

Corrections July 1964  
p 447

12777

UNIVERSITY OF CALIFORNIA SCRIPPS INSTITUTION OF OCEANOGRAPHY

# data report

PHYSICAL AND CHEMICAL DATA

CCOFI Cruise 5910  
8-30 October 1959

SIO Reference 61-20  
24 April 1961



UNIVERSITY OF CALIFORNIA  
SCRIPPS INSTITUTION OF OCEANOGRAPHY

PHYSICAL AND CHEMICAL DATA

CCOFI CRUISE 5910

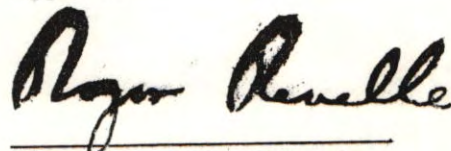
8-30 October 1961

Sponsored by

Marine Research Committee

SIO Reference 61-20  
24 April 1961

Approved for distribution:



Roger Revelle, Director

UNIVERSITY OF CALIFORNIA  
SCHOOL OF OCEANOGRAPHY  
CONTENTS

List of Figures . . . . . ii  
Introduction . . . . . iii  
Personnel . . . . . vii  
Tabulated Data . . . . . 384  
Distribution List . . . . . 451

FIGURES

1. CCOFI Cruise 5910, station positions
2. Horizontal distribution of dynamic height anomaly (0 over 500 d-bar)
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

*[Handwritten signature]*  
Director



## INTRODUCTION

The data presented in this report were collected on the one hundred and twenty-fifth consecutive cruise of the California Cooperative Oceanic Fisheries Investigations program. The R/V Black Douglas of the U. S. Bureau of Commercial Fisheries and the R/V Orca and R/V Spencer F. Baird of the 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.<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  $\Delta D$ .

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.

---

<sup>1/</sup> Klein, Hans T. A new technique for processing physical oceanographic data. MS.



## FOOTNOTES

Laboratory personnel, before titrating the salinity samples, note any possible imperfections in the sealing of the bottles as follows:

- Loose bottle cap: The cap is definitely loose so that it could be moved with very little applied pressure. The salinity values obtained from these samples may be usable depending on time and/or conditions of storage.
- Possible evaporation: Either the cap was sealed with less than usual pressure, the bottle edge chipped, the rubber washer cracked, or the bale broke on opening, etc.

Use of the above values in interpolation depends upon consistency with other values of salinity and other properties, and these footnotes are supplemented with "falls on property curve" or "does not fall on property curve," depending upon whether the property curve was drawn through the value or not.

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.

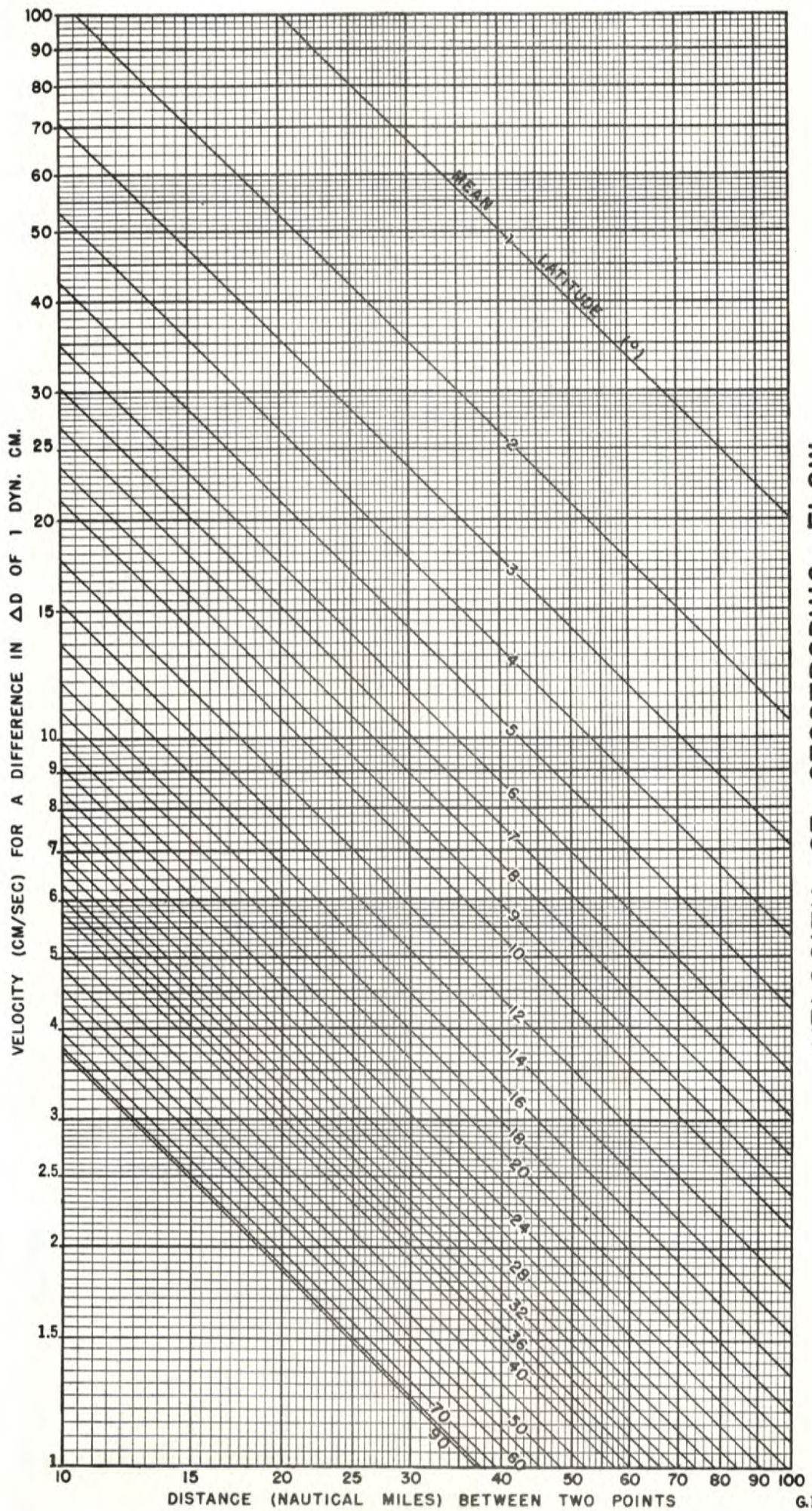
r: rejected value (value seems to be definitely wrong),

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 5910 data is numbered 384.





VELOCITY OF GEOSTROPHIC FLOW



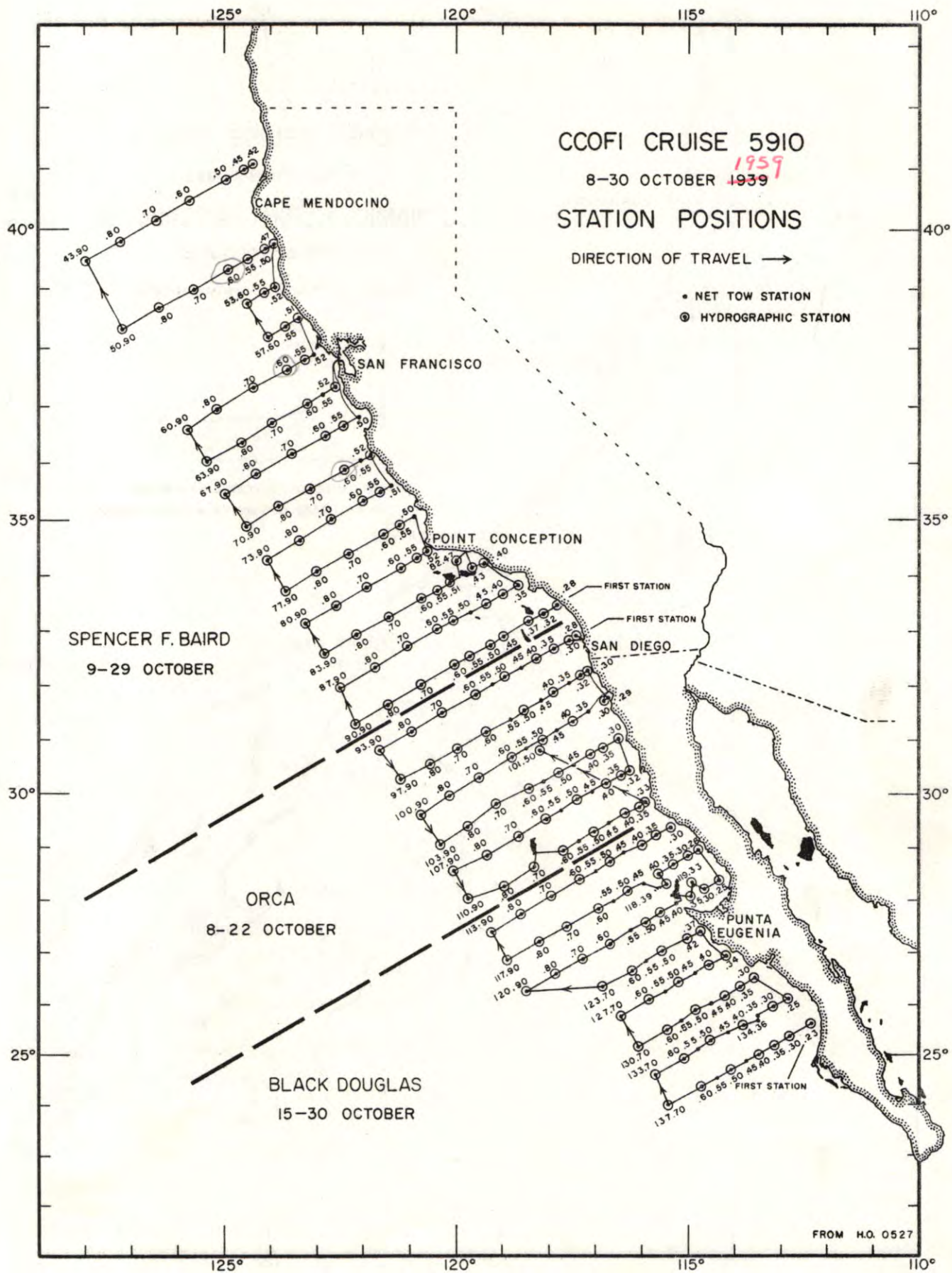


FIGURE 1



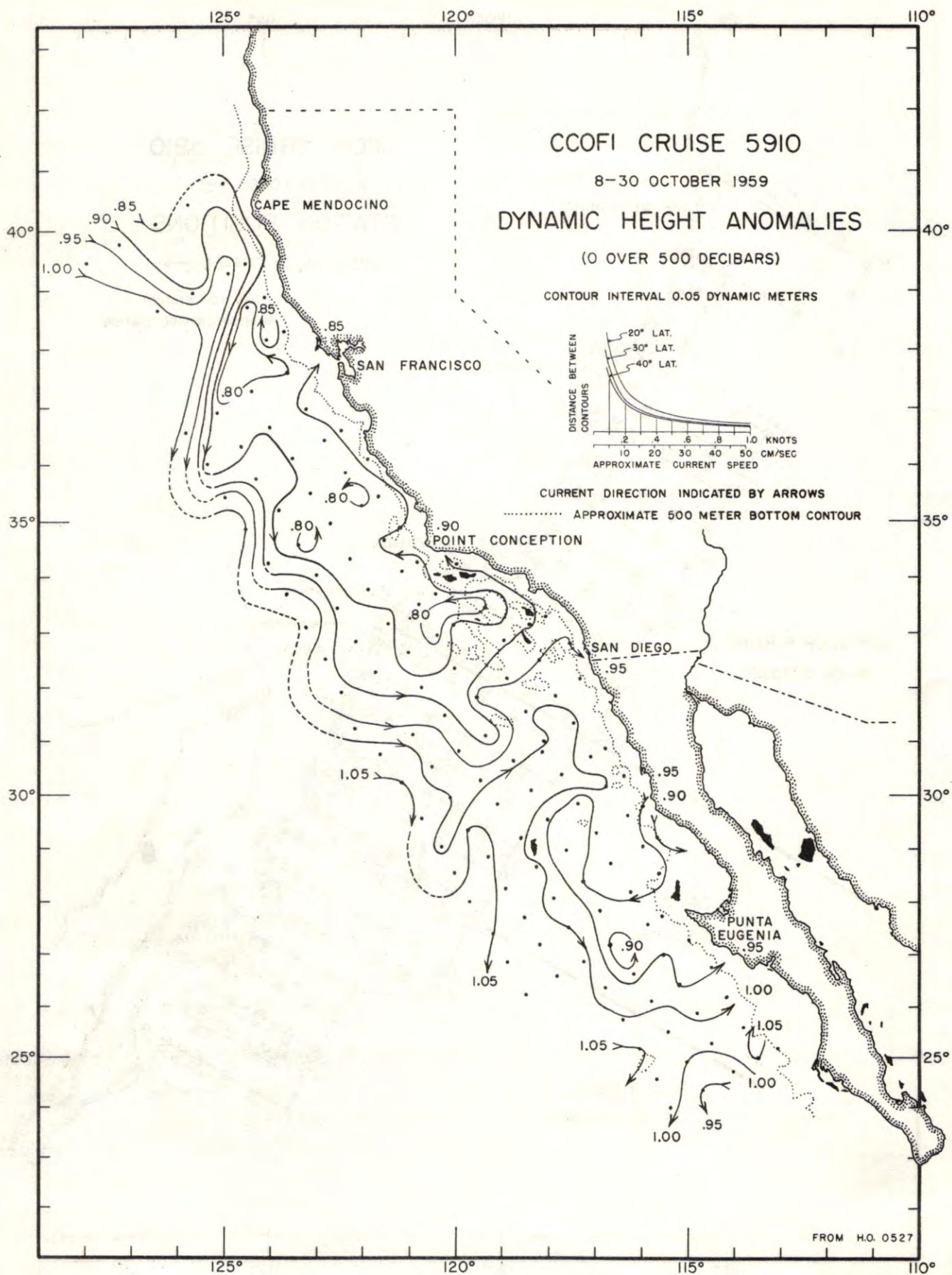


FIGURE 2



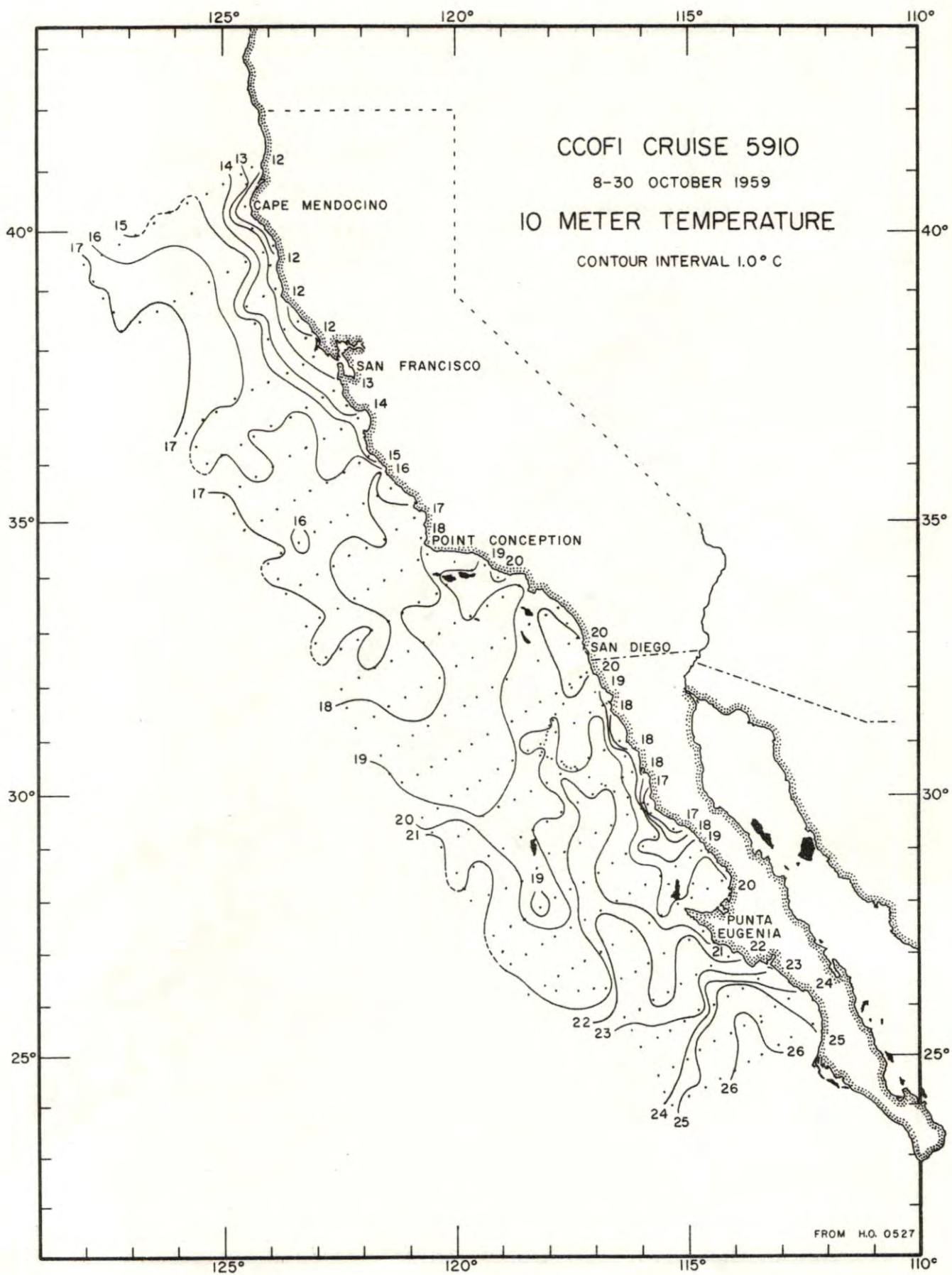
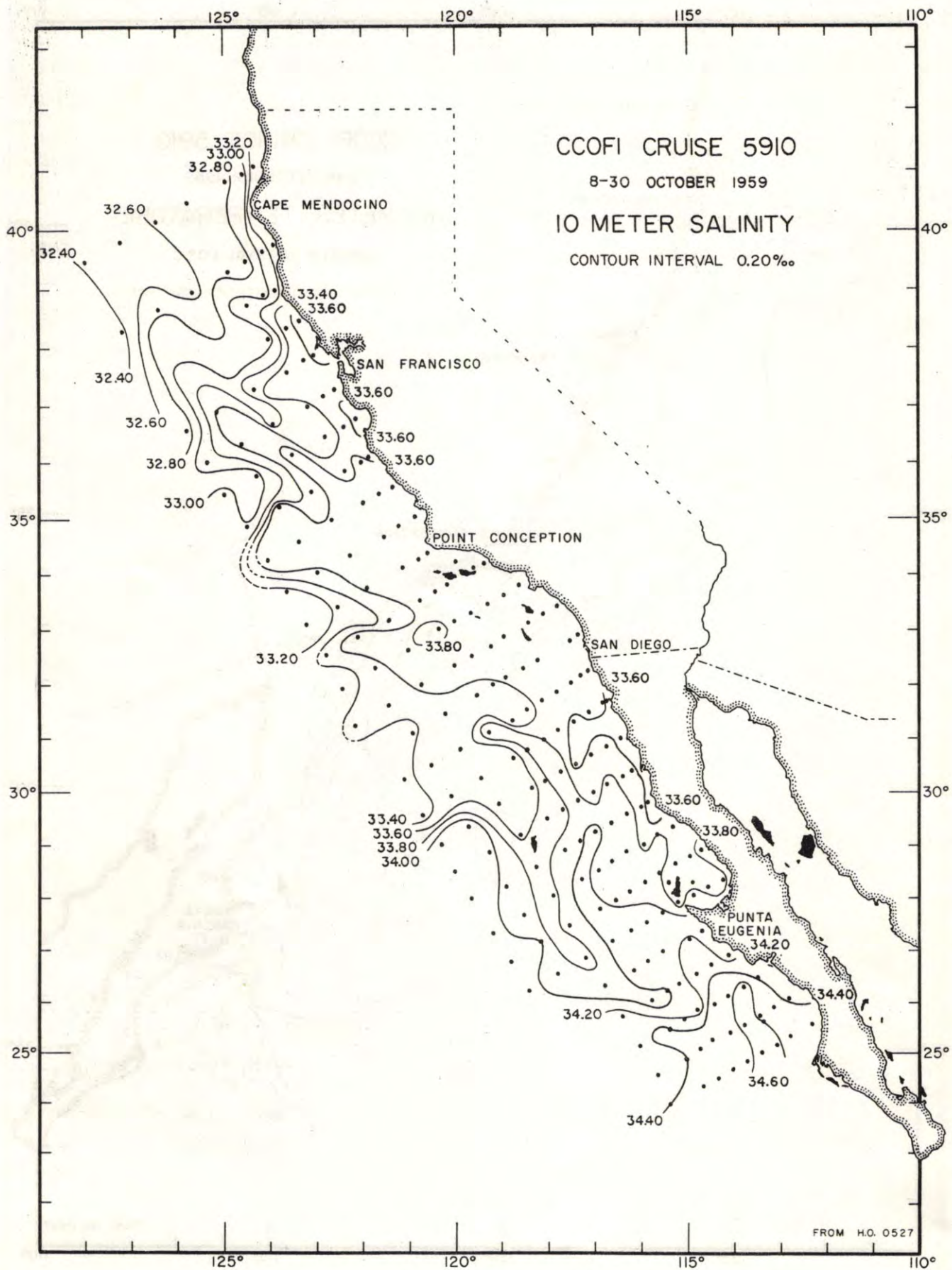


FIGURE 3

FROM H.O. 0527





FROM H.O. 0527

FIGURE 4



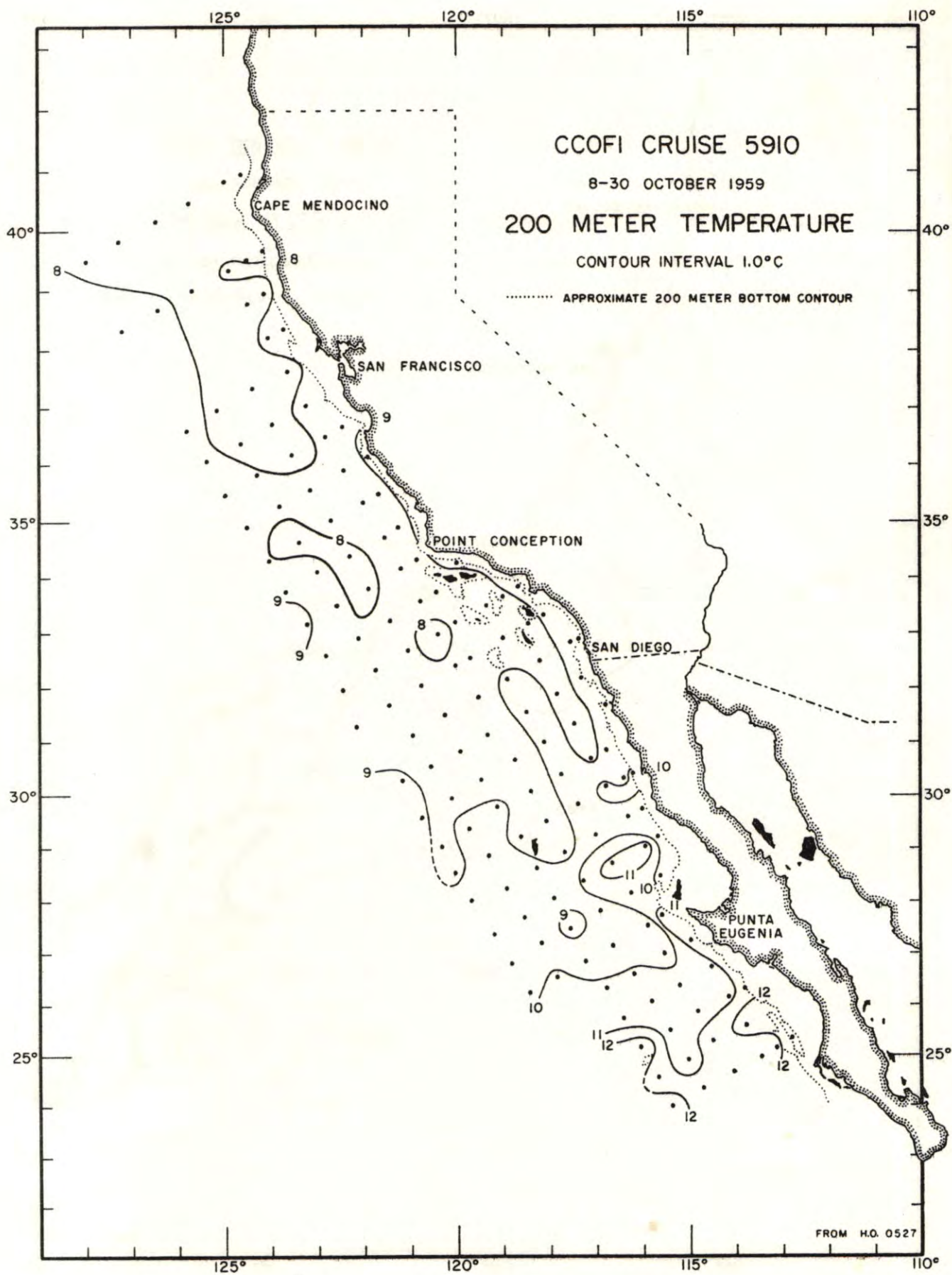


FIGURE 5



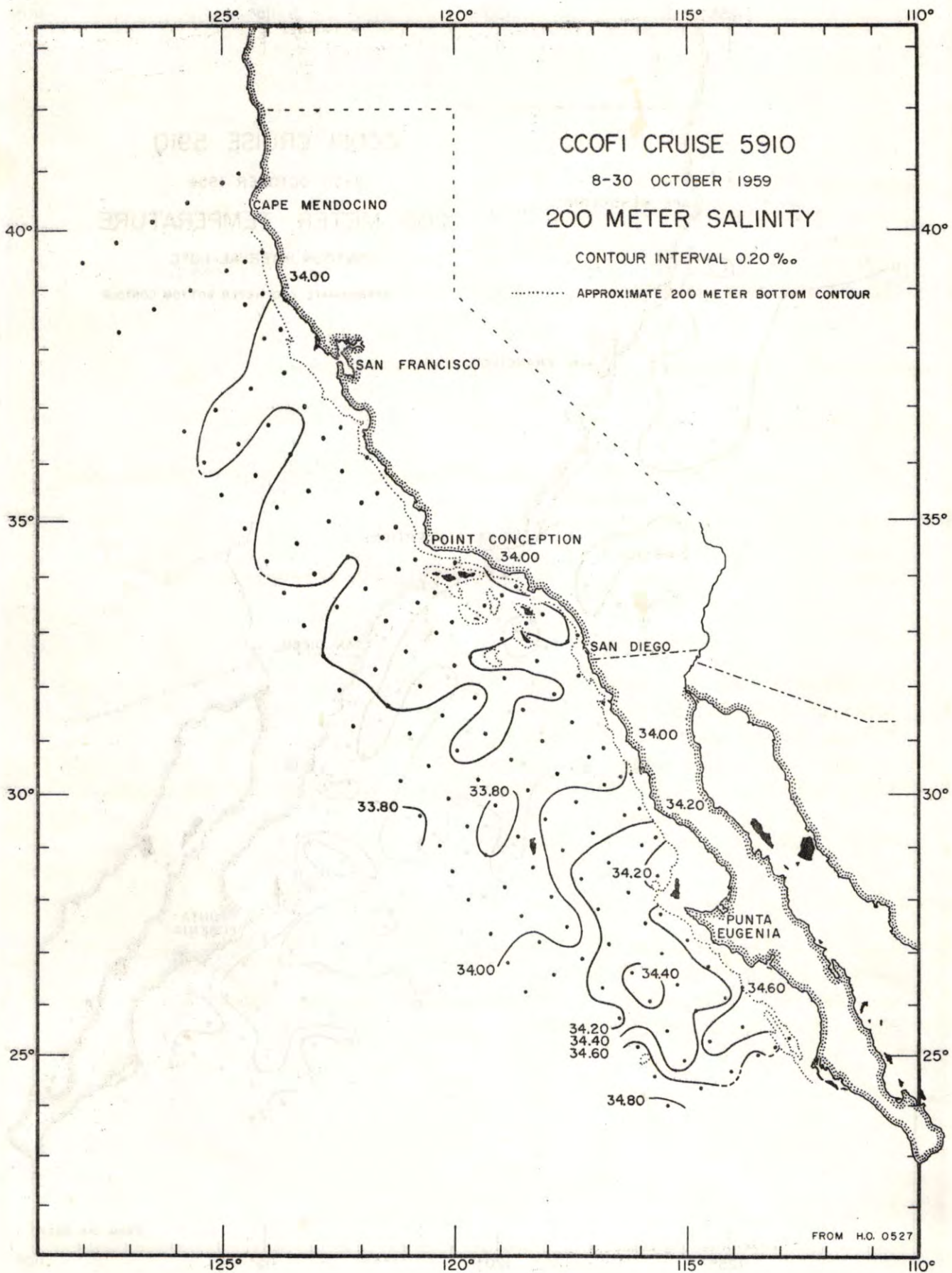


FIGURE 6



--	--	--	--	--	--	--	--	--	--

PERSONNEL

SHIPS' CAPTAINS

Forster, Charles W., R/V Black Douglas  
Hopkins, Marvin F., R/V Orca  
Phinney, Alan W., R/V Spencer F. Baird

PERSONNEL PARTICIPATING IN THE COLLECTION OF DATA

R/V Black Douglas

Vrooman, Andrew M., Fishery Research Biologist, U. S. Bureau of Commercial Fisheries  
Hester, Arthur W., Marine Technician  
Joyal, Norman F., Marine Technician  
Metoyer, Jack D., Fishery Aid, U. S. Bureau of Commercial Fisheries

R/V Orca

Anderson, Norman E., Senior Marine Technician  
Bingman, Allen R., Marine Technician  
Bottom, Kenneth S., Marine Technician  
Costello, James P., Laboratory Technician  
Kimura, Makota, Fishery Research Biologist, U. S. Bureau of Commercial Fisheries  
Wyllie, John G., Laboratory Technician

R/V Spencer F. Baird

Lawson, Jan B., Senior Marine Technician  
Bassel, John B., Marine Technician  
Old, James H., Fishery Aid, U. S. Bureau of Commercial Fisheries  
Pine, James S., Marine Technician



SIO  
CCOFI  
5910

OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T_3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_3$	$\Delta D$
m	°C	‰	ml/L	$\frac{10^{-5}}{10 \text{ cm/g}}$	m	°C	‰	ml/L	g/L	$\frac{10^{-5}}{10 \text{ cm/g}}$	dyn. m

43.42

SPENCER F. BAIRD; October 26, 1959; 2018 GCT; 41°04'N, 124°20.5'W; sounding, 92 fm; wind, 250°, force 1; weather, overcast; sea, moderate; wire angle, 05°.

2	12.42	33.35	5.77	273	0	(12.42)	(33.35)	(5.77)	(25.25)	(273)	(0.00)
12	12.44	33.35	5.77	274	10	12.46	33.35	5.77	25.24	274	0.03
32	10.74	33.53	4.55	230	20	12.00	33.40	5.42	25.38	261	0.05
52	9.91	33.64	3.71	208	30	10.88	33.52	4.66	25.67	233	0.08
77	9.46	33.68	3.26	198	50	9.96	33.64	3.77	25.91	210	0.12
102	8.88	33.71	3.38	188	75	9.50	33.68	3.27	26.02	199	0.17
126	8.70	33.77	3.29	180	100	8.91	33.71	3.38	26.14	188	0.22
					125	8.70	33.77	3.30	26.23	180	0.27

43.45

SPENCER F. BAIRD; October 26, 1959; 1818 GCT; 40°48'N, 124°34.5'W; sounding, 330 fm; wind, 320°, force 2; weather, overcast; sea, rough; wire angle, 35°.

1	13.34	32.95	5.92	319	0	(13.34)	(32.95)	(5.92)	(24.76)	(319)	(0.00)
10	13.30	32.95	5.87	318	10	13.30	32.95	5.87	24.77	318	0.03
26	11.23	32.98	5.39	279	20	13.00	32.95	5.78	24.84	313	0.06
33	10.64	33.10	5.11	260	30	10.72	33.06	5.17	25.34	264	0.09
42	10.48	33.24	4.89	248	50	10.47	33.40	4.77	25.65	235	0.14
49	10.48	33.40	4.79	236	75	9.35	33.54	4.07	25.94	207	0.20
57	10.27	33.46	4.57	228	100	8.79	33.58	3.96	26.06	196	0.25
66	10.15	33.53	4.33	220	125	8.24	33.74	4.00	26.26	176	0.30
77	9.19	33.55	4.04	204	150	8.20	33.87	3.82	26.38	166	0.34
88	8.89	33.58	3.98	197	200	7.83	33.98	2.34	26.52	152	0.42
104	8.74	33.58	3.95	195	250	7.37	34.08	1.83	26.66	139	0.49
124	8.24	33.73	4.00	177	300	7.16	34.11	1.51	26.72	134	0.56
146	8.21	33.86	3.86	167	400	6.45	34.12	1.06	26.82	124	0.70
183	8.01	33.93	2.62	158							
222	7.55	34.04	2.05	144							
310	7.10	34.11	1.45	132							
401	6.44	34.12	1.04	124							

43.50

SPENCER F. BAIRD; October 26, 1959; 1518 GCT; 40°48'N, 124°57'W; sounding, 1500 fm; wind, 330°, force 4; weather, cloudy; sea, rough; wire angle, 14°.

2	14.51	32.81	5.70	353	0	(14.51)	(32.81)	(5.70)	(24.41)	(353)	(0.00)
11	14.51	32.77	5.76	356	10	14.51	32.77	5.76	24.38	356	0.04
36	12.83	32.95	5.70	310	20	14.51	32.77	5.76	24.38	356	0.07
45	11.80	33.16	5.48	276	30	14.51	32.77	5.76	24.38	356	0.11
60	11.42	33.41	5.12	251	50	11.66	33.26	5.40	25.32	266	0.17
74	10.60	33.44	4.44	234	75	10.55	33.44	4.42	25.66	234	0.23
99	9.15	33.58	3.92	201	100	9.14	33.58	3.91	26.01	200	0.29
119	8.94	33.75	3.32	185	125	8.87	33.75	3.35	26.18	184	0.34
138	8.60	33.75	3.56	180	150	8.44	33.78	3.69	26.27	176	0.38
168	8.22	33.87	3.75	166	200	7.58	33.95	3.59	26.53	151	0.46
197	7.62	33.94	3.66	152	250	7.30	34.01	2.32	26.63	142	0.54
237	7.38	34.01	2.42	144	300	6.75	34.03	2.00	26.71	134	0.61
266	7.16	34.01	2.25	140	400	5.72	34.06	1.30	26.87	119	0.74
315	6.55a)	34.04	1.88	130	500	5.31	34.16	0.88	27.00	107	0.86
380	5.84	34.05	1.43	122	600	4.83	34.23	0.52	27.10	97	0.97
479	5.40	34.14	0.96	110							
569	4.97	34.22	0.60	98							
644	4.68	34.23	0.43	95							

a) Mean value of 6.58 and 6.52°C.



OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T_3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_3$	$\Delta D$
m	°C	‰	ml/L	$10^{-5} \text{ cm/g}$	m	°C	‰	ml/L	g/L	$10^{-5} \text{ cm/g}$	dyn. m

SIO  
CCOFI  
5910

SPENCER F BAIRD; October 26, 1959; 1042 GCT; 40°28.5'N, 125°43'W; sounding, 1600 fm; wind, 330°, force 5; weather, partly cloudy; sea, very rough; wire angle, 28°.

43.60

2	15.17	32.72	5.61	373	0	(15.17)	(32.72)	(5.61)	(24.20)	(373)	(0.00)
11	15.20	32.76	5.65	370	10	15.20	32.76	5.64	24.22	370	0.04
29	15.20	32.74	5.64	372	20	15.20	32.75	5.64	24.22	371	0.07
37	15.06	32.71	5.63	371	30	15.20	32.74	5.63	24.21	372	0.11
51	13.50	32.90	5.69	326	50	13.53	32.90	5.69	24.68	326	0.18
63	11.52	33.05	5.36	279	75	10.18	33.18	4.96	25.52	246	0.25
84	9.54	33.30	4.60	228	100	8.99	33.48	4.03	25.95	206	0.31
101	8.96	33.49	4.00	204	125	8.38	33.74	3.37	26.25	178	0.36
118	8.46	33.69	3.45	183	150	8.03	33.82	3.18	26.37	166	0.40
134	8.28	33.77	3.33	174	200	7.44	33.92	3.56	26.53	151	0.48
159	7.86	33.85	3.15	162	250	6.87	33.95	3.36	26.63	142	0.56
188	7.54	33.91	3.57	154	300	6.23	34.00	2.40	26.75	130	0.63
214	7.29	33.94	3.52	148	400	5.49	34.02	1.25	26.87	119	0.76
256	6.78	33.95	3.28	140	500	5.13	34.15	0.70	27.01	106	0.87
304	6.18	34.00	2.29	129							
380	5.58	34.01	1.40	121							
459	5.26	34.10	0.87	111							
541	5.00	34.18	0.58	102							

SPENCER F. BAIRD; October 26, 1959; 0534 GCT; 40°09'N, 126°27'W; sounding, 2300 fm; wind, 340°, force 6; weather, partly cloudy; sea, very rough; wire angle, 12°.

43.70

2	15.54	32.61	5.58	388	0	(15.54)	(32.61)	(5.58)	(24.04)	(388)	(0.00)
11	15.52	32.61	5.64	388	10	15.52	32.61	5.63	24.04	388	0.04
31	14.68	32.78	5.63	358	20	15.50	32.61	5.64	24.05	387	0.08
41	13.10	32.84	5.45	323	30	14.71	32.78	5.63	24.34	359	0.12
56	10.90	33.08	5.15	266	50	11.10	33.02	5.21	25.24	274	0.18
70	9.93	33.28	4.62	235	75	9.66	33.33	4.48	25.72	228	0.24
95	8.74	33.55	3.83	197	100	8.60	33.61	3.68	26.11	191	0.29
114	8.28	33.75	3.34	176	125	8.14	33.82	3.21	26.35	168	0.34
134	8.02	33.85	3.14	164	150	7.86	33.88	2.93	26.44	160	0.38
154	7.81	33.89	2.89	159	200	7.29	33.96	2.73	26.58	146	0.46
184	7.42	33.96	2.82	148	250	6.69	33.99	2.17	26.69	136	0.53
218	7.12	33.95	2.60	144	300	6.18	34.04	1.68	26.80	126	0.60
247	6.74	33.98	2.21	138	400	5.56	34.07	1.02	26.90	116	0.72
297	6.21	34.04	1.72	126	500	5.13	34.18	0.66	27.03	104	0.84
352	5.86	34.04	1.39	122	600	4.82	34.25	0.33	27.12	95	0.94
436	5.34	34.10	0.82	112							
519	5.08	34.20	0.58	102							
604	4.80	34.25	0.32	94							

SPENCER F. BAIRD; October 26, 1959; 0036 GCT; 39°48.5'N, 127°14'W; sounding, 2400 fm; wind, 330°, force 6; weather, partly cloudy; sea, very rough; wire angle, 13°.

43.80

2	15.76	32.47	5.48	403	0	(15.76)	(32.47)	(5.48)	(23.88)	(403)	(0.00)
12	15.78	32.47	5.54	404	10	15.78	32.47	5.54	23.88	404	0.04
37	14.58	32.56	5.66	372	20	15.78	32.47	5.54	23.88	404	0.08
46	12.72	32.68	6.08	328	30	15.40	32.49	5.63	23.98	394	0.12
61	12.56	33.00	5.59	301	50	12.46	32.77	5.93	24.80	316	0.19
75	11.21	33.12	5.22	269	75	11.21	33.12	5.22	25.29	269	0.26
100	9.28	33.30	4.33	224	100	9.28	33.30	4.33	25.76	224	0.33
119	8.92	33.57	3.87	198	125	8.80	33.59	3.83	26.06	196	0.38
139	8.50	33.64	3.69	187	150	8.25	33.69	3.57	26.23	180	0.43
168	7.86	33.80	3.40	166	200	7.52	33.88	3.69	26.48	156	0.51
197	7.56	33.87	3.71	156	250	6.85	33.95	2.88	26.63	142	0.59
236	7.02	33.93	3.03	145	300	6.31	33.98	2.22	26.72	132	0.66
265	6.68	33.96	2.68	138	400	5.44	34.03	1.21	26.88	118	0.79
313	6.17	33.98	2.07	130	500	4.89	34.14	0.68	27.03	104	0.91
377	5.60	34.00	1.42	122	600	4.47	34.18	0.48	27.11	96	1.01
475	5.01	34.13	0.77	106							
563	4.62	34.16	0.56	100							
639	4.36	34.23	0.43	91							



SIO  
CCOFI  
5910

OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T_3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_3$	$\Delta D$
m	°C	‰	ml/L	$\frac{-5}{10} \frac{3}{\text{cm/g}}$	m	°C	‰	ml/L	g/L	$\frac{-5}{10} \frac{3}{\text{cm/g}}$	dyn. m

43.90

SPENCER F. BAIRD; October 25, 1959; 1942 GCT; 39°28'N, 127°58'W; sounding, 2300 fm; wind, 020°, force 6; weather, cloudy; sea, very rough; wire angle, 13°.

