δT_3	ΔD
m	°C	‰	ml/L	$10^{-5} \text{ cm}^3/\text{g}$	m	°C	‰	ml/L	g/L	$10^{-5} \text{ cm}^3/\text{g}$	dyn. m

SIO
CCOFI
5906

ORCA; June 6, 1959; 0525 GCT; 25°00'N, 113°22'W; sounding, 1200 fm; wind, 290°, force 5; weather, partly cloudy; sea, moderate; wire angle, 21°.

137.40

1	19.27	33.94	5.06	376	0	(19.27)	(33.94)	(5.06)	(24.16)	(376)	(0.00)
10	19.28	33.90	5.03	380	10	19.28	33.90	5.03	24.13	380	0.04
29	18.44	33.83	5.26	365	20	19.19	33.88	5.14	24.14	378	0.08
39	17.77	33.95	5.27	340	30	18.43	33.83	5.26	24.29	364	0.11
48	16.42	33.82	5.21	319	50	16.10	33.80	5.18	24.83	313	0.18
63	14.86	33.78	4.93	289	75	13.67	33.82	3.76	25.36	262	0.25
76	13.60	33.83	3.67	260	100	11.97	34.09	2.01	25.91	210	0.31
94	12.31	33.94	2.69	228	150	11.18	34.37	1.10	26.28	176	0.41
118	11.70	34.16	1.70	200	200	11.04	34.60	0.40	26.48	156	0.50
137	11.07	34.22	1.51	185	250	10.49	34.61	0.32	26.58	146	0.57
165	11.31	34.52	0.65	167	300	9.68	34.55	0.25	26.68	137	0.65
192	11.10	34.58	0.44	159	400	8.46	34.55	0.16	26.87	119	0.78
221	10.90	34.64	0.37	151	500	7.14	34.45	0.19	26.99	108	0.90
259	10.34	34.60	0.30	144							
317	9.42	34.54	0.24	134							
389	8.62	34.56	0.15	121							
462	7.52	34.47	0.19	112							
542	6.81	34.45	0.19	104							

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	10 Meters	
						Dir	Force			T	S
77.50-B	VI-17	1650	35°04.0'	120°52.0'	85	300°	5	clear	very rough	11.31	33.79
77.55-B	17	1905	34°54.5'	121°13.0'	315	270°	6	clear	very rough	13.52	33.49
77.60-B	17	2150	34°44.0'	121°34.0'	1500	310°	7	clear	high	13.92	33.38
77.65-B	18	0025	34°34.0'	121°55.0'	2000+	320°	6	clear	high	14.13	33.21
77.80-B	14	1225	34°04.0'	122°57.0'	2300	330°	6	partly cloudy	high	13.72	33.58
77.85-B	14	0925	33°54.0'	123°18.0'	2200	330°	6	partly cloudy	high	14.30	33.30
77.90-B	14	0630	33°44.0'	123°38.5'	2400	320°	5	partly cloudy	very rough	14.82	33.30
80.52-B	13	0615	34°24.5'	120°36.0'	125	300°	6	fog	high	16.51	33.69
80.55-B	13	0745	34°19.0'	120°48.0'	350	300°	6	overcast	high	14.84	33.70
80.65-B	13	1325	33°59.0'	121°30.0'	1850	330°	6	overcast	high	13.38	33.68
80.70-B	13	1540	33°49.0'	121°51.0'	2000	330°	6	partly cloudy	high	13.29	33.71
80.75-B	13	1735	33°38.5'	122°11.5'	2120	320°	5	partly cloudy	very rough	14.26	33.64
80.80-B	13	2005	33°33.0'	122°31.0'	2400	320°	5	partly cloudy	very rough	14.30	33.44
80.85-B	13	2245	33°19.0'	122°53.0'	2000+	320°	5	partly cloudy	very rough	14.96	33.45
82.47-B	13	0210	34°15.0'	119°58.0'	300	270°	2	fog	slight	14.42	33.71
83.40-B	12	2245	34°14.0'	119°22.0'	12	200°	2	clear	slight	17.64	33.69
83.43-B	12	2115	34°08.0'	119°34.0'	135	100°	2	partly cloudy	slight	16.66	33.66
83.51-B	12	1650	33°52.0'	120°08.5'	55	-	1	overcast	slight	14.16	33.64
83.55-B	12	1510	33°44.0'	120°24.5'	535	300°	1	fog	moderate	13.61	33.66