4	17.18	32.47	5.34	434	0	(17.18)	(32.47)	(5.34)	(23.56)	(434)	(0.00)
13	17.20	32.47	5.39	434	10	17.20	32.47	5.38	23.56	434	0.04
38	15.86	32.68	5.61	390	20	17.20	32.48	5.40	23.56	434	0.09
48	14.85	32.66	5.70	370	30	16.45	32.59	5.52	23.81	410	0.13
62	13.35	32.70	5.84	338	50	14.45	32.65	5.74	24.30	363	0.21
77	12.54	32.96	5.92	304	75	12.68	32.94	5.92	24.89	307	0.29
101	10.44	32.97	5.46	267	100	10.48	32.95	5.50	25.29	269	0.36
120	9.66	33.23	4.96	235	125	9.50	33.28	4.86	25.71	229	0.43
139	9.11	33.37	4.64	216	150	8.78	33.45	4.46	25.96	205	0.48
169	8.26	33.71	4.14	179	200	7.74	33.87	3.77	26.45	159	0.58
197	7.80	33.86	3.81	161	250	7.08	33.95	3.32	26.60	144	0.65
235	7.26	33.93	3.46	148	300	6.51	33.99	2.57	26.71	134	0.72
264	6.92	33.97	3.08	141	400	5.69	34.03	1.46	26.85	121	0.86
312	6.38	33.99	2.41	132	500	5.16	34.09	0.88	26.96	110	0.98
376	5.82	34.01	1.61	124	600	4.68	34.20	0.52	27.10	97	1.09
472	5.32	34.07	1.03	114							
560	4.83	34.15	0.64	102							
635	4.56	34.23	0.43	93							

50.47

SPENCER F. BAIRD; October 24, 1959; 1057 GCT; 39°46'N, 123°54'W; sounding, 58 fm; wind, calm; weather, partly cloudy; sea, slight; wire angle, 00°.

1	12.08	33.39	5.60	264	0	(12.08)	(33.39)	(5.60)	(25.34)	(264)	(0.00)
11	11.54	33.40	5.23	254	10	11.65	33.39	5.34	25.43	256	0.03
31	10.80	33.58	3.84	228	20	10.63	33.43	4.30	25.65	235	0.05
51	10.80	33.68	3.49	220	30	10.79	33.57	3.85	25.72	228	0.07
76	10.55	33.68	4.28	216	50	10.80	33.67	3.50	25.80	221	0.12
					75	10.56	33.68	4.27	25.85	216	0.17

50.50

SPENCER F. BAIRD; October 24, 1959; 1244 GCT; 39°40'N, 124°07.5'W; sounding, 510 fm; wind, 340°, force 2; weather, partly cloudy; sea, moderate; wire angle, 15°.

2	13.54	33.01	5.93	319	0	(13.54)	(33.01)	(5.93)	(24.76)	(319)	(0.00)
11	13.51	33.03	6.06	317	10	13.52	33.03	6.05	24.79	317	0.03
31	11.27	33.14	5.33	268	20	12.05	33.14	5.62	25.16	281	0.06
40	10.91	33.16	5.10	261	30	11.31	33.14	5.35	25.29	269	0.09
55	10.21	33.30	4.71	239	50	10.44	33.25	4.85	25.53	246	0.14
69	9.63	33.34	4.33	226	75	9.53	33.38	4.15	25.80	221	0.20
92	9.37	33.58	3.67	204	100	9.19	33.66	3.52	26.06	196	0.25
112	8.63	33.68	3.52	186	125	8.27	33.72	3.67	26.25	178	0.30
130	8.20	33.74	3.67	175	150	8.33	33.81	3.28	26.31	172	0.34
149	8.34	33.78	3.23	175	200	7.50	33.93	3.78	26.53	151	0.43
177	7.80	33.86	3.69	161	250	7.10	33.96	3.64	26.60	144	0.50
211	7.39	33.96	3.78	148	300	6.67	33.99	2.80	26.68	137	0.57
240	7.20	33.96	3.71	145	400	6.06	34.12	1.34	26.87	119	0.70
288	6.76	33.97	3.01	139							
342	6.40	34.02	2.10	130							
424	5.94	34.16	1.06	114							



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

SIO  
CCOFI  
5910

SPENCER F. BAIRD; October 24, 1959; 1618, 1635 GCT; 39°29.5'N, 124°29'W; sounding, 1300 fm; wind, 340°, force 4; weather, overcast; sea, very rough; wire angle, 35°, 35°.

50.55

1	15.62	32.65	5.57	387	0	(15.62)	(32.65)	(5.57)	(24.05)	(387)	(0.00)
11	15.77	32.66	5.59	390	10	15.77	32.66	5.58	24.02	390	0.04
34	15.38	32.70	5.60	378	20	15.67	32.67	5.60	24.05	387	0.08
60	11.34	32.79	5.78	295	30	15.48	32.69	5.60	24.12	381	0.12
68	10.72	32.80	5.63	284	50	13.75	32.67	5.68	24.46	348	0.19
85	9.78	33.03	5.10	251	75	10.12	32.88	5.41	25.30	268	0.27
97	9.60	33.17	4.84	238	100	9.53	33.21	4.73	25.65	235	0.33
109	9.25	33.31	4.49	223	125	8.73	33.52	4.23	26.02	199	0.38
133	8.60	33.65	4.06	188	150	8.51	33.83	3.64	26.30	173	0.43
148	8.53	33.82	3.62	174	200	7.77	33.96	4.02	26.51	153	0.52
170	8.26	33.86	3.81	167	250	7.32	34.06	2.26	26.66	139	0.59
196	7.84	33.96	4.03	154	300	6.82	34.07	1.71	26.73	132	0.66
218	7.46	33.98	3.94	147	400	6.07	34.12	1.10	26.87	119	0.79
255	7.30	34.07	2.16	138	500	5.48	34.19	0.72	27.01	106	0.91
305	6.78	34.07	1.64	131							
391	6.14	34.11	1.16	120							
474	5.60	34.17	0.80	109							
546	5.30	34.24	0.54	101							

SPENCER F. BAIRD; October 24, 1959; 1937 GCT; 39°20'N, 124°52'W; sounding, 1600 fm; wind, 010°, force 6; weather, fog; sea, high; wire angle, 37°.

50.60

1	15.56	32.72	5.55	381	0	(15.56)	(32.72)	(5.55)	(24.11)	(381)	(0.00)
10	15.56	32.73	5.61	380	10	15.56	32.73	5.61	24.12	380	0.04
30	15.52	32.74	5.62	378	20	15.54	32.74	5.61	24.13	379	0.08
37	15.20	32.77	5.67	370	30	15.52	32.74	5.62	24.14	378	0.11
49	14.10	32.86	5.68	341	50	14.09	32.87	5.67	24.54	340	0.19
62	13.58	32.92	5.60	326	75	12.88	32.91	5.67	24.83	313	0.27
81	12.57	32.90	5.68	309	100	11.12	32.87	5.60	25.12	285	0.34
96	11.49	32.86	5.67	293	125	10.15	33.38	4.54	25.68	232	0.41
112	10.80	33.09	5.18	264	150	9.52	33.64	3.54	26.00	202	0.46
136	9.91	33.46	4.34	222	200	8.49	33.87	3.50	26.33	170	0.56
159	9.29	33.73	3.24	192	250	7.64	33.98	4.08	26.55	149	0.64
191	8.64	33.82	3.23	176	300	6.86	33.98	3.48	26.66	139	0.72
215	8.25	33.96	4.11	160	400	5.64	34.01	2.04	26.83	123	0.85
255	7.56	33.98	4.07	148	500	5.17	34.12	0.96	26.98	108	0.97
308	6.74	33.98	3.36	138							
394	5.68	34.00	2.11	124							
477	5.30	34.10	1.10	112							
549	4.88	34.17	0.77	102							

SPENCER F. BAIRD; October 25, 1959; 0017 GCT; 39°00'N, 125°39'W; sounding, 2100 fm; wind, 010°, force 6; weather, cloudy; sea, high; wire angle, 05°.

50.70

3	15.79	32.48	5.51	403	0	(15.79)	(32.48)	(5.51)	(23.88)	(403)	(0.00)
13	15.80	32.47	5.60	404	10	15.80	32.47	5.56	23.87	404	0.04
38	14.97	32.48	5.72	386	20	15.80	32.46	5.61	23.87	404	0.08
47	13.48	32.65	5.84	344	30	15.76	32.49	5.64	23.90	402	0.12
62	11.85	32.70	5.93	311	50	13.42	32.67	5.85	24.53	342	0.20
77	10.11	32.88	5.36	268	75	10.35	32.85	5.47	25.24	274	0.27
102	9.30	33.40	4.21	217	100	9.40	33.31	4.36	25.76	225	0.34
121	8.65	33.62	3.83	191	125	8.55	33.66	3.71	26.17	186	0.39
141	8.28	33.78	3.30	174	150	8.14	33.81	3.16	26.34	169	0.43
170	7.89	33.87	2.90	161	200	7.54	33.93	2.67	26.52	152	0.52
200	7.54	33.93	2.67	152	250	7.03	33.97	2.42	26.63	142	0.59
239	7.18	33.96	2.50	145	300	6.51	34.01	1.98	26.73	132	0.66
268	6.81	34.01	2.24	136	400	5.70	34.09	1.19	26.89	117	0.79
318	6.37	34.01	1.87	131	500	5.02	34.15	0.68	27.02	105	0.91
381	5.83	34.07	1.35	120	600	4.57	34.18	0.43	27.10	97	1.01
481	5.13	34.13	0.77	107							
569	4.71	34.16	0.51	100							
644	4.41	34.24	0.35	91							

387



S10

CCOFI  
5910

OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta_{T_3}$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta_{T_3}$	$\Delta D$
m	°C	‰	ml/L	$\frac{-5}{10} \frac{T_3}{cm/g}$	m	°C	‰	ml/L	g/L	$\frac{-5}{10} \frac{T_3}{cm/g}$	dyn. m

50.80

SPENCER F. BAIRD; October 25, 1959; 0459 GCT; 38°41'N, 126°24'W; sounding, 2350 fm; wind, 010°, force 6; weather, cloudy; sea, high; wire angle, 26°.

2	17.33	32.78	5.31	415	0	(17.33)	(32.78)	(5.31)	(23.76)	(415)	(0.00)
11	17.36	32.78	5.34	416	10	17.35	32.78	5.33	23.75	416	0.04
30	17.33	32.79	5.32	414	20	17.36	32.79	5.33	23.76	415	0.08
56	16.96	32.91	5.38	397	30	17.33	32.79	5.32	23.77	414	0.12
64	16.58	32.91	5.39	389	50	16.98	32.91	5.37	23.93	398	0.21
78	13.60	32.94	6.01	325	75	14.30	32.93	5.90	24.55	340	0.30
90	12.26	32.92	5.83	302	100	11.60	32.95	5.62	25.09	288	0.38
103	11.40	32.97	5.53	283	125	10.52	33.30	4.96	25.56	244	0.45
125	10.52	33.30	4.96	244	150	9.60	33.45	4.62	25.83	218	0.50
142	9.88	33.39	4.66	227	200	8.49	33.81	4.30	26.29	174	0.60
168	9.00	33.59	4.58	198	250	7.92	33.96	4.03	26.49	155	0.69
194	8.56	33.78	4.33	178	300	7.10	33.97	3.35	26.62	143	0.77
220	8.32	33.93	4.29	163	400	5.79	34.03	1.82	26.84	122	0.90
263	7.73	33.97	3.88	151	500	5.17	34.11	0.98	26.97	109	1.03
312	6.90	33.96	-	141							
386	5.92	34.01	2.08	125							
464	5.37	34.08	1.21	114							
546	4.90	34.14	0.76	104							

50.90

SPENCER F. BAIRD; October, 25, 1959; 0950, 1028, 1051 GCT; 38°19'N, 127°10'W; sounding, 2450 fm; wind, 010°, force 6; weather, overcast; sea, high; wire angle, 45°, 55°, 45°.

1	17.03	32.40	5.38	436	0	(17.03)	(32.40)	(5.38)	(23.54)	(436)	(0.00)
9	17.00	32.36	5.38	438	10	17.00	32.36	5.38	23.52	438	0.04
26	16.95	32.38	5.38	435	20	16.99	32.37	5.38	23.53	437	0.09
32	16.59	32.34	5.45	430	30	16.70	32.35	5.44	23.58	432	0.13
41	16.48	32.48	5.42	418	50	16.00	32.79	5.56	24.07	385	0.21
51	15.92	32.81	5.56	381	75	13.05	32.83	5.76	24.72	323	0.30
67	13.42	32.75	5.70	336	100	11.18	32.89	5.63	25.12	285	0.38
80	12.72a)	32.89	5.79	312	125	10.74	33.13	5.30	25.39	260	0.45
92	11.70	32.87	5.74	295	150	9.71	33.48	4.61	25.84	217	0.51
110	10.98	32.95	5.52	276	200	8.70	33.81	3.72	26.25	178	0.61
127	10.72	33.16	5.24	257	250	8.12	33.96	2.82	26.46	158	0.70
					300	7.05	33.98	3.37	26.64	141	0.77
158	9.36	33.57	4.49	205	400	(5.61)	(33.98)	(2.15)	(26.82)	(124)	(0.91)
182	8.92	33.73	4.12	186							
250	8.12	33.96	2.82	158							
306	6.94	33.98	3.38	140							
393	5.70	33.98	2.24	125							

53.52

SPENCER F. BAIRD; October 24, 1959; 0634 GCT; 39°02'N, 123°51.5'W; sounding, 50 fm; wind, 300°, force 2; weather, partly cloudy; sea, moderate; wire angle, 09°.

2	13.11	33.12	5.97	303	0	(13.11)	(33.12)	(5.97)	(24.94)	(303)	(0.00)
11	12.86	33.17	5.99	294	10	12.89	33.16	5.99	25.02	295	0.03
31	11.31	33.46	4.81	245	20	11.90	33.31	5.53	25.32	266	0.06
51	10.84	33.53	4.29	232	30	11.33	33.45	4.84	25.53	246	0.08
76	10.30	33.73	3.12	208	50	10.86	33.53	4.31	25.67	233	0.13
					75	10.32	33.73	3.13	25.92	209	0.19

a) Alternate value, 12.49°C, not used in interpolation.



OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T$	$\Delta D$
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  
5910

SPENCER F. BAIRD; October 24, 1959; 0435 GCT; 38°56'N, 124°04.5'W; sounding, 650 fm; wind, 340°, force 5; weather, clear; sea, rough; wire angle, 10°.

53.55

2	13.76	32.94	5.99	328	0	(13.76)	(32.94)	(5.99)	(24.67)	(328)	(0.00)
12	13.70	32.95	5.95	326	10	13.71	32.95	5.96	24.68	327	0.03
36	12.20	33.10	5.64	287	20	12.65	33.09	5.77	25.01	296	0.06
46	11.98	33.08	5.51	285	30	12.31	33.11	5.68	25.08	289	0.09
61	10.93	33.15	5.11	261	50	11.45	33.09	5.32	25.23	275	0.15
76	10.04	33.33	4.70	234	75	10.07	33.33	4.71	25.66	234	0.21
101	9.28	33.55	4.28	205	100	9.29	33.54	4.28	25.95	206	0.27
121	8.84	33.68	4.31	189	125	8.72	33.72	4.30	26.18	185	0.32
140	8.36	33.78	4.17	175	150	8.20	33.83	3.98	26.34	169	0.36
170	7.95	33.89	3.70	161	200	7.60	33.96	3.81	26.53	151	0.44
200	7.60	33.96	3.81	151	250	6.98	33.99	3.38	26.65	140	0.52
239	7.12	33.99	3.47	142	300	6.39	34.01	2.67	26.74	131	0.59
269	6.75	34.00	3.18	136	400	5.47	34.05	1.70	26.89	117	0.72
319	6.16	34.02	2.38	127	500	5.33	34.16	0.73	27.00	107	0.83
385	5.51	34.04	1.91	118							
483	5.40	34.14	0.82	110							
573	5.01	34.27	0.47	96							

SPENCER F. BAIRD; October 24, 1959; 0144 GCT; 38°46'N, 124°27'W; sounding, 1900 fm; wind, 340°, force 4; weather, clear; sea, rough; wire angle, 25°.

53.60

2	13.24	33.13	6.03	304	0	(13.24)	(33.13)	(6.03)	(24.92)	(304)	(0.00)
12	13.24	33.13	6.20	304	10	13.24	33.13	6.17	24.92	304	0.03
35	10.68	33.31	4.84	246	20	12.33	33.17	5.79	25.13	284	0.06
43	10.32	33.34	4.73	237	30	11.11	33.27	5.04	25.43	256	0.09
56	9.80	33.42	4.47	223	50	9.95	33.38	4.57	25.72	228	0.14
69	9.39	33.57	4.04	205	75	9.12	33.61	3.84	26.04	198	0.19
90	9.00	33.62	3.78	196	100	8.68	33.65	3.75	26.13	189	0.24
106	8.56	33.68	3.72	185	125	8.43	33.80	3.22	26.28	175	0.28
123	8.46	33.78	3.25	177	150	8.18	33.96	2.90	26.46	158	0.33
148	8.20	33.96	2.94	159	200	7.53	33.95	2.87	26.54	150	0.40
172	7.90	33.95	2.80	155	250	7.21	34.05	1.90	26.66	139	0.48
204	7.48	33.96	2.87	149	300	6.70	34.09	1.58	26.76	129	0.55
229	7.30	33.99	2.36	144	400	5.65	34.06	1.30	26.87	119	0.67
269	7.09	34.09	1.61	134	500	4.83	34.10	1.03	27.00	106	0.79
323	6.42	34.09	1.55	125							
410	5.56	34.05	1.26	118							
493	4.86	34.09	1.05	107							
566	4.80	34.24	0.45	95							

SPENCER F. BAIRD; October 23, 1959; 1602 GCT; 38°30'N, 123°22'W; sounding, 60 fm; wind, 330°, force 2; weather, clear; sea, moderate; wire angle, 04°.

57.51

2	11.44	33.67	4.29	232	0	(11.44)	(33.67)	(4.29)	(25.68)	(232)	(0.00)
12	11.41	33.68	4.33	231	10	11.42	33.68	4.33	25.69	231	0.02
32	10.93	33.68	3.65	222	20	11.28	33.68	4.23	25.71	229	0.05
52	10.20	33.75	2.97	205	30	11.00	33.68	3.75	25.77	223	0.07
77	9.84	33.78	2.65	198	50	10.25	33.75	3.03	25.95	206	0.11
					75	9.86	33.78	2.67	26.04	198	0.16



SIO  
CCOFI  
5910

OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta_{T_3}$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta_{T_3}$	$\Delta D$
m	°C	‰	ml/L	$\frac{10^{-5}}{10 \text{ cm/g}}$	m	°C	‰	ml/L	g/L	$\frac{10^{-5}}{10 \text{ cm/g}}$	dyn. m

57.55

SPENCER F. BAIRD; October 23, 1959; 1820 GCT; 38°21.5'N, 123°40'W; sounding, 500 fm; wind, 300°, force 3; weather, partly cloudy; sea, moderate; wire angle, 14°.

2	13.15	33.44	5.67	280	0	(13.15)	(33.44)	(5.67)	(25.17)	(280)	(0.00)
11	12.98	33.44	5.71	276	10	13.00	33.44	5.70	25.21	277	0.03
31	12.48	33.39	5.44	272	20	12.87	33.43	5.66	25.23	275	0.06
60	10.92	33.40	4.86	243	30	12.51	33.39	5.45	25.26	272	0.08
70	10.34	33.45	4.22	229	50	12.40	33.49	5.25	25.37	262	0.14
84	9.60	33.55	3.99	210	75	10.12	33.49	4.14	25.78	223	0.20
99	9.02	33.68	3.71	192	100	9.00	33.69	3.67	26.11	191	0.25
113	8.96	33.79	3.26	182	125	9.00	33.87	2.62	26.26	177	0.30
137	9.04	33.96a)	2.27	171	150	8.92	34.01	2.30	26.37	166	0.34
156	8.84	34.02a)	2.33	164	200	8.27	34.09	2.00	26.53	151	0.42
185	8.56	34.08	1.87	155	250	7.99	34.13	1.72	26.62	143	0.49
213	8.10	34.10	2.07	147	300	7.63	34.14	1.41	26.67	138	0.57
242	8.02	34.13	1.81	144	400	6.55	34.13	1.20	26.82	124	0.70
289	7.74	34.14	1.42	139	500	5.99	34.22	0.67	26.97	110	0.82
343	7.11	34.12	1.39	132	600	(5.36)	(34.29)	(0.42)	(27.10)	(97)	(0.93)
425	6.36	34.14	1.11	121							
508	5.94	34.23	0.63	109							
591	5.42	34.29	0.42	99							

57.60

SPENCER F. BAIRD; October 23, 1959; 2104 GCT; 38°12'N, 124°01.5'W; sounding, 1950 fm; wind, 320°, force 4; weather, partly cloudy; sea, rough; wire angle, 27°.

2	14.34	32.94	5.78	340	0	(14.34)	(32.94)	(5.78)	(24.55)	(340)	(0.00)
11	14.26	32.94	5.81	338	10	14.26	32.94	5.80	24.57	338	0.03
28	13.30	33.07	5.72	310	20	13.94	32.94	5.81	24.63	332	0.07
37	12.46	33.04	5.63	297	30	13.27	33.08	5.71	24.87	309	0.10
50	12.79	33.35	5.38	279	50	12.79	33.35	5.38	25.18	279	0.16
63	12.40	33.35	5.31	273	75	11.88	33.43	4.86	25.40	258	0.23
83	10.70	33.35	4.50	243	100	9.72	33.46	4.17	25.82	219	0.29
99	9.75	33.45	4.19	220	125	9.14	33.66	3.53	26.07	195	0.34
114	9.25	33.58	3.86	203	150	8.80	33.83	3.16	26.25	178	0.39
130	9.09	33.69	3.43	192	200	8.33	34.03	2.15	26.48	156	0.47
154	8.72	33.86	3.07	174	250	8.09	34.14	1.42	26.60	144	0.55
182	8.39	33.98	2.77	160	300	7.57	34.14	1.26	26.68	137	0.62
206	8.32	34.04	1.91	155	400	6.64	34.23	0.89	26.88	118	0.75
246	8.13	34.13	1.46	145	500	5.98	34.24	0.55	26.99	108	0.87
292	7.64	34.14	1.29	138							
365	7.02	34.22	1.02	124							
444	6.23	34.22	0.75	114							
526	5.87	34.27	0.45	105							

60.55

SPENCER F. BAIRD; October 23, 1959; 1034 GCT; 37°47.5'N, 123°15.5'W; sounding, 60 fm; wind, 340°, force 4; weather, clear; sea, rough; wire angle, 02°.

2	13.50	33.57	6.00	276	0	(13.50)	(33.57)	(6.00)	(25.22)	(276)	(0.00)
12	13.50	33.55	6.03	278	10	13.50	33.55	6.02	25.20	278	0.03
32	12.96	33.59	4.63	265	20	13.49	33.55	6.00	25.20	278	0.06
52	11.71	33.67	3.54	236	30	13.09	33.59	4.86	25.30	268	0.08
77	11.30	33.68	3.37	229	50	11.74	33.67	3.55	25.63	237	0.13
					75	11.33	33.68	3.38	25.71	229	0.19

a) Salinity samples at 137 and 156 meters appear to have been reversed; they are assumed to be in the order listed.



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

SIO  
CCOFI  
5910

SPENCER F. BAIRD; October 23, 1959; 0732, 0801 GCT; 37°37'N, 123°37'W; sounding, 1700 fm; wind, 320°, force 4; weather, clear; sea, rough; wire angle, 25°, 27°.

60.60

2	14.44	33.48	5.74	302	0	(14.44)	(33.48)	(5.74)	(24.95)	(302)	(0.00)
11	14.46	33.49	5.74	302	10	14.46	33.49	5.74	24.95	302	0.03
34	11.44	33.22	4.94	265	20	14.40	33.49	5.72	24.96	301	0.06
43	10.94	33.33	4.70	248	30	11.92	33.20	5.09	25.23	275	0.09
56	10.22	33.42	4.28	230	50	10.53	33.38	4.40	25.62	238	0.14
69	9.86	33.44	4.17	222	75	9.74	33.51	3.96	25.85	216	0.20
91	9.43	33.64	3.38	201	100	9.02	33.64	3.38	26.07	195	0.25
109	8.66	33.69	3.49	186	125	8.50	33.87	3.02	26.33	170	0.30
126	8.50	33.87	3.02	170	150	8.25	33.96	2.83	26.44	160	0.34
154	8.22	33.98	2.82	158	200	7.69	34.03	2.68	26.58	146	0.42
180	7.95	34.02	2.82	151	250	7.29	34.12	1.68	26.70	135	0.49
215	7.52	34.05	2.43	143	300	6.66	34.11	1.57	26.78	127	0.55
241	7.39	34.11	1.74	137	400	6.13	34.17	0.84	26.90	116	0.68
286	6.82	34.11	1.61	129	500	5.68	34.20	0.57	26.98	108	0.80
346	6.29	34.12	1.30	122	600	(4.92)	(34.27)	(0.31)	(27.12)	(95)	(0.90)
438	6.04	34.21	0.52	112							
523	5.54	34.20	0.59	106							
592	5.00	34.25	0.31	97							

SPENCER F. BAIRD; October 23, 1959; 0216 GCT; 37°19'N, 124°21'W; sounding, 2150 fm; wind, 320°, force 5; weather, fog; sea, rough; wire angle, 25°.

60.70

3	15.92	33.31	5.56	345	0	(15.92)	(33.31)	(5.56)	(24.49)	(345)	(0.00)
9	15.93	33.33	5.56	344	10	15.93	33.33	5.56	24.50	344	0.03
19	15.93	33.32	5.56	345	20	15.93	33.32	5.56	24.49	345	0.07
42	13.10	33.29	5.44	290	30	15.85	33.32	5.56	24.51	343	0.10
51	11.24	33.33	4.95	254	50	11.30	33.33	4.98	25.44	255	0.16
65	10.03	33.37	4.33	231	75	9.43	33.50	4.00	25.90	211	0.22
78	9.28	33.54	3.92	206	100	8.87	33.71	3.43	26.16	187	0.27
100	8.87	33.71	3.43	187	125	8.61	33.80	3.17	26.26	177	0.32
119	8.67	33.77	3.21	180	150	8.22	33.89	2.87	26.38	165	0.36
136	8.42	33.84	3.04	171	200	7.90	34.03	2.63	26.54	150	0.44
163	8.18	33.95	2.78	160	250	7.38	34.05	2.09	26.64	141	0.52
189	7.96	34.00	2.77	152	300	6.75	34.07	1.81	26.74	131	0.59
224	7.70	34.04	2.28	146	400	5.74	34.09	1.27	26.89	117	0.71
296	6.81	34.07	1.83	132	500	5.20	34.19	0.64	27.03	104	0.83
356	6.16	34.07	1.60	124	600	4.87	34.27	0.38	27.12	94	0.93
449	5.38	34.13	0.88	110							
535	5.07	34.22	0.50	100							
609	4.84	34.28	0.37	93							

SPENCER F. BAIRD; October 22, 1959; 2050 GCT; 36°58'N, 125°08'W; sounding, 2450 fm; wind, 330°, force 3; weather, fog; sea, rough; wire angle, 17°.

60.80

2	15.86	33.38	5.53	339	0	(15.86)	(33.38)	(5.53)	(24.56)	(339)	(0.00)
11	15.86	33.40	5.56	338	10	15.86	33.40	5.55	24.57	338	0.03
30	13.98	33.37	5.59	301	20	15.30	33.40	5.58	24.69	326	0.07
40	12.90	33.26	5.40	288	30	13.98	33.37	5.59	24.96	301	0.10
54	10.94	33.43	4.46	241	50	11.98	33.33	4.95	25.32	266	0.16
68	9.84	33.44	4.23	223	75	9.64	33.47	4.17	25.84	217	0.22
92	9.16	33.57	3.90	202	100	8.92	33.66	3.57	26.11	191	0.27
110	8.70	33.75	3.26	182	125	8.51	33.83	3.12	26.30	173	0.31
129	8.48	33.86	3.06	170	150	8.39	33.96	2.77	26.42	162	0.36
147	8.41	33.95	2.76	163	200	7.65	34.01	2.57	26.57	148	0.43
174	8.02	33.98	2.81	155	250	7.08	34.07	2.04	26.70	135	0.51
207	7.56	34.02	2.50	145	300	6.69	34.11	1.60	26.78	127	0.57
234	7.18	34.06	2.28	137	400	5.83	34.16	0.94	26.94	113	0.70
281	6.89	34.09	1.72	131	500	5.54	34.28	0.47	27.07	101	0.81
332	6.29	34.13	1.45	121							
412	5.77	34.17	0.84	111							
494	5.56	34.27	0.48	101							
577	5.14	34.33	0.37	92							



S10  
CCOFI  
5910

OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T_3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_3$	$\Delta D$
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

60.90

SPENCER F. BAIRD; October 22, 1959; 1613 GCT; 36°36'N, 125°46'W; sounding, 2450 fm; wind, 320°, force 2; weather, fog; sea, rough; wire angle, 17°.

2	16.84	32.71	5.41	409	0	(16.84)	(32.71)	(5.41)	(23.82)	(409)	(0.00)
11	16.83	32.69	5.42	410	10	16.83	32.69	5.41	23.81	410	0.04
30	16.42	32.76	5.62	397	20	16.82	32.69	5.43	23.81	410	0.08
40	15.86	32.81	5.60	381	30	16.42	32.76	5.62	23.95	397	0.12
54	14.02	32.93	5.93	334	50	14.40	32.87	5.87	24.48	346	0.20
67	12.71	32.99	5.90	304	75	12.33	33.00	5.79	24.99	298	0.28
91	11.74	33.01	5.54	286	100	11.33	33.16	5.36	25.31	267	0.35
109	10.94	33.26	5.24	254	125	10.25	33.31	5.00	25.61	239	0.41
127	10.16	33.32	4.96	236	150	9.17	33.60	4.73	26.02	200	0.47
146	9.28	33.57	4.78	204	200	8.50	33.85	4.37	26.32	172	0.56
173	8.80	33.71	4.48	186	250	7.83	33.98	4.00	26.52	152	0.65
205	8.43	33.87	4.37	169	300	6.95	33.99	2.85	26.65	140	0.72
232	8.12	33.96	4.36	158	400	6.30	34.10	1.35	26.82	123	0.86
278	7.30	33.99	2.97	144	500	5.40	34.15	0.80	26.98	108	0.98
330	6.57	33.99	2.72	135							
409	6.25	34.11	1.28	122							
490	5.42	34.14	0.84	110							
574	5.38	34.28	0.38	98							

63.52

SPENCER F. BAIRD; October 21, 1959; 1719 GCT; 37°19'N, 122°36.5'W; sounding, 50 fm; wind, 310°, force 2; weather, cloudy; sea, rough; wire angle, 02°.

2	14.02	33.54	5.62	290	0	(14.02)	(33.54)	(5.62)	(25.07)	(290)	(0.00)
12	13.96	33.53	5.49	289	10	13.97	33.53	5.53	25.26.08	289	0.03
32	12.74	33.66	4.06	256	20	13.93	33.53	5.42	25.26.09	288	0.06
52	11.00	33.70	3.02	222	30	12.95	33.64	4.25	25.26.38	260	0.09
77	10.68	33.71	2.78	216	50	11.04	33.70	3.05	25.26.78	223	0.13
					75	10.70	33.71	2.81	25.26.85	216	0.19

63.60

SPENCER F. BAIRD; October 21, 1959; 2116 GCT; 37°02.5'N, 123°12'W; sounding, 1450 fm; wind, 320°, force 4; weather, partly cloudy; sea, very rough; wire angle, 20°.

1	15.84	33.30	5.45	345	0	(15.84)	(33.30)	(5.45)	(24.50)	(345)	(0.00)
11	15.82	33.28	5.47	346	10	15.82	33.28	5.47	24.49	346	0.03
30	15.76	33.28	5.48	344	20	15.78	33.28	5.48	24.50	345	0.07
39	14.86	33.37	5.55	319	30	15.76	33.28	5.48	24.50	344	0.10
54	12.85	33.28	5.47	286	50	13.41	33.28	5.52	25.00	296	0.17
67	11.72	33.37	4.92	258	75	10.91	33.42	4.54	25.59	241	0.23
90	10.13	33.44	4.22	226	100	9.78	33.56	3.80	25.89	212	0.29
108	9.46	33.62	3.59	203	125	8.73	33.66	3.99	26.13	189	0.34
126	8.72	33.66	3.99	189	150	8.46	33.82	3.32	26.30	173	0.39
143	8.49	33.78	3.50	176	200	8.18	34.01	2.87	26.49	155	0.47
169	8.40	33.91	2.93	166	250	7.52	34.05	2.54	26.62	143	0.55
200	8.18	34.01	2.87	155	300	6.79	34.06	2.02	26.74	132	0.62
227	7.93	34.06	2.68	148	400	6.01	34.16	1.02	26.91	115	0.75
271	7.16	34.04	2.41	138	500	5.03	34.17	0.75	27.04	103	0.86
320	6.56	34.09	1.74	127							
397	6.03	34.16	1.04	116							
477	5.16	34.16	0.83	105							
560	4.83	34.20	0.40	99							



OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T_3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_3$	$\Delta D$
m	°C	‰	ml/L	$10^{-5} \text{ cm/g}$	m	°C	‰	ml/L	g/L	$10^{-5} \text{ cm/g}$	dyn. m

SIO  
CCOFI  
5910

SPENCER F. BAIRD; October 22, 1959; 0134 GCT; 36°42.5'N, 123°57'W; sounding, 2100 fm; wind, 320°, force 3; weather, cloudy; sea, rough; wire angle, 10°.

63.70

2	15.98	33.20	5.55	354	0	(15.98)	(33.20)	(5.55)	(24.40)	(354)	(0.00)
11	15.90	33.19	5.59	354	10	15.91	33.19	5.59	34.40	354	0.04
31	15.84	33.21	5.49	351	20	15.87	33.20	5.54	24.42	352	0.07
41	14.56	33.41	5.37	310	30	15.85	33.21	5.50	24.42	352	0.11
56	10.98	33.26	4.84	254	50	12.00	33.29	5.09	25.29	269	0.17
71	10.23	33.35	4.38	235	75	10.03	33.38	4.26	25.70	230	0.23
96	9.18	33.52	3.94	206	100	8.99	33.56	3.93	26.02	200	0.28
115	8.50	33.66	3.93	186	125	8.39	33.69	3.90	26.21	182	0.33
135	8.30	33.73	3.88	177	150	8.09	33.78	3.55	26.32	171	0.38
155	8.02	33.79	3.40	170	200	7.48	33.96	2.79	26.56	149	0.46
185	7.62	33.92	2.96	154	250	6.93	34.04	1.98	26.70	135	0.53
220	7.27	34.00	2.57	143	300	6.71	34.13	1.30	26.80	126	0.60
249	6.94	34.04	2.02	136	400	5.60	34.11	0.95	26.92	114	0.72
299	6.72	34.13	1.31	126	500	5.03	34.19	0.60	27.06	102	0.84
354	6.02	34.09	1.21	120	600	4.65	34.26	0.37	27.16	92	0.94
438	5.35	34.14	0.75	109							
523	4.94	34.21	0.56	99							
608	4.62	34.27	0.36	91							

SPENCER F. BAIRD; October 22, 1959; 0556 GCT; 36°23'N, 124°37'W; sounding, 2175 fm; wind, 300°, force 3; weather, fog; sea, moderate; wire angle, 08°.

63.80

2	15.96	33.40	5.41	340	0	(15.96)	(33.40)	(5.41)	(24.55)	(340)	(0.00)
12	15.92	33.44	5.49	336	10	15.93	33.44	5.48	24.59	336	0.03
31	15.64	33.42	5.50	331	20	15.80	33.43	5.50	24.61	334	0.07
61	10.68	33.34	4.78	243	30	15.65	33.42	5.50	24.63	332	0.10
71	10.32	33.40	4.48	233	50	12.35	33.36	5.13	25.27	271	0.16
86	9.62	33.54	3.87	211	75	10.12	33.45	4.27	25.74	226	0.22
101	9.28	33.60	3.81	202	100	9.31	33.59	3.81	25.99	202	0.28
116	8.72	33.71	3.42	185	125	8.58	33.81	3.14	26.27	176	0.33
141	8.42	33.93	2.76	164	150	8.32	33.94	2.70	26.42	162	0.37
160	8.20	33.96	2.67	159	200	7.65	34.04	2.77	26.59	145	0.45
190	7.76	34.04	2.84	146	250	7.23	34.05	1.77	26.66	139	0.52
220	7.45	34.04	2.34	143	300	6.73	34.11	1.27	26.78	128	0.59
249	7.24	34.05	1.79	139	400	6.10	34.18	0.80	26.92	114	0.71
299	6.74	34.11	1.28	128	500	5.43	34.23	0.52	27.03	104	0.83
355	6.26	34.13	1.07	120	600	4.80	34.25	0.39	27.13	95	0.93
439	5.92	34.22	0.60	109							
523	5.25	34.23	0.49	101							
608	4.77	34.25	0.38	94							

SPENCER F. BAIRD; October 22, 1959; 1059, 1125 GCT; 36°03'N, 125°20'W; sounding, 2500 fm; wind, 300°, force 3; weather, fog; sea, moderate; wire angle, 13°, 22°.

63.90

2	16.01	33.28	5.56	349	0	(16.01)	(33.28)	(5.56)	(24.45)	(349)	(0.00)
11	15.07	33.13	5.74	341	10	15.20	33.14	5.72	24.52	342	0.03
31	14.98	33.44	5.53	316	20	14.74	33.28	5.57	24.72	323	0.07
41	13.78	33.32	5.59	300	30	14.97	33.44	5.53	24.80	316	0.10
55	12.16	33.42	4.95	263	50	13.03	33.40	5.43	25.16	281	0.16
69	11.26	33.54	3.96	239	75	10.89	33.59	3.66	25.72	228	0.22
93	10.03	33.66	3.41	209	100	9.89	33.67	3.43	25.95	206	0.28
112	9.21	33.66	3.56	196	125	8.99	33.75	3.23	26.16	186	0.33
131	8.96	33.77	3.10	184	150	9.01	33.87	2.41	26.25	177	0.37
150	9.01	33.87	2.41	177	200	8.12	34.01	2.21	26.50	154	0.46
178	8.70	34.03	1.87	161	250	7.11	34.01	2.65	26.65	140	0.53
211	7.84	34.00	2.38	151	300	6.37	34.03	2.45	26.76	129	0.60
239	7.28	34.00	2.65	143	400	5.59	34.08	1.30	26.90	116	0.73
285	6.56	34.04	2.54	131	500	5.26	34.21	0.57	27.04	103	0.84
337	5.95	34.01	2.19	125							
418	5.51	34.11	1.03	113							
500	5.26	34.21	0.57	103							
567	4.74	34.22	0.38	96							

393



SIO  
CCOFI  
5910

OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T_3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_3$	$\Delta D$
m	°C	‰	ml/L	$\frac{-5}{10} \frac{T_3}{cm/g}$	m	°C	‰	ml/L	g/L	$\frac{-5}{10} \frac{T_3}{cm/g}$	dyn. m

67.55 SPENCER F. BAIRD; October 19, 1959; 1250 GCT; 36°39.5'N, 122°25'W; sounding, 1050 fm; wind, 330°, force 3; weather, partly cloudy; sea, moderate; wire angle, 21°.

1	15.34	33.44	5.58	324	0	(15.34)	(33.44)	(5.58)	(24.71)	(324)	(0.00)
11	15.35	33.44	5.57	324	10	15.35	33.44	5.57	24.71	324	0.03
30	15.09	33.55	5.50	310	20	15.34	33.44	5.57	24.71	324	0.06
39	14.33	33.49	5.32	299	30	15.09	33.55	5.50	24.86	310	0.10
53	12.32	33.19	5.26	283	50	12.75	33.24	5.27	25.10	287	0.16
66	11.38	33.24	5.02	262	75	11.13	33.39	4.50	25.51	248	0.22
88	10.81	33.68	3.52	220	100	10.31	33.73	3.31	25.93	208	0.28
106	9.99	33.73	3.22	203	125	9.52	33.78	2.94	26.10	192	0.33
124	9.53	33.78	2.94	192	150	9.15	33.91	2.58	26.26	176	0.38
142	9.26	33.86	2.73	182	200	8.32	34.01	2.44	26.47	157	0.46
168	8.80	34.01	2.29	164	250	7.51	34.05	2.30	26.62	143	0.54
199	8.34	34.01	2.44	157	300	7.05	34.09	1.73	26.72	133	0.61
226	7.80	34.05	2.47	146	400	6.35	34.18	0.88	26.88	118	0.74
271	7.30	34.05	2.12	140	500	5.98	34.29	0.40	27.02	104	0.86
322	6.88	34.13	1.42	128							
401	6.34	34.18	0.87	118							
482	6.05	34.28	0.44	106							
565	5.64	34.31	0.34	100							

67.60 SPENCER F. BAIRD; October 19, 1959; 0955 GCT; 36°29'N, 122°47.5'W; sounding, 1600 fm; wind, 350°, force 3; weather, partly cloudy; sea, moderate; wire angle, 10°.

2	15.94	33.34	5.64	344	0	(15.94)	(33.34)	(5.64)	(24.51)	(344)	(0.00)
11	15.94	33.35	5.62	342	10	15.94	33.35	5.62	24.52	342	0.03
31	16.28	33.69	5.47	326	20	15.94	33.38	5.58	24.54	340	0.07
41	15.60	33.68	5.23	311	30	16.28	33.68	5.47	24.69	326	0.10
56	12.00	33.62	4.03	245	50	12.78	33.62	4.25	25.39	259	0.16
70	10.92	33.68	3.72	222	75	10.80	33.70	3.67	25.82	218	0.22
95	9.94	33.76	3.33	200	100	9.75	33.78	3.24	26.06	196	0.27
115	9.38	33.85	2.91	184	125	9.29	33.89	2.73	26.23	180	0.32
134	9.18	33.93	2.58	176	150	8.96	33.97	2.56	26.34	169	0.36
154	8.90	33.98	2.54	168	200	8.52	34.09	1.98	26.50	154	0.45
184	8.66	34.06	2.08	158	250	7.90	34.17	1.57	26.66	139	0.52
218	8.34	34.12	1.86	149	300	7.16	34.15	1.38	26.75	130	0.59
247	7.96	34.17	1.58	140	400	6.68	34.20	0.85	26.86	120	0.72
297	7.19	34.15	1.41	130	500	6.00	34.24	0.48	26.98	109	0.84
351	6.92	34.19	1.07	124	600	5.31	34.34	0.37	27.13	94	0.95
434	6.46	34.21	0.66	117							
519	5.86	34.25	0.45	106							
603	5.28	34.34	0.36	93							

67.70 SPENCER F. BAIRD; October 19, 1959; 0515 GCT; 36°11'N, 123°31'W; sounding, 2000 fm; wind, 330°, force 3; weather, partly cloudy; sea, moderate; wire angle, 07°.

2	16.30	33.62	5.45	331	0	(16.30)	(33.62)	(5.45)	(24.64)	(331)	(0.00)
12	16.32	33.63	5.53	331	10	16.32	33.63	5.53	24.64	331	0.03
32	16.26	33.66	5.47	327	20	16.32	33.65	5.51	24.66	329	0.07
42	16.06	33.66	5.35	322	30	16.28	33.66	5.47	24.67	328	0.10
51	11.96	33.21	5.11	275	50	12.10	33.22	5.13	25.21	277	0.16
66	11.04	33.33	4.65	250	75	10.21	33.38	4.46	25.67	233	0.22
81	9.95	33.44	4.42	224	100	8.99	33.57	4.33	26.03	199	0.28
101	8.98	33.58	4.31	198	125	8.80	33.81	3.31	26.24	179	0.33
125	8.80	33.81	3.31	179	150	8.62	33.91	3.15	26.34	169	0.37
144	8.66	33.89	3.18	171	200	7.97	34.00	2.88	26.52	152	0.45
174	8.35	33.99	2.94	159	250	7.36	34.00	2.58	26.60	145	0.53
203	7.92	34.00	2.87	152	300	6.64	34.06	2.13	26.75	130	0.60
233	7.62	33.98	2.63	150	400	5.77	34.11	1.15	26.90	116	0.72
272	6.98	34.04	2.50	136	500	5.48	34.22	0.62	27.03	104	0.84
332	6.33	34.08	1.76	125							
406	5.74	34.11	1.13	115							
481	5.52	34.20	0.69	106							
561	5.29	34.31	0.43	96							



OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T_3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_3$	$\Delta D$
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

SPENCER F. BAIRD; October 19, 1959; 0020 GCT; 35°48'N, 124°16'W; sounding, 2200 fm; wind, 320°, force 2; weather, partly cloudy; sea, moderate; wire angle, 05°.

67.80

2	15.48	32.95	5.41	362	0	(15.48)	(32.95)	(5.41)	(24.31)	(362)	(0.00)
11	15.44	32.98	5.44	359	10	15.44	32.98	5.43	24.34	360	0.04
31	13.77	33.19	5.87	310	20	15.40	32.99	5.46	24.36	358	0.07
41	13.20	33.22	5.74	296	30	13.82	33.18	5.87	24.84	312	0.11
51	12.52	33.17	5.50	288	50	12.58	33.18	5.52	25.08	288	0.17
66	11.34	33.08	5.34	274	75	10.84	33.15	5.24	25.39	260	0.23
81	10.58	33.21	5.14	251	100	9.71	33.41	4.57	25.79	222	0.30
100	9.71	33.41	4.57	222	125	9.06	33.67	3.80	26.09	193	0.35
125	9.06	33.67	3.80	193	150	8.72	33.77	3.46	26.23	180	0.40
145	8.77	33.75	3.52	182	200	8.01	33.96	2.77	26.48	156	0.48
175	8.43	33.91	3.17	166	250	7.35	34.02	2.47	26.62	143	0.56
205	7.92	33.97	2.70	154	300	6.83	34.05	2.01	26.72	134	0.63
234	7.50	34.00	2.52	146	400	6.14	34.16	0.93	26.90	116	0.76
274	7.12	34.04	2.28	138	500	5.74	34.22	0.68	26.99	108	0.88
334	6.43	34.07	1.57	127							
409	6.11	34.18	0.86	114							
483	5.86	34.22	0.69	109							
563	5.08	34.22	0.63	100							

SPENCER F. BAIRD; October 18, 1959; 1941 GCT; 35°28'N, 124°58'W; sounding, 2500 fm; wind, 320°, force 2; weather, partly cloudy; sea, moderate; wire angle, 10°.

67.90

2	17.39	33.07	5.26	395	0	(17.39)	(33.07)	(5.26)	(23.96)	(395)	(0.00)
11	17.36	33.04	5.24	397	10	17.37	33.04	5.24	23.95	397	0.04
31	16.80	32.95	5.33	391	20	17.31	33.04	5.27	23.96	395	0.08
41	15.65	32.92	5.53	368	30	16.82	32.96	5.32	24.01	392	0.12
56	14.58	33.19	5.80	326	50	15.39	32.99	5.61	24.36	358	0.19
70	13.66	33.26	5.64	302	75	13.30	33.24	5.55	25.00	297	0.28
94	12.50	33.35	5.06	274	100	12.00	33.37	4.89	25.34	264	0.35
114	11.58	33.40	4.75	254	125	11.05	33.51	4.53	25.63	236	0.41
133	10.28	33.73	4.15	208	150	9.26	33.70	3.77	26.08	194	0.46
152	9.20	33.70	3.74	193	200	8.42	33.89	3.06	26.36	167	0.56
180	8.62	33.82	3.35	176	250	7.88	34.04	2.70	26.56	148	0.64
214	8.28	33.95	2.81	161	300	7.04	34.04	2.33	26.68	137	0.71
243	7.98	34.04	2.73	150	400	6.12	34.13	1.21	26.88	118	0.84
291	7.18	34.04	2.40	139	500	5.68	34.23	0.57	27.01	106	0.96
345	6.54	34.09	1.79	127	600	(5.04)	(34.27)	(0.34)	(27.11)	(96)	(1.07)
428	5.95	34.15	0.95	115							
512	5.62	34.24	0.52	104							
595	5.08	34.27	0.34	96							

SPENCER F. BAIRD; October 17, 1959; 2010 GCT; 36°08.5'N, 121°50'W; sounding, 350 fm; wind, direction missing, force 1; weather, fog; sea, slight; wire angle, 14°.

70.52

2	15.80	33.58	5.53	323	0	(15.80)	(33.58)	(5.53)	(24.72)	(323)	(0.00)
11	14.68	33.59	5.21	299	10	15.00	33.59	5.30	24.90	306	0.03
31	12.51	33.60	4.30	256	20	13.58	33.60	4.82	25.22	276	0.06
41	12.28	33.64	3.98	249	30	12.54	33.60	4.34	25.42	257	0.09
50	11.89	33.63	3.92	243	50	11.89	33.63	3.92	25.56	243	0.14
60	11.36	33.68	3.71	230	75	11.23	33.71	3.51	25.75	226	0.20
70	11.28	33.71	3.52	226	100	10.90	33.72	3.39	25.82	218	0.25
84	11.11	33.70	3.52	224	125	10.52	33.76	3.22	25.91	210	0.31
98	10.94	33.72	3.41	220	150	9.97	33.81	2.96	26.05	197	0.36
112	10.70	33.73	3.34	214	200	9.23	33.88	2.47	26.23	180	0.45
136	10.38	33.78	3.12	206	250	8.58	34.04	1.92	26.46	158	0.54
165	9.62	33.84	2.79	189	300	7.89	34.13	1.21	26.63	142	0.62
198	9.26	33.88	2.47	180	400	6.97	34.20	0.85	26.82	124	0.75
246	8.64	34.03	1.98	160	500	(6.28)	(34.24)	(0.50)	(26.95)	(112)	(0.88)
294	7.95	34.12	1.26	143							
396	7.00	34.20	0.87	124							
495	6.30	34.24	0.52	112							



SIO

CCOFI  
5910

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

70.60

SPENCER F. BAIRD; October 18, 1959; 0016 GCT; 35°53.5'N, 122°22.5'W; sounding, 1750 fm; wind, 310°, force 2; weather, overcast; sea, slight; wire angle, 08°.

2	16.02	33.60	5.49	326	0	(16.02)	(33.60)	(5.49)	(24.69)	<del>(236)</del> 276	(0.00)
11	16.00	33.57	5.54	328	10	16.00	33.57	5.54	24.67	328	0.03
31	13.58	33.57	4.49	278	20	15.00	33.57	5.10	24.89	307	0.06
41	11.78	33.61	3.86	242	30	13.63	33.57	4.53	25.17	280	0.09
56	10.78	33.68	3.46	220	50	11.20	33.64	3.66	25.70	230	0.14
71	10.21	33.73	3.20	206	75	10.08	33.74	3.15	25.98	203	0.20
95	9.56	33.84	2.88	188	100	9.49	33.85	2.83	26.16	186	0.25
115	9.32	33.87	2.68	182	125	9.11	33.89	2.60	26.25	178	0.29
134	8.94	33.92	2.52	172	150	8.91	34.00	2.15	26.37	166	0.34
154	8.91	34.01	2.11	165	200	8.34	34.07	1.83	26.52	152	0.42
184	8.56	34.04	1.99	158	250	7.70	34.11	1.69	26.64	140	0.49
218	8.10	34.10	1.68	147	300	6.62	34.04	2.00	26.74	131	0.56
248	7.73	34.11	1.68	141	400	6.45	34.21	0.67	26.90	116	0.69
297	6.62	34.04	2.02	132	500	5.81	34.24	0.51	27.01	106	0.81
351	6.64	34.16	1.06	124	600	5.38	34.30	0.32	27.10	97	0.92
435	6.24	34.24	0.57	112							
520	5.69	34.25	0.50	104							
605	5.36	34.31	0.30	96							

70.70

SPENCER F. BAIRD; October 18, 1959; 0447, 0517 GCT; 35°33'N, 123°06'W; sounding, 2100 fm; wind, 270°, force 2; weather, overcast; sea, slight; wire angle, 09°, 10°.

2	16.14	33.43	5.44	341	0	(16.14)	(33.43)	(5.44)	(24.54)	(341)	(0.00)
11	16.13	33.44	5.52	340	10	16.13	33.44	5.51	24.54	340	0.03
31	15.08	33.46	5.35	317	20	16.10	33.44	5.52	24.55	339	0.07
41	12.09	33.39	4.65	264	30	15.80	33.45	5.46	24.63	332	0.10
56	11.56	33.63	3.72	236	50	11.99	33.58	4.11	25.52	248	0.16
71	10.70	33.68	3.27	218	75	10.52	33.71	3.17	25.88	213	0.22
96	9.94	33.82	2.77	196	100	9.85	33.83	2.73	26.09	194	0.27
115	9.60	33.90	2.54	184	125	9.43	33.95	2.38	26.25	178	0.32
135	9.29	33.99	2.21	173	150	9.18	34.03	2.07	26.35	168	0.36
155	9.13	34.04	2.01	166	200	8.76	34.10	1.60	26.48	156	0.44
184	8.87	34.07	1.71	160	250	8.48	34.16	1.47	26.56	148	0.52
219	8.64	34.14	1.52	152	300	7.80	34.20	1.18	26.70	135	0.59
249	8.49	34.16	1.47	148	400	6.90	34.22	0.76	26.84	122	0.72
298	7.82	34.20	1.19	136	500	6.13	34.30	0.45	27.01	106	0.84
354	7.34	34.22	0.93	127	600	5.52	34.36	0.35	27.13	94	0.95
438	6.57	34.23	0.62	116							
522	5.98	34.32	0.40	102							
608	5.48	34.36	0.33	94							

70.80

SPENCER F. BAIRD; October 18, 1959; 0940, 1003 GCT; 35°13.5'N, 123°48'W; sounding, 2250 fm; wind, 300°, force 2; weather, overcast; sea, moderate; wire angle, 18°, 24°.

1	16.84	33.68	5.20	339	0	(16.84)	(33.68)	(5.20)	(24.56)	(338)	(0.00)
11	16.83	33.68	5.38	339	10	16.83	33.68	5.36	24.56	338	0.03
30	16.80	33.68	5.36	338	20	16.82	33.68	5.37	24.56	338	0.07
59	11.48	33.48	4.33	246	30	16.80	33.68	5.36	24.57	338	0.10
68	10.88	33.61	3.98	226	50	13.30	33.51	4.67	25.20	278	0.16
82	10.56	33.70	3.43	214	75	10.78	33.65	3.79	25.78	222	0.23
96	9.96	33.78	3.24	199	100	9.87	33.79	3.18	26.06	196	0.28
110	9.71	33.83	3.03	191	125	9.45	33.86	2.83	26.18	185	0.33
134	9.22	33.89	2.68	179	150	8.94	34.00	2.30	26.37	166	0.37
153	8.88	34.02	2.28	164	200	8.09	34.05	2.47	26.54	151	0.45
182	8.34	34.05	2.38	154	250	7.39	34.10	1.90	26.68	137	0.53
210	7.93	34.05	2.49	148	300	7.01	34.11	1.62	26.74	131	0.60
239	7.48	34.09	1.99	139	400	6.39	34.22	0.81	26.90	116	0.72
287	7.10	34.11	1.71	132	500	5.84	34.27	0.55	27.02	104	0.84
340	6.74	34.13	1.24	126	600	(5.10)	(34.36)		(27.18)	(90)	(0.94)
413	6.30	34.23	0.75	114							
497	5.86	34.27	0.55	105							
581	5.28	34.34	0.31	93							

396



OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T_3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_3$	$\Delta D$
m	°C	‰	ml/L	10 <sup>-5</sup> cm/g	m	°C	‰	ml/L	g/L	10 <sup>-5</sup> cm/g	dyn. m

SIO  
CCOFI  
5910

SPENCER F. BAIRD; October 18, 1959; 1435 GCT; 34°53'N, 124°29.5'W; sounding, 2400 fm; wind, 330°, force 4; weather, overcast; sea, moderate; wire angle, 28°.

70.90

1	17.14	33.04	5.29	392	0	(17.14)	(33.04)	(5.29)	(24.00)	(392)	(0.00)
10	17.18	33.04	5.37	392	10	17.18	33.04	5.37	24.00	392	0.04
29	17.16	33.04	5.35	392	20	17.18	33.04	5.36	24.00	392	0.08
55	15.73	32.99	5.64	365	30	17.16	33.04	5.35	24.00	392	0.12
63	15.09	33.04	5.67	348	50	15.90	32.96	5.62	24.22	371	0.19
75	14.29	33.06a)	5.92	330	75	14.29	33.06	5.92	24.65	330	0.28
88	13.94	33.16a)	5.72	315	100	12.79	33.10	5.62	24.99	298	0.36
100	12.79	33.10	5.62	298	125	11.11	33.24	5.01	25.40	258	0.43
121	11.40	33.21	5.13	265	150	9.58	33.48	4.34	25.86	215	0.49
137	10.24	33.35	4.61	235	200	8.75	33.90	3.00	26.32	171	0.59
162	9.19	33.62	4.10	199	250	8.14	34.05	2.66	26.53	151	0.67
185	8.92	33.85	3.20	177	300	7.35	34.08	2.13	26.67	138	0.75
209	8.63	33.93	2.92	168	400	6.14	34.12	1.45	26.87	119	0.88
248	8.16	34.05	2.68	152	500	5.72	34.29	0.51	27.05	102	1.00
292	7.49	34.08	2.16	140							
364	6.21	34.05	1.89	126							
441	6.07	34.22	0.74	111							
522	5.56	34.29	0.47	100							

SPENCER F. BAIRD; October 17, 1959; 1344 GCT; 35°29'N, 121°37.5'W; sounding, 530 fm; wind, 360°, force 1; weather, fog; sea, slight; wire angle, 08°.

73.55

2	17.00	33.69	5.33	341	0	(17.00)	(33.69)	(5.33)	(24.53)	(341)	(0.00)
12	17.00	33.69	5.44	341	10	17.00	33.69	5.42	24.53	341	0.03
32	15.46	33.67	5.21	309	20	16.70	33.69	5.44	24.60	335	0.07
41	13.20	33.62	4.40	268	30	15.70	33.68	5.27	24.82	314	0.10
56	11.31	33.60	3.91	235	50	11.92	33.60	4.09	25.54	246	0.16
71	10.50	33.66	3.51	216	75	10.28	33.68	3.42	25.90	211	0.21
96	9.58	33.81	3.12	190	100	9.50	33.82	3.07	26.14	188	0.26
115	9.16	33.87	2.77	180	125	8.99	33.92	2.65	26.30	173	0.31
135	8.84	33.96	2.55	168	150	8.74	33.98	2.36	26.38	165	0.35
155	8.72	33.99	2.29	164	200	8.24	34.08	1.96	26.54	150	0.43
184	8.41	34.06	2.14	154	250	7.93	34.15	1.58	26.64	141	0.51
219	8.08	34.11	1.77	146	300	7.39	34.16	1.28	26.73	132	0.58
249	7.94	34.15	1.58	141	400	6.73	34.26	0.82	26.90	116	0.71
298	7.40	34.16	1.30	132	500	6.01	34.29	0.50	27.02	105	0.82
353	7.08	34.23	1.00	123	600	5.51	34.33	0.40	27.10	97	0.93
437	6.44	34.28	0.70	112							
521	5.90	34.30	0.44	103							
606	5.48	34.33	0.40	96							

SPENCER F. BAIRD; October 17, 1959; 1047 GCT; 35°20'N, 121°59.5'W; sounding, 1300 fm; wind, 320°, force 2; weather, overcast; sea, moderate; wire angle, 08°.

73.60

1	16.15	33.62	5.45	328	0	(16.15)	(33.62)	(5.45)	(24.67)	(328)	(0.00)
11	16.18	33.63	5.51	327	10	16.18	33.63	5.50	24.68	327	0.03
31	15.88	33.62	5.45	322	20	16.10	33.63	5.50	24.69	326	0.07
41	12.40	33.54	4.34	259	30	15.91	33.62	5.46	24.72	323	0.10
56	10.75	33.61	3.73	224	50	11.40	33.57	3.96	25.62	238	0.15
71	9.98	33.71	3.31	204	75	9.84	33.73	3.26	26.01	201	0.21
96	9.49	33.78	3.13	191	100	9.43	33.79	3.10	26.12	190	0.26
116	9.17	33.82	2.90	184	125	9.03	33.90	2.56	26.28	175	0.31
136	8.96	34.00	2.23	167	150	8.88	34.02	2.14	26.39	164	0.35
155	8.85	34.02	2.13	164	200	8.41	34.16	1.74	26.58	147	0.43
185	8.57	34.11	1.90	153	250	8.08	34.25	1.37	26.69	136	0.50
220	8.24	34.22	1.51	140	300	7.70	34.25	1.06	26.75	130	0.57
249	8.08	34.25	1.36	136	400	6.42	34.28	0.74	26.95	112	0.69
299	7.70	34.25	1.07	130	500	5.91	34.35	0.46	27.07	100	0.80
354	6.82	34.29	1.01	116	600	5.42	34.36	0.34	27.14	93	0.90
438	6.22	34.28	0.56	109							
522	5.80	34.37	0.41	97							
607	5.38	34.36	0.30	93							

a) Salinity samples at 75 and 88 meters appear to have been reversed; they are assumed to be in the order listed.

397



S10  
CCOFI  
5910

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

73.70 SPENCER F. BAIRD; October 17, 1959; 0605 GCT; 35°01'N, 122°41'W; sounding, 2200 fm; wind, 330°, force 3; weather, overcast; sea, rough; wire angle, 22°.

2	16.14	33.62	5.56	327	0	(16.14)	(33.62)	(5.56)	(24.68)	(327)	(0.00)
11	16.13	33.61	5.50	328	10	16.13	33.61	5.51	24.67	328	0.03
34	13.20	33.65	4.45	265	20	16.10	33.61	5.48	24.68	327	0.07
43	11.78	33.68	3.58	237	30	15.53	33.62	5.26	24.81	315	0.10
57	11.08	33.71	3.31	223	50	11.28	33.71	3.36	25.74	226	0.15
70	10.60	33.81a)	3.19	215	75	10.49	33.73	3.15	25.90	211	0.21
92	10.22	33.71a)	3.07	201	100	10.09	33.84	2.94	26.06	196	0.26
110	9.91	33.85	2.84	193	125	9.63	33.85	2.71	26.13	189	0.31
127	9.58	33.85	2.69	188	150	9.20	33.94	2.36	26.28	175	0.35
154	9.13	33.96	2.29	173	200	8.66	34.10	1.87	26.49	155	0.44
180	8.87	34.04	2.08	163	250	8.24	34.13	1.56	26.58	147	0.51
214	8.52	34.12	1.75	152	300	7.63	34.18	1.24	26.70	135	0.59
241	8.34	34.13	1.61	148	400	6.78	34.24	0.66	26.88	118	0.72
284	7.80	34.15	1.38	139	500	5.94	34.27	0.44	27.01	106	0.83
341	7.28	34.25	0.90	125							
431	6.53	34.24	0.57	116							
516	5.82	34.29	0.42	103							

73.80 SPENCER F. BAIRD; October 17, 1959; 0117 GCT; 34°28.5'N, 123°21'W; sounding, 2250 fm; wind, 330°, force 5; weather, overcast; sea, rough; wire angle, 23°.

3	16.48	33.62	5.46	335	0	(16.49)	(33.62)	(5.46)	(24.60)	(335)	(0.00)
12	16.46	33.65	5.49	333	10	16.46	33.65	5.48	24.62	333	0.03
36	15.52	33.62	5.07	314	20	16.28	33.66	5.40	24.67	328	0.07
46	12.49	33.57	4.36	258	30	16.21	33.66	5.34	24.69	326	0.10
60	10.76	33.62	3.76	224	50	11.80	33.58	4.15	25.54	245	0.16
74	10.33	33.72	3.39	209	75	10.32	33.73	3.37	25.92	209	0.21
97	9.69	33.86	2.93	189	100	9.53	33.86	2.83	26.17	186	0.26
116	9.24	33.87	2.70	181	125	8.92	33.87	2.74	26.26	177	0.31
134	8.76	33.91	2.80	171	150	8.61	33.99	2.79	26.41	163	0.35
162	8.48	34.02	2.75	159	200	7.88	34.05	2.63	26.56	148	0.43
190	8.06	34.05	2.58	150	250	7.24	34.08	2.14	26.68	137	0.50
227	7.46	34.04	2.70	143	300	7.00	34.17	1.26	26.79	126	0.57
255	7.22	34.09	2.06	136	400	6.14	34.24	0.83	26.96	110	0.69
301	7.00	34.18	1.25	126	500	5.82	34.30	0.43	27.05	102	0.80
361	6.36	34.22	1.06	115	600	5.41	34.41	0.33	27.18	90	0.90
455	5.94	34.26	0.54	107							
541	5.69	34.26	0.36	96							
615	5.34	34.41	0.33	88							

73.90 SPENCER F. BAIRD, October 16, 1959; 2030 GCT; 34°17'N, 124°02'W; sounding, 2000 fm; wind, 330°, force 5; weather, partly cloudy; sea, rough; wire angle, 25°.

2	16.98	33.69	5.39	341	0	(16.98)	(33.69)	(5.39)	(24.54)	(341)	(0.00)
12	16.98	33.71	5.39	339	10	16.98	33.70	5.39	24.55	340	0.03
31	16.64	33.68	5.44	334	20	16.89	33.70	5.40	24.57	338	0.07
58	13.26	33.40	4.87b)	285	30	16.65	33.68	5.43	24.60	334	0.10
67	10.80	33.08	5.07	264	50	16.60	33.67	5.44	24.61	334	0.17
81	11.08	33.43	4.36	243	75	10.52	33.09	4.96	25.40	259	0.24
94	10.52	33.59	3.97	222	100	10.21	33.58	3.92	25.83	218	0.30
108	9.58	33.55	3.89c)	210	125	9.10	33.66	3.76	26.08	194	0.36
129	9.04	33.71	3.72	190	150	8.72	33.88	2.88	26.31	172	0.40
147	8.76	33.86	2.98	174	200	8.10	34.02	3.01	26.51	153	0.48
174	8.57	33.97	2.73	164	250	7.68	34.09	1.95	26.62	143	0.56
200	8.10	34.02	3.01	153	300	7.02	34.11	1.57	26.74	131	0.63
227	7.90	34.07	2.16	146	400	6.00	34.11	1.12	26.88	118	0.76
272	7.40	34.09	1.79	138	500	5.28	34.21	0.68	27.04	103	0.88
323	6.73	34.14	1.43	126							
401	6.00	34.11	1.12	118							
482	5.40	34.20	0.74	105							
566	4.93	34.22	0.55	98							

a) Salinity samples at 70 and 92 meters appear to have been reversed; they are assumed to be in the order listed.

b) Alternate value, 4.49 ml/L, not used in interpolation.

c) Alternate value, 4.01 ml/L, not used in interpolation.



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

SIO  
CCOFI  
5910

SPENCER F. BAIRD; October 15, 1959; 2233 GCT; 34°54'N, 121°12.5'W; sounding, 310 fm; wind, 380°, force 5; weather, clear; sea, rough; wire angle, 26°.

77.55

2	17.18	33.68	5.37	346	0	(17.18)	(33.68)	(5.37)	(24.48)	(346)	(0.00)
11	17.19	33.69	5.42	346	10	17.19	33.69	5.40	24.48	346	0.03
29	16.86	33.69	5.40	338	20	17.09	33.69	5.42	24.52	343	0.07
38	16.36	33.67	5.29	329	30	16.85	33.69	5.40	24.57	338	0.10
47	15.07	33.62	5.00	305	50	14.71	33.61	4.84	24.98	298	0.17
56	14.02	33.60	4.60	285	75	11.49	33.70	3.81	25.70	230	0.23
65	12.13	33.54	4.39	254	100	9.80	33.83	3.05	26.10	192	0.29
78	10.99	33.71	3.59	221	125	9.27	33.96	2.60	26.28	175	0.33
91	9.97	33.78	3.18	199	150	9.07	34.02	2.31	26.36	167	0.38
104	9.72	33.85	3.01	190	200	8.62	34.12	1.89	26.51	153	0.46
126	9.26	33.96	2.59	175	250	8.10	34.16	1.62	26.62	143	0.53
151	9.06	34.02	2.30	167	300	7.54	34.19	1.30	26.72	133	0.60
182	8.80	34.09	2.02	158	400	6.70	34.25	0.78	26.89	117	0.73
227	8.35	34.14	1.76	148	500	(6.09)	(34.28)		(27.00)	(107)	(0.85)
272	7.84	34.16	1.48	139							
370	6.90	34.24	0.91	120							
466	6.29	34.27	0.56	110							

SPENCER F. BAIRD; October 16, 1959; 0118 GCT; 34°43'N, 121°33'W; sounding, 500 fm; wind, 310°, force 5; weather, cloudy; sea, rough; wire angle, 30°.

77.60

1	16.84	33.68	5.41	338	0	(16.84)	(33.68)	(5.41)	(24.56)	(338)	(0.00)
9	16.84	33.71	5.45	336	10	16.84	33.71	5.45	24.59	336	0.03
27	16.10	33.67	5.41	323	20	16.79	33.74	5.43	24.62	333	0.07
35	14.78	33.66	5.06	296	30	14.86	33.66	5.08	24.99	298	0.10
49	12.30	33.62	4.09	251	50	12.27	33.62	4.08	25.49	250	0.15
62	11.76	33.68	3.84	236	75	11.27	33.70	3.66	25.73	227	0.21
83	10.96	33.72	3.50	220	100	10.31	33.78	3.23	25.97	205	0.27
101	10.28	33.78	3.22	204	125	9.82	33.83	3.08	26.08	194	0.32
119	9.92	33.82	3.12	195	150	9.46	33.87	2.86	26.17	185	0.37
135	9.67	33.84	2.99	190	200	8.86	34.07	2.10	26.44	160	0.45
161	9.32	33.89	2.73	181	250	8.27	34.14	1.84	26.58	146	0.53
192	8.94	34.04	2.24	164	300	7.58	34.16	1.50	26.69	136	0.60
218	8.68	34.11	1.92	155	400	6.95	34.23	0.94	26.84	122	0.74
261	8.12	34.14	1.81	144	500	6.31	34.25	0.60	26.95	112	0.86
310	7.46	34.16	1.44	134							
385	6.99	34.22	0.97	123							
464	6.62	34.22	0.76	118							
546	5.90	34.32	0.47	102							

SPENCER F. BAIRD; October 16, 1959; 0620 GCT; 34°23'N, 122°16'W; sounding, 2300 fm; wind, 310°, force 5; weather, cloudy; sea, rough; wire angle, 10°.

77.70

2	17.46	33.71	5.28	350	0	(17.46)	(33.71)	(5.28)	(24.44)	(350)	(0.00)
12	17.48	33.73	5.33	349	10	17.48	33.73	5.32	24.45	349	0.04
36	17.47	33.73	5.30	349	20	17.49	33.73	5.30	24.45	349	0.07
46	16.92	33.71	5.14	338	30	17.49	33.73	5.30	24.45	349	0.10
61	11.56	33.70	4.18	232	50	15.55	33.71	4.96	24.88	308	0.17
75	10.28	33.65	3.77	214	75	10.28	33.65	3.77	25.87	214	0.24
100	9.61	33.77	3.23	194	100	9.61	33.77	3.23	26.08	194	0.29
119	9.09	33.89	2.67	177	125	8.93	33.91	2.61	26.29	174	0.33
139	8.64	33.96	2.43	166	150	8.58	34.00	2.32	26.42	162	0.38
168	8.44	34.04	2.21	157	200	7.74	34.00	3.22	26.55	149	0.46
197	7.80	34.00	3.23	150	250	6.96	34.04	2.28	26.69	136	0.53
236	7.14	34.04	2.42	138	300	6.46	34.05	1.92	26.76	129	0.60
266	6.78	34.04	2.22	134	400	6.05	34.22	0.78	26.96	111	0.72
315	6.38	34.06	1.76	127	500	5.46	34.26	0.51	27.06	101	0.83
379	6.23	34.21	0.84	114	600	5.14	34.34	0.30	27.16	92	0.93
478	5.48	34.23	0.59	104							
567	5.27	34.33	0.32	94							
642	4.98	34.34	0.30	90							



SIO

CCOFI  
5910

OBSERVED					INTERPOLATED				COMPUTED			
Z	T	S	O <sub>2</sub>	$\delta T_3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_3$	$\Delta D$	
m	°C	‰	ml/L	$\frac{10^{-5} \text{ cm}^3}{\text{g}}$	m	°C	‰	ml/L	g/L	$\frac{10^{-5} \text{ cm}^3}{\text{g}}$	dyn. m	

77.80

SPENCER F. BAIRD; October 16, 1959; 1100 GCT; 34°04'N, 122°59'W; sounding, 2200 fm; wind, 310°, force 4; weather, clear; sea, rough; wire angle, 15°.

2	16.61	33.53	5.46	344	0	(16.61)	(33.53)	(5.46)	(24.50)	(344)	(0.00)
12	16.64	33.53	5.42	345	10	16.62	33.53	5.43	24.49	345	0.03
31	15.40	33.30	5.54	335	20	16.64	33.54	5.42	24.49	345	0.07
40	14.28	33.21	5.61	319	30	15.60	33.34	5.53	24.59	336	0.10
54	11.96	32.97	5.59	292	50	12.50	33.01	5.61	24.98	299	0.17
69	12.06	33.29	4.89	271	75	11.64	33.32	4.79	25.37	262	0.24
92	10.12	33.44	4.43	227	100	9.97	33.48	4.34	25.80	221	0.30
111	9.70	33.56	4.08	211	125	9.18	33.69	3.40	26.09	193	0.35
130	9.04	33.78	3.12	185	150	8.73	33.88	2.91	26.30	172	0.40
148	8.75	33.87	2.93	174	200	8.21	34.03	2.35	26.49	155	0.48
176	8.50	33.98	2.62	162	250	7.27	34.00	2.43	26.61	144	0.56
208	8.11	34.03	2.29	152	300	6.75	34.07	1.80	26.74	131	0.63
237	7.54	34.00	2.48	146	400	6.18	34.17	0.79	26.90	116	0.76
283	6.78	34.03	2.10	134	500	5.73	34.32	0.37	27.07	100	0.87
336	6.74	34.14	1.21	126							
418	6.04	34.18	0.71	114							
499	5.74	34.32	0.38	100							
584	5.43	34.40	0.32	90							

77.90

SPENCER F. BAIRD; October 16, 1959; 1521, 1550 GCT; 33°44'N, 123°38'W; sounding, 2250 fm; wind, 330°, force 4; weather, clear; sea, very rough; wire angle, 11°, 17°.

2	17.30	33.11	5.29	390	0	(17.30)	(33.11)	(5.29)	(24.02)	(390)	(0.00)
12	17.34	33.12	5.38	390	10	17.32	33.12	5.37	24.02	390	0.04
31	17.12	33.16	5.37	383	20	17.35	33.12	5.38	24.02	390	0.08
41	16.31	33.13	5.58	367	30	17.20	33.16	5.38	24.08	384	0.12
55	16.25	33.35	5.56	350	50	16.34	33.21	5.57	24.31	362	0.19
70	13.76	33.15	5.75	313	75	13.66	33.15	5.72	24.86	310	0.28
94	12.43	33.27	5.29	279	100	12.18	33.35	5.07	25.29	269	0.35
113	11.34	33.51	4.61	242	125	10.52	33.59	3.97	25.79	222	0.41
131	10.40	33.61	3.90	218	150	10.01	33.70	4.07	25.96	206	0.46
151	9.98	33.70	4.07	205	200	8.72	33.96	3.12	26.36	167	0.56
179	8.97	33.82	3.48	180	250	8.14	34.07	2.10	26.54	150	0.64
212	8.59	34.01	2.96	161	300	7.46	34.16	1.55	26.71	134	0.72
241	8.26	34.05	2.23	153	400	6.48	34.23	0.85	26.91	115	0.84
289	7.60	34.14	1.65	137	500	5.81	34.27	0.53	27.03	104	0.96
342	6.94	34.17	1.25	126	600	(5.48)	(34.35)		(27.13)	(94)	(1.07)
424	6.28	34.25	0.72	112							
502	5.80	34.27	0.52	104							
587	5.50	34.34	0.35	96							

80.52

SPENCER F. BAIRD; October 15, 1959; 1554 GCT; 34°25'N, 120°35'W; sounding, 100 fm; wind, 330°, force 4; weather, clear; sea, rough; wire angle, 07°.

3	18.49	33.73	5.20	373	0	(18.49)	(33.73)	(5.20)	(24.20)	(373)	(0.00)
13	18.48	33.72	5.21	374	10	18.49	33.72	5.21	24.20	373	0.04
33	13.60	33.48	4.97	286	20	17.75	33.61	5.20	24.29	364	0.07
53	12.00	33.52	4.38	253	30	14.50	33.50	5.04	24.95	302	0.11
77	11.15	33.66	3.81	227	50	12.20	33.51	4.50	25.42	257	0.16
102	10.11	33.73	3.58	205	75	11.16	33.65	3.82	25.72	228	0.22
					100	10.11	33.73	3.58	25.96	206	0.28



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

SPENCER F. BAIRD; October 15, 1959; 1309 GCT; 34°19'N, 120°48.5'W; sounding, 425 fm; wind, 320°, force 4; weather, clear; sea, moderate; wire angle, 22°.

80.55

2	17.40	33.66	5.33	352	0	(17.40)	(33.66)	(5.33)	(24.42)	(352)	(0.00)
11	17.40	33.66	5.52	352	10	17.40	33.66	5.51	24.42	352	0.04
30	16.86	33.71	5.56	337	20	17.31	33.65	5.56	24.43	351	0.07
39	15.50	33.63	5.07	313	30	16.86	33.71	5.56	24.58	337	0.10
53	11.88	33.58	4.26	246	50	12.94	33.58	4.51	25.33	265	0.16
66	10.72	33.60	3.89	224	75	10.31	33.64	3.68	25.86	215	0.22
89	9.90	33.71	3.40	203	100	9.70	33.77	3.25	26.06	196	0.28
107	9.56	33.78	3.17	193	125	9.22	33.93	2.73	26.27	176	0.32
125	9.22	33.93	2.73	176	150	8.96	33.98	2.44	26.34	169	0.37
143	9.00	33.96	2.52	170	200	8.41	34.15	2.07	26.57	148	0.45
170	8.82	34.02	2.18	164	250	8.11	34.16	1.66	26.62	143	0.52
202	8.39	34.16	2.06	146	300	7.79	34.23	1.33	26.72	133	0.59
229	8.26	34.16	1.80	145	400	7.09	34.33	0.78	26.90	116	0.72
274	7.96	34.18	1.47	139	500	6.50	34.33	0.53	26.98	109	0.84
324	7.60	34.27	1.20	127							
403	7.08	34.33	0.77	116							
484	6.66	34.33	0.59	111							
566	5.70	34.33	0.42	98							

SPENCER F. BAIRD; October 15, 1959; 1015 GCT; 34°09'N, 121°09'W; sounding, 1250 fm; wind, 300°, force 3; weather, clear; sea, moderate; wire angle, 20°.

80.60

2	17.57	33.75	5.24	350	0	(17.57)	(33.75)	(5.24)	(24.44)	(350)	(0.00)
12	17.57	33.72	5.33	352	10	17.57	33.74	5.32	24.42	352	0.04
31	16.68	33.71	5.21	333	20	17.52	33.72	5.33	24.43	351	0.07
40	13.92	33.56	4.94	286	30	16.85	33.71	5.22	24.59	336	0.10
54	11.22	33.55	4.16	237	50	11.95	33.54	4.41	25.49	250	0.16
68	10.22	33.69	3.54	210	75	9.91	33.73	3.35	26.00	202	0.22
91	9.40	33.81	3.02	188	100	9.26	33.85	2.92	26.20	183	0.27
110	9.17	33.90	2.79	178	125	9.04	33.95	2.53	26.31	172	0.31
128	9.04	33.96	2.51	171	150	8.91	34.06	2.27	26.42	162	0.36
147	8.94	34.05	2.32	163	200	8.54	34.12	1.68	26.52	152	0.44
175	8.72	34.08	1.94	157	250	8.03	34.18	1.40	26.65	140	0.51
208	8.47	34.13	1.62	150	300	7.64	34.20	1.14	26.71	134	0.58
236	8.21	34.18	1.47	143	400	6.84	34.27	0.68	26.88	118	0.71
284	7.72	34.18	1.30	136	500	6.17	34.33	0.40	27.03	104	0.83
336	7.48	34.22	0.92	130	600	(5.31)	(34.33)		(27.14)	(94)	(0.93)
418	6.70	34.29	0.60	114							
501	6.16	34.33	0.39	104							
586	5.44	34.34	0.36	95							

SPENCER F. BAIRD; October 15, 1959; 0504 GCT; 33°47.5'N, 121°53'W; sounding, 2050 fm; wind, 320°, force 3; weather, clear; sea, moderate; wire angle, 10°.

80.70

2	17.24	33.60	5.31	354	0	(17.24)	(33.60)	(5.31)	(24.40)	(354)	(0.00)
12	17.26	33.61	5.37	353	10	17.25	33.61	5.36	24.41	353	0.04
32	17.06	33.61	5.36	348	20	17.21	33.61	5.37	24.42	352	0.07
41	16.75	33.58	5.37	344	30	17.10	33.62	5.36	24.45	349	0.11
56	11.27	33.40	4.44	249	50	13.10	33.40	4.78	25.15	282	0.17
71	10.32	33.51	4.18	224	75	10.12	33.54	4.10	25.82	219	0.23
95	9.36	33.69	3.48	196	100	9.31	33.73	3.30	26.10	192	0.28
114	9.16	33.85	2.66	181	125	8.92	33.89	2.68	26.28	175	0.33
134	8.70	33.92	2.78	169	150	8.31	33.95	3.11	26.43	161	0.37
153	8.26	33.96	3.12	160	200	7.70	34.05	2.67	26.59	145	0.45
182	7.92	34.04	2.73	149	250	7.04	34.08	2.34	26.71	134	0.52
216	7.47	34.04	2.62	143	300	6.75	34.10	1.60	26.76	129	0.59
245	7.08	34.07	2.40	135	400	5.93	34.23	0.83	26.98	109	0.71
293	6.80	34.09	1.66	130	500	5.42	34.26	0.42	27.07	100	0.82
347	6.41	34.17	1.07	119	600	(5.12)	(34.36)	(0.27)	(27.18)	(90)	(0.92)
431	5.69	34.26	0.66	104							
514	5.38	34.26	0.40	100							
599	5.12	34.36	0.27	90							



S10

CCOFI  
5910

OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T_3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_3$	$\Delta D$
m	°C	%	ml/L	$10^{-5}$ cm/g	m	°C	%	ml/L	g/L	$10^{-5}$ cm/g	dyn. m

80.80

SPENCER F. BAIRD; October 15, 1959; 0025 GCT; 33°28'N, 122°32'W; sounding, 2300 fm; wind, 330°, force 2; weather, fog; sea, moderate; wire angle, 17°.