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	10 Meters	
						Dir	Force			T	S
83.65-B	VI-12	0910	33°17.0'	121°03.5'	1250	300°	3	overcast	rough	14.92	33.44
83.70-B	12	0650	33°09.0'	121°24.0'	2100	330°	4	overcast	rough	15.40	33.40
83.75-B	12	0425	33°00.0'	121°45.0'	2220	360°	4	overcast	rough	14.96	33.51
83.80-B	12	0155	32°51.5'	122°06.0'	2000+	010°	4	overcast	very rough	14.62	33.42
83.85-B	11	2325	32°42.5'	122°26.5'	2000+	010°	4	overcast	high	15.46	33.39
83.90-B	11	2055	32°34.5'	122°48.0'	2000+	300°	5	overcast	high	15.70	33.39
87.35-B	10	1355	33°50.0'	118°37.5'	300	280°	2	overcast	rough	18.02	33.68
87.40-B	10	1525	33°40.0'	118°58.5'	350	280°	2	overcast	rough	17.98	33.68
87.45-B	10	1741	33°30.0'	119°19.0'	900	270°	2	overcast	very rough	17.48	33.71
87.50-B	10	2030	33°20.0'	119°39.5'	40	270°	3	overcast	rough	12.76	33.74
87.55-B	10	2255	33°10.0'	120°00.5'	650	320°	3	clear	very rough	13.90	33.66
87.65-B	11	0420	32°49.5'	120°42.0'	2000	320°	4	clear	very rough	14.21	33.60
87.70-B	11	0640	32°39.5'	121°01.0'	2000	320°	4	clear	very rough	15.32	33.48
87.75-B	11	0851	32°29.5'	121°22.0'	2000+	320°	4	clear	very rough	15.20	33.48
87.80-B	11	1130	32°19.5'	121°43.0'	-	320°	4	partly cloudy	very rough	15.57	33.42
87.85-B	11	1355	32°09.0'	122°03.0'	2300	320°	3	cloudy	very rough	15.22	33.38
87.90-B	11	1625	31°59.0'	122°24.0'	2310	320°	4	overcast	very rough	15.78	33.40
90.50-H	19	0750	32°44.5'	119°16.5'	160	300°	3	overcast	moderate	16.30	33.71
90.65-H	18	2047	32°04.5'	120°18.0'	2050	320°	5	overcast	very rough	16.08	33.57

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

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	10 Meters	
						Dir	Force			T	S
90.75-H	VI-18	1615	31°55.0'	120°58.0'	2000	350°	4	overcast	very rough	15.62	33.57
93.45-H	16	1030	32°20.0'	118°33.0'	820	340°	4	partly cloudy	rough	17.11	33.71
93.55-H	16	1615	32°00.0'	119°13.0'	900	310°	5	partly cloudy	very rough	14.63	33.58
93.65-H	17	0130	31°47.5'	119°54.5'	2000	330°	5	clear	high	15.98	33.55
93.75-P	29	1630	31°15.0'	120°34.0'	2000	340°	4	overcast	rough	16.38	33.55
93.85-P	29	0910	30°55.5'	121°15.0'	2050	340°	6	cloudy	high	16.65	33.51
97.30-P	26	2330	32°15.5'	117°08.5'	32	210°	2	cloudy	rough	17.90	33.77
97.32-P	27	0110	32°11.5'	117°16.5'	830	280°	3	cloudy	rough	17.24	33.71
97.35-P	27	0300	32°06.5'	117°27.5'	670	270°	4	cloudy	very rough	16.90	33.71
97.40-P	27	0610	31°58.0'	117°45.5'	840	300°	6	overcast	very rough	17.06	33.77
97.45-P	27	0945	31°50.0'	118°05.0'	730	300°	6	overcast	very rough	17.06	33.78
97.50-P	27	1310	31°41.5'	118°23.0'	950	300°	6	overcast	very rough	16.78	33.80
97.55-P	27	1645	31°33.5'	118°42.0'	1400	300°	6	overcast	high	15.43	33.64
97.65-P	28	0215	31°06.0'	119°30.0'	1900	320°	6	partly cloudy	very rough	16.64	33.64
97.70-P	28	0605	30°53.0'	119°51.0'	1940	320°	6	partly cloudy	very rough	16.62	33.58
97.75-P	28	0950	30°41.0'	120°10.0'	2000	300°	6	partly cloudy	very rough	16.74	33.58
97.80-P	28	1315	30°28.0'	120°32.0'	2100	300°	6	cloudy	rough	17.04	33.60