3	16.42	33.20	5.58	365	0	(16.43)	(33.20)	(5.58)	(24.28)	(365)	(0.00)
12	16.33	33.21	5.64	362	10	16.36	33.21	5.62	24.30	363	0.04
32	14.87	33.13	5.80	336	20	15.91	33.22	5.74	24.42	352	0.07
41	13.84	33.11	5.81	317	30	15.05	33.16	5.80	24.56	338	0.11
55	12.01	32.97	5.63	294	50	14.05	33.23	5.80	24.83	313	0.17
65	11.64	33.11	5.30	277	75	11.41	33.24	5.11	25.35	263	0.24
79	11.32	33.30	5.02	257	100	9.72	33.47	4.31	25.83	218	0.30
97	9.78	33.43	4.41	222	125	9.30	33.67	3.67	26.05	197	0.36
120	9.40	33.64	3.74	200	150	8.83	33.81	3.27	26.24	179	0.41
138	9.02	33.73	3.50	188	200	8.24	34.01	2.73	26.47	157	0.49
166	8.63	33.91	2.95	169	250	7.78	34.10	1.88	26.63	142	0.57
193	8.36	33.99	2.76	159	300	7.12	34.11	1.63	26.73	132	0.64
220	7.89	34.04	2.67	149	400	5.71	34.09	1.32	26.89	117	0.77
257	7.74	34.11	1.79	141	500	5.38	34.24	0.50	27.05	102	0.88
312	6.94	34.11	1.61	130							
383	5.78	34.06	1.45	120							
454	5.62	34.20	0.71	108							
532	5.24	34.27	0.43	98							

80.90

SPENCER F. BAIRD; October 14, 1959; 1941 GCT; 33°09'N, 123°13'W; sounding, 2300 fm; wind, 330°, force 2; weather, cloudy; sea, moderate; wire angle, 06°.

2	17.42	33.08	5.28	395	0	(17.42)	(33.08)	(5.28)	(23.97)	(395)	(0.00)
12	17.38	33.06	5.33	396	10	17.39	33.06	5.32	23.96	396	0.04
32	17.32	33.13	5.30	389	20	17.37	33.07	5.33	23.98	394	0.08
42	16.13	33.11	5.56	364	30	17.33	33.13	5.30	24.02	390	0.12
52	16.34	33.31	5.49	355	50	16.29	33.23	5.52	24.34	359	0.19
67	14.02	33.17	5.61	316	75	13.60	33.24	5.44	24.94	303	0.28
82	13.48	33.29	5.36	297	100	12.68	33.35	5.17	25.21	277	0.35
102	12.56	33.36	5.15	274	125	11.38	33.44	4.75	25.51	248	0.42
126	11.36	33.44	4.74	247	150	10.22	33.57	4.07	25.82	219	0.48
146	10.34	33.54	4.14	223	200	9.16	33.93	2.68	26.28	175	0.58
175	9.66	33.78	3.41	194	250	8.15	34.02	2.46	26.51	153	0.66
205	9.04	33.95	2.60	172	300	7.54	34.11	1.99	26.66	138	0.74
235	8.40	34.00	2.51	159	400	6.49	34.19	1.01	26.87	119	0.87
275	7.78	34.07	2.34	145	500	6.11	34.29	0.56	27.00	107	0.99
334	7.20	34.13	1.44	132							
408	6.44	34.20	0.97	118							
483	6.22	34.28	0.61	109							
562	5.66	34.30	0.49	100							

82.47

SPENCER F. BAIRD; October 13, 1959; 1632 GCT; 34°15'N, 119°58'W; sounding, 310 fm; wind, 120°, force 2; weather, fog; sea, slight; wire angle, 01°.

2	19.20	33.73	5.10	390	0	(19.20)	(33.73)	(5.10)	(24.02)	(390)	(0.00)
12	18.56	33.73	5.27	374	10	19.05	33.72	5.15	24.05	387	0.04
32	16.08	33.58	5.09	329	20	17.60	33.69	5.25	24.39	355	0.08
42	14.54	-	5.41	-	30	16.30	33.60	5.11	24.63	332	0.11
52	12.62	33.58	4.25	260	50	12.93	33.58	4.36	25.32	266	0.17
62	11.94	33.59	3.80	246	75	11.71	33.62	3.69	25.59	240	0.23
72	11.78	33.61	3.69	242	100	10.90	33.70	3.27	25.80	221	0.29
87	11.42	33.66	3.51	232	125	10.30	33.80	2.93	25.98	203	0.35
102	10.84	33.70	3.26	219	150	9.79	33.91	2.58	26.16	186	0.40
117	10.58	33.76	3.13	210	200	9.20	34.02	2.08	26.34	169	0.49
142	9.88	33.90	2.60	189	250	8.86	34.16	1.40	26.50	154	0.57
172	9.54	33.91	2.52	182	300	8.28	34.21	0.96	26.64	141	0.64
207	9.14	34.04	1.97	166	400	7.37	34.25	0.59	26.79	126	0.78
257	8.80	34.17	1.33	152	500	6.58	34.28	0.13	26.94	113	0.91
307	8.20	34.22	0.92	140							
412	7.26	34.25	0.53	124							
512	6.50	34.29	0.10	111							

402



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

S10  
CCOFI  
5910

SPENCER F. BAIRD; October 12, 1959; 1027 GCT; 34°14'N, 119°22'W; sounding, 12 fm; wind, 270°, force 1; weather, overcast; sea, slight; wire angle, 00°.

83.40

1	19.90	33.75	5.20	405	0	(19.90)	(33.75)	(5.20)	(23.86)	(405)	(0.00)
11	19.38	33.75	5.36	392	10	19.43	33.75	5.35	23.98	394	0.04

SPENCER F. BAIRD; October 12, 1959; 1153 GCT; 34°07.5'N, 119°35'W; sounding, 135 fm; wind, 270°, force 1; weather, overcast; sea, slight; wire angle, 10°.

83.43

1	19.80	33.82	5.23	398	0	(19.80)	(33.82)	(5.23)	(23.93)	(398)	(0.00)
11	18.84	33.72	5.31	382	10	18.92	33.72	5.30	24.10	383	0.04
30	16.92	33.70	5.28	338	20	18.09	33.71	5.31	24.29	364	0.08
50	14.18	33.53	4.71	294	30	16.92	33.70	5.28	24.56	338	0.11
75	12.61	33.58	4.14	260	50	14.18	33.53	4.71	25.04	294	0.17
100	10.92	33.71	3.35	220	75	12.61	33.58	4.14	25.39	260	0.24
125	10.20	33.85	2.91	198	100	10.92	33.71	3.35	25.81	220	0.30
155	9.58	33.96	2.50	180	125	10.20	33.85	2.91	26.04	198	0.36
					150	9.65	33.94	2.58	26.20	183	0.41

SPENCER F. BAIRD; October 13, 1959; 2002 GCT; 33°52'N, 120°07.5'W; sounding, 62 fm; wind, 190°, force 2; weather, clear; sea, rough; wire angle, 02°.

83.51

2	19.46	33.79	5.22	392	0	(19.46)	(33.79)	(5.22)	(24.00)	(392)	(0.00)
12	19.07	33.71	5.33	388	10	19.10	33.71	5.32	24.04	388	0.04
32	14.56	33.57	5.28	298	20	17.20	33.61	5.33	24.42	352	0.08
52	12.54	33.57	4.33	259	30	14.95	33.58	5.33	24.91	305	0.11
77	11.52	33.65	3.85	234	50	12.63	33.56	4.39	25.37	261	0.17
					75	11.58	33.64	3.88	25.64	236	0.23

SPENCER F. BAIRD; October 13, 1959; 2209 GCT; 33°44'N, 120°24.5'W; sounding, 515 fm; wind, 190°, force 1; weather, clear; sea, moderate; wire angle, 04°.

83.55

1	18.29	33.66	5.20	373	0	(18.29)	(33.66)	(5.20)	(24.20)	(373)	(0.00)
11	17.31	33.64	5.49	352	10	17.33	33.64	5.49	24.42	352	0.04
31	13.34	33.54	4.88	276	20	17.12	33.64	5.49	24.46	348	0.07
41	11.83	33.44	4.62	256	30	13.38	33.54	4.89	25.22	276	0.10
51	11.30	33.54	4.28	239	50	11.32	33.53	4.30	25.59	240	0.15
66	11.02	33.61	3.94	229	75	10.73	33.64	3.86	25.79	222	0.21
81	10.58	33.67	3.81	217	100	10.02	33.72	3.71	25.97	204	0.27
101	10.00	33.72	3.69	204	125	9.27	33.84	3.18	26.18	184	0.32
126	9.26	33.84	3.17	184	150	9.09	33.92	2.80	26.28	175	0.36
146	9.14	33.91	2.84	176	200	8.70	34.13	2.04	26.50	154	0.44
175	8.86	34.05	2.21	162	250	8.43	34.15	1.67	26.56	148	0.52
205	8.68	34.14	1.99	152	300	7.99	34.22	1.33	26.69	136	0.59
235	8.56	34.14	1.78	151	400	7.01	34.30	0.70	26.89	117	0.72
275	8.19	34.18	1.48	142	500	6.41	34.34	0.55	27.00	107	0.84
335	7.68	34.28	1.03	128							
411	6.94	34.31	0.67	116							
484	6.54	34.34	0.57	108							
564	5.84	34.31	0.37	102							



S10  
CCOFI  
5910

OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T_3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_3$	$\Delta D$
m	°C	‰	ml/L	10 <sup>-5</sup> cm/g	m	°C	‰	ml/L	g/L	10 <sup>-5</sup> cm/g	dyn. m

83.60 SPENCER F. BAIRD; October 14, 1959; 0051 GCT; 33°34'N, 120°44.5'W; sounding, 800 fm; wind, 190°, force 2; weather, overcast; sea, moderate; wire angle, 12°.

2	18.38	33.71	5.39	372	0	(18.38)	(33.71)	(5.39)	(24.21)	(372)	(0.00)
12	17.48	33.68	5.41	361	10	17.98	33.69	5.41	24.30	363	0.04
31	14.82	33.51	5.22	308	20	16.65	33.61	5.37	24.56	339	0.07
41	12.34	33.62	3.90	252	30	14.90	33.51	5.23	24.87	309	0.10
51	11.74	33.69	3.55	235	50	11.79	33.69	3.56	25.64	236	0.16
65	10.89	33.68	3.50	221	75	10.39	33.68	3.50	25.88	213	0.22
80	10.07	33.68	3.47	208	100	9.28	33.80	3.14	26.16	187	0.27
99	9.31	33.80	3.15	187	125	8.88	33.92	2.78	26.31	172	0.31
123	8.90	33.91	2.81	172	150	8.59	33.96	2.53	26.39	164	0.35
142	8.68	33.95	2.61	166	200	8.06	34.09	1.98	26.58	147	0.43
171	8.39	34.00	2.39	158	250	7.69	34.16	1.48	26.68	137	0.51
200	8.06	34.09	1.98	147	300	7.38	34.24	1.10	26.79	127	0.57
230	7.88	34.13	1.67	142	400	6.76	34.28	0.69	26.90	116	0.70
268	7.53	34.19	1.31	132	500	6.33	34.32	0.46	27.00	107	0.81
328	7.26	34.26	0.99	124							
401	6.75	34.28	0.68	116							
474	6.46	34.31	0.51	110							
553	6.08	34.34	0.41	102							

83.70 SPENCER F. BAIRD; October 14, 1959; 0527, 0558 GCT; 33°14.5'N, 121°26'W; sounding, 2050 fm; wind, direction missing, force 1; weather, overcast; sea, slight; wire angle, 09°, 18°.

2	17.23	33.42	5.40	366	0	(17.23)	(33.42)	(5.40)	(24.27)	(366)	(0.00)
12	17.00	33.42	5.39	361	10	17.03	33.42	5.39	24.31	362	0.04
32	16.87	33.46	5.37	356	20	16.92	33.43	5.38	24.35	358	0.07
41	15.29	33.30	5.62	333	30	16.88	33.46	5.37	24.38	356	0.11
51	12.46	33.09	5.52	293	50	12.63	33.09	5.54	25.01	296	0.17
66	11.12	33.10	5.01	268	75	10.70	33.23	4.71	25.47	252	0.24
80	10.50	33.30	4.50	243	100	9.72	33.66	3.44	25.97	204	0.30
100	9.72	33.66	3.44	204	125	9.08	33.78	3.45	26.18	185	0.35
125	9.08	33.78	3.45	185	150	8.66	33.89	3.25	26.32	171	0.40
144	8.72	33.86	3.33	174	200	8.08	34.02	2.94	26.52	152	0.48
174	8.45	33.97	2.62	162	250	7.10	34.07	2.74	26.69	136	0.55
203	8.00	34.02	2.96	151	300	6.80	34.15	1.50	26.80	126	0.62
233	7.36	34.03	2.93	142	400	6.31	34.21	0.66	26.91	115	0.74
272	6.88	34.14	2.10	127	500	5.82	34.32	0.37	27.06	101	0.86
333	6.73	34.15	1.12	125							
394	6.33	34.20	0.71	116							
467	6.03	34.30	0.43	105							
548	5.56	34.34	0.32	96							

83.80 SPENCER F. BAIRD; October 14, 1959; 1024 GCT; 32°54'N, 122°07'W; sounding, 2200 fm; wind, 120°, force 2; weather, overcast; sea, slight; wire angle, 01°.

2	17.31	33.67	5.29	350	0	(17.31)	(33.67)	(5.29)	(24.44)	(350)	(0.00)
12	17.30	33.64	5.36	352	10	17.30	33.65	5.36	24.43	351	0.04
32	17.24	33.65	5.33	350	20	17.29	33.64	5.37	24.43	351	0.07
42	15.53	33.49	5.45	324	30	17.25	33.65	5.35	24.44	350	0.11
52	14.46	33.39	5.34	309	50	14.74	33.43	5.36	24.84	312	0.17
67	11.39	33.04	5.22	277	75	11.09	33.11	5.10	25.31	267	0.24
82	10.84	33.16	5.00	259	100	9.78	33.46	4.31	25.81	220	0.31
102	9.68	33.48	4.23	216	125	9.26	33.68	3.53	26.07	195	0.36
127	9.24	33.69	3.48	194	150	9.09	33.89	2.72	26.26	177	0.41
147	9.14	33.87	2.69	180	200	8.01	34.02	3.03	26.52	152	0.49
177	8.40	33.96	3.18	162	250	7.30	34.04	2.59	26.65	140	0.56
206	7.92	34.02	2.98	150	300	6.80	34.09	2.10	26.75	130	0.63
236	7.52	34.05	2.68	143	400	5.95	34.16	0.96	26.92	114	0.76
276	6.92	34.04	2.45	135	500	5.52	34.29	0.40	27.08	99	0.87
336	6.65	34.18	1.36	122							
411	5.86	34.17	0.88	112							
486	5.56	34.27	0.46	101							
566	5.39	34.38	0.31	91							



OBSERVED					INTERPOLATED				COMPUTED			
Z	T	S	O <sub>2</sub>	$\delta_{T_3}$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta_{T_3}$	$\Delta D$	
m	°C	‰	ml/L	$\frac{1}{10} \frac{cm}{g}$	m	°C	‰	ml/L	g/L	$\frac{1}{10} \frac{cm}{g}$	dyn. m	

SPENCER F. BAIRD; October 14, 1959; 1501 GCT; 32°34'N, 122°48'W; sounding, 2300 fm; wind, 330°, force 2; weather, overcast; sea, moderate; wire angle, 03°.

83.90

2	16.56	33.31	5.36	359	0	(16.56)	(33.31)	(5.36)	(24.34)	(359)	(0.00)
12	16.70	33.42	5.47	354	10	16.68	33.41	5.46	24.39	355	0.04
32	16.66	33.57	5.50	342	20	16.69	33.49	5.48	24.45	349	0.07
42	15.49	33.37	5.59	332	30	16.67	33.57	5.49	24.51	343	0.11
52	14.64	33.35	5.59	316	50	14.95	33.37	5.59	24.74	321	0.17
67	12.18	33.00	5.62	294	75	11.61	33.08	5.36	25.20	278	0.25
82	11.26	33.19	5.00	264	100	10.68	33.31	4.87	25.54	245	0.31
102	10.60	33.31	4.83	244	125	9.48	33.56	4.02	25.93	208	0.37
127	9.42	33.58	3.96	205	150	9.11	33.80	3.35	26.19	184	0.42
147	9.16	33.78	3.42	186	200	8.43	34.00	3.02	26.44	159	0.51
177	8.73	33.93	3.07	168	250	7.79	34.07	2.10	26.59	145	0.59
206	8.34	34.00	3.00	158	300	7.53	34.16	1.35	26.71	134	0.66
236	7.90	34.04	2.55	148	400	6.42	34.18	0.98	26.87	119	0.79
276	7.66	34.13	1.51	139	500	5.91	34.29	0.47	27.03	104	0.91
336	7.31	34.20	1.22	129							
410	6.32	34.18	0.92	118							
485	6.00	34.27	0.50	106							
565	5.46	34.32	0.41	97							

SPENCER F. BAIRD; October 12, 1959; 0601 GCT; 33°50'N, 118°37.5'W; sounding, 220 fm; wind, direction missing, force 1; weather, fog; sea, slight; wire angle, 00°.

87.35

2	19.94	33.74	5.33	407	0	(19.94)	(33.74)	(5.33)	(23.84)	(407)	(0.00)
12	19.91	33.78	5.40	404	10	19.91	33.77	5.38	23.87	404	0.04
32	15.88	33.56	5.45	326	20	19.00	33.75	5.42	24.09	384	0.08
52	14.15	33.55	4.76	291	30	16.35	33.58	5.45	24.60	335	0.12
77	12.82	33.58	4.15	263	50	14.30	33.55	4.82	25.03	294	0.18
102	11.63	33.64	3.88	237	75	12.90	33.57	4.18	25.33	265	0.25
127	11.00	33.74	3.57	219	100	11.71	33.63	3.90	25.60	239	0.31
167	10.16	33.84	2.93	198	125	11.06	33.74	3.61	25.80	220	0.37
207	9.68	33.95	2.61	182	150	10.45	33.80	3.18	25.95	206	0.43
					200	9.74	33.93	2.65	26.18	184	0.52

SPENCER F. BAIRD; October 12, 1959; 0315 GCT; 33°40'N, 118°58'W; sounding, 260 fm; wind, 240°, force 3; weather, fog; sea, moderate; wire angle, 05°.

87.40

2	18.80	33.75	5.15	379	0	(18.80)	(33.75)	(5.15)	(24.14)	(379)	(0.00)
12	18.42	33.75	5.32	370	10	18.67	33.76	5.24	24.18	375	0.04
32	16.80	33.65	5.42	340	20	17.60	33.70	5.40	24.40	354	0.07
52	13.14	33.40	5.14	283	30	17.03	33.66	5.41	24.50	344	0.11
77	11.64	33.47	4.57	250	50	13.35	33.40	5.17	25.10	287	0.17
101	10.22	33.74	3.66	206	75	11.68	33.47	4.59	25.48	251	0.24
126	9.85	33.87	3.02	191	100	10.35	33.73	3.75	25.91	210	0.30
166	9.36	33.95	2.57	177	125	9.86	33.87	3.03	26.11	191	0.35
205	8.50	34.03	2.16	158	150	9.57	33.92	2.73	26.20	182	0.40
255	8.20	34.14	1.59	146	200	8.58	34.01	2.24	26.43	161	0.48
305	8.00	34.22	1.36	137	250	8.21	34.13	1.64	26.58	147	0.56
410	7.12	34.27	0.65	121	300	8.03	34.21	1.40	26.67	138	0.64
					400	7.21	34.27	0.71	26.83	122	0.77



SIO  
CCOFI  
5910

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

8745 SPENCER F. BAIRD; October 12, 1959; 0029 GCT; 33°30.5'N, 119°18.5'W; sounding, 917 fm; wind, 280°, force 3; weather, cloudy; sea, moderate; wire angle, 07°.

2	18.82	33.78	5.28	377	0	(18.82)	(33.78)	(5.28)	(24.16)	(377)	(0.00)
12	18.74	33.77	5.36	376	10	18.80	33.78	5.35	24.17	376	0.04
32	12.89	33.56	4.61	266	20	16.80	33.67	5.15	24.56	339	0.07
42	11.50	33.60	4.10	238	30	13.50	33.57	4.73	25.21	277	0.10
52	11.08	33.62	3.82	229	50	11.16	33.62	3.86	25.69	231	0.15
67	10.54	33.68	3.71	215	75	10.22	33.76	3.46	25.96	205	0.21
82	9.90	33.78	3.33	198	100	9.12	33.87	3.07	26.24	179	0.26
101	9.09	33.87	3.06	178	125	8.71	33.98	2.62	26.38	165	0.30
126	8.70	33.98	2.61	164	150	8.59	34.06	2.15	26.47	157	0.34
145	8.59	34.04	2.24	158	200	8.12	34.15	1.70	26.62	143	0.42
175	8.44	34.14	1.79	149	250	8.00	34.23	1.31	26.69	136	0.49
205	8.08	34.16	1.67	142	300	7.74	34.24	1.10	26.73	132	0.56
234	8.02	34.21	1.44	138	400	7.12	34.31	0.84	26.88	118	0.69
273	7.93	34.23	1.24	135	500	6.59	34.35	0.49	26.99	108	0.80
333	7.48	34.26	0.94	126							
407	7.09	34.31	0.81	117							
481	6.72	34.34	0.53	110							
562	6.10	34.37	0.43	100							

8755 SPENCER F. BAIRD; October 11, 1959; 1927 GCT; 33°12'N, 120°02'W; sounding, 565 fm; wind, 280°, force 1; weather, partly cloudy; sea, moderate; wire angle, 02°.

2	18.79	33.75	5.09	378	0	(18.79)	(33.75)	(5.09)	(24.14)	(378)	(0.00)
12	18.60	33.74	5.09	375	10	18.60	33.74	5.09	24.18	375	0.04
32	15.16	33.48	5.43	317	20	18.60	33.74	5.09	24.18	375	0.08
42	12.06	33.19	5.22	278	30	16.00	33.51	5.37	24.63	332	0.11
52	11.52	33.24	5.00	265	50	11.61	33.23	5.07	25.31	267	0.17
67	10.93	33.39	4.58	243	75	10.68	33.44	4.47	25.64	236	0.23
82	10.50	33.48	4.35	230	100	9.96	33.63	3.78	25.91	210	0.29
102	9.83	33.65	3.69	206	125	9.04	33.84	3.32	26.23	180	0.34
127	9.01	33.85	3.30	179	150	8.73	33.90	3.07	26.32	171	0.38
147	8.80	33.89	3.12	173	200	8.04	34.04	1.83	26.53	151	0.47
177	8.29	34.02	2.42	155	250	7.70	34.16	1.41	26.69	136	0.54
207	8.00	34.05	1.66	149	300	7.26	34.18	1.24	26.76	130	0.61
237	7.84	34.16	1.42a)	139	400	6.66	34.27	0.70	26.91	115	0.74
276	7.42	34.15	1.39	134	500	6.22	34.35	0.52	27.03	104	0.85
336	7.02	34.23	0.91	123							
412	6.60	34.27	0.67	114							
485	6.29	34.34	0.53	105							
565	5.90	34.37	0.52	98							

8760 SPENCER F. BAIRD; October 11, 1959; 1632 GCT; 33°01'N, 120°22'W; sounding, 600 fm; wind, 270°, force 1; weather, overcast; sea, slight; wire angle, 01°.

2	18.54	33.86	5.16	365	0	(18.54)	(33.86)	(5.16)	(24.28)	(365)	(0.00)
12	18.48	33.89	5.27	361	10	18.50	33.88	5.24	24.31	362	0.04
32	17.58	33.87	5.08	341	20	18.43	33.90	5.27	24.34	359	0.07
42	13.51	33.75	4.22	264	30	18.15	33.87	5.26	24.40	354	0.11
52	10.80	33.76	3.29	214	50	11.55	33.72	3.63	25.70	230	0.17
67	10.10	33.82	2.91	198	75	10.01	33.82	2.88	26.05	197	0.22
82	9.92	33.82	2.83	195	100	9.31	33.88	2.57	26.22	181	0.27
102	9.26	33.90	2.52	179	125	8.86	33.98	2.27	26.36	167	0.31
127	8.82	33.98	2.25	166	150	8.46	34.01	2.04	26.45	159	0.35
147	8.52	34.00	2.06	160	200	7.77	34.12	1.54	26.64	140	0.43
177	8.06	34.09	1.73	147	250	7.46	34.23	1.13	26.76	129	0.50
207	7.70	34.14	1.46	138	300	7.12	34.26	0.97	26.85	121	0.56
237	7.56	34.20	1.22	132	400	6.46	34.32	0.52	26.98	109	0.68
277	7.26	34.25	1.03	124	500	5.74	34.40	0.32	27.14	93	0.79
337	6.88	34.27	0.88	118							
412	6.38	34.33	0.45	106							
488	5.80	34.40	0.34	94							
568	5.51	34.42	0.29	90							



OBSERVED					INTERPOLATED				COMPUTED		
Z m	T °C	S ‰	O <sub>2</sub> ml/L	$\delta T_3$ -5 cm/g	Z m	T °C	S ‰	O <sub>2</sub> ml/L	$\sigma_t$ g/L	$\delta T_3$ -5 cm/g	$\Delta D$ dyn. m

S10  
CCOFI  
5910

SPENCER F. BAIRD; October 11, 1959; 1159 GCT; 32°41'N, 121°01'W; sounding, 2100 fm; wind, calm; weather, cloudy; sea, moderate; wire angle, 02°.

87.70

2	17.80	33.78	5.26	353	0	(17.80)	(33.78)	(5.26)	(24.41)	(353)	(0.00)
12	17.68	33.76	5.28	352	10	17.71	33.76	5.27	24.42	352	0.04
32	17.36	33.71	5.21	348	20	17.58	33.74	5.26	24.44	350	0.07
42	13.15	33.31	5.28	289	30	17.42	33.73	5.21	24.46	348	0.11
57	11.40	33.31	4.88	258	50	12.88	33.31	5.25	25.13	284	0.17
72	10.28	33.60	3.95	217	75	10.17	33.62	3.89	25.87	214	0.23
97	9.62a)	33.69	3.63	200	100	9.55	33.70	3.58	26.04	198	0.28
117	9.28	33.86	2.99	182	125	9.15	33.87	3.10	26.24	179	0.33
137	8.92	33.87	3.31	176	150	8.67	33.94	3.03	26.36	167	0.37
157	8.60	33.97	2.85	164	200	8.27	34.06	2.25	26.51	153	0.46
187	8.46	34.04	2.26	156	250	7.43	34.11	1.67	26.68	137	0.53
222	7.90	34.06	2.21	147	300	6.82	34.14	1.07	26.78	127	0.60
252	7.40	34.11	1.60	137	400	6.13	34.30	0.51	27.01	106	0.72
302	6.81	34.14	1.04	126	500	5.61	34.30	0.35	27.07	100	0.83
356	6.51	34.27	0.66	113	600	5.30	34.37	0.27	27.17	91	0.93
441	5.83	34.30	0.41	103							
526	5.52	34.31	0.30	98							
611	5.27	34.38	0.26	90							

SPENCER F. BAIRD; October 11, 1959; 0703 GCT; 32°20'N, 121°42.5'W; sounding, 2160 fm; wind, 240°, force 3; weather, cloudy; sea, rough; wire angle, 10°.

87.80

3	17.00	33.57	5.40	350	0	(17.00)	(33.57)	(5.40)	(24.44)	(350)	(0.00)
13	17.00	33.54	5.43	352	10	17.00	33.55	5.41	24.43	351	0.04
32	16.82	33.55	5.44	348	20	16.96	33.54	5.44	24.43	351	0.07
42	16.66	33.51	5.49	347	30	16.84	33.55	5.44	24.46	348	0.11
57	12.92	33.09	5.52	301	50	14.30	33.16	5.51	24.72	323	0.17
71	11.57	33.13	5.28	273	75	11.32	33.17	5.15	25.31	267	0.25
96	10.46b)	33.33	4.57	240	100	10.41	33.36	4.55	25.62	238	0.31
115	9.30	33.69	3.90	195	125	9.16	33.81	3.99	26.18	185	0.36
135	9.04	33.86	3.97	178	150	8.88	33.89	3.86	26.29	174	0.41
154	8.82	33.90	3.80	172	200	8.26	34.05	3.17	26.51	153	0.49
184	8.53	34.03	3.34	158	250	7.75	34.12	1.85	26.64	141	0.57
218	7.96	34.05	2.96	149	300	7.26	34.19	1.25	26.76	129	0.64
247	7.79	34.12	1.89	141	400	6.35	34.28	0.72	26.97	110	0.76
296	7.30	34.18	1.29	130	500	5.81	34.34	0.45	27.08	99	0.87
350	6.79	34.23	0.88	120	600	5.33	34.47	0.32	27.24	84	0.97
434	6.10	34.32	0.60	104							
518	5.74	34.34	0.41	98							
603	5.32	34.47	0.32	84							

SPENCER F. BAIRD; October 11, 1959; 0146 GCT; 31°58'N, 122°28.5'W; sounding, 2200 fm; wind, 330°, force 4; weather, partly cloudy; sea, rough; wire angle, 14°.

87.90

3	17.38	33.30	5.32	378	0	(17.38)	(33.30)	(5.32)	(24.14)	(378)	(0.00)
12	17.36	33.34	5.36	375	10	17.37	33.34	5.35	24.18	375	0.04
32	16.88	33.21	5.51	374	20	17.14	33.29	5.40	24.19	374	0.08
41	14.62	33.04	5.96	338	30	16.91	33.22	5.50	24.19	374	0.11
56	13.36	33.01	5.93	315	50	13.80	33.01	5.95	24.71	324	0.18
70	12.56	33.08	5.81	295	75	12.33	33.14	5.69	25.10	287	0.26
94	11.20	33.33	4.87	253	100	10.89	33.36	4.75	25.54	245	0.33
113	10.14	33.43	4.53	228	125	9.82	33.54	4.32	25.86	215	0.38
132	9.66	33.60	4.17	208	150	9.30	33.74	3.72	26.11	191	0.44
150	9.30	33.74	3.72	191	200	8.48	33.94	3.00	26.40	164	0.53
178	8.80	33.87	3.56	174	250	7.74	34.07	2.03	26.60	144	0.60
212	8.30	33.98	2.68	159	300	6.96	34.11	1.69	26.74	131	0.68
240	7.89	34.06	2.11	147	400	6.37	34.22	0.82	26.92	115	0.80
288	7.10	34.10	1.83	133	500	5.82	34.26	0.49	27.01	106	0.92
340	6.62	34.14	1.22	124	600	(5.32)	(34.36)	(0.44)	(27.05)	(92)	(1.02)
422	6.28	34.25	0.69	112							
505	5.79	34.26	0.47	105							
591	5.37	34.34	0.44	94							

a) Mean value of 9.54 and 9.69°C.  
b) Mean value of 10.40 and 10.51°C.

407



S10

CCOFI  
5910

OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T$	$\Delta D$
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

90.28

SPENCER F. BAIRD; October 9, 1959; 0644 GCT; 33°28.5'N, 117°46.5'W; sounding, 200 fm; wind, 280°, force 1; weather, cloudy; sea, slight; wire angle, 00°.

1	20.20	33.75	5.23	413	0	(20.20)	(33.75)	(5.23)	(23.78)	(413)	(0.00)
6	20.16	33.77	5.30	411	10	19.90	33.76	5.37	23.86	405	0.04
11	19.44	33.70	5.43	398	20	17.00	33.58	5.54	24.45	349	0.08
16	18.49	33.66	5.55	378	30	15.02	33.56	5.00	24.88	308	0.11
21	16.72	33.58	5.53	343	50	14.09	33.55	5.00	25.07	290	0.17
26	15.56	33.55	5.48	320							
31	15.00	33.56	-	307							
36	14.71	33.53	4.76	304							
41	14.30	33.53	5.11	296							
46	14.24	-	5.18	-							
51	14.04	33.55	4.97	289							
56	13.90	33.54	4.94	287							
61	12.92	33.53	4.58	268							

90.32

SPENCER F. BAIRD; October 9, 1959; 0917 GCT; 33°20.5'N, 118°04'W; sounding, 420 fm; wind, missing, force 1; weather, partly cloudy; sea, slight; wire angle, 00°.

1	20.44	33.74	5.06	420	0	(20.44)	(33.74)	(5.06)	(23.70)	(420)	(0.00)
11	20.37	33.74	5.15	418	10	20.37	33.74	5.15	23.73	418	0.04
32	15.08	33.48	5.91	315	20	19.00	33.66	5.63	24.02	390	0.08
41	14.26	33.47	5.68	299	30	15.26	33.48	5.91	24.77	319	0.12
52	13.71	33.48	5.38	288	50	13.80	33.48	5.45	25.08	289	0.18
66	12.35	33.53	4.56	258	75	11.93	33.59	4.25	25.52	247	0.25
81	11.58	33.59	4.07	240	100	10.69	33.68	3.61	25.82	218	0.30
101	10.65	33.69	3.55	217	125	10.26	33.80	2.90	25.99	203	0.36
126	10.24	33.81	2.88	202	150	9.80	33.94	2.62	26.18	185	0.41
146	9.85	33.92	2.66	187	200	9.23	34.10	1.93	26.39	164	0.50
177	9.48	34.04	2.21	172	250	8.44	34.14	1.62	26.55	149	0.58
206	9.16	34.11	1.86	162	300	8.11	34.18	1.25	26.64	141	0.65
234	8.59	34.13	1.78	152	400	7.37	34.24	0.82	26.79	126	0.79
277	8.28	34.15	1.40	146	500	6.51	34.28	0.43	26.94	112	0.92
335	7.86	34.23	1.07	134							
412	7.28	34.25	0.77	124							
486	6.62	34.27	0.46	114							
566	6.12	34.34	0.31	103							

90.37

SPENCER F. BAIRD; October 9, 1959; 1205, 1240, 1300 GCT; 33°10.5'N, 118°23.5'W; sounding, 640+ fm; wind, direction missing, force 1; weather, partly cloudy; sea, moderate; wire angle, 01°, 00°, 00°.

3	20.15	33.78	4.98	410	0	(20.15)	(33.78)	(4.98)	(23.81)	(410)	(0.00)
13	19.44	33.71	5.19	397	10	20.10	33.77	5.00	23.82	409	0.04
33	15.09	33.53	5.19	312	20	19.23	33.70	5.19	24.01	393	0.08
43	13.76	33.53	4.96	285	30	16.25	33.54	5.19	24.60	335	0.12
53	13.03	33.54	4.60	270	50	13.28	33.54	4.73	25.23	275	0.18
68	12.30	33.57	4.14	254	75	12.01	33.59	3.96	25.51	248	0.24
83	11.62	33.62	3.76	239	100	10.73	33.70	3.40	25.84	217	0.30
103	10.60	33.72	3.35	214	125	10.00	33.85	2.95	26.08	194	0.36
128	9.89	33.86	2.87	192	150	9.30	33.96	2.61	26.28	175	0.40
148	9.33	33.95	2.63	176	200	8.72	34.09	2.04	26.47	157	0.49
178	9.06	34.04	2.26	166	250	8.63	34.22	1.64	26.58	146	0.56
208	8.67	34.13	1.92	153	300	8.07	34.20	1.47	26.66	139	0.64
239	8.72	34.22	1.71	147	400	7.22	34.30	0.81	26.86	120	0.77
279	8.30	34.19	1.49	143	500	6.40	34.34	0.41	27.01	106	0.89
339	7.68	34.25	1.39	130							
413	7.12	34.30	0.73	118							
488	6.48	34.34	0.43	108							
570	5.98	34.34	0.36	101							

408



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

SIO  
CCOFI  
5910

SPENCER F. BAIRD; October 9, 1959; 1705 GCT; 32°54.5'N, 118°56'W; sounding, 950 fm; wind, 360°, force 1; weather, partly cloudy; sea, moderate; wire angle, 05°.

90.45

2	18.40	33.71	5.12	372	0	(18.40)	(33.71)	(5.12)	(24.21)	(372)	(0.00)
12	18.34	33.69	5.18	372	10	18.35	33.70	5.17	24.21	372	0.04
32	15.76	33.55	5.10	324	20	18.29	33.68	5.18	24.21	372	0.07
42	13.93	33.48	4.94	292	30	17.50	33.63	5.16	24.36	358	0.11
52	13.20	33.46	4.89	279	50	13.34	33.46	4.90	25.17	281	0.17
67	12.22	33.48	4.61	260	75	11.85	33.54	4.40	25.50	249	0.24
81	11.55a)	33.60	4.19	239	100	10.42	33.67	3.70	25.86	214	0.30
101	10.41b)	33.67	3.69	214	125	9.71	33.78	3.34	26.07	195	0.35
126	9.69	33.78	3.31	195	150	9.23	33.83	2.42	26.18	184	0.40
146	9.30	33.82	2.41	186	200	8.71	34.02	1.56	26.42	162	0.49
175	8.86	33.89	2.73	174	250	8.31	34.16	1.68	26.58	146	0.57
206	8.66	34.04	1.42	160	300	7.85	34.22	1.22	26.70	134	0.64
236	8.36	34.10	1.83	150	400	7.12	34.32	0.72	26.88	118	0.77
275	8.27	34.25	1.33	138	500	6.46	34.38	0.48	27.04	103	0.89
335	7.40	34.20	1.04	130							
410	7.08	34.33	0.68	116							
484	6.56	34.40	0.50	104							
564	6.04	34.35	0.41	101							

SPENCER F. BAIRD; October 9, 1959; 1956 GCT; 32°44.5'N, 119°13.5'W; sounding, 65 fm; wind, 360°, force 2; weather, partly cloudy; sea, rough; wire angle, 07°.

90.50

2	18.62	33.72	5.89	377	0	(18.62)	(33.72)	(5.89)	(24.16)	(377)	(0.00)
12	18.52	33.71	5.15	375	10	18.54	33.71	5.20	24.17	376	0.04
32	17.22	33.62	5.42	352	20	18.42	33.70	5.15	24.20	373	0.08
51	14.03	33.41	5.53	300	30	18.15	33.69	5.19	24.25	368	0.11
76	12.72	33.46	4.80	270	50	14.20	33.42	5.53	24.95	302	0.18
101	11.27	33.58	4.11	236	75	12.76	33.45	4.86	25.26	272	0.25
					100	11.29	33.58	4.12	25.64	236	0.32

SPENCER F. BAIRD; October 10, 1959; 0010 GCT; 32°33'N, 119°39'W; sounding, 200 fm; wind, 230°, force 6; weather, cloudy; sea, rough; wire angle, 14°.

90.55

3	18.58	33.64	5.17	382	0	(18.58)	(33.64)	(5.17)	(24.11)	(382)	(0.00)
13	18.59	33.65	5.30	382	10	18.59	33.65	5.27	24.11	382	0.04
32	18.45	33.64	5.27	378	20	18.59	33.66	5.30	24.12	381	0.08
52	14.40	33.40	5.79	307	30	18.53	33.65	5.28	24.14	379	0.11
76	12.51	33.45	5.00	267	50	14.72	33.41	5.79	24.83	313	0.18
100	10.98	33.55	4.35	232	75	12.52	33.45	5.01	25.31	267	0.26
125	9.77	33.69	3.74	202	100	10.98	33.55	4.35	25.68	232	0.32
163	8.58	33.93	2.88	167	125	9.77	33.69	3.74	26.00	202	0.38
202	8.33	34.00	2.47	158	150	8.90	33.88	3.15	26.28	175	0.42
251	7.75	34.13	1.71	140	200	8.34	34.00	2.50	26.46	158	0.51
300	7.43	34.13	1.40	136	250	7.76	34.13	1.72	26.65	140	0.58
					300	7.43	34.13	1.40	26.69	136	0.66

- a) Alternate value, 11.34°C, not used in interpolation.  
b) Alternate value, 10.72°C, not used in interpolation.



SIO

CCOFI  
5910

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

90.60

SPENCER F. BAIRD; October 10, 1959; 0250 GCT; 32°23.5'N, 120°00'W; sounding, 485 fm; wind, 280°, force 3; weather, cloudy; sea, very rough; wire angle, 17°.