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

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	10 Meters	
						Dir	Force			T	S
97.85-P	VI-28	1610	30°23.0'	120°49.5'	2200	320°	6	cloudy	very rough	16.84a)	33.57
97.90-P	28	2005	30°20.0'	121°10.5'	2200	320°	6	cloudy	very rough	16.52	33.49
100.29-B	26	1540	31°42.0'	116°43.5'	80	260°	2	cloudy	very rough	17.24	33.66
100.30-B	26	1500	31°40.5'	116°46.5'	220	260°	1	cloudy	rough	17.78	33.64
100.35-B	26	1135	31°26.5'	117°16.5'	850	270°	3	overcast	rough	17.94	33.68
100.40-B	26	0910	31°18.0'	117°33.0'	1000	280°	3	clear	rough	18.42	33.70
100.45-B	26	0640	31°09.0'	117°50.0'	800	300°	5	clear	rough	16.59	33.63
100.50-B	26	0420	31°00.0'	118°07.0'	950	320°	5	clear	rough	16.36	33.58
100.55-B	26	0205	30°49.5'	118°27.0'	1275	320°	5	clear	high	16.83	33.62
100.65-B	25	2025	30°31.0'	119°07.0'	1600	320°	6	clear	high	16.84	33.60
100.70-B	25	1745	30°21.0'	119°27.0'	-	320°	6	clear	high	16.96	33.59
100.75-B	25	1525	30°10.5'	119°47.5'	1650	320°	5	clear	very rough	16.82	33.57
100.80-B	25	1240	29°55.0'	120°02.0'	2000	320°	4	clear	rough	16.76	33.54
100.85-B	25	1005	29°46.5'	120°23.5'	2000	320°	5	cloudy	very rough	16.98	33.53
103.30-B	23	1715	31°05.0'	116°25.0'	37	320°	4	overcast	moderate	15.37	33.55
103.35-B	23	2330	30°55.5'	116°45.0'	850	320°	4	overcast	rough	17.99	33.68
103.40-B	24	0150	30°45.5'	117°05.5'	1000	320°	4	overcast	moderate	18.14	33.71

a) Mean value of 16.77 and 16.91°C.

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

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

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	10 Meters	
						Dir	Force			T	S
103.45-B	VI-24	0415	30°36.0'	117°24.0'	1170	270°	3	overcast	moderate	18.25	33.71
103.50-B	24	0625	30°25.5'	117°44.5'	1260	270°	3	overcast	moderate	17.35	33.66
103.55-B	24	0905	30°16.5'	118°05.0'	1250	300°	3	cloudy	moderate	17.61	33.62
103.65-B	24	1410	29°56.0'	118°44.5'	1600	300°	4	overcast	moderate	17.47	33.64
103.70-B	24	1630	29°46.0'	119°05.5'	1950	320°	4	overcast	moderate	16.98	33.57
103.75-B	24	1850	29°37.0'	119°24.0'	1750	320°	4	overcast	rough	17.90	33.83
103.80-B	24	2115	29°26.5'	119°44.0'	2000+	320°	5	overcast	very rough	17.54	33.70
103.85-B	24	2330	29°17.0'	120°03.5'	2000+	320°	5	overcast	very rough	18.40	33.98
103.90-B	25	0150	29°06.0'	120°23.0'	2000+	320°	5	overcast	very rough	18.55	33.97
107.32-B	23	1250	30°26.0'	116°11.0'	365	320°	4	overcast	moderate	17.70	33.64
107.35-B	23	1115	30°20.0'	116°23.0'	850	310°	4	overcast	moderate	18.02	33.66
107.40-B	23	0905	30°10.5'	116°43.5'	1350	310°	3	overcast	moderate	18.32	33.68
107.45-B	23	0640	30°00.0'	117°03.5'	1120	340°	4	overcast	moderate	18.04	33.68
107.50-B	23	0415	29°50.5'	117°23.5'	1750	320°	4	cloudy	rough	18.20	33.66
107.55-B	23	0150	29°40.5'	117°39.0'	1800	320°	4	overcast	rough	17.82	33.66
107.65-B	22	2030	29°22.0'	118°21.0'	1500	320°	3	overcast	moderate	17.69	33.66
107.70-B	22	1815	29°11.0'	118°41.0'	1450	320°	4	overcast	moderate	17.27	33.58
107.75-B	22	1515	29°03.0'	119°03.0'	2000	320°	4	overcast	moderate	17.21	33.57
107.80-B	22	1241	28°53.0'	119°22.0'	2000	320°	3	overcast	moderate	18.07	33.91