3	18.18	33.62	5.21	373	0	(18.18)	(33.62)	(5.21)	(24.20)	(373)	(0.00)
12	18.18	33.64	5.25	372	10	18.18	33.64	5.25	24.21	372	0.04
32	17.94	33.66	5.28	365	20	18.17	33.65	5.26	24.22	371	0.07
41	14.16	33.30	5.75	310	30	18.05	33.66	5.27	24.26	367	0.11
55	12.68	33.19	5.57	290	50	13.03	33.19	5.67	25.00	296	0.18
70	11.28	33.29	4.91	257	75	11.11	33.35	4.70	25.49	250	0.25
93	10.45	33.54	4.06	225	100	10.18	33.60	3.94	25.85	216	0.30
111	9.76	33.70	3.70	202	125	9.26	33.80	3.39	26.16	187	0.36
130	9.12	33.82	3.31	183	150	8.89	33.90	3.06	26.30	173	0.40
148	8.89	33.89	3.08	174	200	8.26	34.04	2.32	26.50	154	0.48
176	8.60	33.96	2.80	165	250	7.79	34.15	1.57	26.66	138	0.56
208	8.15	34.07	2.15	150	300	7.28	34.20	1.12	26.77	128	0.63
236	7.96	34.13	1.79	143	400	6.77	34.27	0.62	26.90	116	0.76
282	7.42	34.20	1.19	130	500	6.15	34.36	0.37	27.05	102	0.87
333	7.10	34.22	0.95	124							
414	6.70	34.29	0.57	114							
495	6.18	34.35	0.39	103							
578	5.59	34.40	0.26	92							

90.70

SPENCER F. BAIRD; October 10, 1959; 0838 GCT; 32°02'N, 120°42.5'W; sounding, 2100 fm; wind, 120°, force 4; weather, overcast; sea, very rough; wire angle, 20°.

3	17.70	33.64	5.23	361	0	(17.70)	(33.64)	(5.23)	(24.32)	(361)	(0.00)
13	17.70	33.65	5.23	360	10	17.70	33.65	5.23	24.33	360	0.04
37	17.69	33.68	5.22	358	20	17.70	33.66	5.23	24.34	360	0.07
46	14.20	33.22	5.68	316	30	17.70	33.67	5.23	24.35	359	0.11
60	12.22	33.09	5.48	288	50	13.20	33.12	5.64	24.92	304	0.17
75	11.83	33.22	5.16	272	75	11.83	33.22	5.16	25.26	272	0.25
97	10.72	33.48	4.34	233	100	10.54	33.51	4.28	25.72	228	0.31
115	9.94	33.68	3.89	206	125	9.60	33.73	3.67	26.05	197	0.36
133	9.34	33.77	3.47	190	150	8.79	33.88	3.15	26.30	173	0.41
161	8.54	33.96	2.92	164	200	8.08	34.06	2.47	26.54	150	0.49
189	8.22	34.05	2.55	152	250	7.63	34.13	1.76	26.66	139	0.57
225	7.78	34.06	2.22	145	300	7.03	34.16	1.21	26.78	128	0.64
253	7.61	34.13	1.70	138	400	6.40	34.25	0.70	26.94	113	0.76
300	7.03	34.16	1.21	128	500	5.80	34.32	0.44	27.07	100	0.87
362	6.66	34.22	0.85	118	600	5.29	34.38	0.31	27.17	91	0.97
457	6.00	34.28	0.51	106							
543	5.59	34.36	0.37	95							
618	5.20	34.38	0.29	89							

90.80

SPENCER F. BAIRD; October 10, 1959; 1430 GCT; 31°40'N, 121°25'W; sounding, 2000+ fm; wind, 300°, force 5; weather, overcast; sea, very rough; wire angle, 29°.

2	17.90	33.48	4.99	377	0	(17.90)	(33.48)	(4.99)	(24.16)	(377)	(0.00)
11	17.90	33.49	5.19	376	10	17.90	33.49	5.19	24.17	376	0.04
32	17.92	33.46	5.24	379	20	17.91	33.48	5.21	24.16	377	0.08
40	17.62	33.44	5.12	374	30	17.92	33.46	5.24	24.13	379	0.11
52	14.77	33.19	5.76	330	50	15.23	33.24	5.73	24.59	336	0.18
64	13.76	33.24	5.19	306	75	13.39	33.34	5.12	25.05	292	0.26
85	13.03	33.45	5.05	277	100	11.87	33.49	4.65	25.46	253	0.33
100	11.87	33.49	4.65	253	125	9.92	33.59	4.21	25.89	212	0.39
115	10.51	33.52	4.36	227	150	9.10	33.76	3.62	26.15	188	0.44
139	9.27	33.68	3.91	196	200	8.38	34.00	3.30	26.45	159	0.53
162	8.94	33.82	3.34	180	250	7.88	34.10	1.88	26.60	144	0.61
194	8.45	33.98	3.37	161	300	7.41	34.16	1.31	26.72	133	0.68
218	8.14	34.03	2.86	153	400	(6.49)	(34.26)	(0.64)	(26.93)	(113)	(0.81)
258	7.81	34.11	1.75	142							
311	7.30	34.16	1.22	132							
391	6.56	34.25	0.69	115							



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

SIO  
CCOFI  
5910

SPENCER F. BAIRD; October 10, 1959; 2003 GCT; 31°16.5'N, 122°09'W; sounding, 2200 fm; wind, 330°, force 4; weather, partly cloudy; sea, rough; wire angle, 11°.

90.90

3	18.70	33.40	5.20	402	0	(18.70)	(33.40)	(5.20)	(23.89)	(402)	(0.00)
13	18.68	33.43	5.14	400	10	18.69	33.43	5.18	23.91	400	0.04
37	18.59	33.39	5.11	400	20	18.66	33.42	5.13	23.92	400	0.08
67	14.70	33.21	5.83	327	30	18.62	33.40	5.12	23.92	400	0.12
76	14.14	33.34	5.54	306	50	18.20	33.34	5.15	23.98	394	0.20
96	12.80	33.38	4.98	277	75	14.25	33.34	5.55	24.87	309	0.29
111	11.96	-	4.66	-	100	12.58	33.42	4.89	25.27	271	0.36
126	10.84	33.55	4.25	230	125	10.93	33.55	4.26	25.69	231	0.42
155	9.64	33.67	3.83	202	150	9.89	33.65	3.89	25.94	208	0.48
175	9.00	33.81	3.72	182	200	8.58	33.94	3.40	26.38	166	0.58
204	8.49	33.95	3.33	164	250	7.72	34.04	2.62	26.58	146	0.66
239	7.86	34.04	2.81	148	300	7.05	34.10	1.97	26.72	133	0.73
268	7.47	34.04	2.30	143	400	6.08	34.18	0.87	26.92	114	0.86
317	6.85	34.13	1.76	128	500	5.52	34.30	0.49	27.09	99	0.97
382	6.20	34.16	0.96	117	600	5.08	34.36	0.32	27.18	90	1.07
481	5.62	34.29	0.53	101							
570	5.20	34.33	0.36	93							
644	4.91	34.38	0.28	86							

ORCA; October 9, 1959; 0034 GCT; 32°55'N, 117°21.5'W; sounding, 325 fm; wind, 290°, force 2; weather, partly cloudy; sea, slight; wire angle, 04°.

93.28

1	20.52	33.70	5.32	425	0	(20.52)	(33.70)	(5.32)	(23.65)	(425)	(0.00)
11	20.00	33.69	5.44	412	10	20.01	33.69	5.44	23.78	413	0.04
31	16.02	33.52	5.48	332	20	18.15	33.61	5.48	24.19	374	0.08
51	14.10	33.49	5.17	295	30	16.04	33.51	5.48	24.61	334	0.12
76	12.32	33.53	4.23	258	50	14.18	33.49	5.20	25.01	296	0.18
101	11.48	33.58	3.84	239	75	12.42	33.53	4.30	25.38	260	0.25
126	10.79	33.59	3.82	226	100	11.49	33.58	3.85	25.60	240	0.31
166	10.05	33.73	3.15	205	125	10.80	33.59	3.82	25.73	227	0.37
206	9.62	33.94	2.34	182	150	10.36	33.67	3.50	25.87	214	0.43
256	9.36	34.13	1.61	163	200	9.70	33.90	2.47	26.17	186	0.53
306	8.96	34.20	1.19	152	250	9.39	34.12	1.72	26.39	165	0.62
410	7.50	34.22	0.78	130	300	9.01	34.19	1.22	26.50	154	0.70
					400	7.64	34.22	0.78	26.74	132	0.85

SPENCER F. BAIRD; October 9, 1959; 0209 GCT; a) 32°55'N, 117°21.5'W; sounding, 324 fm; wind, 290°, force 1; weather, partly cloudy; sea, slight; wire angle, 02°.

93.28

178	9.80	33.93	3.02	185							
188	9.69	33.93	3.09	183							
198	9.64	33.98	2.88	179							
208	9.61	34.00	2.89	177							
218	9.55	34.06	2.57	172							
228	9.49	34.09	2.41	168							
238	9.40	34.08	2.32	168							
248	9.34	34.16	-	161							
257	9.27	34.18	1.86	159							
267	9.23	34.19	1.81	157							
277	9.12	34.21	1.69	154							
287	9.03	34.27	1.58	148							
297	8.83	34.23	1.47	148							
307	8.73	34.24	1.44	146							
317	8.43	34.24	1.49	142							
327	8.36	34.22	1.48	142							
337	8.22	34.20	1.42	142							
347	8.03	34.22	1.38	137							

a) Special cast.



SIO  
CCOFI  
5910

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

93.30 ORCA; October 9, 1959; 0449 GCT; 32° 50.5'N, 117° 31.5'W; sounding, 425 fm; wind, 290°, force 2; weather, clear; sea, slight; wire angle, 03°.

0	20.62	33.78	5.08	422	0	20.62	33.75	5.08	23.68	422	0.00
10	20.47	33.76	5.11	420	10	20.47	33.76	5.11	23.71	420	0.04
30	17.29	33.52	5.61	359	20	19.00	33.63	5.36	24.00	392	0.08
40	15.41	33.46	5.73	324	30	17.29	33.52	5.61	24.34	359	0.12
55	14.03	33.51	5.17	292	50	14.87	33.52	5.45	24.88	308	0.19
70	12.63	33.49	4.87	267	75	12.13	33.49	4.78	25.42	257	0.26
95	10.61	33.58	4.42	225	100	10.44	33.62	4.17	25.82	218	0.32
115	10.14	33.73	3.39	206	125	10.13	33.76	3.20	25.98	203	0.37
135	10.12	33.79	3.02	201	150	9.82	33.86	2.85	26.11	191	0.42
155	9.76	33.89	2.75	188	200	9.53	34.00	2.30	26.27	176	0.52
185	9.61	33.96	2.41	180	250	9.17	34.14	1.67	26.44	160	0.60
220	9.40	34.05	2.08	170	300	8.98	34.26	1.22	26.57	148	0.68
250	9.17	34.14	1.67	160	400	7.42	34.26	0.80	26.80	126	0.82
300	8.98	34.26	1.22	148	500	6.48	34.31	0.46	26.97	110	0.95
355	7.91	34.23	1.10	135	600	5.86	34.36	0.29	27.08	99	1.06
439	6.96	34.28	0.59	118							
524	6.32	34.32	0.40	107							
609	5.84	34.36	0.28	98							

93.35 ORCA; October 9, 1959; 0801 GCT; <sup>a)</sup> 32° 40'N, 117° 51.5'W; sounding, 370 fm; wind, 290°, force 1; weather, clear; sea, slight; wire angle, 00°.

10	19.57	33.69	5.36	402							
438	6.91	34.23	0.65	121							
441	6.91	34.23	0.64	121							
465	6.76	34.25	0.52	118							
468	6.74	34.24	0.52	118							
471	6.72	34.25	0.53	117							
496	6.55	34.27	0.45	114							
499	6.52	34.26	0.46	114							
502	6.54	34.25	0.46	115							
527	6.35	34.29	0.42	109							
530	6.35	34.25	0.42	112							
533	6.32	34.28	0.40	110							
558	6.18	34.31	0.38	106							
561	6.18	34.29	0.38	107							
564	6.16	34.31	0.37	105							
589	5.88	34.31	0.31	103							
592	5.88	34.31	0.31	103							
595	5.87	34.32	0.31	102							

a) Special cast.



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

ORCA; October 9, 1959; 1121 GCT; 32°29'N, 118°12'W; sounding, 850 fm; wind, 290°, force 1; weather, clear; sea, slight; wire angle, 05°.

93.40

1	19.60	33.65	5.06a	406	0	(19.60)	(33.65)	(5.06)	(23.85)	(406)	(0.00)
11	19.36	33.66	5.13	399	10	19.42	33.66	5.11	23.91	400	0.04
31	16.52	33.49	5.91	346	20	18.50	33.62	5.37	24.11	382	0.08
41	16.01	33.46	5.80	336	30	16.63	33.50	5.89	24.46	348	0.12
51	14.18	33.49	6.10	296	50	14.25	33.49	6.09	24.99	298	0.18
66	12.90	33.49	5.81	272	75	12.09	33.48	5.00	25.42	257	0.25
81	11.68	33.48	4.67	250	100	10.80	33.50	4.58	25.67	233	0.31
101	10.79	33.51	4.57	233	125	9.72	33.62	4.00	25.94	208	0.37
126	9.70	33.62	3.98	207	150	9.51	33.78	3.30	26.10	192	0.42
146	9.54	33.75	3.41	194	200	8.72	33.90	2.74	26.32	171	0.51
176	9.27	33.91	2.61	179	250	8.38	34.01	2.20	26.46	158	0.60
205	8.61	33.90	2.76	169	300	8.22	34.13	1.39	26.58	146	0.67
235	8.35	33.97	2.43	160	400	7.51	34.25	0.89	26.78	128	0.82
275	8.43	34.09	1.75	153	500	6.69	34.23	0.54	26.88	118	0.95
335	7.98	34.19	1.09	138							
409	7.43	34.25	0.86	127							
484	6.80	34.23	0.55	120							
565	6.32	34.27	0.48	111							

ORCA; October 9, 1959; 1705 GCT; 32°10'N, 118°54'W; sounding, 800 fm; wind, direction missing, force 1; weather, partly cloudy; sea, rough; wire angle, 03°.

93.50

1	19.11	33.66	4.85	393	0	(19.11)	(33.66)	(4.85)	(23.99)	(393)	(0.00)
11	19.06	33.64	4.73	393	10	19.06	33.64	4.74	23.99	393	0.04
31	18.94	33.62	5.33	392	20	19.03	33.63	4.94	23.99	393	0.08
41	15.21	33.33	5.25	329	30	18.95	33.62	5.33	24.00	392	0.12
51	14.35	33.37	5.04	308	50	14.37	33.37	5.05	24.87	309	0.19
66	13.26	33.40	5.04	285	75	12.97	33.40	5.07	25.18	279	0.26
81	12.86	33.40	5.07	277	100	10.89	33.55	3.97	25.68	232	0.33
101	10.88	33.55	3.96	231	125	9.97	33.68	3.47	25.95	206	0.38
125	9.97	33.68	3.47	206	150	9.39	33.77	3.30	26.11	191	0.43
145	9.40	33.75	3.35	193	200	9.21	34.06	1.86	26.37	167	0.52
175	9.32	33.89	2.65	181	250	8.49	34.14		26.54	150	0.60
206	9.19	34.09	1.74	164	300	7.77	34.11		26.64	141	0.68
235	8.92	34.18	1.45	153	400	6.81	34.21	0.82	26.85	121	0.82
274	7.94	34.08	-	146	500	6.40	34.28	0.39	26.96	111	0.94
334	7.41	34.17	1.08	133							
409	6.76	34.22	0.78	120							
484	6.51	34.27	0.42	113							
563	5.98	34.30	0.28	104							

ORCA; October 9, 1959; 2332 GCT; 31°50'N, 119°32'W; sounding, 1220 fm; wind, 290°, force 3; weather, cloudy; sea, very rough; wire angle, 12°.

93.60

1	18.85	33.59	5.39	392	0	(18.85)	(33.59)	(5.39)	(24.00)	(392)	(0.00)
11	18.84	33.58	5.45	392	10	18.84	33.58	5.45	24.00	392	0.04
30	18.76	33.58	5.29	390	20	18.82	33.58	5.40	24.00	392	0.08
40	16.09	33.39	6.11	343	30	18.76	33.58	5.29	24.02	390	0.12
50	15.56	33.40	6.02	331	50	15.56	33.40	6.02	24.64	331	0.19
64	14.71	33.43	5.86	311	75	13.72	33.35	5.62	25.01	297	0.27
79	13.40	33.33	5.52	293	100	11.80	33.45	4.89	25.45	254	0.34
99	11.86	33.45	4.91	255	125	10.50	33.54	4.10	25.75	225	0.40
122	10.51	33.54	4.11	226	150	9.39	33.73	3.64	26.08	194	0.45
142	9.50	33.67	3.86	200	200	8.33	33.93	2.87	26.41	163	0.54
171	9.04	33.83	3.17	182	250	7.75	33.98	2.18	26.54	151	0.62
201	8.32	33.93	2.86	163	300	7.39	34.09	1.56	26.67	138	0.70
230	8.02	33.96	2.40	157	400	6.60	34.20	0.66	26.87	119	0.83
269	7.58	34.02	1.98	146	500	6.00	34.26	0.38	26.99	108	0.95
327	7.21	34.13	1.22	133							
402	6.59	34.20	0.64	119							
476	6.14	34.24	0.42	111							
555	5.76	34.31	0.30	101							

a) The oxygen samples for this station were titrated by an inexperienced operator and must be considered doubtful.



SIO

CCOFI  
5910

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

93.70 ORCA; October 10, 1959; 0603 GCT; 31°30'N, 120°14'W; sounding, 2000+ fm; wind, 290°, force 5; weather, cloudy; sea, very rough; wire angle, 18°.

2	18.46	33.60	5.18	382	0	(18.46)	(33.60)	(5.18)	(24.10)	(382)	(0.00)
12	18.45	33.59	5.24	382	10	18.45	33.59	5.24	24.10	382	0.04
31	18.42	33.58	5.22	382	20	18.45	33.59	5.23	24.10	382	0.08
41	18.33	33.60	5.22	378	30	18.43	33.58	5.22	24.10	382	0.11
55	14.66	33.40	5.88	313	50	15.70	33.47	5.80	24.66	329	0.19
69	13.27	33.33	5.36	290	75	12.99	33.32	5.23	25.12	285	0.26
93	11.62	33.51	4.29	247	100	11.50	33.52	4.28	25.56	244	0.33
112	10.34	33.52	4.17	224	125	9.61	33.64	3.73	25.98	204	0.39
131	9.44	33.68	3.61	198	150	9.08	33.78	3.53	26.17	186	0.44
150	9.08	33.78	3.53	186	200	8.34	33.93	2.77	26.40	164	0.52
179	8.71	33.86	2.96	174	250	7.55	34.02	1.87	26.59	146	0.60
211	8.18	33.96	2.62	158	300	6.90	34.05	1.39	26.71	134	0.68
234a)	7.79	34.00	2.04	150	400	6.01	34.14	0.70	26.90	116	0.81
272a)	7.24	34.04	1.68	140	500	5.50	34.22	0.40	27.03	104	0.92
315a)	6.72	34.06	1.24	132							
380a)	6.14	34.12	0.80	120							
449a)	5.75	34.20	0.49	109							
518a)	5.42	34.24	0.38	102							

93.80 ORCA; October 10, 1959; 1136 GCT; 31°08'N, 120°56'W; sounding, 2000+ fm; wind, 290°, force 5; weather, overcast; sea, very rough; wire angle, 20°.

1	18.46	33.39	5.33	397	0	(18.46)	(33.39)	(5.33)	(23.95)	(397)	(0.00)
10	18.44	33.35	5.28	399	10	18.44	33.35	5.28	23.93	399	0.04
29	18.42	33.37	5.21	397	20	18.43	33.36	5.23	23.94	398	0.08
38	17.72	33.30	5.50	386	30	18.42	33.37	5.21	23.95	397	0.12
53	14.18	33.01	6.14	331	50	14.40	33.01	6.14	24.60	336	0.19
67	13.52	33.08	5.94	314	75	13.09	33.13	5.67	24.96	301	0.27
88	12.55	33.19	5.39	287	100	12.13	33.35	5.12	25.30	268	0.35
107	12.02	33.40	5.03	262	125	10.54	33.49	4.48	25.70	230	0.41
125	10.54	33.49	4.48	230	150	9.57	33.62	3.78	25.96	205	0.46
142	9.78	33.57	4.02	212	200	8.64	33.86	2.86	26.31	172	0.56
169	9.17	33.73	3.24	190	250	8.00	34.02	2.05	26.53	151	0.64
201	8.61	33.87	2.85	172	300	7.34	34.08	1.07	26.67	138	0.72
228	8.17	33.96	2.36	158	400	6.65	34.14	0.53	26.82	124	0.85
273	7.75	34.06	1.68	145	500	5.71	34.18	0.35	26.97	110	0.98
324	7.05	34.10	0.69	133							
403	6.61	34.14	0.52	124							
483	5.80	34.16	0.37	112							
566	5.36	34.25	0.32	100							

a) Posttrip; depth uncertain.



OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T_3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_3$	$\Delta D$
m	°C	‰	ml/L	$\frac{-5}{10} \frac{cm}{g}$	m	°C	‰	ml/L	g/L	$\frac{-5}{10} \frac{cm}{g}$	dyn. m

SIO  
CCOFI  
5910

ORCA; October 10, 1959; 2105, 1745 GCT; 30°47'N, 121°37'W; sounding, 2000+ fm; wind, 320°, force 3; weather, overcast; sea, very rough; wire angle, 08°, 20°.

93.90

1a)	18.96	33.37	5.16	410	0						(0.00)
11	18.94	33.37	5.16	410	10						0.04
30	18.90	33.36	5.20	410	20						0.08
59	17.16	33.58	5.66	353	30						0.12
68	16.14	33.51	5.78	336	50						0.20
81	15.71	33.61	5.72	319	75						0.29
95	15.31	33.66	5.57	307	100						0.37
109	14.18	33.65	5.35	284	125						0.44
130	11.79	33.58	4.95	244	150						0.50
146	10.86	33.57	4.56	229	200						0.60
169	9.42	33.69	4.15	197	250	7.97	33.98	2.50	26.40	154	0.68
191	8.82	33.81	3.63	180	300	7.46	34.01	1.92	26.60	145	0.76
214	8.48	33.87	3.40	170	400	6.52	34.08	0.93	26.78	127	0.90
252	7.88	33.96	2.63	154	500	5.77	34.18	0.44	26.96	110	1.03
295	7.27	34.03	1.97	141	600	5.24	34.28	0.22	27.09	98	1.14
363	6.69	34.09	1.24	129	700	4.84	34.34	0.22	27.20	88	1.24
432	6.17	34.16	0.71	117	800	4.54	34.38	0.25	27.26	82	1.33
506	5.68	34.22	0.39	107	1000	3.82	34.46	0.43	27.40	69	1.50
					1200	3.40	34.50	0.72	27.48	62	1.65
250	7.97	33.98	2.50	154	1500	2.80	34.55	1.05	27.57	53	1.85
347	7.06	34.04	1.37	138	2000	2.08	34.63	1.80	27.69	42	2.13
444	6.12	34.13	0.63	118	2500	1.82	34.63	2.10			
541	5.52	34.22	0.32	105	3000	(1.65)	(34.64)	(2.44)			
640	5.06	34.31	0.20	93							
834	4.42	34.39	0.26	80							
1032	3.74	34.47	0.47	67							
1228	3.35	34.51	0.75	61							
1424	2.94	34.54	0.95	55							
1620	2.58	34.57	1.24	50							
1814	2.28	34.61	1.53	44							
2008	2.08	34.63	1.83	41							
2205	1.97	34.62	1.99	41							
2400	1.86	34.63	2.05	40							
2596	1.78	34.62u	2.22	-							
2792	1.70	34.64	2.29	38							
2889	1.69	34.63u	2.40	-							
2988	1.66	34.64	2.44	37							

ORCA; October 12, 1959; 1454 GCT; 32°15'N, 117°09'W; sounding, 33 fm; wind, 330°, force 2; weather, fog; sea, slight; wire angle, 01°.

97.30

1	20.32	33.75	5.02	416	0	(20.32)	(33.75)	(5.02)	(23.74)	(416)	(0.00)
11	20.34	33.75	5.19	417	10	20.33	33.75	5.18	23.73	417	0.04
31	15.51	33.40	5.84	330	20	20.22	33.73	5.23	23.76	415	0.08
51	14.05	33.50	5.17	293	30	15.70	33.41	5.84	24.61	334	0.12
					50	14.10	33.50	5.18	25.03	294	0.18

a) The Nansen bottles of the shallow cast appear to have posttripped; the depths are too uncertain for interpolation. The values of  $\delta T$  were compared with the preceding station, and they are believed to be accurate enough to be used with those of the deep cast in the calculation of  $\Delta D$ .



SIO

CCOFI  
5910

OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T_3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_3$	$\Delta D$
m	°C	‰	ml/L	$\frac{10}{\text{cm/g}}$	m	°C	‰	ml/L	g/L	$\frac{10}{\text{cm/g}}$	dyn. m

97.32 ORCA; October 12, 1959; 1321 GCT; 32°11.5'N, 117°17'W; sounding, 700 fm; wind, 330°, force 2; weather, cloudy; sea, moderate; wire angle, 07°.

1	20.26	33.66	5.00	422	0	(20.26)	(33.66)	(5.00)	(23.68)	(422)	(0.00)
11	20.28	33.66	5.07	422	10	20.28	33.66	5.07	23.68	422	0.04
31	17.74	33.40	5.61	380	20	20.15	33.64	5.11	23.71	420	0.08
41	15.85	33.28	5.88	346	30	18.90	33.51	5.38	23.93	399	0.13
51	15.18	33.35	5.83	327	50	15.21	33.34	5.84	24.67	328	0.20
66	14.38	33.43	5.55	304	75	13.65	33.50	5.29	25.12	285	0.27
80	13.44	33.51	5.21	281	100	11.76	33.51	4.56	25.50	249	0.34
100	11.76	33.51	4.56	249	125	10.39	33.57	4.01	25.80	221	0.40
124	10.40	33.57	4.01	222	150	9.92	33.67	3.72	25.95	206	0.46
144	10.04	33.62	3.85	213	200	9.17	33.95	2.55	26.29	174	0.55
174	9.37	33.85	3.09	184	250	8.79	34.12	1.77	26.48	156	0.64
203	9.14	33.96	2.50	173	300	8.34	34.19	1.32	26.60	144	0.72
233	8.89	34.05	1.96	161	400	7.65	34.29	0.88	26.79	127	0.86
272	8.62	34.16	1.53	150	500	6.62	34.28	0.44	26.93	114	0.98
332	8.08	34.22	1.13	138							
406	7.60	34.29	0.84	126							
480	6.78	34.28	0.48	116							
560	6.28	34.31	0.38	108							

97.32 ORCA; October 15, 1959; 0405 GCT; a) 32°11.5'N, 117°17'W; sounding, 750 fm; wind, 320°, force 2; weather, overcast; sea, moderate; wire angle, 15°.

427	7.18	34.31	0.55	119							
430	7.17	34.32	0.42	118							
433	7.16b)	34.29	0.51	120							
457	6.90	34.29	0.40	116							
461	6.86	34.31	0.43	115							
463	6.86	34.31	0.42	115							
488	6.60	34.34	0.32	109							
491	6.54	34.33	0.32	109							
494	6.52	34.34	0.32	108							
518	6.41	34.36	0.21	105							
521	6.28	34.33	0.51	106							
524	6.24	34.34	0.34	104							
549	6.04	34.36	0.25	101							
552	6.03	34.34	0.47	102							
579	5.84	34.38	0.26	97							
582	5.82	34.37	0.24	97							
585	5.79	34.38	0.21	96							

97.40 ORCA; October 12, 1959; 0805 GCT; 31°53'N, 117°50'W; sounding, 400 fm; wind, 300°, force 2; weather, cloudy; sea, moderate; wire angle, 04°.

1	19.94	33.69	5.14	411	0	(19.94)	(33.69)	(5.14)	(23.80)	(411)	(0.00)
11	19.96	33.69	5.11	411	10	19.96	33.69	5.12	23.80	411	0.04
31	19.34	33.66	5.30	398	20	19.95	33.69	5.12	23.80	411	0.08
42	16.32	33.40	5.27	348	30	19.42	33.67	5.28	23.92	400	0.12
52	14.95	33.46	5.13	314	50	15.40	33.45	5.15	24.70	325	0.20
67	14.04	33.46	5.24	296	75	13.72	33.47	5.13	25.09	288	0.27
82	13.10	33.50	4.79	275	100	11.82	33.56	4.17	25.53	246	0.34
102	11.68	33.57	4.13	244	125	10.32	33.59	4.09	25.82	219	0.40
126	10.29	33.59	4.08	218	150	9.69	33.68	3.55	25.99	203	0.45
146	9.84	33.66	3.61	206	200	8.99	34.02	2.24	26.38	166	0.55
176	9.07	33.84	3.03	181	250	8.73	34.15	1.53	26.52	152	0.63
206	8.98	34.05	2.07	164	300	8.13	34.19	1.21	26.64	141	0.70
236	8.88	34.13	1.64	156	400	6.89	34.23	0.61	26.85	121	0.84
275	8.40	34.18	1.33	146	500	6.17	34.28	0.36	27.00	107	0.96
335	7.78	34.20	1.03	135							
410	6.78	34.23	0.55	119							
484	6.29	34.28	0.38	109							
564	5.78	34.32	0.29	100							

a) Special cast.

b) Alternate value, 7.07°C.



OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta_{T_3}$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta_{T_3}$	$\Delta D$
m	°C	‰	ml/L	10 <sup>-5</sup> cm <sup>3</sup> /g	m	°C	‰	ml/L	g/L	10 <sup>-5</sup> cm <sup>3</sup> /g	dyn. m

SIO  
CCOFI  
5910

ORCA; October 12, 1959; 0136 GCT; 31°34'N, 118°28'W; sounding, 1300+ fm; wind, 310°, force 3; weather, overcast; sea, slight; wire angle, 18°.

97.50

1	19.33	33.54	5.53	407	0	(19.33)	(33.54)	(5.53)	(23.84)	(407)	(0.00)
10	19.26	33.53	5.13	406	10	19.26	33.53	5.13	23.85	406	0.04
29	18.84	33.51	5.28	397	20	19.03	33.52	5.20	23.90	401	0.08
39	17.32	33.39	5.59	371	30	18.83	33.51	5.28	23.95	397	0.12
48	15.91	33.31	5.84	345	50	15.80	33.30	5.84	24.51	343	0.19
62	14.50	33.21	5.81	323	75	14.00	33.29	5.63	24.89	307	0.28
76	13.92	33.30	5.59	305	100	12.97	33.44	5.18	25.21	277	0.35
96	13.05	33.42	5.20	280	125	10.92	33.56	4.32	25.69	231	0.42
118	11.48	33.51	4.81	244	150	9.89	33.70	3.54	25.98	204	0.47
137	10.26	33.64	3.79	214	200	9.04	33.97	2.35	26.32	171	0.56
165	9.54	33.78	3.23	192	250	8.42	34.05	1.97	26.49	155	0.65
193	9.09	33.95	2.46	173	300	7.82	34.10	1.52	26.62	143	0.73
221	8.91	34.04	2.02	163	400	7.23	34.22	0.89	26.80	126	0.87
259	8.25	34.06	1.97	152	500	6.33	34.27	0.38	26.96	111	0.99
315	7.73	34.13	1.39	140							
386	7.36	34.22	0.98	128							
457	6.65	34.23	0.51	118							
536	6.11	34.31	0.31	105							

ORCA; October 11, 1959; 1845 GCT; 31°08'N, 119°18'W; sounding, 1800+ fm; wind, 310°, force 2; weather, cloudy; sea, moderate; wire angle, 02°.

97.60

1	19.65	33.91	5.01	388	0	(19.65)	(33.91)	(5.01)	(24.04)	(388)	(0.00)
11	19.51	33.91	5.07	384	10	19.52	33.91	5.07	24.07	385	0.04
31	19.44	33.91	5.04	383	20	19.46	33.91	5.06	24.09	384	0.08
41	19.10a)	33.90	4.99	375	30	19.44	33.91	5.05	24.10	383	0.12
51	14.71	33.68	5.05	293	50	15.00	33.69	5.05	24.98	299	0.18
66	10.77	33.65	3.34	222	75	10.30	33.71	3.09	25.92	209	0.25
81	9.88	33.76	2.86	199	100	9.53	33.80	2.66	26.11	191	0.30
101	9.52	33.80	2.65	190	125	9.14	33.87	2.44	26.24	179	0.34
126	9.11	33.87	2.43	179	150	8.76	33.94	2.30	26.35	168	0.39
146	8.80	33.93	2.37	170	200	8.22	34.10	1.62	26.56	149	0.47
176	8.52	34.02	1.91	159	250	7.52	34.06	1.57	26.63	142	0.54
206	8.14	34.10	1.60	148	300	7.10	34.12	1.03	26.74	132	0.62
236	7.64	34.05	1.68	145	400	6.51	34.21	0.56	26.89	117	0.74
276	7.36	34.11	-	136	500	6.07	34.26	0.32	26.98	108	0.86
336	6.76	34.14	0.74	126							
411	6.49	34.23	0.51	116							
485	6.16	34.25	0.34	110							
565	5.63	34.30	0.27	100							

ORCA; October 11, 1959; 1310 GCT; 30°50'N, 119°55'W; sounding, 2000+ fm; wind, direction missing, force 1; weather, partly cloudy; sea, moderate; wire angle, 04°.

97.70

1	18.41	33.49	5.06	388	0	(18.41)	(33.49)	(5.06)	(24.04)	(388)	(0.00)
11	18.46	33.51	5.17	388	10	18.46	33.51	5.16	24.04	388	0.04
31	18.43	33.56	5.16	384	20	18.44	33.54	5.17	24.06	386	0.08
41	18.42	33.57	5.10	383	30	18.43	33.56	5.16	24.08	384	0.12
51	17.10	33.37	5.46	367	50	17.30	33.39	5.40	24.23	370	0.19
66	14.45	33.31	5.73	315	75	14.16	33.33	5.66	24.89	307	0.28
81	12.74	33.34	5.19	280	100	11.14	33.49	4.55	25.59	240	0.35
100	11.14	33.49	4.55	240	125	9.67	33.64	3.74	25.96	205	0.40
125	9.67	33.64	3.74	205	150	9.17	33.80	2.90	26.17	185	0.45
144	9.24	33.77	2.98	189	200	8.43	34.03	1.88	26.47	157	0.54
174	8.88	33.88	2.65	175	250	8.00	34.15	1.47	26.63	142	0.62
204	8.40	34.04	1.82	156	300	7.59	34.24	0.97	26.75	130	0.69
233	8.18	34.09	1.64	149	400	6.69	34.26	0.47	26.90	116	0.81
273	7.79	34.22	1.13	134	500	6.15	34.30	0.33	27.00	107	0.93
332	7.32	34.25	0.74	125							
407	6.64	34.26	0.46	116							
481	6.22	34.29	0.36	108							
561	5.94	34.33	0.28	102							

a) Alternate value, 18.21°C, not used in interpolation.

417



SIO  
CCOFI  
5910

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

97.80 ORCA; October 11, 1959; 0755 GCT; 30°33'N, 120°31'W; sounding, 2000+ fm; wind, 310°, force 1; weather, overcast; sea, moderate; wire angle, 01°.

1	18.54	33.39	4.99	399	0	(18.54)	(33.39)	(4.99)	(23.93)	(399)	(0.00)
11	18.35	33.57	5.16	381	10	18.36	33.57	5.15	24.11	382	0.04
31	18.32	33.56	5.19	382	20	18.33	33.57	5.19	24.11	382	0.08
41	17.02	33.35	5.44	367	30	18.32	33.56	5.19	24.11	382	0.12
57	14.68	33.12	5.81	334	50	15.30	33.15	5.73	24.50	344	0.19
72	13.88	33.18	5.75	313	75	13.53	33.19	5.72	24.87	309	0.27
96	12.50	33.30	5.19	278	100	12.38	33.33	5.13	25.24	274	0.34
116	11.81	33.51	4.90	250	125	10.80	33.56	4.57	25.71	229	0.41
136	10.08	33.60	4.30	214	150	9.63	33.65	4.07	25.98	203	0.46
156	9.48	33.68	4.01	199	200	8.62	33.88	3.63	26.32	171	0.56
186	8.86	33.84	3.79	177	250	7.83	33.96	2.97	26.50	154	0.64
221	8.29	33.93	3.37	163	300	7.21	34.02	2.08	26.64	141	0.72
251	7.82	33.96	2.96	154	400	6.55	34.13	0.99	26.83	123	0.86
300	7.21	34.02	2.08	141	500	6.02	34.26	0.40	26.98	108	0.98
355	6.77	34.05	1.45	133	600	5.40	34.32	0.31	27.11	96	1.08
440	6.38	34.22	0.60	115							
525	5.86	34.27	0.35	105							
610	5.36	34.32	0.30	95							

97.90 ORCA; October 11, 1959; 0227 GCT; 30°16'N, 121°11'W; sounding, 2000+ fm; wind, 310°, force 2; weather, overcast; sea, moderate; wire angle, 04°.

1	18.98	33.34	5.13	413	0	(18.98)	(33.34)	(5.13)	(23.78)	(413)	(0.00)
11	18.98	33.34	5.27	413	10	18.98	33.34	5.26	23.78	413	0.04
31	18.96	33.32	5.23	414	20	18.97	33.33	5.26	23.78	413	0.08
61	16.82	33.53	5.75	349	30	18.96	33.32	5.23	23.77	414	0.12
71	16.16	33.57	5.64	332	50	18.94	33.32	5.23	23.77	414	0.21
86	15.24	33.48	5.52	319	75	16.03	33.57	5.63	24.66	329	0.30
101	14.66	33.60	5.54	298	100	14.67	33.59	5.54	24.98	299	0.38
116	13.94	33.64	5.40	280	125	13.30	33.62	5.28	25.30	269	0.45
141	12.00	33.60	4.98	247	150	11.43	33.60	4.79	25.63	237	0.52
162	10.60	33.62	4.56	221	200	9.02	33.83	3.81	26.22	181	0.62
190	9.21	33.78	4.09	187	250	8.12	33.96	2.91	26.46	158	0.71
221	8.65	33.89	3.45	171	300	7.53	34.02	2.11	26.60	145	0.79
250	8.12	33.96	2.91	158	400	6.53	34.12	1.11	26.82	124	0.93
299	7.54	34.02	2.12	145	500	5.85	34.22	0.53	26.98	109	1.05
354	6.92	34.08	1.55	132	600	5.32	34.30	0.30	27.11	96	1.16
438	6.24	34.16	0.84	118							
524	5.70	34.24	0.44	106							
608	5.31	34.31	0.29	96							

100.30 ORCA; October 12, 1959; 2030 GCT; 31°41'N, 116°47'W; sounding, 238 fm; wind, 270°, force 2; weather, fog; sea, moderate; wire angle, 07°.

1	19.96	33.72	5.05	409	0	(19.96)	(33.72)	(5.05)	(23.82)	(409)	(0.00)
11	19.80	33.68	5.25	408	10	19.82	33.68	5.24	23.83	408	0.04
31	15.13	33.39	5.78	323	20	18.00	33.54	5.53	24.17	375	0.08
51	13.96	33.40	5.31	298	30	15.27	33.39	5.77	24.70	325	0.12
76	12.96	33.49	4.71	272	50	14.02	33.41	5.33	24.98	299	0.18
100	12.14	33.56	4.05	252	75	12.99	33.48	4.75	25.25	273	0.25
125	11.02	33.66	3.47	225	100	12.14	33.56	4.05	25.47	252	0.32
164	9.76	33.86	2.60	190	125	11.02	33.66	3.47	25.75	225	0.38
203	9.44	34.00	2.05	175	150	10.08	33.80	2.90	26.02	200	0.43
252	8.87	34.14	1.58	155	200	9.48	33.99	2.12	26.27	176	0.53
302	8.22	34.20	1.25	142	250	8.90	34.13	1.59	26.48	156	0.61
406	7.42	34.23	0.64	128	300	8.24	34.20	1.26	26.63	142	0.69
					400	7.48	34.23	0.70	26.76	129	0.83



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

ORCA; October 14, 1959; 0212 GCT; 31°21'N, 117°27'W; sounding, 1000+ fm; wind, 270°, force 2; weather, overcast; sea, slight; wire angle, 13°.

100.40

1	19.63	33.59	4.80	411	0	(19.63)	(33.59)	(4.80)	(23.80)	(411)	(0.00)
11	19.66	33.57	4.78	413	10	19.66	33.57	4.78	23.78	413	0.04
30	19.46	33.57	4.91	408	20	19.59	33.57	4.83	23.80	411	0.08
39	18.16	33.46	5.20	385	30	19.46	33.57	4.91	23.83	408	0.12
54	15.60	33.22	5.52	345	50	16.60	33.30	5.47	24.32	361	0.20
69	14.91	33.25	5.45	329	75	14.57	33.30	5.41	24.78	318	0.29
93	13.70	33.41	5.13	293	100	13.27	33.42	4.92	25.14	283	0.36
112	12.48	33.46	4.54	266	125	11.70	33.52	4.22	25.52	248	0.43
131	11.40	33.54	4.14	241	150	10.32	33.60	3.92	25.82	218	0.49
150	10.32	33.60	3.92	218	200	8.77	33.88	2.89	26.30	173	0.59
178	9.18	33.75	3.45	189	250	7.98	34.03	2.10	26.54	150	0.67
212	8.56	33.93	2.62	166	300	7.52	34.06	1.71	26.63	142	0.75
241	8.06	34.02	2.22	152	400	6.59	34.16	1.03	26.84	122	0.84
289	7.64	34.05	1.81	145	500	6.03	34.24	0.46	26.97	110	1.01
342	7.00	34.12	1.37	131	600	(5.52)	(34.34)	(0.31)	(27.12)	(95)	(1.12)
424	6.44	34.18	0.90	119							
507	6.00	34.25	0.42	108							
591	5.56	34.33	0.31	97							

ORCA; October 14, 1959; 0831 GCT; 31°00'N, 118°07'W; sounding, 2000 fm; wind, 270°, force 2; weather, overcast; sea, slight; wire angle, 11°.