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	10 Meters	
						Dir	Force			T	S
107.85-B	VI-22	1040	28°43.0'	119°39.0'	2000	310°	3	overcast	moderate	17.07	33.51
107.90-B	22	0820	28°32.5'	119°59.0'	2000+	300°	3	overcast	rough	18.28	33.91
110.33-B	20	2350	29°50.5'	115°52.0'	50	320°	3	partly cloudy	moderate	16.76	33.61
110.35-B	21	0055	29°46.5'	116°00.0'	700	320°	4	partly cloudy	rough	17.90	33.68
110.40-B	21	0251	29°36.5'	116°19.5'	1150	300°	4	partly cloudy	rough	18.13	33.77
110.45-B	21	0515	29°26.0'	116°40.0'	340	290°	3	clear	rough	17.58	33.60
110.50-B	21	0725	29°17.0'	116°57.0'	1950	290°	4	partly cloudy	rough	17.98	33.68
110.55-B	21	0930	29°07.0'	117°12.0'	1900	290°	4	cloudy	rough	17.78	33.62
110.65-B	21	1605	28°39.5'	117°54.5'	1750	320°	4	overcast	moderate	18.45	33.86
110.70-B	21	1815	28°36.5'	118°18.0'	1750	320°	4	cloudy	moderate	18.31	33.83
110.75-B	21	2035	28°27.0'	118°37.0'	2000	320°	3	cloudy	rough	18.33	33.80
110.80-B	21	2250	28°16.5'	118°56.5'	2000+	320°	3	overcast	rough	18.32	33.82
110.85-B	22	0105	28°07.0'	119°16.0'	2000+	320°	3	overcast	rough	18.46	33.82
113.30-O	17	1930	29°25.5'	115°21.0'	36	310°	6	partly cloudy	rough	13.68	33.69
113.35-O	17	1555	29°13.5'	115°40.0'	520	310°	6	cloudy	high	17.06	33.68
113.40-O	17	1245	29°02.0'	115°58.5'	1000+	310°	5	cloudy	very rough	17.02	33.68
113.45-O	17	0940	28°50.0'	116°17.0'	2000+	310°	5	partly cloudy	very rough	17.10	33.68
113.50-O	17	0640	28°38.0'	116°37.0'	2000+	310°	5	partly cloudy	very rough	17.80	33.80
113.55-O	17	0310	28°27.5'	116°58.0'	2000	310°	5	partly cloudy	very rough	17.90	33.81

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

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	10 Meters	
						Dir	Force			T	S
113.65-O	VI-16	2030	28°09.0'	117°38.5'	2000+	310°	5	partly cloudy	very rough	17.98	33.71
113.70-O	16	1635	27°58.0'	117°59.5'	2000+	310°	6	cloudy	high	18.06	33.75
113.75-O	16	1400	27°50.0'	118°17.0'	2000+	310°	6	cloudy	high	18.28	33.77
113.80-O	16	1030	27°40.5'	118°35.0'	2000+	310°	5	partly cloudy	high	18.30	33.91
113.85-O	16	0730	27°32.0'	118°53.0'	2000+	310°	4	partly cloudy	high	18.32	33.83
113.90-O	16	0430	27°23.0'	119°09.5'	2000+	310°	5	partly cloudy	high	18.38	33.82
117.26-O	13	2140	28°56.0'	114°41.0'	42	320°	3	overcast	moderate	15.77	33.68
117.30-O	13	2350	28°47.0'	114°57.0'	50	320°	4	drizzle	rough	16.46	33.63
117.35-O	14	0240	28°38.0'	115°16.0'	104	320°	4	overcast	rough	17.28	33.67
117.40-O	14	0600	28°27.5'	115°36.0'	300	320°	3	overcast	rough	16.99	33.69
117.55-O	15	0346	27°58.5'	116°35.0'	2000+	310°	4	missing	rough	17.61	33.68
117.60-O	15	0645	27°49.0'	116°54.5'	2000+	310°	4	missing	rough	17.80	33.69
117.65-O	15	0955	27°39.5'	117°15.0'	2000+	310°	4	missing	very rough	18.70	33.88
117.70-O	15	1215	27°30.0'	117°34.0'	2000+	310°	4	partly cloudy	very rough	18.58	33.79
117.75-O	15	1530	27°20.5'	117°53.0'	2000+	310°	5	partly cloudy	very rough	18.52	33.78
117.80-O	15	1800	27°11.5'	118°13.0'	2000+	310°	4	partly cloudy	very rough	18.67	33.81
117.85-O	15	2020	27°02.5'	118°31.0'	2000+	310°	4	partly cloudy	very rough	18.61	33.79
117.90-O	15	2305	26°51.0'	118°49.0'	2000+	310°	4	partly cloudy	very rough	18.52	33.80
118.39-O	14	0730	28°18.5'	115°24.0'	155	310°	3	missing	rough	17.38	33.68

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

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	10 Meters	
						Dir	Force			T	S
119.33-O	VI-4	1530	28° 19.0'	114° 53.0'	60	110°	3	overcast	moderate	15.69	33.62
119.33-O	13	0930	28° 17.5'	114° 52.0'	60	320°	3	overcast	rough	17.37	33.71
120.25-O	4	1100	28° 23.0'	114° 15.0'	35	060°	4	overcast	moderate	17.56	33.78
120.25-O	13	1620	28° 23.0'	114° 14.5'	32	320°	3	overcast	rough	17.78	33.75
120.30-O	4	1330	28° 13.0'	114° 34.0'	52	110°	3	overcast	moderate	17.30	33.73
120.30-O	13	1257	28° 13.0'	114° 34.0'	53	320°	3	overcast	rough	17.01	33.71
120.35-O	4	1750	28° 03.0'	114° 54.5'	47	110°	2	cloudy	moderate	16.64	33.64
120.35-O	13	0735	28° 03.0'	114° 54.5'	44	310°	2	partly cloudy	rough	17.06	33.78
120.40-O	4	2010	27° 56.5'	115° 14.0'	29	240°	3	partly cloudy	moderate	18.41	33.84
120.40-O	12	1635	27° 56.5'	115° 14.0'	24	310°	3	overcast	slight	17.19	33.68
120.45-O	12	1220	27° 38.5'	115° 32.5'	1180	310°	2	overcast	very rough	17.44	33.70
120.55-O	12	0455	27° 23.0'	116° 12.0'	2000+	310°	2	cloudy	very rough	18.54	33.95
120.60-O	12	0210	27° 15.5'	116° 29.0'	2000+	310°	2	cloudy	very rough	19.15	34.07
120.65-O	11	2330	27° 04.0'	116° 48.5'	2000+	310°	2	cloudy	very rough	19.25	34.00
120.70-O	11	2100	26° 54.5'	117° 08.0'	2000+	310°	1	cloudy	rough	19.30	34.14
120.75-O	11	1838	26° 45.5'	117° 24.5'	2000+	310°	1	overcast	rough	18.42	33.94
120.85-O	11	1240	26° 24.5'	118° 04.5'	2000+	320°	2	overcast	rough	18.40	33.87
120.90-O	11	0940	26° 13.0'	118° 24.0'	2000+	320°	1	overcast	rough	19.22	34.23
123.37-O	10	0345	27° 24.0'	114° 40.0'	42	310°	6	missing	high	16.32	33.72