100.50

1	20.50a)	33.78	5.20	419	0	(20.50)	(33.78)	(5.20)	(23.72)	(419)	(0.00)
11	20.52	33.80	5.28	417	10	20.52	33.80	5.27	23.74	417	0.04
30	20.51	33.80	5.14	417	20	20.52	33.80	5.20	23.74	417	0.08
40	19.03b)	33.62	5.30	394	30	20.51	33.80	5.14	23.74	417	0.13
55	16.45	33.52	5.67	342	50	17.50	33.53	5.58	24.29	364	0.20
70	15.36	33.57	5.40	314	75	14.67	33.56	5.31	24.96	301	0.29
95	12.86	33.53	5.08	268	100	12.60	33.53	4.96	25.36	263	0.36
114	11.68	33.53	4.59	246	125	10.90	33.58	4.23	25.71	229	0.42
133	10.52	33.68	3.92	216	150	10.19	33.72	3.71	25.94	207	0.48
152	10.12	33.72	3.69	206	200	9.03	33.98	2.52	26.34	169	0.57
181	9.36	33.91	2.86	180	250	8.24	34.02	2.32	26.49	155	0.66
215	8.78	34.02	2.41	163	300	7.75	34.12	1.78	26.64	141	0.73
245	8.30	34.02	2.34	156	400	6.80	34.22	0.82	26.86	120	0.87
294	7.78	34.09	1.88	143	500	5.92	34.24	0.52	26.98	108	0.99
347	7.61	34.23	1.02	131	600	(5.36)	(34.34)	(0.33)	(27.13)	(94)	(1.10)
431	6.38	34.22	0.74	115							
515	5.84	34.25	0.49	107							
599	5.37	34.34	0.33	94							

ORCA; October 14, 1959; 1412 GCT; 30°40'N, 118°45'W; sounding, 1500 fm; wind, 310°, force 2; weather, overcast; sea, rough; wire angle, 02°.

100.60

1	18.84	33.42	4.98	404	0	(18.84)	(33.42)	(4.98)	(23.87)	(404)	(0.00)
11	18.82	33.43	5.04	403	10	18.83	33.43	5.03	23.88	403	0.04
31	18.70	33.46	5.05	398	20	18.78	33.45	5.04	23.91	401	0.08
41	17.00	33.35	5.62	366	30	18.71	33.46	5.05	23.94	398	0.12
56	16.14	33.43	5.64	341	50	16.61	33.42	5.63	24.42	352	0.20
71	15.02	33.48	5.60	315	75	14.92	33.49	5.56	24.85	311	0.28
96	13.26	33.51	5.05	277	100	12.96	33.49	4.92	25.26	272	0.35
115	12.06	33.47	4.55	258	125	11.18	33.49	4.45	25.59	240	0.42
135	10.44	33.53	4.34	225	150	9.64	33.69	4.12	26.01	201	0.47
155	9.46	33.72	4.03	195	200	8.59	33.87	3.15	26.32	171	0.57
184	8.78	33.82	3.51	178	250	7.89	34.00	2.17	26.52	152	0.65
219	8.39	33.92	2.78	164	300	7.29	34.10	1.65	26.69	136	0.73
249	7.90	34.00	2.18	152	400	6.62	34.22	0.74	26.88	118	0.86
299	7.30	34.10	1.66	136	500	6.09	34.30	0.37	27.01	106	0.98
353	6.90	34.18	1.09	125	600	5.52	34.34	0.26	27.11	96	1.08
438	6.41	34.25	0.53	113							
523	5.94	34.31	0.32	103							
608	5.48	34.34	0.25	96							

a) See footnote, page 421.

b) Alternate value, 17.63°C, not used in interpolation.



SIO

CCOFI  
5910

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

100.70

ORCA; October 14, 1959; 1939 GCT; 30°18.5'N, 119°28.5'W; sounding, 2000+ fm; wind, 310°, force 3; weather, overcast; sea, rough; wire angle, 17°.

1	18.70	33.47	5.20	397	0	(18.70)	(33.47)	(5.20)	(23.95)	(397)	(0.00)
10	18.65	33.47	5.13	396	10	18.65	33.47	5.13	23.96	396	0.04
29	18.58	33.56	5.17	387	20	18.61	33.53	5.14	24.02	390	0.08
39	18.39a)	33.52	5.33	386	30	18.57	33.56	5.18	24.05	387	0.12
53	15.40	33.16	5.82	345	50	16.50	33.24	5.65	24.30	363	0.19
67	14.34	33.19	5.96	321	75	14.02	33.23	5.86	24.84	312	0.28
90	13.15	33.36	5.45	286	100	12.61	33.40	5.21	25.25	273	0.35
109	12.12	33.43	5.03	262	125	10.97	33.50	4.70	25.64	236	0.42
127	10.88	33.51	4.65	234	150	10.11	33.56	4.05	25.83	218	0.47
146	10.28	33.54	4.14	222	200	8.95	33.91	2.38	26.29	174	0.57
174	9.33	33.76	3.37	191	250	8.02	33.99	2.43	26.50	154	0.66
206	8.84	34.93	2.29	171	300	7.29	34.06	1.79	26.66	139	0.73
234	8.24	33.96	2.59	160	400	6.49	34.14	0.94	26.84	122	0.87
281	7.54	34.04	2.02	144	500	5.91	34.21	0.50	26.96	110	0.99
333	6.96	34.09	1.48	132							
414	6.40	34.15	0.85	120							
496	5.92	34.21	0.51	110							
579	5.55	34.31	0.36	98							

100.80

ORCA; October 15, 1959; 0034 GCT; 29°57'N, 120°06'W; sounding, 2000+ fm; wind, 280°, force 3; weather, overcast; sea, rough; wire angle, 15°.

1	18.78	33.48	5.15	398	0	(18.78)	(33.48)	(5.15)	(23.94)	(398)	(0.00)
11	18.78	33.48	5.18	398	10	18.78	33.48	5.17	23.94	398	0.04
30	18.68	33.48	5.21	396	20	18.77	33.48	5.18	23.94	398	0.08
39	18.5	33.48	5.28	391	30	18.68	33.48	5.21	23.96	396	0.12
54	15.88	33.16	5.89	356	50	17.18	33.34	5.61	24.23	370	0.20
68	14.23	33.03	5.92	331	75	13.98	33.05	5.85	24.71	324	0.28
91	13.42	33.16	5.60	306	100	13.40	33.27	5.49	25.00	297	0.36
109	12.74	33.33	5.27	280	125	11.87	33.46	4.94	25.44	255	0.43
128	11.68	33.48	4.85	250	150	10.29	33.54	4.34	25.79	222	0.49
146	10.56	33.53	4.44	227	200	8.60	33.86	3.31	26.31	172	0.59
175	9.07	33.73	3.61	189	250	7.79	33.97	2.50	26.52	152	0.68
207	8.48	33.89	3.23	168	300	7.25	34.06	1.56	26.67	138	0.75
235	8.08	33.95	2.84	158	400	6.69	34.17	0.76	26.84	122	0.89
282	7.37	34.02	1.87	143	500	6.17	34.23	0.46	26.95	111	1.01
334	7.07	34.13	1.16	131	600	(5.37)	(34.30)		(27.10)	(97)	(1.12)
416	6.60	34.18	0.70	121							
499	6.18	34.23	0.47	112							
583	5.48	34.29	0.34	100							

100.90

ORCA; October 15, 1959; 0545 GCT; 29°36.5'N, 120°44'W; sounding, 2000+ fm; wind, 280°, force 3; weather, overcast; sea, rough; wire angle, 13°.

1	19.12	33.38	5.13	413	0	(19.12)	(33.38)	(5.13)	(23.78)	(413)	(0.00)
11	19.14	33.37	5.13	415	10	19.13	33.37	5.13	23.76	415	0.04
30	19.10	33.39	5.22	412	20	19.13	33.38	5.21	23.77	414	0.08
40	19.06	33.41	5.15	410	30	19.10	33.39	5.22	23.79	412	0.12
54	17.86	33.61	5.54	367	50	17.99	33.60	5.52	24.23	370	0.20
69	16.56	33.64	5.64	335	75	15.80	33.57	5.60	24.72	324	0.29
92	15.14	33.55	5.54	311	100	14.94	33.55	5.52	24.89	308	0.37
111	14.10	33.60	5.32	286	125	13.65	33.67	5.14	25.25	273	0.44
130	13.48	33.68	5.09	269	150	11.94	33.62	4.83	25.55	244	0.51
150	11.94	33.62	4.83	244	200	9.22	33.79	3.95	26.16	187	0.62
178	9.69	33.68	4.31	202	250	8.13	33.94	2.83	26.44	159	0.71
211	8.97	33.84	3.70	179	300	7.34	34.01	2.13	26.62	143	0.79
240	8.30	33.92	3.00	163	400	6.29	34.12	1.08	26.85	121	0.92
287	7.54	34.00	2.26	147	500	5.60	34.20	0.56	27.00	107	1.04
340	6.78	34.06	1.66	132	600	(5.09)	(34.30)		(27.13)	(94)	(1.15)
422	6.13	34.14	0.91	118							
505	5.58	34.21	0.53	106							
588	5.13	34.29	0.40	95							

420

a) Alternate value, 16.89°C, not used in interpolation.



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

SIO  
CCOFI  
5910

ORCA; October 21, 1959; 1430 GCT; <sup>a)</sup> 30°48'N, 118°08'W; sounding, 700 fm; wind, 310°, force 3; weather, overcast; sea, moderate; wire angle, 12°.

101.50

1	19.83	33.75	5.02	404	0	(19.83)	(33.75)	(5.02)	(23.88)	(404)	(0.00)
11	19.83	33.77	5.05	403	10	19.83	33.77	5.04	23.89	403	0.04
31	19.82	33.75	4.97	404	20	19.83	33.76	5.01	23.89	403	0.08
40	17.04	33.58	5.47	350	30	19.82	33.75	4.98	23.88	404	0.12
55	14.02	33.57	4.60	287	50	14.74	33.57	4.71	24.94	302	0.19
69	13.10	33.58	4.59	269	75	12.85	33.58	4.50	25.35	264	0.26
93	11.67	33.58	4.12	243	100	11.25	33.59	4.07	25.65	235	0.33
112	10.36	33.66	3.79	214	125	10.01	33.71	3.56	25.96	205	0.38
131	9.92	33.74	3.46	201	150	9.74	33.78	3.28	26.07	195	0.43
150	9.74	33.78	3.28	195	200	8.76	33.94	2.67	26.35	168	0.52
179	9.38	33.88	2.91	182	250	8.00	34.02	2.23	26.52	152	0.61
212	8.48	33.96	2.57	163	300	7.52	34.10	1.84	26.66	139	0.68
241	8.10	34.00	2.30	155	400	6.88	34.23	0.80	26.86	120	0.82
289	7.61	34.09	1.97	141	500	6.37	34.36	0.32	27.02	105	0.94
342	7.20	34.16	1.23	130	600	(5.73)	(34.38)	(0.27)	(27.12)	(95)	(1.04)
424	6.76	34.27	0.63	116							
507	6.32	34.36	0.30	104							
592	5.79	34.38	0.27	96							

ORCA; October 16, 1959; 2134 GCT; 31°01'N, 116°26'W; sounding, 41 fm; wind, 310°, force 3; weather, cloudy; sea, moderate; wire angle, 03°.

103.30

1	18.91	33.61	5.45	392	0	(18.91)	(33.61)	(5.45)	(24.00)	(392)	(0.00)
11	17.16	33.51	5.68	358	10	17.40	33.52	5.64	24.30	363	0.04
31	14.98	33.46	5.75	315	20	16.20	33.47	5.73	24.56	339	0.07
51	14.18	33.56	4.96	291	30	15.00	33.46	5.75	24.81	315	0.11
					50	14.19	33.53	5.00	25.05	292	0.17

ORCA; October 16, 1959; 1740 GCT; 30°51'N, 116°46'W; sounding, 900 fm; wind, 310°, force 2; weather, overcast; sea, moderate; wire angle, 05°.

103.35

1	20.03	33.68	5.01	414	0	(20.03)	(33.68)	(5.01)	(23.77)	(414)	(0.00)
11	20.04	33.68	5.14	415	10	20.04	33.68	5.14	23.76	415	0.04
31	16.46	33.30	5.82	358	20	19.50	33.61	5.25	23.85	406	0.08
41	15.21	33.31	5.89	330	30	16.68	33.31	5.80	24.31	362	0.12
56	14.22	33.47	5.54	298	50	14.67	33.41	5.77	24.84	312	0.19
71	13.38	33.53	4.98	278	75	13.24	33.54	4.87	25.24	274	0.26
96	12.10	33.62	4.11	247	100	12.00	33.64	4.03	25.55	244	0.33
115	11.50	33.68	3.61	232	125	11.45	33.75	3.08	25.74	226	0.39
136	11.45	33.83	2.63	220	150	11.27	33.88	2.48	25.88	213	0.44
156	11.13	33.89	2.43	210	200	9.38	33.94	2.70	26.25	178	0.54
185	9.85	33.91	2.79	188	250	8.91	34.15	1.76	26.50	154	0.63
219	8.96	34.00	2.46	167	300	8.42	34.21	1.48	26.61	144	0.71
249	8.92	34.15	1.76	154	400	7.38	34.25	0.88	26.80	125	0.84
299	8.42	34.21	1.49	144	500	6.68	34.32	0.49	26.95	112	0.97
353	7.96	34.23	1.12	135	600	5.90	34.35	0.32	27.07	100	1.08
438	6.99	34.29	0.65	118							
522	6.54	34.32	0.44	110							
607	5.84	34.35	0.31	99							

a) Upon completion of the scheduled station pattern, the R/V Orca was directed to proceed to Station 101.50 (30°48'N, 118°08'W) to make a hydrographic cast in order to add to the description of oceanographic conditions at the center of the counterclockwise eddy which had been indicated by drogue measurements of the R/V Horizon. A comparison of the data obtained at this station with those of Station 100.50 (occupied October 14) shows considerable differences between the property curves but very similar values of  $\delta T$ .



SIO  
CCOFI  
5910

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

103.40

ORCA; October 16, 1959; 1442 GCT; 30°42'N, 117°05'W; sounding, 900 fm; wind, 310°, force 2; weather, overcast; sea, moderate; wire angle, 08°.

1	19.91	33.64	5.00	414	0	(19.91)	(33.64)	(5.00)	(23.77)	(414)	(0.00)
11	19.92	33.66	5.23	413	10	19.92	33.66	5.23	23.78	413	0.04
31	19.18	33.59	5.29	400	20	19.89	33.66	5.25	23.79	412	0.08
41	17.43	33.38	5.83	374	30	19.27	33.60	5.29	23.91	401	0.12
56	14.68	33.35	5.52	317	50	14.88	33.33	5.57	24.74	322	0.20
70	14.18	33.52	5.28	294	75	14.09	33.52	5.26	25.05	292	0.27
95	12.40	33.57	4.76	257	100	12.09	33.58	4.53	25.49	250	0.34
114	11.30	33.64	4.04	232	125	11.01	33.67	4.00	25.76	224	0.40
134	10.72	33.69	3.96	218	150	10.22	33.77	3.57	25.97	204	0.46
153	10.08	33.78	3.50	201	200	8.95	33.93	2.67	26.31	172	0.55
183	9.15	33.87	3.04	180	250	8.73	34.15	1.84	26.51	153	0.64
217	8.83	34.00	2.34	165	300	8.30	34.23	1.15	26.64	141	0.71
247	8.74	34.14	1.86	154	400	7.36	34.29	0.67	26.84	122	0.85
296	8.34	34.23	1.16	141	500	6.48	34.33	0.47	26.98	108	0.97
350	7.64	34.25	0.95	130	600	5.69	34.35	0.27	27.10	97	1.08
434	7.10	34.32	0.52	117							
519	6.30	34.33	0.47	106							
604	5.66	34.35	0.26	97							

103.50

ORCA; October 16, 1959; 0835 GCT; 30°23'N, 117°44'W; sounding, 1000 fm; wind, 300°, force 2; weather, cloudy; sea, moderate; wire angle, 14°.

1	20.92	33.84	4.78	425	0	(20.92)	(33.84)	(4.78)	(23.65)	(425)	(0.00)
11	20.96	33.84	4.86	426	10	20.96	33.84	4.85	23.65	426	0.04
30	20.82	33.84	4.89	422	20	20.93	33.84	4.87	23.65	425	0.08
40	19.1	33.68	5.27	391	30	20.82	33.84	4.89	23.68	422	0.13
54	17.06	33.66	5.32	345	50	17.42	33.67	5.33	24.42	352	0.20
69	15.78	33.60	5.31	322	75	14.90	33.60	5.26	24.94	303	0.29
92	14.08	33.58	5.09	288	100	13.35	33.55	4.82	25.22	276	0.36
111	12.52	33.53	4.44	262	125	11.78	33.63	3.95	25.58	241	0.42
130	11.51	33.68	3.82	233	150	10.51	33.68	3.67	25.86	215	0.48
150	10.51	33.68	3.67	215	200	9.28	33.90	2.63	26.23	180	0.58
179	9.76	33.81	2.83	194	250	8.41	34.06	1.95	26.50	154	0.67
212	9.02	33.95	2.44	172	300	7.75	34.10	1.75	26.63	142	0.75
241	8.54	34.05	1.99	157	400	6.56	34.15	0.82	26.84	122	0.88
289	7.90	34.09	1.82	145	500	6.16	34.25	0.41	26.97	110	1.01
342	7.03	34.12	1.31	131	600	(5.60)	(34.35)	(0.23)	(27.11)	(96)	(1.12)
424	6.42	34.17	0.70	119							
507	6.12	34.26	0.38	109							
591	5.66	34.34	0.23	98							

103.60

ORCA; October 16, 1959; 0310 GCT; 30°04'N, 118°22'W; sounding, 1900 fm; wind, 300°, force 2; weather, clear; sea, moderate; wire angle, 15°.

1	19.30	33.46	5.12	412	0	(19.30)	(33.46)	(5.12)	(23.79)	(412)	(0.00)
11	19.30	33.48	5.13	411	10	19.30	33.48	5.13	23.80	411	0.04
30	19.13	33.49	5.19	406	20	19.26	33.49	5.17	23.82	409	0.08
39	18.99	33.50	5.15	402	30	19.13	33.49	5.19	23.85	406	0.12
54	17.44	33.42	5.52	371	50	18.02	33.44	5.37	24.10	383	0.20
68	16.29	33.42	5.69	346	75	15.69	33.45	5.64	24.66	330	0.29
92	15.12	33.49	5.57	316	100	14.95	33.50	5.51	24.85	311	0.37
110	14.28	33.51	5.31	297	125	12.64	33.44	5.02	25.27	271	0.45
129	12.24	33.44	4.92	263	150	10.50	33.59	4.36	25.79	222	0.51
148	10.63	33.58	4.39	225	200	8.85	33.83	3.20	26.25	178	0.61
176	9.14	33.73	3.89	190	250	8.09	34.03	2.21	26.52	152	0.70
209	8.76	33.87	2.92	174	300	7.34	34.06	1.76	26.66	139	0.77
237	8.30	34.02	2.31	156	400	6.54	34.16	0.91	26.85	121	0.91
284	7.54	34.05	1.92	143	500	6.06	34.29	0.42	27.01	106	1.03
336	6.94	34.11	1.31	131	600	(5.59)	(34.34)		(27.11)	(96)	(1.13)
418	6.44	34.18	0.81	119							
500	6.06	34.29	0.42	106							
584	5.66	34.34	0.31	97							



OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T_3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_3$	$\Delta D$
m	°C	‰	ml/L	$\frac{-5}{10} \text{ cm/g}$	m	°C	‰	ml/L	g/L	$\frac{-5}{10} \text{ cm/g}$	dyn. m

SIO  
CCOFI  
5910

ORCA; October 15, 1959; 2156 GCT; 29°48'N, 119°05'W; sounding, 2000 fm; wind, 300°, force 2; weather, clear; sea, moderate; wire angle, 11°.

103.70

1	19.37	33.40	4.98	418	0	(19.37)	(33.40)	(4.98)	(23.73)	(418)	(0.00)
11	19.09	33.44	5.07	409	10	19.09	33.44	5.07	23.82	409	0.04
31	19.10	33.44	4.90	409	20	19.09	33.44	5.00	23.82	409	0.08
40	19.13	33.53	5.10	403	30	19.09	33.44	4.91	23.82	409	0.12
54	17.64	33.66	5.40	358	50	17.90	33.66	5.37	24.29	364	0.20
69	16.88	33.60	5.47	346	75	16.40	33.64	5.45	24.63	332	0.29
93	15.72	33.68	5.35	314	100	15.40	33.68	5.30	24.89	307	0.37
112	14.72	33.69	5.13	293	125	13.71	33.69	4.96	25.26	272	0.44
132	12.94	33.68	4.84	258	150	11.33	33.62	4.58	25.66	234	0.51
151	11.28	33.62	4.57	233	200	9.10	33.78	3.76	26.17	186	0.61
181	9.66	33.71	4.10	200	250	8.14	33.96	2.70	26.46	158	0.70
215	8.76	33.84	3.44	176	300	7.42	34.06	1.88	26.64	141	0.78
244	8.24	33.95	2.83	160	400	6.50	34.20	0.86	26.88	118	0.92
291	7.54	34.04	1.95	144	500	6.03	34.28	0.42	27.01	106	1.03
345	6.94	34.12	1.43	130	600	(5.52)	(34.34)	(0.30)	(27.12)	(95)	(1.14)
429	6.34	34.23	0.68	114							
513	5.98	34.29	0.39	105							
597	5.54	34.34	0.30	96							

ORCA; October 15, 1959; 1621 GCT; 29°22'N, 119°44'W; sounding, 1900 fm; wind, 300°, force 4; weather, clear; sea, rough; wire angle, 07°.

103.80

1	20.50	34.08	4.93	397	0	(20.50)	(34.08)	(4.93)	(23.95)	(397)	(0.00)
11	20.48	34.05	4.90	399	10	20.49	34.05	4.90	23.93	399	0.04
31	20.48	34.05	4.89	399	20	20.48	34.05	4.90	23.93	399	0.08
61	20.35	34.05	4.90	395	30	20.48	34.05	4.89	23.93	399	0.12
70	19.70	33.96	5.01	386	50	20.42	34.05	4.89	23.95	397	0.20
85	17.18	33.73	5.34	342	75	18.93	33.87	5.18	24.19	374	0.30
99	16.16	33.73	-	320	100	16.11	33.73	5.11	24.77	319	0.38
114	14.32	33.68	4.67	285	125	12.78	33.69	4.17	25.45	254	0.46
139	11.65	33.71	3.85	233	150	11.24	33.72	3.78	25.76	225	0.52
159	10.84	33.73	3.71	217	200	9.81	33.88	2.90	26.13	190	0.62
188	10.00	33.81	3.24	197	250	9.15	34.15	1.56	26.45	159	0.71
218	9.56	34.03	2.17	174	300	8.65	34.26	1.08	26.62	143	0.79
247	9.19	34.14	1.61	160	400	7.40	34.31	0.52	26.84	122	0.93
296	8.69	34.25	1.12	145	500	6.52	34.34	0.23	26.98	108	1.05
351	8.05	34.31	0.71	131	600	5.73	34.34	0.24	27.08	99	1.16
434	7.02	34.31	0.41	117							
518	6.38	34.34	0.21	106							
603	5.71	34.34	0.24	98							

ORCA; October 15, 1959; 1149 GCT; 29°02.5'N, 120°18'W; sounding, 2000+ fm; wind, 300°, force 3; weather, cloudy; sea, rough; wire angle, 10°.

103.90

2	21.08	34.04	4.74	415	0	(21.08)	(34.04)	(4.74)	(23.76)	(415)	(0.00)
12	21.08	34.04	4.86	415	10	21.08	34.04	4.84	23.76	415	0.04
32	21.07	34.05	4.90	414	20	21.07	34.04	4.89	23.77	414	0.08
41	21.07	34.05	4.84	414	30	21.07	34.05	4.90	23.77	414	0.12
56	21.05	34.05	4.92	413	50	21.06	34.05	4.89	23.77	414	0.21
71	17.09	33.68	5.38	344	75	15.89	33.64	5.11	24.76	320	0.30
96	13.06	33.63	4.14	264	100	12.62	33.65	3.95	25.44	255	0.37
115	11.58	33.69	3.55	233	125	11.03	33.71	3.38	25.78	222	0.43
135	10.66	33.74	3.23	214	150	10.33	33.78	3.00	25.96	205	0.49
156	10.21	33.81	2.92	201	200	8.96	33.95	2.51	26.32	171	0.58
185	9.20	33.89	2.86	179	250	7.83	34.01	2.17	26.55	150	0.66
220	8.62	34.02	2.17	161	300	7.70	34.14	1.37	26.67	138	0.74
249	7.84	34.01	2.18	150	400	7.17	34.28	0.50	26.85	121	0.88
299	7.70	34.14	1.38	138	500	6.39	34.32	0.30	26.99	108	0.99
353	7.73	34.28	0.60	128	600	5.68	34.37	0.19	27.12	96	1.10
437	6.80	34.30	0.42	115							
522	6.22	34.33	0.26	105							
607	5.63	34.38	0.19	94							



SIO

CCOFI  
5910

OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T_3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_3$	$\Delta D$
m	°C	‰	ml/L	$\frac{-5}{10} \frac{cm}{g}$	m	°C	‰	ml/L	g/L	$\frac{-5}{10} \frac{cm}{g}$	dyn. m

107.32

ORCA; October 17, 1959; 0156 GCT; 30°26'N, 116°12'W; sounding, 300 fm; wind, 300°, force 2; weather, partly cloudy; sea, rough; wire angle, 17°.

1	19.79	33.65	5.02	410	0	(19.79)	(33.65)	(5.02)	(23.81)	(410)	(0.00)
10	19.80	33.66	5.10	410	10	19.80	33.66	5.10	23.81	410	0.04
29	17.80	33.44	5.46	378	20	18.98	33.56	5.33	23.95	397	0.08
49	15.20	33.44	5.56	320	30	17.76	33.44	5.47	24.16	377	0.12
72	12.92	33.55	4.71	268	50	15.13	33.44	5.55	24.77	319	0.19
95	11.86	33.64	3.90	241	75	12.50	33.57	4.49	25.40	258	0.26
118	12.00	33.94	2.32	222	100	11.61	33.65	3.51	25.64	236	0.32
155	10.88	34.00	1.95	198	125	11.95	33.98	2.20	25.82	218	0.38
193	10.13	34.04	1.96	183	150	11.02	34.00	1.95	26.01	201	0.44
241	9.50	34.22	1.36	159	200	10.03	34.06	1.90	26.23	180	0.53
289	8.76	34.29	1.03	143	250	9.35	34.24	1.28	26.49	155	0.62
391	7.44	34.31	0.51	123	300	8.62	34.30	0.97	26.65	140	0.69
					400	(7.35)	(34.31)	(0.49)	(26.85)	(121)	(0.83)

107.35

ORCA; October 17, 1959; 0401 GCT; 30°20'N, 116°23'W; sounding, 1000 fm; wind, 300°, force 3; weather, cloudy; sea, moderate; wire angle, 20°.

1	19.90	33.68	5.03	411	0	(19.90)	(33.68)	(5.03)	(23.80)	(411)	(0.00)
10	19.92	33.66	5.16	412	10	19.92	33.66	5.16	23.78	412	0.04
29	17.88	33.49	5.59	376	20	19.84	33.65	5.19	23.79	412	0.08
38	16.65	33.49	5.75	348	30	17.77	33.49	5.61	24.19	374	0.12
53	15.20	33.46	5.64	319	50	15.78	33.47	5.71	24.65	330	0.19
66	14.40	33.57	5.16	295	75	14.09	33.60	4.92	25.10	287	0.27
89	12.90	33.64	4.20	260	100	11.60	33.63	3.80	25.62	238	0.34
108	11.42	33.64	3.64	234	125	11.23	33.68	3.36	25.72	228	0.40
126	11.22	33.68	3.32	228	150	10.44	33.74	3.15	25.91	210	0.45
145	10.62	33.72	3.16	214	200	9.17	33.94	2.61	26.28	175	0.55
172	9.77	33.86	3.06	190	250	8.22	34.05	2.05	26.52	153	0.63
204	9.08	33.95	2.57	173	300	8.01	34.17	1.37	26.64	141	0.71
232	8.34	34.00	2.25	158	400	7.47	34.28	0.69	26.81	125	0.85
278	8.14	34.13	1.67	145	500	6.52	34.27	0.42	26.93	113	0.97
330	7.88	34.21	1.05	136							
411	7.38	34.29	0.62	123							
493	6.60	34.27	0.44	114							
576	5.90	34.32	0.30	102							

107.40

ORCA; October 17, 1959; 0705 GCT; 30°11'N, 116°43.5'W; sounding, 1800 fm; wind, 300°, force 3; weather, partly cloudy; sea, moderate; wire angle, 15°.

1	20.86	33.84	4.98	424	0	(20.86)	(33.84)	(4.98)	(23.67)	(424)	(0.00)
11	20.87	33.86	4.94	422	10	20.86	33.86	4.95	23.68	422	0.04
30	18.40	33.63	5.54	378	20	20.83	33.86	4.95	23.70	421	0.08
40	17.50	33.58	5.54	361	30	18.40	33.63	5.54	24.14	378	0.12
54	16.10	33.59	5.43	329	50	16.62	33.58	5.50	24.54	341	0.20
69	15.30	33.60	5.07	311	75	14.66	33.60	4.69	24.99	298	0.28
93	12.77	33.58	3.63	262	100	12.62	33.65	3.31	25.44	254	0.35
112	12.44	33.77	2.89	243	125	12.23	33.84	2.59	25.66	234	0.41
131	12.12	33.86	2.45	230	150	11.40	33.89	2.13	25.86	215	0.46
150	11.40	33.89	2.13	215	200	10.22	33.98	2.55	26.13	189	0.57
179	11.01	33.98	2.33	202	250	9.18	34.11	1.91	26.42	162	0.66
213	9.76	33.98	2.60	181	300	8.61	34.22	1.50	26.59	146	0.74
242	9.28	34.09	1.99	166	400	7.22	34.22	1.00	26.80	126	0.88
290	8.72	34.21	1.55	148	500	6.62	34.33	0.46	26.96	110	1.00
343	8.10	34.21	1.30	139	600	(5.80)	(34.33)	(0.36)	(27.07)	(101)	(1.12)
425	6.90	34.23	0.87	121							
508	6.59	34.33	0.42	110							
592	5.88	34.33	0.36	101							



OBSERVED					INTERPOLATED				COMPUTED			
Z	T	S	O <sub>2</sub>	$\delta T_3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_3$	$\Delta D$	
m	°C	‰	ml/L	10 <sup>-5</sup> cm/g	m	°C	‰	ml/L	g/L	10 <sup>-5</sup> cm/g	dyn. m	

S10  
CCOFI  
5910

ORCA; October 17, 1959; 1240 GCT; 29°52'N, 117°22.5'W; sounding, 2000+ fm; wind, 300°, force 3; weather, cloudy; sea, rough; wire angle, 09°.

10750

1	21.22	33.91	5.02	428	0	(21.22)	(33.91)	(5.02)	(23.62)	(428)	(0.00)
11	21.24	33.91	5.00	428	10	21.24	33.91	5.00	23.62	428	0.04
31	17.64	33.63	5.40	361	20	21.24	33.91	5.00	23.62	428	0.09
41	16.05	33.55	5.51	331	30	18.29	33.67	5.36	24.20	372	0.13
56	14.76	33.55	5.24	303	50	15.50	33.55	5.43	24.78	319	0.19
70	13.35	33.53	4.87	277	75	13.10	33.53	4.80	25.26	272	0.27
95	11.15	33.63	4.41	230	100	11.06	33.64	4.40	25.72	228	0.33
115	10.54	33.66	4.32	218	125	10.16	33.70	3.94	25.93	208	0.39
134	9.96	33.77	3.51	200	150	9.71	33.90	2.98	26.16	187	0.44
154	9.66	33.92	2.88	184	200	9.18	34.08	2.20	26.39	165	0.53
184	9.24	34.01	2.44	171	250	8.69	34.24	1.36	26.60	145	0.61
218	9.08	34.16	1.90	157	300	8.12	34.29	0.94	26.72	133	0.68
249	8.70	34.24	1.37	145	400	7.11	34.29	0.68	26.86	120	0.81
298	8.16	34.29	0.96	134	500	6.29	34.33	0.39	27.01	106	0.93
353	7.60	34.29	0.80	126	600	5.68	34.37	0.31	27.11	96	1.04
437	6.76	34.29	0.54	114							
521	6.14	34.34	0.35	103							
606	5.66	34.37	0.31	95							

ORCA; October 17, 1959; 1822 GCT; 29°32'N, 118°02'W; sounding, 2000 fm; wind, 300°, force 3; weather, cloudy; sea, rough; wire angle, 11°.

10760

2	20.48	33.75	4.88	421	0	(20.48)	(33.75)	(4.88)	(23.70)	(421)	(0.00)
12	20.48	33.75	4.84	421	10	20.48	33.75	4.85	23.70	421	0.04
31	20.48	33.78	4.93	419	20	20.48	33.76	4.88	23.70	420	0.08
41	18.48	33.57	5.43	385	30	20.48	33.78	4.93	23.72	419	0.13
56	17.22	33.59	5.20	354	50	17.62	33.58	5.27	24.29	364	0.20
71	15.74	33.66	5.20	316	75	15.02	33.65	5.02	24.94	302	0.29
95	12.57	33.58	4.25	259	100	12.10	33.58	4.13	25.48	251	0.36
114	11.28	33.58	3.91	236	125	10.63	33.62	3.76	25.79	222	0.42
133	10.22	33.68	3.61	211	150	9.61	33.76	3.30	26.06	196	0.47
152	9.55	33.77	3.22	193	200	8.71	34.02	2.40	26.42	162	0.56
181	9.00	33.94	2.74	172	250	8.40	34.18	1.50	26.60	145	0.64
215	8.59	34.08	2.11	156	300	7.74	34.23	1.07	26.73	132	0.71
244	8.46	34.18	1.57	147	400	7.11	34.30	0.49	26.88	119	0.84
293	7.78	34.22	1.13	133	500	6.09	34.33	0.31	27.03	104	0.96
346	7.62	34.28	0.68	127	600	(5.49)	(34.34)	(0.23)	(27.12)	(95)	(1.07)
430	6.78	34.31	0.42	113							
513	5.97	34.33	0.30	102							
598	5.50	34.34	0.23	96							



SIO  
CCOFI  
5910

OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T_3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_3$	$\Delta D$
m	°C	‰	ml/L	$\frac{10^{-5}}{10 \text{ cm/g}}$	m	°C	‰	ml/L	g/L	$\frac{10^{-5}}{10 \text{ cm/g}}$	dyn. m

10770

ORCA; October 17-18, 1959; 0229, 2324 GCT; 29°13'N, 118°37'W; sounding, 2000 fm; wind, 300°, force 2; weather, overcast; sea, rough; wire angle, 17°, 18°.

1	19.37	33.52	5.07	409	0	(19.37)	(33.52)	(5.07)	(23.82)	(409)	(0.00)
10	19.39	33.55	5.09	407	10	19.39	33.55	5.09	23.84	407	0.04
29	19.49	33.63	4.98	405	20	19.43	33.60	5.00	23.86	405	0.08
39	18.61	33.57	5.35	388	30	19.49	33.64	4.98	23.87	405	0.12
53	17.34	33.71	5.41	348	50	17.52	33.69	5.41	24.39	355	0.20
67	16.16	33.75	5.53	318	75	16.25	33.84	5.46	24.82	313	0.28
90	14.39	33.51	5.23	299	100	14.13	33.54	5.20	25.05	292	0.36
108	13.65	33.64	5.10	275	125	12.74	33.67	4.83	25.44	255	0.43
126	12.52	33.67	4.77	251	150	10.80	33.62	4.41	25.75	225	0.49
145	11.02	33.61	4.46	229	200	8.92	33.82	3.46	26.23	180	0.59
172	9.90	33.69	4.17	205	250	8.38	34.02	2.30	26.46	158	0.68
204	8.86	33.84	3.35	177	300	7.54	34.06	1.79	26.63	142	0.76
232	8.72	33.98	2.47	165	400	6.56	34.13	0.92	26.82	124	0.89
278	7.74	34.02	2.14	148	500	5.98	34.25	0.45	26.99	108	1.02
330	7.30	34.11	1.37	135	600	5.49	34.33	0.23	27.11	96	1.12
410	6.46	34.14	0.84	122	700	4.97	34.39	0.21	27.22	86	1.22
491	5.99	34.24	0.47	109	800	4.65	34.44	0.25	27.29	79	1.31
574	5.62	34.31	0.28	100	1000	4.04	34.51	0.40	27.42	67	1.48
					1200	3.49	34.54	0.61	27.49	60	1.62
383a)	6.73	34.13	1.04	126	1500	2.74	34.59	1.11	27.60	49	1.82
479	6.10	34.23	0.49	111	2000	2.04	34.64	1.78	27.70	40	2.09
575	5.64	34.32	0.27	99	2500	1.77	34.67	2.20			
671	5.08	34.38	0.20	88							
766	4.75	34.42	0.23	81							
958	4.18	34.50	0.38	69							
1150	3.60	34.53	0.57	62							
1342	3.16	34.56	0.77	55							
1534	2.66	34.61u	1.18	-							
1725	2.35	34.61	1.38	45							
1917	2.13	34.63	1.71	41							
2108	1.96	34.65	1.85	38							
2302	1.85	34.69u	2.08	-							
2495	1.76	34.67	2.19	36							
2691	1.72	34.67	2.32	35							
2789	1.66	34.67	2.42	34							

10780

ORCA; October 18, 1959; 0731 GCT; 28°51'N, 119°19'W; sounding, 2000+ fm; wind, 300°, force 3; weather, overcast; sea, rough; wire angle, 09°.

1	20.96	34.09	5.05	408	0	(20.96)	(34.09)	(5.05)	(23.83)	(408)	(0.00)
11	20.98	34.11	5.01	407	10	20.98	34.11	5.01	23.84	407	0.04
31	20.95	34.07	4.99	410	20	20.97	34.09	5.01	23.83	408	0.08
41	20.94	34.09	4.95	407	30	20.95	34.07	4.99	23.82	409	0.12
56	18.74	33.82	5.59	373	50	20.75	34.07	5.00	23.87	404	0.20
71	17.76	33.86	5.51	346	75	17.47	33.88	5.48	24.57	338	0.30
95	16.24	33.96	5.27	305	100	16.00	33.95	5.21	24.96	300	0.38
114	14.61	33.84	4.99	279	125	13.67	33.78	4.85	25.34	265	0.45
134	12.86	33.73	4.69	253	150	11.74	33.68	4.32	25.63	236	0.51
154	11.48	33.68	4.24	232	200	9.39	33.80	3.30	26.14	188	0.62
183	9.95	33.72	3.68	203	250	8.79	34.02	2.39	26.41	163	0.71
217	9.02	33.91	2.89	175	300	8.30	34.15	1.65	26.59	146	0.79
247	8.81	34.01	2.42	164	400	7.43	34.28	0.71	26.81	125	0.93
296	8.32	34.14	1.71	147	500	6.60	34.32	0.38	26.96	111	1.06
350	7.90	34.25	1.06	133	600	5.79	34.36	0.28	27.09	98	1.17
433	7.12	34.29	0.56	120							
517	6.46	34.32	0.37	109							
602	5.78	34.36	0.28	97							

a) Overlapping casts; reconciliation of property curves when necessary.



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

SIO  
CCOFI  
5910

ORCA; October 18, 1959; 1242 GCT; 28°32.5'N, 120°01'W; sounding, 2000+ fm; wind, 290°, force 3; weather, overcast; sea, moderate; wire angle, 11°.

10790

1	20.65	34.13	5.00	397	0	(20.65)	(34.13)	(5.00)	(23.95)	(397)	(0.00)
11	20.68	34.12	5.05	399	10	20.68	34.12	5.05	23.93	399	0.04
30	20.66	34.11	5.06	399	20	20.68	34.12	5.06	23.93	399	0.08
40	20.66	34.10	5.04	399	30	20.66	34.11	5.06	23.93	399	0.12
55	17.95	33.78	5.58	357	50	18.50	33.83	5.53	24.27	366	0.20
69	17.22	33.81	5.56	338	75	17.28	33.89	5.53	24.61	334	0.28
94	16.81	34.12	5.32	306	100	16.42	34.10	5.28	24.98	299	0.36
114	15.34	34.02	5.13	281	125	14.13	33.91	4.99	25.34	264	0.44
134	12.91	33.80	4.87	249	150	10.93	33.66	4.58	25.77	224	0.50
154	10.58	33.66	4.47	218	200	8.90	33.84	3.55	26.25	178	0.60
183	9.28	33.75	3.82	191	250	8.59	34.06	2.44	26.47	157	0.69
217	8.69	33.93	3.25	168	300	8.85	34.28	1.24	26.60	144	0.76
248	8.59	34.05	2.50	158	400	7.55	34.34	0.67	26.84	122	0.90
296	8.89	34.28	1.30	145	500	6.83	34.38	0.37	26.97	109	1.02
351	8.00	34.32	0.90	129	600	5.83	34.37	0.30	27.09	98	1.14
433	7.30	34.35	0.51	117							
518	6.69	34.38	0.36	107							
602	5.82	34.37	0.29	97							

ORCA; October 20, 1959; 2205 GCT; 29°50'N, 115°52'W; sounding, 44 fm; wind, 320°, force 3; weather, partly cloudy; sea, rough; wire angle, 05°.