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

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	10 Meters	
						Dir	Force			T	S
123.45-O	VI-10	0930	27°07.0'	115°11.5'	2000+	320°	6	missing	high	17.01	33.75
123.50-O	10	1215	26°56.0'	115°31.5'	1990	320°	4	overcast	high	16.92	33.71
123.55-O	10	1450	26°46.5'	115°50.0'	2000+	320°	3	cloudy	high	18.90	34.08
123.60-O	10	1730	26°36.0'	116°10.0'	2000	320°	2	cloudy	very rough	19.08	34.09
123.65-O	10	2015	26°26.5'	116°27.0'	2000+	320°	2	cloudy	very rough	18.98	33.95
123.70-O	10	2250	26°20.0'	116°48.0'	2000+	320°	2	overcast	very rough	19.08	33.95
127.34-O	9	2000	26°55.0'	114°06.0'	44	320°	4	missing	rough	15.22	33.79
127.40-O	9	1630	26°43.0'	114°29.0'	1550	320°	4	cloudy	very rough	17.51a)	33.78
127.45-O	9	1330	26°33.0'	114°48.5'	1700	320°	5	partly cloudy	very rough	17.59	33.78
127.50-O	9	1040	26°24.0'	115°07.0'	650	320°	5	partly cloudy	very rough	18.80	34.01
127.55-O	9	0710	26°14.0	115°26.0'	2000+	310°	5	partly cloudy	very rough	18.99	34.03
127.60-O	9	0404	26°04.5'	115°45.0'	2000+	310°	5	partly cloudy	very rough	19.10	34.00
127.65-O	9	0130	25°53.5'	116°06.0'	2000+	310°	5	partly cloudy	high	19.49	34.14
127.70-O	8	2140	25°44.0'	116°26.0'	2000+	310°	5	partly cloudy	very rough	18.90	33.91
130.30-O	7	1630	26°28.5'	113°29.0'	44	310°	3	partly cloudy	moderate	16.97	33.63
130.35-O	7	1910	26°18.5'	113°47.0'	145	310°	3	partly cloudy	moderate	19.72	34.12
130.45-O	8	0114	26°02.5	114°21.5'	1900	300°	5	partly cloudy	moderate	17.70	33.67

a) Alternate value, 17.03°C.

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

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	10 Meters	
						Dir	Force			T	S
130.50-O	VI-8	0435	25°52.0'	114°47.0'	2000+	310°	4	partly cloudy	rough	17.89	33.79
130.55-O	8	0735	25°44.0'	115°05.0'	2000+	310°	4	partly cloudy	rough	17.17	33.68
130.60-O	8	1010	25°31.5'	115°24.0'	2000+	310°	5	partly cloudy	very rough	17.68	33.69
130.65-O	8	1310	25°21.5'	115°43.0'	2000+	310°	5	cloudy	very rough	18.21	33.80
130.70-O	8	1600	25°11.0'	116°02.5'	2000+	310°	5	partly cloudy	very rough	19.34	34.09
133.25-O	7	0943	26°01.5'	112°44.5'	42	310°	4	clear	rough	16.40	33.80
133.30-O	7	0648	25°52.5'	113°06.0'	110	310°	4	partly cloudy	rough	16.46	33.80
133.35-O	7	0355	25°44.5'	113°26.5'	450	300°	3	cloudy	rough	19.68	34.25
133.40-O	6	2215	25°33.0'	113°47.5'	2000+	310°	3	cloudy	moderate	19.85	34.25
133.45-O	6	1932	25°25.5'	114°00.0'	1700	310°	4	cloudy	moderate	19.33	34.07
133.50-O	6	1649	25°14.5'	114°20.5'	2000+	310°	3	cloudy	moderate	19.48	34.13
134.36-O	7	0140	25°38.0'	113°24.5'	80	310°	3	partly cloudy	moderate	18.26	33.78
137.23-O	5	1955	25°34.0'	112°19.0'	42	290°	3	clear	moderate	18.45	33.99
137.30-O	6	0000	25°20.5'	112°44.5'	180	270°	4	clear	moderate	18.42	33.78
137.35-O	6	0230	25°10.0'	113°03.0'	600	270°	4	partly cloudy	moderate	19.88	33.99
137.45-O	6	0855	24°50.0'	113°41.0'	1890	300°	5	partly cloudy	very rough	19.11	33.82
137.50-O	6	1115	24°40.0'	114°00.0'	2000+	300°	4	cloudy	rough	18.60	33.82

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