11033

1	16.88	33.55	5.41	349	0	(16.88)	(33.55)	(5.41)	(24.45)	(349)	(0.00)
11	16.50	33.57	5.45	339	10	16.52	33.57	5.45	24.55	339	0.03
31	16.48	33.65	5.36	333	20	16.49	33.61	5.41	24.59	336	0.07
51	14.48	33.62	5.08	293	30	16.49	33.65	5.36	24.62	333	0.10
					50	14.70	33.63	5.09	25.00	297	0.16

ORCA; October 20, 1959; 2010 GCT; 29°44.5'N, 116°00'W; sounding, 766 fm; wind, 320°, force 3; weather, cloudy; sea, rough; wire angle, 27°.

11035

1	19.52	33.73	4.93	398	0	(19.52)	(33.73)	(4.93)	(23.94)	(398)	(0.00)
10	19.38	33.69	5.11	397	10	19.38	33.69	5.11	23.95	397	0.04
28	18.26	33.68	5.25	371	20	18.90	33.68	5.18	24.06	386	0.08
36	17.44	33.66	5.36	354	30	18.17	33.68	5.28	24.24	369	0.12
50	16.44	33.66	5.32	331	50	16.44	33.66	5.32	24.64	331	0.19
62	14.80	33.73	4.51	291	75	13.10	33.77	3.39	25.44	254	0.26
82	13.15	33.88	3.27	248	100	12.32	33.86	3.20	25.66	234	0.32
99	12.32	33.86	3.19	234	125	10.59	33.70	3.89	25.86	215	0.38
116	10.74	33.65	4.03	222	150	10.06	33.80	3.30	26.03	199	0.43
133	10.46	33.74	3.72	210	200	9.31	34.02	2.32	26.32	171	0.52
157	9.94	33.84	3.11	194	250	9.18	34.19	1.69	26.48	156	0.61
187	9.52	33.98	2.47	177	300	9.08	34.35	0.92	26.62	143	0.69
213	9.12	34.07	2.16	165	400	7.45	34.30	0.80	26.83	123	0.82
256	9.18	34.21	1.58	155	500	6.59	34.33	0.45	26.97	110	0.95
303	9.06	34.36	0.89	142							
380	7.63	34.30	0.83	126							
459	6.90	34.32	0.58	115							
542	6.24	34.34	0.36	105							



SIO  
CCOFI  
5910

OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T_3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_3$	$\Delta D$
m	°C	‰	ml/L	$\frac{10^{-5} T_3}{cm/g}$	m	°C	‰	ml/L	g/L	$\frac{10^{-5} T_3}{cm/g}$	dyn. m

110.40 ORCA; October 20, 1959; 1640 GCT; 29°37'N, 116°18'W; sounding, 1200 fm; wind, 320°, force 3; weather, cloudy; sea, rough; wire angle, 09°.

1	20.44	33.86	5.82u	412	0	(20.44)	(33.86)		(23.80)	(412)	(0.00)
11	20.48	33.86	5.02	412	10	20.48	33.86		23.79	412	0.04
31	20.42	33.86	4.97	411	20	20.47	33.86	4.99	23.79	412	0.08
41	17.62	33.68	5.25	356	30	20.43	33.86	4.97	23.80	411	0.12
56	16.40	33.73	5.14	325	50	16.70	33.72	5.18	24.63	332	0.20
71	14.33	33.64	4.90	288	75	13.90	33.64	4.79	25.17	280	0.27
96	12.07	33.67	4.11	243	100	11.91	33.68	4.02	25.60	239	0.34
116	11.35	33.73	3.66	226	125	10.98	33.75	3.62	25.82	218	0.40
135	10.60	33.78	3.61	209	150	10.42	33.89	2.94	26.04	198	0.45
155	10.38	33.93	2.77	194	200	9.88	34.11	2.02	26.30	173	0.55
185	9.96	34.05	2.20	179	250	9.79	34.31	1.15	26.47	157	0.63
219	9.86	34.19	1.77	167	300	8.72	34.31	1.13	26.64	141	0.71
249	9.80	34.31	1.17	157	400	7.40	34.28	0.87	26.82	124	0.85
298	8.78	34.31	1.13	141	500	6.72	34.33	0.43	26.95	111	0.97
353	7.74	34.23	1.15	132	600	5.90	34.37	0.33	27.09	98	1.08
437	7.20	34.32	0.62	118							
521	6.54	34.33	0.40	109							
606	5.86	34.38	0.33	97							

110.50 ORCA; October 20, 1959; 1052 GCT; 29°16'N, 116°59'W; sounding, 2000 fm; wind, 320°, force 4; weather, overcast; sea, very rough; wire angle, 15°.

1	21.94	34.03	4.77	438	0	(21.94)	(34.03)	(4.77)	(23.52)	(438)	(0.00)
11	21.96	34.02	4.79	439	10	21.96	34.02	4.78	23.51	439	0.04
30	21.94	34.04	4.72	437	20	21.96	34.03	4.76	23.52	438	0.09
39	20.73	33.91	4.90	415	30	21.94	34.04	4.72	23.53	437	0.13
54	16.65	33.66	5.38	336	50	17.10	33.67	5.38	24.49	345	0.21
68	15.24	33.77	4.91	297	75	14.53	33.76	4.68	25.14	284	0.29
91	12.73	33.68	4.20	255	100	12.08	33.67	4.23	25.56	243	0.36
111	10.97	33.66	4.31	224	125	10.59	33.75	3.75	25.90	212	0.41
130	10.51	33.76	3.68	210	150	9.90	33.80	3.40	26.06	196	0.46
148	9.94	33.79	3.45	198	200	9.29	34.03	2.41	26.33	170	0.56
177	9.48	33.93	2.86	180	250	9.05	34.18	1.56	26.49	155	0.64
210	9.24	34.07	2.18	166	300	8.36	34.24	1.14	26.64	141	0.72
238	9.18	34.16	1.69	158	400	7.53	34.32	0.55	26.83	123	0.86
286	8.52	34.22	1.27	145	500	6.69	34.36	0.24	26.98	109	0.98
338	7.98	34.28	0.90	132	600	(5.83)	(34.38)		(27.10)	(97)	(1.09)
420	7.37	34.33	0.42	120							
503	6.64	34.36	0.23	108							
587	5.96	34.38	0.20	98							

110.60 ORCA; October 20, 1959; 0505 GCT; 28°56'N, 117°38.5'W; sounding, 2000+ fm; wind, 300°, force 4; weather, cloudy; sea, rough; wire angle, 18°.

1	20.86	33.90	4.65	420	0	(20.86)	(33.90)	(4.65)	(23.71)	(420)	(0.00)
10	20.86	33.90	4.77	420	10	20.86	33.90	4.77	23.71	420	0.04
29	20.87	33.88	4.80	421	20	20.86	33.89	4.80	23.70	420	0.08
39	19.61	33.84	4.86	392	30	20.87	33.88	4.80	23.70	421	0.13
53	14.94	33.56	5.23	307	50	16.14	33.61	5.22	24.67	328	0.20
67	13.48	33.55	4.80	278	75	12.75	33.56	4.43	25.35	264	0.27
90	11.42	33.62	3.85	236	100	11.03	33.65	3.80	25.74	226	0.34
109	10.38	33.71	3.72	211	125	9.81	33.74	3.67	26.03	199	0.39
127	9.68	33.75	3.63	197	150	9.09	33.90	3.08	26.27	176	0.44
145	9.16	33.87	3.18	180	200	8.63	34.12	2.03	26.51	154	0.52
173	8.85	34.02	2.67	164	250	8.41	34.20	1.47	26.60	144	0.60
205	8.60	34.13	1.94	152	300	8.02	34.26	1.00	26.72	134	0.67
233	8.48	34.15	1.76	149	400	6.91	34.27	0.61	26.88	118	0.80
279	8.24	34.25	1.16	138	500	5.85	34.29	0.45	27.03	104	0.92
330	7.63	34.27	0.86	128							
410	6.80	34.27	0.59	117							
491	5.90	34.28	0.47	105							
574	5.56	34.34	0.35	96							



OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta_T$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta_T$	$\Delta D$
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  
5910

ORCA; October 19, 1959; 0541 GCT; 28°37'N, 118°16'W; sounding, 1000+ fm; wind, 310°, force 4; weather, cloudy; sea, rough; wire angle, 17°.

110.70

1	19.75	33.75	5.11	402	0	(19.75)	(33.75)	(5.11)	(23.89)	(402)	(0.00)
11	19.75	33.77	5.05	400	10	19.75	33.77	5.06	23.91	400	0.04
29	19.74	33.78	5.05	400	20	19.74	33.78	5.05	23.92	400	0.08
39	19.73	33.78	5.11	400	30	19.74	33.78	5.06	23.92	400	0.12
53	18.32	33.77	5.50	366	50	18.63	33.77	5.41	24.19	374	0.20
67	17.62	33.70	5.57	355	75	17.17	33.75	5.59	24.54	341	0.29
90	15.55	33.68	5.48	310	100	14.57	33.69	5.20	25.08	289	0.37
108	13.86	33.71	4.92	274	125	12.42	33.74	4.51	25.55	244	0.44
126	12.38	33.74	4.51	244	150	11.00	33.74	4.21	25.82	219	0.49
146	11.21	33.73	4.34	223	200	9.15	33.93	2.98	26.28	175	0.59
173	9.92	33.82	3.53	195	250	8.62	34.12	1.96	26.51	153	0.68
206	9.06	33.97	2.88	171	300	8.37	34.25	1.13	26.65	140	0.76
233	8.77	34.08	2.32	158	400	7.45	34.33	0.62	26.85	121	0.89
280	8.46	34.21	1.40	144	500	6.60	34.37	0.35	27.00	107	1.01
331	8.20	34.31	0.84	133							
411	7.36	34.33	0.59	120							
493	6.68	34.37	0.35	108							
575	5.86	34.36	0.31	98							

ORCA; October 19, 1959; 0010 GCT; 28°14.5'N, 118°55'W; sounding, 2000+ fm; wind, 310°, force 4; weather, cloudy; sea, rough; wire angle, 26°.

110.80

2	20.18	33.91	5.02	401	0	(20.18)	(33.91)	(5.02)	(23.90)	(401)	(0.00)
11	20.21	33.93	5.09	400	10	20.20	33.93	5.08	23.91	400	0.04
29	20.16	33.92	5.02	400	20	20.19	33.93	5.07	23.92	400	0.08
55	19.18	33.92	5.38	376	30	20.15	33.92	5.02	23.92	400	0.12
64	18.34	33.89	5.46	358	50	20.12	33.92	5.03	23.92	399	0.20
77	17.32	33.82	5.42	339	75	17.60	33.84	5.43	24.50	344	0.29
90	16.36	33.87	5.27	314	100	16.08	33.88	5.26	24.89	307	0.38
103	15.54	33.83	5.23	299	125	13.30	33.77	4.74	25.40	259	0.45
124	13.38	33.77	4.76	260	150	11.60	33.73	4.28	25.70	230	0.51
142	12.20	33.74	4.51	240	200	9.53	33.87	3.12	26.17	186	0.62
167	10.59	33.73	3.82	213	250	8.97	34.18	1.76	26.50	154	0.70
193	9.72	33.84	3.27	191	300	8.53	34.26	1.24	26.64	141	0.78
219	9.19	34.01	2.54	170	400	7.34	34.29	0.67	26.83	123	0.92
262	8.90	34.22	1.57	150	500	6.54	34.30	0.38	26.96	111	1.04
312	8.39	34.27	1.13	138							
387	7.50	34.29	0.73	125							
465	6.76	34.29	0.45	115							
546	6.33	34.33	0.31	106							

ORCA; October 18, 1959; 1736 GCT; 28°00'N, 119°41'W; sounding, 2000+ fm; wind, 330°, force 3; weather, cloudy; sea, rough; wire angle, 08°.

110.90

1	21.08	34.13	4.83	408	0	(21.08)	(34.13)	(4.83)	(23.83)	(408)	(0.00)
11	21.08	34.13	4.88	408	10	21.08	34.13	4.88	23.83	408	0.04
31	21.08	34.13	4.94	408	20	21.08	34.13	4.91	23.83	408	0.08
41	21.0	34.13	4.95	406	30	21.08	34.13	4.94	23.83	408	0.12
56	18.86	33.88	5.35	371	50	19.74	33.95	5.21	24.05	387	0.20
70	18.07	33.87	5.39	353	75	17.81	33.87	5.38	24.47	347	0.29
95	16.62	33.87	5.32	320	100	16.51	33.89	5.31	24.80	316	0.38
115	14.68	33.77	5.15	286	125	13.55	33.72	4.98	25.31	267	0.45
134	12.56	33.69	4.80	250	150	11.34	33.68	4.60	25.71	229	0.52
154	11.16	33.69	4.54	225	200	9.99	33.90	2.85	26.12	190	0.62
183	10.31	33.81	3.41	202	250	8.95	34.05	2.31	26.41	163	0.71
217	9.65	33.99	2.41	179	300	8.67	34.23	1.39	26.59	146	0.79
246	8.98	34.04	2.34	164	400	7.65	34.31	0.64	26.80	126	0.94
295	8.70	34.22	1.46	147	500	6.63	34.32	0.30	26.96	111	1.06
349	8.18	34.28	0.90	135	600	5.88	34.36	0.23	27.08	99	1.17
432	7.30	34.31	0.50	120							
516	6.47	34.32	0.28	109							
601	5.88	34.36	0.22	99							



S10

CCOFI  
5910

OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T_3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_3$	$\Delta D$
m	°C	‰	ml/L	$\frac{1}{10} \text{ cm}^3/\text{g}$	m	°C	‰	ml/L	g/L	$\frac{1}{10} \text{ cm}^3/\text{g}$	dyn. m

110.90

ORCA; October 18, 1959; 1856 GCT; <sup>a)</sup> 28°00'N, 119°41'W; sounding, 2000+ fm; wind, 330°, force 3; weather, cloudy; sea, rough; wire angle, 07°.

49	18.99	33.90	5.36	372
59	18.29	33.84	5.49	360
64	17.72	33.80	5.52	350
69	17.54	33.82	5.43	344
74	17.36	33.81	5.44	341
78	17.28	33.84	5.43	337
83	17.30	33.88	5.46	335
88	17.38	33.95	5.28	331
93	16.82	33.93	5.19	320
97	16.40	33.82	5.28	319
100	16.10	33.78	5.28	315
103	-	33.77	5.29	-
106	-	33.76	5.25	-
109	15.05	33.72	5.29	298
113	14.92	33.82	5.19	287
118	14.14	33.73	5.08	278
123	13.38	33.69	5.00	266
128	13.11	33.69	4.92	261

113.30

BLACK DOUGLAS; October 29, 1959; 1728 GCT; 29°22'N, 115°18'W; sounding, 30 fm; wind, 270°, force 1; weather, cloudy; sea, moderate; wire angle, 00°.

0	16.28	33.68	5.04	326	0	16.28	33.68	5.04	24.69	326	0.00
10	16.26	33.68	5.14	326	10	16.26	33.68	5.14	24.69	326	0.03
30	15.00	33.67	5.10	300	20	16.04	33.68	5.14	24.75	321	0.06
40	14.69	33.68	5.09	292	30	15.00	33.67	5.10	24.97	300	0.10

113.35

BLACK DOUGLAS; October 29, 1959; 1441 GCT; 29°11.5'N, 115°38'W; sounding, 650 fm; wind, 300°, force 3; weather, overcast; sea, rough; wire angle, 03°.

0	19.60	33.83	5.09	392	0	19.60	33.83	5.09	24.00	392	0.00
10	19.63	33.80	5.00	395	10	19.63	33.80	5.00	23.97	395	0.04
30	16.96	33.73	5.30	338	20	19.00	33.78	5.06	24.11	382	0.08
40	15.84	33.68	5.05	317	30	16.96	33.73	5.30	24.57	338	0.11
55	14.26	33.73	4.46	280	50	14.87	33.71	4.69	25.03	294	0.18
71	13.18	33.77	3.92	256	75	13.02	33.78	3.87	25.46	253	0.25
96	11.79	33.85	3.36	224	100	11.63	33.85	3.21	25.78	222	0.31
116	11.55	33.96	2.45	212	125	10.94	34.00	2.35	26.03	199	0.36
138	10.84	34.05	2.29	194	150	10.60	34.11	2.05	26.18	185	0.41
156	10.48	34.14	1.92	181	200	9.92	34.32	1.24	26.46	158	0.50
185	10.24	34.30	1.37	165	250	9.53	34.43	0.90	26.61	144	0.57
221	9.48	34.35	1.15	149	300	9.00	34.45	0.70	26.71	134	0.64
251	9.53	34.43	-	144	400	7.98	34.39	0.66	26.82	123	0.78
301	8.98	34.45	0.69	134	500	6.63	34.35	0.47	26.97	109	0.90
357	8.64	34.46	0.62	128	600	5.88	34.40	0.33	27.12	96	1.01
441	7.26	34.33	0.69	119							
526	6.42	34.36	0.38	105							
611	5.80	34.41	0.33	94							

a) Special cast.



OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T_3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_3$	$\Delta D$
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  
5910

BLACK DOUGLAS; October 29, 1959; 1140 GCT; 29°02'N, 115°57'W; sounding, 1000 fm; wind, 280°, force 4; weather, overcast; sea, rough; wire angle, 13°.

113.40

0	18.54	33.69	5.30	377	0	18.54	33.69	5.30	24.16	377	0.00
10	18.54	33.68	5.26	378	10	18.54	33.68	5.26	24.15	378	0.04
30	18.21	33.65	5.40	372	20	18.42	33.68	5.30	24.17	376	0.08
39	18.07	33.65	5.35	368	30	18.21	33.65	5.40	24.21	372	0.11
53	16.68	33.84	4.91	324	50	16.96	33.82	4.96	24.64	331	0.18
69	15.15	33.78	4.70	295	75	14.60	33.99	3.85	25.30	268	0.26
93	14.04	34.16	2.56	244	100	14.01	34.21	2.32	25.59	240	0.32
112	13.76	34.29	1.73	230	125	12.60	34.16	2.02	25.84	217	0.38
132	12.40	34.15	2.03	214	150	12.30	34.27	1.47	25.98	203	0.43
151	12.28	34.27	1.47	202	200	11.07	34.33	1.30	26.26	177	0.53
179	11.72	34.34	1.24	187	250	10.49	34.45	0.89	26.46	158	0.62
212	10.82	34.33	1.32	172	300	9.42	34.41	0.96	26.60	144	0.69
241	10.58	34.43	0.90	161	400	7.52	34.30	0.96	26.82	124	0.84
288	9.75	34.44	0.90	146	500	6.64	34.37	0.49	26.99	108	0.96
340	8.15	34.25	1.19	136	600	(6.09)	(34.43)		(27.11)	(96)	(1.06)
422	7.36	34.32	0.84	120							
505	6.61	34.37	0.46	107							
588	6.15	34.42	0.27	98							

BLACK DOUGLAS; October 29, 1959; 0616 GCT; 28°43'N, 116°39'W; sounding, 1860 fm; wind, 280°, force 4; weather, overcast; sea, very rough; wire angle, 11°.

113.50

0	20.38	33.87	5.00	409	0	20.38	33.87	5.00	23.82	409	0.00
10	20.40	33.88	4.92	409	10	20.40	33.88	4.92	23.82	409	0.04
29	19.36	33.79	5.15	390	20	20.40	33.88	4.92	23.82	409	0.08
39	18.09	33.77	5.15	360	30	19.28	33.78	5.15	24.04	388	0.12
49	17.04	33.71	5.27	341	50	16.99	33.71	5.27	24.55	340	0.19
63	15.83	33.74	5.02	312	75	14.80	33.77	4.46	25.09	288	0.27
79	14.38	33.79	4.14	278	100	13.10	34.00	2.43	25.62	238	0.34
99	13.08	33.96	2.53	240	125	12.93	34.22	1.72	25.82	219	0.40
124	12.96	34.22	1.73	219	150	12.62	34.34	1.38	25.98	204	0.45
142	12.76	34.31	1.46	208	200	11.35	34.31	1.54	26.20	183	0.55
174	12.10	34.37	1.26	192	250	10.26	34.33	1.18	26.41	163	0.64
203	11.26	34.31	1.55	181	300	9.41	34.39	0.99	26.60	145	0.72
233	10.67	34.32	1.11	170	400	7.78	34.36	0.71	26.83	123	0.86
273	9.74	34.36	1.24	152	500	6.85	34.37	0.49	26.96	110	0.98
332	9.08	34.42	0.74	138							
408	7.64	34.36	0.71	122							
483	6.97	34.36	0.54	112							
562	6.39	34.43	0.28	100							

BLACK DOUGLAS; October 29, 1959; 0054 GCT; 28°22'N, 117°16.5'W; sounding, 1850 fm; wind, 320°, force 3; weather, overcast; sea, very rough; wire angle, 07°.

113.60

0	21.84	34.09	4.90	431	0	21.84	34.09	4.90	23.59	431	0.00
10	21.84	34.12	4.79	428	10	21.84	34.12	4.79	23.62	428	0.04
30	21.28	34.04	4.74	420	20	21.53	34.08	4.75	23.66	424	0.09
60	16.52	33.77	5.02	325	30	21.28	34.04	4.74	23.71	420	0.13
70	15.30	33.78	4.59	298	50	18.15	33.86	4.94	24.38	356	0.21
85	13.64	33.78	4.10	264	75	14.80	33.78	4.41	25.10	288	0.29
100	12.52	33.89	3.70	235	100	12.52	33.89	3.70	25.65	235	0.35
116	11.44	33.80	3.42	222	125	11.10	33.82	3.20	25.86	215	0.41
141	10.64	33.90	2.82	201	150	10.47	34.02	2.52	26.13	190	0.46
161	10.34	34.11	2.26	181	200	10.02	34.25	1.55	26.39	165	0.55
191	10.12	34.22	1.69	169	250	9.61	34.43	1.11	26.59	146	0.63
221	9.82	34.33	1.32	156	300	9.13	34.43	0.63	26.67	138	0.70
251	9.60	34.43	1.09	145	400	7.64	34.42	0.48	26.89	117	0.84
300	9.13	34.43	0.63	138	500	6.59	34.42	0.37	27.04	103	0.95
356	8.16	34.42	0.49	124	600	5.76	34.42	0.35	27.15	92	1.06
442	7.22	34.42	0.45	111							
526	6.32	34.42	0.34	100							
611	5.69	34.42	0.35	92							



SIO  
CCOFI  
5910

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

113.70 BLACK DOUGLAS; October 28, 1959; 1953 GCT; 28°04'N, 117°53'W; sounding, 1670 fm; wind, 320°, force 5; weather, overcast; sea, very rough; wire angle, 14°.

0	19.58	33.78	5.10	396	0	19.58	33.78	5.10	23.96	396	0.00
10	19.58	33.79	5.10	395	10	19.58	33.79	5.10	23.97	395	0.04
29	18.29	33.64	5.38	375	20	19.58	33.79	5.10	23.97	395	0.08
39	17.16	33.60	5.47	351	30	18.20	33.63	5.39	24.20	373	0.12
53	16.28	33.63	5.36	330	50	16.50	33.62	5.39	24.59	336	0.19
68	15.32	33.68	5.36	306	75	14.80	33.67	5.31	25.02	296	0.27
92	13.42	33.65	4.95	270	100	13.15	33.68	4.77	25.36	262	0.34
112	12.86	33.71	4.62	255	125	11.80	33.75	4.50	25.67	233	0.40
132	11.18	33.74	4.47	222	150	10.32	33.78	4.01	25.96	205	0.46
151	10.30	33.78	3.97	204	200	9.18	33.98	2.70	26.31	172	0.55
180	9.66	33.92	2.96	184	250	8.88	34.16	1.79	26.50	154	0.64
216	8.92	34.01	2.54	166	300	8.98	34.36	0.95	26.64	141	0.71
244	8.87	34.14	1.92	156	400	7.67	34.37	0.57	26.85	121	0.85
294	9.02	34.36	0.98	142	500	6.61	34.36	0.33	26.99	108	0.97
347	8.24	34.34	0.74	132	600	(5.58)	(34.36)	(0.35)	(27.12)	(95)	(1.08)
429	7.36	34.38	0.49	116							
511	6.50	34.36	0.32	106							
598	5.60	34.36	0.35	95							

113.80 BLACK DOUGLAS; October 28, 1959; 1446 GCT; 27°42.5'N, 118°32'W; sounding, 2000 fm; wind, 320°, force 4; weather, overcast; sea, very rough; wire angle, 07°.

1	20.12	33.93	4.93	398	0	(20.12)	(33.93)	(4.93)	(23.94)	(398)	(0.00)
11	20.14	33.95	4.96	397	10	20.14	33.94	4.96	23.94	398	0.04
31	20.15	33.94	5.30	398	20	20.15	33.94	5.13	23.94	398	0.08
41	20.15	33.95	4.94	398	30	20.15	33.94	5.28	23.94	398	0.12
56	18.46	33.89	5.36	361	50	19.20	33.92	5.21	24.16	376	0.20
72	17.45	33.82	5.35	342	75	17.29	33.83	5.33	24.58	337	0.29
96	16.29	33.96	5.16	306	100	16.10	33.95	5.09	24.94	302	0.37
116	14.90	33.87	4.62	283	125	14.10	33.82	4.52	25.28	270	0.44
138	12.79	33.77	4.48	249	150	11.46	33.75	4.20	25.74	226	0.50
155	10.98	33.75	4.02	218	200	9.67	33.95	2.89	26.21	182	0.61
196	9.74	33.93	2.98	184	250	9.02	34.16	1.95	26.48	156	0.69
220	9.38	34.02	2.58	172	300	8.60	34.26	1.22	26.63	142	0.77
250	9.02	34.16	1.95	156	400	7.51	34.31	0.69	26.83	123	0.91
299	8.62	34.26	1.24	143	500	6.66	34.38	0.37	27.00	106	1.03
354	7.96	34.29	0.88	131	600	6.02	34.43	0.24	27.12	95	1.14
438	7.17	34.34	0.54	116							
524	6.48	34.40	0.31	103							
607	5.99	34.43	0.23	94							

113.90 BLACK DOUGLAS; October 28, 1959; 0834 GCT; 27°22'N, 119°12'W; sounding, 2000 fm; wind, 310°, force 4; weather, overcast; sea, rough; wire angle, 08°.

0	20.93	34.11	4.90	406	0	20.93	34.11	4.90	23.85	406	0.00
10	20.95	34.12	4.85	406	10	20.95	34.12	4.85	23.86	406	0.04
30	20.93	34.11	4.93	406	20	20.94	34.11	4.93	23.85	406	0.08
60	18.86	33.91	5.36	368	30	20.93	34.11	4.93	23.85	406	0.12
69	18.67	33.89	5.27	365	50	20.92	34.11	4.93	23.85	406	0.20
85	17.34	33.87	5.27	336	75	18.40	33.88	5.25	24.34	360	0.30
99	16.34	33.87	5.21	314	100	16.30	33.87	5.19	24.83	313	0.38
114	14.25	33.78	4.47	276	125	13.48	33.78	4.40	25.38	261	0.46
139	12.50	33.78	4.38	243	150	11.48	33.76	4.20	25.74	226	0.52
158	10.88	33.75	3.96	216	200	9.78	33.92	2.74	26.18	185	0.62
189	9.96	33.87	2.97	192	250	9.29	34.18	1.93	26.46	158	0.71
218	9.50	34.05	2.33	172	300	8.83	34.30	1.23	26.62	143	0.79
248	9.30	34.18	1.98	159	400	7.68	34.34	0.59	26.82	124	0.93
297	8.86	34.30	1.25	144	500	6.70	34.39	0.34	27.00	106	1.05
351	8.21	34.33	0.84	132	600	5.94	34.40	0.26	27.11	96	1.16
436	7.31	34.34	0.48	118							
520	6.53	34.40	0.31	104							
604	5.92	34.40	0.26	96							



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

SIO  
CCOFI  
5910

BLACK DOUGLAS; October 26, 1959; 0115 GCT; 28°56'N, 114°41.5'W; sounding, 40 fm; wind, 320°, force 6; weather, cloudy; sea, very rough; wire angle, 03°.

11726

1	19.92	33.78	5.13	404	0	(19.92)	(33.78)	(5.13)	(23.88)	(404)	(0.00)
11	19.92	33.83	5.16	400	10	19.92	33.83	5.16	23.91	400	0.04
31	17.04	33.76	5.01	338	20	18.60	33.81	5.12	24.23	370	0.08
51	14.08	33.65	4.42	282	30	17.06	33.76	5.02	24.57	338	0.11
					50	14.17	33.65	4.45	25.13	284	0.18

BLACK DOUGLAS; October 26, 1959; 0339 GCT; 28°48'N, 114°56.5'W; sounding, 54 fm; wind, 300°, force 6; weather, clear; sea, very rough; wire angle, 07°.

11730

0	19.56	33.77	5.14	396	0	19.56	33.77	5.14	23.96	396	0.00
10	19.57	33.78	5.27	395	10	19.57	33.78	5.27	23.96	395	0.04
30	17.14	33.71	4.89	343	20	19.55	33.78	5.26	23.97	395	0.08
50	15.32	33.70	4.64	304	30	17.14	33.71	4.89	24.51	343	0.12
74	14.10	33.89	3.34	265	50	15.32	33.70	4.64	24.92	304	0.18
					75	(14.04)	(33.89)	(3.32)	(25.34)	(265)	(0.25)

BLACK DOUGLAS; October 26, 1959; 0625 GCT; 28°38'N, 115°16'W; sounding, 110 fm; wind, 300°, force 6; weather, clear; sea, very rough; wire angle, 15°.

11735

0	19.27	33.76	5.23	390	0	19.27	33.76	5.23	24.02	390	0.00
10	19.26	33.77	5.19	388	10	19.26	33.77	5.19	24.04	388	0.04
29	18.33	33.71	5.05	370	20	19.26	33.77	5.17	24.04	388	0.08
48	15.10	33.68	4.77	301	30	18.30	33.71	5.05	24.23	370	0.12
73	13.14	33.80	3.64	253	50	15.02	33.68	4.75	24.97	300	0.18
97	12.14	33.93	2.74	225	75	13.08	33.81	3.59	25.48	252	0.25
121	11.86	33.98	2.48	216	100	11.99	33.94	2.64	25.79	221	0.31
151	11.15	34.13	1.84	193	125	11.72	33.98	2.42	25.87	214	0.37
					150	11.17	34.12	1.87	26.08	194	0.42

BLACK DOUGLAS; October 26, 1959; 0922 GCT; 28°28'N, 115°35.5'W; sounding, 500 fm; wind, 300°, force 5; weather, cloudy; sea, very rough; wire angle, 23°.

11740

0	20.28	33.86	4.95	407	0	20.28	33.86	4.95	23.84	407	0.00
9	20.30	33.86	4.96	408	10	20.30	33.86	4.97	23.83	408	0.04
28	19.82	33.85	5.04	396	20	20.30	33.86	4.97	23.83	408	0.08
37	19.37	33.80	5.12	389	30	19.73	33.84	5.06	23.98	394	0.12
51	17.45	33.76	5.31	346	50	17.50	33.76	5.30	24.47	347	0.20
65	15.68	33.68	4.93	313	75	14.10	33.71	4.35	25.19	278	0.27
86	13.36	33.77	3.99	260	100	12.48	33.85	3.32	25.62	237	0.34
103	12.32	33.86	3.22	234	125	11.33	33.95	2.69	25.91	210	0.40
120	11.54	33.89	2.82	218	150	11.02	34.08		26.08	194	0.45
137	11.24	34.01	2.56	203	200	9.57	34.10		26.34	169	0.54
164	10.60	34.09	2.19	186	250	9.01	34.22		26.53	152	0.62
221	9.20	34.13	-	161	300	8.82	34.31		26.63	142	0.70
264	8.95	34.26	1.11	148	400	7.63	34.35		26.84	122	0.84
314	8.74	34.33	0.82	139	500	6.57	34.31		26.96	111	0.96
392	7.75	34.35	-	124							
472	6.80	34.31	0.41	114							
555	6.24	34.34	0.30	104							



SIO  
CCOFI  
5910

OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T_3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_3$	$\Delta D$
m	°C	‰	ml/L	$10^{-5}$ cm/g	m	°C	‰	ml/L	g/L	$10^{-5}$ cm/g	dyn. m

11750 BLACK DOUGLAS; October 27, 1959; 0729 GCT; 28°08'N, 116°15'W; sounding, 2250 fm; wind, 320°, force 5; weather, sky obscured; sea, very rough; wire angle, 25°.

0	20.29	33.83	4.86	410	0	20.29	33.83	4.86	23.81	410	0.00
8	20.30	33.84	5.04	409	10	20.30	33.84	5.04	23.81	410	0.04
27	20.32	33.83	4.96	410	20	20.31	33.84	5.00	23.81	410	0.08
36	19.08	33.80	4.87	382	30	20.32	33.83	4.96	23.80	410	0.12
50	17.64	33.80	5.02	348	50	17.64	33.80	5.02	24.46	348	0.20
62	16.06	33.75	5.20	316	75	15.10	33.90	3.55	25.12	285	0.28
84	15.28	34.10	2.86	274	100	14.68	34.18	2.39	25.43	256	0.35
100	14.68	34.18	2.39	256	125	13.50	34.20	2.13	25.69	231	0.41
117	13.54	34.17	2.14	234	150	10.95	34.11	2.05	26.11	191	0.46
134	11.94	34.13	2.09	207	200	10.50	34.33	1.20	26.36	167	0.55
158	10.73	34.11	2.01	187	250	9.87	34.38	1.05	26.51	153	0.64
188	10.50	34.28	1.40	171	300	8.97	34.36	0.86	26.64	141	0.71
213	10.47	34.37	1.00	164	400	8.11	34.42	0.46	26.83	123	0.85
257	9.72	34.38	1.04	151	500	6.89	34.39	0.39	26.98	109	0.97
305	8.90	34.36	0.84	140							
381	8.32	34.42	0.49	126							
462	7.31	34.40	0.42	114							
544	6.48	34.38	0.35	104							

11760 BLACK DOUGLAS; October 27, 1959; 1311 GCT; 27°48'N, 116°53'W; sounding, 1800 fm; wind, 280°, force 3; weather, overcast; sea, rough; wire angle, 07°.

0	21.92	34.08	4.99	434	0	21.92	34.08	4.99	23.56	434	0.00
10	21.92	34.07	4.85	434	10	21.92	34.07	4.85	23.56	434	0.04
30	21.92	34.07	4.78	434	20	21.92	34.07	4.82	23.56	434	0.09
60	16.62	33.78	4.82	326	30	21.92	34.07	4.78	23.56	434	0.13
70	14.78	33.75	4.75	290	50	18.65	33.87	4.80	24.27	366	0.21
85	12.52	33.72	3.92	248	75	14.23	33.74	4.61	25.18	279	0.29
100	11.30	33.81	3.27	219	100	11.30	33.81	3.27	25.82	219	0.36
115	10.99	33.91	2.65	206	125	10.62	33.94	2.60	26.04	198	0.41
140	10.14	33.98	2.55	187	150	10.17	34.05	2.18	26.21	182	0.46
160	10.22	34.13	1.84	177	200	9.74	34.24	1.39	26.42	162	0.54
190	9.81	34.20	1.51	166	250	9.29	34.40	0.87	26.63	142	0.62
221	9.64	34.34	1.06	152	300	8.80	34.43	0.70	26.73	133	0.69
251	9.28	34.40	0.87	142	400	7.81	34.42	0.37	26.87	119	0.82
300	8.80	34.43	0.70	133	500	6.68	34.43	0.27	27.04	104	0.94
355	8.31	34.43	0.51	126	600	5.73	34.42	0.27	27.15	92	1.04
439	7.36	34.42	0.31	113							
524	6.41	34.43	0.26	100							
608	5.69	34.42	0.28	92							

11770 BLACK DOUGLAS; October 27, 1959; 1752 GCT; 27°30'N, 117°32.5'W; sounding, 1920 fm; wind, 320°, force 4; weather, overcast; sea, rough; wire angle, 14°.

0	20.23	33.84	5.01	407	0	20.23	33.84	5.01	23.84	407	0.00
10	20.25	33.86	4.91	406	10	20.25	33.86	4.91	23.85	406	0.04
29	20.25	33.82	5.05	410	20	20.25	33.84	4.97	23.83	408	0.08
39	20.04	33.80	5.04	406	30	20.25	33.82	5.05	23.82	410	0.12
54	18.08	33.70	5.40	366	50	19.00	33.74	5.25	24.08	384	0.20
68	16.17	33.59	5.38	330	75	15.39	33.63	5.28	24.86	310	0.29
92	14.63	33.77	5.10	285	100	14.35	33.75	5.08	25.17	280	0.36
111	12.93	33.65	4.98	260	125	11.80	33.64	4.48	25.59	240	0.43
130	11.42	33.63	4.31	235	150	10.26	33.68	3.71	25.90	211	0.49
149	10.32	33.68	3.74	212	200	8.91	33.84	3.01	26.25	178	0.59
177	9.42	33.76	3.40	192	250	8.29	34.09	2.03	26.54	150	0.67
211	8.72	33.90	2.77	171	300	8.04	34.21	1.31	26.67	138	0.75
239	8.36	34.06	2.27	154	400	7.27	34.33	0.63	26.87	119	0.88
286	8.16	34.17	1.49	143	500	6.35	34.31	0.41	26.98	108	1.00
337	7.68	34.28	1.00	128	600	(5.84)	(34.41)		(27.13)	(95)	(1.11)
418	7.16	34.33	0.55	117							
500	6.35	34.31	0.41	108							
585	5.90	34.39	0.28	97							



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

BLACK DOUGLAS; October 27, 1959; 2225 GCT; 27°12'N, 118°10.5'W; sounding, 2000 fm; wind, 320°, force 4; weather, overcast; sea, very rough; wire angle, 07°.

117.80

0	20.40	34.00	4.73	400	0	20.40	34.00	4.73	23.92	400	0.00
10	20.43	34.00	4.94	401	10	20.43	34.00	4.94	23.91	401	0.04
30	20.44	34.04	4.96	398	20	20.44	34.03	4.95	23.92	400	0.08
61	18.06	33.82	5.44	356	30	20.44	34.04	4.96	23.94	398	0.12
71	17.56	33.78	5.50	347	50	20.44	34.04	4.97	23.94	398	0.20
86	16.58	33.85	5.38	320	75	17.10	33.77	5.49	24.58	337	0.29
100	14.40	33.69	4.99	286	100	14.40	33.69	4.99	25.11	286	0.37
115	12.87	33.69	4.42	256	125	11.95	33.75	3.98	25.65	235	0.44
141	10.84	33.77	3.57	214	150	10.59	33.81	3.37	25.94	207	0.49
160	10.40	33.84	3.17	202	200	9.73	34.02	2.38	26.25	178	0.59
190	9.83	33.98	2.53	182	250	9.54	34.26	1.39	26.47	157	0.68
220	9.60	34.11	1.97	169	300	9.00	34.27	1.21	26.57	148	0.76
250	9.54	34.26	1.39	157	400	7.92	34.29	0.86	26.75	130	0.90
299	9.01	34.27	1.21	148	500	6.89	34.31	0.47	26.92	114	1.03
354	8.51	34.31	0.97	137	600	6.02	34.36	0.35	27.06	101	1.14
439	7.45	34.28	0.75	125							
523	6.68	34.33	0.39	111							
608	5.96	34.36	0.34	100							

BLACK DOUGLAS; October 28, 1959; 0313 GCT; 26°48'N, 118°50.5'W; sounding, 2200 fm; wind, 320°, force 4; weather, overcast; sea, rough; wire angle, 10°.

117.90

0	20.65	34.02	5.07	405	0	20.65	34.02	5.07	23.87	405	0.00
10	20.68	34.02	5.16	406	10	20.68	34.02	5.16	23.85	406	0.04
30	20.70	34.00	5.10	408	20	20.69	34.01	5.15	23.85	406	0.08
54	18.90	33.89	5.50	371	30	20.70	34.00	5.10	23.84	408	0.12
64	18.18	33.89	5.49	354	50	20.70	34.00	5.10	23.84	408	0.20
74	17.50	33.84	5.47	342	75	17.47	33.84	5.47	24.53	342	0.30
88	16.20	33.75	5.47	320	100	15.00	33.68	5.28	24.98	299	0.38
104	14.92	33.69	5.24	296	125	13.13	33.71	4.71	25.38	260	0.45
129	12.74	33.71	4.56	252	150	11.41	33.73	3.97	25.73	227	0.51
148	11.50	33.73	4.00	228	200	9.96	34.02	2.71	26.22	181	0.62
173	10.41	33.79	3.41	206	250	9.48	34.22	1.68	26.46	158	0.70
202	9.93	34.04	2.65	179	300	9.00	34.33	1.17	26.61	144	0.78
232	9.62	34.16	1.92	166	400	7.69	34.34	0.92	26.82	124	0.92
271	9.30	34.29	1.44	151	500	6.80	34.40	0.40	27.00	107	1.04
331	8.66	34.34	0.98	137							
405	7.63	34.34	0.92	123							
480	6.96	34.40	0.45	109							
558	6.28	34.38	0.34	102							

BLACK DOUGLAS; October 26, 1959; 1143 GCT; 28°18.5'N, 115°23.5'W; sounding, 140 fm; wind, 300°, force 4; weather, overcast; sea, very rough; wire angle, 06°.

118.39

0	19.97	33.75	5.16	408	0	19.97	33.75	5.16	23.84	408	0.00
10	19.78	33.71	5.18	406	10	19.78	33.71	5.18	23.86	406	0.04
30	17.18	33.64	5.25	349	20	18.90	33.67	5.22	24.06	386	0.08
50	14.92	33.62	4.78	302	30	17.18	33.64	5.25	24.45	349	0.12
75	13.19	33.71	3.89	261	50	14.92	33.62	4.78	24.94	302	0.18
99	12.42	33.82	3.13	239	75	13.19	33.71	3.89	25.38	261	0.25
124	12.02	34.02	2.25	216	100	12.43	33.83	3.10	25.62	238	0.32
154	10.86	34.17	1.69	185	125	12.00	34.03	2.24	25.85	216	0.37
					150	11.05	34.15	1.75	26.12	190	0.42

BLACK DOUGLAS; October 25, 1959; 1520 GCT; 28°19'N, 114°53'W; sounding, 60 fm; wind, 320°, force 5; weather, cloudy; sea, rough; wire angle, 12°.

119.33

0	20.89	33.78	4.79	428	0	20.89	33.78	4.79	23.62	428	0.00
10	20.90	33.78	4.94	428	10	20.90	33.78	4.94	23.62	428	0.04
29	20.89	33.78	4.79	428	20	20.89	33.78	4.86	23.62	428	0.09
49	20.62	33.78	4.77	421	30	20.89	33.78	4.78	23.62	428	0.13
73	14.91	33.64	3.91	300	50	20.60	33.78	4.78	23.69	421	0.21
					75	(14.89)	(33.65)	(3.89)	(24.98)	(298)	(0.30)



SIO

CCOFI  
5910

OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T_3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_3$	$\Delta D$
m	°C	‰	ml/L	$\frac{10}{cm/g}$	m	°C	‰	ml/L	g/L	$\frac{10}{cm/g}$	dyn. m

120.25 BLACK DOUGLAS; October 25, 1959; 1948 GCT; 28°22.5'N, 114°15'W; sounding, 30 fm; wind, 310°, force 6; weather, cloudy; sea, very rough; wire angle, 03°.

2	20.14	33.78	5.11	410	0	(20.14)	(33.78)	(5.11)	(23.82)	(410)	(0.00)
12	20.16	33.79	5.04	409	10	20.15	33.79	5.04	23.82	410	0.04
32	16.80	33.77	4.60	331	20	20.16	33.79	5.04	23.82	410	0.08
42	15.78	33.74	4.62	311	30	17.25	33.77	4.63	24.54	341	0.12

120.30 BLACK DOUGLAS; October 25, 1959; 1727 GCT; 28°13'N, 114°34'W; sounding, 50 fm; wind, 300°, force 6; weather, cloudy; sea, rough; wire angle, 15°.

0	20.94	33.77	4.91	430	0	20.94	33.77	4.91	23.60	430	0.00
10	20.96	33.78	4.84	430	10	20.96	33.78	4.84	23.60	430	0.04
29	20.95	33.78	4.78	430	20	20.96	33.78	4.81	23.60	430	0.09
48	20.70	33.77	4.64	424	30	20.94	33.78	4.77	23.60	430	0.13
73	15.88	33.84	4.33	306	50	20.60	33.77	4.63	23.68	422	0.21
					75	(15.78)	(33.84)	(4.32)	(24.93)	(304)	(0.30)

120.35 BLACK DOUGLAS; October 25, 1959; 1252 GCT; 28°03'N, 114°54'W; sounding, 46 fm; wind, variable, force 4; weather, clear; sea, moderate; wire angle, 02°.

0	20.82	33.80	4.90	425	0	20.82	33.80	4.90	23.65	425	0.00
10	20.83	33.81	4.96	425	10	20.83	33.81	4.96	23.65	425	0.04
30	20.83	33.82	4.96	424	20	20.83	33.82	4.96	23.66	424	0.08
40	20.38	33.80	4.64	414	30	20.83	33.82	4.96	23.66	424	0.13
50	19.36	33.78	4.76	390	50	19.36	33.78	4.76	24.02	390	0.21
75	14.55	33.71	3.56	288	75	14.55	33.71	3.56	25.10	288	0.29

120.45 BLACK DOUGLAS; October 24, 1959; 2112 GCT; 27°43'N, 115°33'W; sounding, 1150 fm; wind, 320°, force 3; weather, partly cloudy; sea, rough; wire angle, 10°.

0	20.32	34.00	5.01	398	0	20.32	34.00	5.01	23.94	398	0.00
10	20.00	34.02	5.12	388	10	20.00	34.02	5.12	24.03	388	0.04
30	19.44	33.98	5.11	378	20	19.97	34.02	5.11	24.04	388	0.08
40	17.34	33.86	5.02	337	30	19.44	33.98	5.11	24.14	378	0.12
49	16.30	33.75	5.14	322	50	16.23	33.75	5.14	24.76	320	0.19
64	15.18	33.81	4.66	293	75	13.86	33.77	4.28	25.28	270	0.26
79	13.33	33.75	4.08	260	100	12.53	33.84	3.12	25.60	239	0.32
99	12.55	33.84	3.15	240	125	11.50	33.98	2.55	25.91	210	0.38
124	11.52	33.98	2.56	210	150	11.31	34.18	1.88	26.10	192	0.43
144	11.42	34.16	2.00	196	200	11.20	34.51	0.61	26.38	166	0.52
173	10.66	34.22	1.43	178	250	9.83	34.42	0.84	26.55	150	0.60
202	11.20	34.52	0.59	165	300	9.20	34.43	0.67	26.66	139	0.68
232	10.23	34.42	0.85	156	400	8.09	34.43	0.32	26.84	122	0.82
271	9.52	34.42	0.80	144	500	6.77	34.42	0.21	27.02	105	0.93
330	8.89	34.43	0.54	134							
405	8.02	34.43	0.31	122							
478	7.00	34.42	0.22	108							
558	6.21	34.42	0.20	98							



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

SIO  
CCOFI  
5910

BLACK DOUGLAS; October 24, 1959; 1822 GCT; 27°33'N, 115°52.5'W; sounding, 2150 fm; wind, 320°, force 3; weather, cloudy; sea, rough; wire angle, 00°.

120.50

0	21.86	34.05	4.68	434	0	21.86	34.05	4.68	23.56	434	0.00
10	21.79	34.11	4.78	428	10	21.79	34.11	4.78	23.62	428	0.04
30	21.71	34.06	4.82	430	20	21.74	34.09	4.80	23.61	429	0.09
40	18.43	33.62	5.11	380	30	21.71	34.06	4.82	23.60	430	0.13
50	16.87	33.68	5.10	339	50	16.87	33.68	5.11	24.56	339	0.21
66	15.76	33.69	5.28	314	75	14.82	33.78	4.82	25.09	288	0.28
81	14.36	33.82	4.46	276	100	12.16	33.83	3.31	25.67	233	0.35
100	12.16	33.83	3.31	233	125	10.75	33.89	3.33	25.98	204	0.41
127	10.72	33.89	3.33	204	150	10.66	34.11	2.03	26.17	186	0.46
146	10.70	34.08	2.21	189	200	9.89	34.31	1.33	26.46	158	0.54
176	10.20	34.24	1.57	169	250	9.60	34.45	0.79	26.61	144	0.62
207	9.84	34.34	1.24	156	300	8.71	34.40	0.65	26.71	134	0.69
236	9.78	34.45	0.82	146	400	7.84	34.40	0.37	26.85	121	0.82
276	9.02	34.40	0.74	139	500	6.73	34.40	0.23	27.01	106	0.94
336	8.36	34.40	0.52	128							
412	7.74	34.40	0.35	120							
487	6.84	34.40	0.24	108							
567	6.28	34.40	0.18	100							

BLACK DOUGLAS; October 24, 1959; 1214 GCT; 27°10'N, 116°38'W; sounding, 2000 fm; wind, 310°, force 3; weather, clear; sea, rough; wire angle, 08°.

120.60

0	22.12	34.05	4.41	442	0	22.12	34.05	4.41	23.48	442	0.00
10	22.14	34.05	4.58	442	10	22.14	34.05	4.58	23.48	442	0.04
30	20.58	33.89	4.64	412	20	22.14	34.05	4.59	23.48	442	0.09
39	16.82	33.71	4.88	336	30	20.58	33.89	4.64	23.78	412	0.13
49	14.61	33.69	4.47	290	50	14.40	33.69	4.41	25.11	286	0.20
64	12.68	33.73	3.68	250	75	12.12	33.82	3.14	25.67	232	0.27
78	11.96	33.83	3.06	229	100	10.97	33.84	2.97	25.90	211	0.32
99	10.98	33.84	2.97	211	125	10.61	34.04	2.16	26.12	190	0.37
125	10.61	34.04	2.16	190	150	10.19	34.13	2.00	26.27	176	0.42
144	10.26	34.11	2.12	180	200	9.44	34.23	1.33	26.46	158	0.50
173	9.92	34.20	1.52	167	250	9.25	34.39	0.75	26.63	142	0.58
203	9.42	34.23	1.32	157	300	8.82	34.42	0.55	26.71	134	0.65
232	9.34	34.34	0.90	148	400	7.49	34.36	0.40	26.86	120	0.78
272	9.10	34.42	0.64	138	500	6.83	34.40	0.25	27.00	107	0.90
332	8.42	34.40	0.48	130							
406	7.43	34.36	0.40	119							
480	6.98	34.40	0.27	109							
560	6.30	34.41	0.23	100							

BLACK DOUGLAS; October 24, 1959; 0717 GCT; 26°52'N, 117°13'W; sounding, 2050 fm; wind, 320°, force 4; weather, clear; sea, moderate; wire angle, 07°.

120.70

0	20.19	33.75	4.34	413	0	20.19	33.75	4.34	23.78	413	0.00
10	20.20	33.77	4.44	412	10	20.20	33.77	4.44	23.79	412	0.04
30	20.04	33.80	4.47	406	20	20.12	33.79	4.46	23.82	408	0.08
40	19.40	33.86	4.73	385	30	20.04	33.80	4.47	23.86	406	0.12
50	18.39	33.86	4.88	361	50	18.39	33.86	4.88	24.32	361	0.20
64	16.10	33.47	5.68	338	75	16.02	33.70	5.28	24.77	319	0.28
79	16.16	33.78	5.22	316	100	14.50	33.79	4.82	25.16	281	0.36
98	14.76	33.80	4.86	285	125	12.32	33.65	4.68	25.50	249	0.43
124	12.38	33.65	4.69	250	150	10.82	33.79	3.48	25.88	213	0.49
144	11.01	33.75	3.65	218	200	9.73	34.03	2.28	26.26	177	0.59
173	10.25	33.95	2.91	191	250	9.07	34.21	1.62	26.50	154	0.67
203	9.68	34.04	2.23	175	300	8.61	34.30	1.10	26.65	140	0.75
232	9.36	34.18	1.69	160	400	7.74	34.34	0.52	26.82	124	0.88
272	8.76	34.23	1.52	147	500	6.50	34.34	0.40	26.98	108	1.01
332	8.47	34.34	0.77	134							
406	7.67	34.34	0.50	123							
480	6.64	34.33	0.42	110							
560	6.24	34.41	0.29	100							



SIO

CCOFI  
5910

OBSERVED					INTERPOLATED				COMPUTED			
Z	T	S	O <sub>2</sub>	$\delta T_3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_3$	$\Delta D$	
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

BLACK DOUGLAS; October 24, 1959; 0215 GCT; 26°34'N, 117°49'W; sounding, 1800 fm; wind, 340°, force 3; weather, clear; sea, rough; wire angle, 03°.

0	20.86	33.91	5.00	418	0	20.86	33.91	5.00	23.72	418	0.00
10	20.52	33.91	5.05	410	10	20.52	33.91	5.05	23.81	410	0.04
30	20.48	33.93	5.10	407	20	20.50	33.92	5.08	23.83	408	0.08
40	20.37	33.97	5.14	402	30	20.48	33.93	5.10	23.84	407	0.12
50	18.68	33.90	5.46	365	50	18.68	33.90	5.46	24.28	365	0.20
65	17.72	33.89	5.47	343	75	16.90	33.76	5.56	24.61	334	0.29
81	16.14	33.65	5.65	326	100	15.00	33.69	5.30	24.98	298	0.37
101	14.88	33.69	5.25	296	125	12.18	33.66	4.33	25.53	246	0.44
126	12.12	33.66	4.31	244	150	11.17	33.75	3.77	25.79	221	0.50
146	11.35	33.73	3.87	226	200	10.02	34.03	2.27	26.22	181	0.60
176	10.26	33.84	3.07	200	250	9.62	34.29	1.41	26.48	156	0.69
207	9.98	34.09	2.07	176	300	8.97	34.37	1.07	26.65	140	0.76
237	9.76	34.25	1.60	161	400	7.85	34.43	0.42	26.87	119	0.90
276	9.29	34.34	1.12	147	500	6.70	34.40	0.30	27.01	106	1.02
337	8.54	34.40	1.00	131							
412	7.72	34.43	0.36	118							
487	6.82	34.40	0.32	108							
566	6.24	34.42	0.25	98							

120.90

BLACK DOUGLAS; October 23, 1959; 2125 GCT; 26°13'N, 118°27'W; sounding, 2200 fm; wind, direction missing, force 1; weather, partly cloudy; sea, rough; wire angle, 00°.

0	21.25	34.04	5.10	419	0	21.25	34.04	5.10	23.72	419	0.00
10	21.03	34.07	4.87	411	10	21.03	34.07	4.87	23.80	411	0.04
30	20.98	34.05	4.95	411	20	21.00	34.06	4.93	23.80	411	0.08
56	18.93	33.89	5.40	372	30	20.98	34.05	4.95	23.80	411	0.12
65	17.94	33.88	5.41	349	50	19.87	33.96	5.22	24.02	390	0.20
75	16.80	33.86	5.34	325	75	16.80	33.86	5.34	24.71	325	0.29
91	16.08	33.91	5.23	305	100	14.85	33.84	5.07	25.13	284	0.37
106	14.17	33.80	4.93	273	125	12.55	33.71	4.53	25.50	249	0.44
132	11.78	33.69	4.26	236	150	10.85	33.76	3.73	25.86	215	0.50
152	10.76	33.77	3.67	213	200	9.83	34.02	2.45	26.24	179	0.60
176	9.94	33.87	2.98	192	250	9.32	34.27	1.52	26.52	152	0.68
207	9.79	34.07	2.33	175	300	8.86	34.37	0.90	26.67	138	0.76
237	9.42	34.23	1.81	157	400	7.59	34.34	0.68	26.84	122	0.89
277	9.12	34.34	1.09	144	500	6.40	34.34	0.42	27.01	106	1.01
337	8.42	34.38	0.77	131							
413	7.41	34.34	0.65	120							
487	6.54	34.34	0.45	108							
567	5.79	34.34	0.32	99							

123.37

BLACK DOUGLAS; October 22, 1959; 1244 GCT; 27°24'N, 114°40'W; sounding, 40 fm; wind, 280°, force 2; weather, clear; sea, slight; wire angle, 00°.

0	20.50	34.08	5.18	397	0	20.50	34.08	5.18	23.95	397	0.00
10	20.36	34.04	5.26	396	10	20.36	34.04	5.26	23.96	396	0.04
30	17.24	33.76	5.46	342	20	19.88	33.99	5.33	24.04	388	0.08
50	17.10	34.14	3.38	311	30	17.24	33.76	5.46	24.52	342	0.12
					50	17.10	34.14	3.38	24.85	311	0.18



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

BLACK DOUGLAS; October 22, 1959; 1800 GCT; 27°14'N, 114°59'W; sounding, 780 fm; wind, 320°, force 4; weather, clear; sea, rough; wire angle, 02°.

123.42

0	22.74	34.26	5.09	443	0	22.74	34.26	5.09	23.47	443	0.00
9	22.64	34.24	4.86	441	10	22.63	34.24	4.86	23.49	441	0.04
29	18.96	33.95	5.03	368	20	22.41	34.22	4.87	23.53	437	0.09
39	17.26	33.94	4.98	329	30	18.70	33.95	5.03	24.31	362	0.13
53	14.79	33.75	4.42	293	50	15.00	33.76	4.48	25.04	293	0.19
68	13.73	33.77	4.07	267	75	13.17	33.77	3.90	25.43	256	0.26
93	12.04	33.78	3.54	235	100	11.91	33.79	3.40	25.69	231	0.32
114	12.92	34.23	1.84	217	125	11.45	34.00	2.15	25.93	208	0.38
134	11.93	34.22	1.96	200	150	12.84	34.56	0.83	26.10	192	0.43
154	12.92	34.60	0.60	190	200	11.03	34.46	0.80	26.36	167	0.52
184	11.38	34.43	0.89	175	250	9.88	34.43	0.87	26.54	150	0.60
220	10.65	34.50	0.69	157	300	9.16	34.44	0.70	26.67	138	0.68
250	9.88	34.43	0.87	150	400	7.68	34.33	0.59	26.82	124	0.81
300	9.16	34.44	0.70	138	500	7.03	34.41	0.32	26.97	110	0.94
354	8.18	34.35	0.67	130							
439	7.40	34.36	0.46	118							
524	6.92	34.45	0.24	105							

BLACK DOUGLAS; October 23, 1959; 0040 GCT; 27°00'N, 115°31'W; sounding, 2000 fm; wind, 340°, force 4; weather, clear; sea, rough; wire angle, 07°.

123.50

0	21.92	34.13	4.45	430	0	21.92	34.13	4.45	23.60	430	0.00
10	21.92	34.09	4.49	433	10	21.92	34.09	4.49	23.57	433	0.04
30	21.62	34.14	4.60	422	20	21.80	34.11	4.57	23.62	428	0.09
40	20.42	33.97	4.51	403	30	21.62	34.14	4.60	23.69	422	0.13
50	17.84	33.80	5.04	353	50	17.84	33.80	5.04	24.41	353	0.21
65	16.11	33.78	5.21	315	75	14.70	33.76	4.83	25.09	287	0.29
81	14.14	33.75	4.56	276	100	12.48	33.78	3.74	25.56	243	0.35
100	12.48	33.78	3.74	243	125	11.34	33.95	2.71	25.92	209	0.41
125	11.34	33.95	2.71	209	150	10.67	34.13	2.11	26.16	186	0.46
145	10.81	34.12	2.15	188	200	9.61	34.24	1.55	26.45	159	0.55
175	9.94	34.16	1.88	171	250	9.48	34.39	0.98	26.59	146	0.63
205	9.59	34.27	1.43	157	300	8.83	34.40	0.80	26.69	136	0.70
235	9.60	34.36	1.11	150	400	7.64	34.40	0.46	26.87	119	0.83
275	9.18	34.40	0.89	141	500	6.85	34.45	0.26	27.03	104	0.95
335	8.37	34.40	0.61	129							
410	7.55	34.40	0.44	117							
486	7.01	34.45	0.28	106							
566	6.15	34.42	0.20	97							

BLACK DOUGLAS; October 23, 1959; 0633 GCT; 26°38.5'N, 116°09'W; sounding, 1980 fm; wind, 320°, force 3; weather, clear; sea, moderate; wire angle, 04°.

123.60

0	22.30	34.13	4.81	440	0	22.30	34.13	4.81	23.50	440	0.00
10	22.32	34.12	4.78	442	10	22.32	34.12	4.78	23.48	442	0.04
40	22.17	34.06	4.56	442	20	22.28	34.10	4.71	23.48	442	0.09
45	18.54	33.76	5.04	372	30	22.22	34.08	4.64	23.48	442	0.13
50	16.94	33.73	5.08	337	50	16.94	33.73	5.08	24.58	337	0.21
55	15.15	33.69	4.96	301	75	12.80	33.72	3.88	25.46	253	0.28
65	13.85	33.71	4.32	274	100	11.63	33.96	2.40	25.87	214	0.34
81	12.25	33.73	3.62	242	125	11.18	34.22	1.51	26.15	187	0.40
101	11.64	33.96	2.39	214	150	10.60	34.29	1.42	26.31	172	0.44
126	11.19	34.22	1.51	187	200	10.06	34.42	0.92	26.51	153	0.52
145	10.64	34.26	1.48	175	250	9.31	34.40	0.88	26.62	142	0.60
175	10.49	34.40	0.98	162	300	8.59	34.42	0.79	26.75	130	0.67
205	9.96	34.42	0.90	152	400	7.70	34.44	0.39	26.90	116	0.80
274	8.98	34.40	0.83	138	500	6.57	34.40	0.37	27.03	104	0.91
334	8.12	34.45	0.70	121							
410	7.63	34.60r	0.34	-							
485	6.72	34.40	0.38	106							
564	6.03	34.41	0.29	97							



OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T_3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_3$	$\Delta D$
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

123.70 BLACK DOUGLAS; October 23, 1959; 1113 GCT; 26°19'N, 116°47'W; sounding, 2000 fm; wind, 300°, force 3; weather, clear; sea, moderate; wire angle, 08°.

0	20.60	33.84	4.91	416	0	20.60	33.84	4.91	23.75	416	0.00
10	20.64	33.84	4.87	418	10	20.64	33.84	4.87	23.73	418	0.04
30	20.38	34.04	5.10	397	20	20.63	33.86	4.88	23.75	416	0.08
40	18.98	33.85	5.34	376	30	20.38	34.04	5.10	23.95	397	0.12
50	17.90	33.84	5.46	351	50	17.90	33.84	5.46	24.43	351	0.20
65	16.20	33.68	5.60	324	75	15.50	33.73	5.47	24.90	306	0.28
80	15.30	33.74	5.40	301	100	13.54	33.69	4.90	25.29	269	0.36
100	13.54	33.69	4.90	269	125	11.37	33.69	4.18	25.71	229	0.42
125	11.37	33.69	4.18	229	150	10.63	33.88	3.07	25.99	202	0.47
145	10.70	33.84	3.28	207	200	10.29	34.28	1.45	26.36	168	0.57
175	10.42	34.11	2.12	182	250	9.40	34.30	1.41	26.52	152	0.65
205	10.23	34.29	1.39	166	300	8.86	34.37	0.98	26.66	139	0.72
235	9.60	34.29	1.49	156	400	7.58	34.40	0.86	26.89	117	0.86
275	9.13	34.33	1.17	146	500	6.61	34.34	0.37	26.97	109	0.98
335	8.44	34.40	0.85	130							
409	7.46	34.40	0.85	116							
483	6.74	34.34	0.40	111							
563	6.13	34.39	0.36	99							

127.34 BLACK DOUGLAS; October 22, 1959; 0732 GCT; 26°55'N, 114°06.5'W; sounding, 40 fm; wind, 360°, force 6; weather, clear; sea, rough; wire angle, 05°.

0	21.28	34.20	4.81	408	0	21.28	34.20	4.81	23.83	408	0.00
10	21.30	34.18	4.89	410	10	21.30	34.18	4.89	23.81	410	0.04
30	21.10	34.16	4.84	406	20	21.28	34.18	4.88	23.81	410	0.08
35	20.86	34.20	4.76	397	30	21.10	34.16	4.84	23.85	406	0.12
40	19.08	34.05	4.87	364	50	17.44	33.95	4.68	24.63	332	0.20
50	17.44	33.95	4.68	332							

127.40 BLACK DOUGLAS; October 22, 1959; 0404 GCT; 26°43.5'N, 114°29'W; sounding, 1700 fm; wind, 330°, force 6; weather, clear; sea, very rough; wire angle, 17°.

2	22.62	34.31	4.82	436	0	(22.62)	(34.31)	(4.82)	(23.54)	(436)	(0.00)
10	22.38	34.25	4.94	431	10	22.38	34.25	4.94	23.59	431	0.04
30	20.70	34.11	4.88	400	20	21.70	34.20	4.93	23.72	419	0.09
39	18.92	34.04	4.72	361	30	20.70	34.11	4.88	23.92	400	0.13
55	17.06	34.10	3.94	313	50	17.89	34.08	4.34	24.62	333	0.20
68	15.73	34.15	2.96	280	75	15.06	34.13	2.66	25.30	268	0.28
92	13.53	34.16	2.10	234	100	13.14	34.24	1.55	25.80	221	0.34
111	13.67	34.52	0.99	210	125	13.56	34.59	0.73	25.98	203	0.39
129	13.50	34.61	-	200	150	12.93	34.62	0.58	26.13	189	0.44
148	12.95	34.62	0.57	189	200	10.73	34.42	0.92	26.40	164	0.53
176	11.07	34.33	1.31	177	250	10.07	34.49	0.63	26.56	148	0.61
208	10.63	34.45	0.82	161	300	9.28	34.49	0.45	26.69	136	0.68
235	10.30	34.49	0.65	152	400	8.02	34.43	0.30	26.84	122	0.82
281	9.57	34.49	0.54	140	500	7.04	34.43	0.17	26.99	108	0.94
333	8.86	34.48	0.35	130							
414	7.86	34.42	0.28	120							
495	7.08	34.43	0.18	109							
578	6.32	34.44	0.17	98							



OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T_{-5} T_3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_{-5} T_3$	$\Delta D$
m	°C	‰	ml/L	10 <sup>-5</sup> cm <sup>3</sup> /g	m	°C	‰	ml/L	g/L	10 <sup>-5</sup> cm <sup>3</sup> /g	dyn. m

SIO  
CCOFI  
5910

BLACK DOUGLAS; October 21, 1959; 2212 GCT; 26°23'N, 115°09.5'W; sounding, 1900 fm; wind, 340°, force 4; weather, partly cloudy; sea, very rough; wire angle, 15°.

127.50

0	22.41	34.13	4.81	443	0	22.41	34.13	4.81	23.46	443	0.00
10	22.40	34.14	4.82	442	10	22.40	34.14	4.82	23.48	442	0.04
29	20.89	33.96	4.98	415	20	21.59	34.09	4.93	23.65	425	0.09
38	19.48	33.92	5.35	383	30	20.80	33.95	5.00	23.77	414	0.13
54	18.07	33.82	5.35	356	50	18.55	33.85	5.36	24.27	366	0.21
68	16.66	33.94	5.14	316	75	16.02	33.93	4.98	24.94	302	0.29
92	13.66	33.86	3.69	259	100	13.05	33.93	3.14	25.58	242	0.36
110	12.66	33.98	2.79	231	125	12.37	34.12	2.47	25.85	216	0.42
129	11.72	34.14	2.19	202	150	11.09	34.18	1.93	26.14	188	0.47
148	11.11	34.18	1.94	188	200	10.21	34.39	1.10	26.46	158	0.56
177	10.81	34.31	1.49	174	250	9.31	34.51	0.55	26.70	135	0.63
210	9.91	34.42	0.93	151	300	8.77	34.49	0.46	26.78	128	0.70
238	9.46	34.51	0.59	137	400	7.79	34.45	0.29	26.90	116	0.83
286	8.92	34.49	0.48	130	500	6.98	34.43	0.20	26.99	108	0.95
338	8.35	34.49	0.39	122	600	(6.17)					
420	7.65	34.45	0.27	115							
503	6.96	34.43	0.20	107							
587	6.27	-	-	-							

BLACK DOUGLAS; October 21, 1959; 1647 GCT; 26°03.5'N, 115°46.5'W; sounding, 2000 fm; wind, 330°, force 3; weather, cloudy; sea, moderate; wire angle, 20°.

127.60

0	21.63	33.99	4.84	433	0	21.63	33.99	4.84	23.57	433	0.00
9	21.62	33.98	4.82	433	10	21.62	33.98	4.83	23.57	433	0.04
28	21.62	33.98	4.88	433	20	21.62	33.98	4.85	23.57	433	0.09
37	19.63	33.86	5.45	391	30	21.50	33.97	4.96	23.59	431	0.13
46	17.82	33.71	5.17	359	50	17.40	33.70	5.26	24.44	350	0.21
60	16.80	33.70	5.45	336	75	15.72	33.75	5.44	24.88	308	0.29
75	15.72	33.75	5.44	308	100	13.32	33.75	4.26	25.38	260	0.36
93	13.85	33.73	4.50	272	125	11.95	33.91	3.26	25.78	223	0.42
116	12.28	33.85	3.73	234	150	11.35	34.11	2.10	26.04	198	0.48
133	11.72	33.98	2.70	214	200	10.70	34.41	1.04	26.38	165	0.57
161	11.17	34.22	1.75	187	250	10.46	34.62	0.41	26.60	145	0.65
188	10.71	34.32	1.36	172	300	10.02	34.61	0.33	26.67	138	0.72
215	10.76	34.52	0.68	158	400	8.52	34.53	0.33	26.85	121	0.86
250	10.46	34.62	0.41	145	500	7.11	34.43	0.60	26.98	109	0.98
305	9.96	34.61	0.32	137							
376	9.00	34.60	0.27	123							
447	7.54	34.42	0.51	116							
524	6.92	34.45	0.63	105							

BLACK DOUGLAS; October 21, 1959; 1203 GCT; 25°44'N, 116°24.5'W; sounding, 2000 fm; wind, 330°, force 4; weather, cloudy; sea, rough; wire angle, 10°.

127.70

0	22.76	34.25	4.84	444	0	22.76	34.25	4.81	23.45	444	0.00
10	22.80	34.27	4.89	444	10	22.80	34.27	4.89	23.45	444	0.04
29	22.80	34.27	4.96	444	20	22.80	34.27	4.94	23.46	443	0.09
39	21.34	34.27	5.38	405	30	22.80	34.27	4.96	23.46	443	0.13
49	20.21	34.20	5.50	381	50	20.10	34.19	5.50	24.15	378	0.22
64	18.32	34.08	5.45	343	75	17.41	34.08	5.29	24.73	322	0.30
79	17.05	34.08	5.20	314	100	13.88	33.82	4.36	25.32	266	0.38
99	13.94	33.82	4.40	267	125	12.15	33.81	3.70	25.66	234	0.44
124	12.18	33.81	3.71	235	150	10.88	33.89	3.14	25.95	206	0.50
144	11.02	33.86	3.25	211	200	10.17	34.19	1.80	26.31	172	0.59
174	10.31	34.02	2.51	187	250	9.82	34.40	1.07	26.52	152	0.68
204	10.14	34.23	1.64	169	300	9.21	34.42	0.73	26.65	140	0.75
234	9.95	34.36	1.24	156	400	7.91	34.42	0.38	26.85	121	0.89
273	9.62	34.43	0.82	146	500	7.18	34.46	0.23	27.00	107	1.01
332	8.70	34.40	0.68	133							
406	7.86	34.42	0.37	120							
479	7.36	34.47	0.23	109							
559	6.52	34.43	0.26	101							



SIO  
CCOFI  
5910

OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T_3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_3$	$\Delta D$
m	°C	‰	ml/L	$10^{-5}$ cm/g	m	°C	‰	ml/L	g/L	$10^{-5}$ cm/g	dyn. m

130.30 BLACK DOUGLAS; October 20, 1959; 0919 GCT; 26°29'N, 113°29'W; sounding, 46 fm; wind, 300°, force 3; weather, clear; sea, moderate; wire angle, 03°.

0	23.56	34.34	4.69	459	0	23.56	34.34	4.69	23.30	459	0.00
10	23.57	34.34	4.57	459	10	23.57	34.34	4.57	23.30	459	0.05
30	21.84	34.13	5.05	428	20	22.65	34.22	4.83	23.45	444	0.09
50	18.72	33.98	5.15	360	30	21.84	34.13	5.05	23.62	428	0.13
75	16.24	34.29	2.15	281	50	18.72	33.98	5.15	24.34	360	0.21
					75	16.24	34.29	2.15	25.16	281	0.29

130.35 BLACK DOUGLAS; October 20, 1959; 1150 GCT; 26°19'N, 113°48'W; sounding, 195 fm; wind, 320°, force 5; weather, cloudy; sea, very rough; wire angle, 12°.

0	25.64	34.63	4.56	498	0	25.64	34.63	4.56	22.89	498	0.00
10	25.66	34.61	4.60	500	10	25.66	34.61	4.60	22.87	500	0.05
30	25.67	34.67	4.56	496	20	25.66	34.63	4.58	22.88	499	0.10
49	19.23	34.00	4.60	371	30	25.67	34.67	4.56	22.91	496	0.15
73	15.64	33.96	4.17	292	50	19.10	34.00	4.60	24.24	369	0.24
98	14.50	34.31	1.92	243	75	15.36	33.98	4.01	25.12	285	0.32
122	12.60	34.27	1.64	209	100	14.38	34.31	1.87	25.60	240	0.38
162	11.99	34.58	0.50	175	125	12.56	34.31	1.57	25.96	205	0.44
201	11.38	34.60	0.40	162	150	12.18	34.51	0.78	26.20	183	0.49
251	10.36	34.54	0.48	149	200	11.41	34.60	0.40	26.41	163	0.58
					250	10.38	34.54	0.48	26.54	150	0.66

130.40 BLACK DOUGLAS; October 20, 1959; 1446 GCT; 26°08'N, 114°08.5'W; sounding, 1100 fm; wind, 330°, force 5; weather, overcast; sea, rough; wire angle, 18°.

0	25.62	34.60		499	0	25.62	34.60		22.88	499	0.00
9	25.64	34.58		502	10	25.64	34.58		22.85	502	0.05
33	21.30	34.06		419	20	25.62	34.58		22.86	501	0.10
39	20.08	34.04		389	30	23.60	34.30		23.26	463	0.15
44	19.28	34.09		365	50	18.13	34.08		24.56	339	0.23
72	14.80	33.99		272	75	14.80	34.03		25.29	269	0.30
96	14.15	34.25		240	100	14.07	34.30		25.65	235	0.37
115	13.51	34.50		209	125	13.39	34.58		26.00	202	0.42
135	13.25	34.60		197	150	12.39	34.48		26.12	190	0.48
164	11.44	34.34		183	200	10.39	34.37		26.42	162	0.56
192	10.39	34.33		165	250	10.22	34.49		26.53	151	0.64
231	10.44	34.45		157	300	10.01	34.58		26.64	141	0.72
260	10.08	34.51		147	400	8.38	34.49		26.84	122	0.86
308	10.01	34.60		139	500	7.27	34.48		26.99	108	0.98
370	8.82	34.50		128	600	6.38	34.46		27.09	98	1.09
469	7.54	34.48		111							
557	6.80	34.47		102							
631	6.08	34.46		93							

130.50 BLACK DOUGLAS; October 20, 1959; 1952 GCT; 25°52'N, 114°46.5'W; sounding, 2000 fm; wind, 320°, force 5; weather, cloudy; sea, rough; wire angle, 20°.

0	22.29	34.14	4.97	439	0	22.29	34.14	4.97	23.51	439	0.00
9	22.28	34.12	5.05	440	10	22.28	34.12	5.04	23.50	440	0.04
33	22.12	34.14	4.84	435	20	22.24	34.12	5.01	23.51	439	0.09
43	20.86	33.96	4.86	414	30	22.18	34.13	4.92	23.53	437	0.13
57	18.45	33.83	5.33	365	50	19.70	33.87	5.09	24.00	392	0.21
70	16.70	33.91	5.07	318	75	16.32	33.93	4.90	24.87	309	0.30
94	14.62	34.07	3.03	263	100	14.29	34.12	2.63	25.47	252	0.37
113	13.72	34.25	1.93	231	125	13.20	34.39	1.30	25.90	211	0.43
131	12.97	34.43	1.13	203	150	12.18	34.42	1.13	26.12	190	0.48
160	11.80	34.42	1.14	183	200	10.57	34.40	1.08	26.41	163	0.57
187	10.80	34.36	1.16	170	250	9.89	34.50		26.60	145	0.65
224	10.23	34.49	0.85	151	300	9.52	34.52		26.68	137	0.73
252	9.86	34.50	-	145	400	8.27	34.50	0.31	26.86	120	0.86
298	9.54	34.52	-	138	500	7.30	34.48	0.34	26.99	108	0.98
358	8.78	34.50	0.40	127	600	6.10	34.42	0.30	27.10	97	1.09
451	7.76	34.49	0.28	113							
536	6.90	34.45	0.39	105							
610	6.00	34.43	0.26	95							



OBSERVED					INTERPOLATED				COMPUTED			
Z	T	S	O <sub>2</sub>	$\delta T_3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_3$	$\Delta D$	
m	°C	‰	ml/L	$\frac{10^{-5}}{10 \text{ cm/g}}$	m	°C	‰	ml/L	g/L	$\frac{10^{-5}}{10 \text{ cm/g}}$	dyn. m	

SIO  
CCOFI  
5910

BLACK DOUGLAS; October 21, 1959; 0138 GCT; 25°29'N, 115°24'W; sounding, 2000 fm; wind, 330°, force 5; weather, cloudy; sea, very rough; wire angle, 10°.

130.60

1	23.36	34.35	4.66	453	0	(23.36)	(34.35)	(4.66)	(23.36)	(453)	(0.00)
11	23.40	34.40	4.60	451	10	23.40	34.40	4.60	23.38	451	0.05
31	23.06	34.38	4.71	443	20	23.33	34.40	4.61	23.40	449	0.09
40	20.26	34.22	5.28	380	30	23.08	34.38	4.69	23.46	443	0.13
55	19.18	34.21	5.35	355	50	19.52	34.22	5.34	24.30	363	0.22
71	18.08	34.08	5.24	338	75	17.60	34.05	5.16	24.66	329	0.30
95	15.66	33.98	4.90	291	100	15.29	33.96	4.80	25.12	285	0.38
115	13.46	33.86	3.85	255	125	12.94	33.86	3.51	25.54	245	0.45
134	12.06	33.89	2.86	227	150	11.59	33.98	2.56	25.89	212	0.51
154	11.48	34.03	2.47	206	200	10.78	34.34	1.37	26.31	172	0.60
183	11.13	34.29	1.54	181	250	10.17	34.48	0.73	26.54	150	0.69
217	10.36	34.34	1.30	164	300	10.13	34.63	0.27	26.66	139	0.76
246	10.17	34.47	0.81	151	400	8.59	34.51	0.23	26.82	124	0.90
295	10.19	34.63	0.27	140	500	7.18	34.44	0.20	26.98	109	1.02
349	9.30	34.54	0.27	132	600	6.33	34.47	0.32	27.11	96	1.13
432	8.16	34.49	0.21	119							
515	6.97	34.43	0.20	107							
601	6.32	34.47	0.32	96							

BLACK DOUGLAS; October 21, 1959; 0632 GCT; 25°09'N, 116°02'W; sounding, 1920 fm; wind, 320°, force 4; weather, cloudy; sea, very rough; wire angle, 06°.

130.70

1	23.36	34.38	4.81	451	0	(23.36)	(34.38)	(4.81)	(23.38)	(451)	(0.00)
11	23.38	34.38	4.71	452	10	23.38	34.38	4.71	23.37	452	0.05
31	23.40	34.39	4.74	451	20	23.40	34.39	4.74	23.38	451	0.09
41	23.38	34.42	4.80	449	30	23.40	34.39	4.74	23.38	451	0.14
57	20.08	34.04	5.48	389	50	20.85	34.11	5.44	23.87	404	0.22
71	18.64	34.02	5.39	355	75	18.08	34.00	5.33	24.50	344	0.31
96	15.16	33.84	4.56	290	100	15.10	33.95	4.06	25.15	282	0.39
116	15.02	34.22	2.49	260	125	13.91	34.16	2.33	25.58	242	0.46
136	12.90	34.10	2.20	226	150	12.24	34.19	1.90	25.93	208	0.52
155	12.17	34.20	1.85	206	200	12.47	34.69	0.36	26.27	176	0.62
185	12.72	34.63	0.49	184	250	11.52	34.70	0.21	26.46	158	0.70
222	12.00	34.70	0.28	166	300	10.78	34.67	0.20	26.58	146	0.78
252	11.48	34.70	0.18	157	400	8.86	34.51	0.27	26.78	128	0.92
302	10.74	34.67	0.20	146	500	7.47	34.47	0.23	26.95	111	1.05
358	9.33	34.50	0.35	136	600	6.47	34.45	0.26	27.08	99	1.16
442	8.42	34.51	0.16	122							
527	7.06	34.45	0.26	107							
610	6.42	34.45	0.25	98							

BLACK DOUGLAS; October 20, 1959; 0337 GCT; 26°04.5'N, 112°48'W; sounding, 45 fm; wind, 280°, force 4; weather, partly cloudy; sea, moderate; wire angle, 03°.

133.25

0	24.27	34.37	4.62	477	0	24.27	34.37	4.62	23.11	477	0.00
10	24.27	34.38	4.63	476	10	24.27	34.38	4.63	23.12	476	0.05
30	21.75	34.13	5.06	425	20	24.23	34.38	4.65	23.13	475	0.10
50	18.38	34.12	4.81	342	30	21.75	34.13	5.06	23.65	425	0.14
75	16.72	34.32	2.37	289	50	18.38	34.12	4.81	24.52	342	0.22
					75	16.72	34.32	2.37	25.08	289	0.30

BLACK DOUGLAS; October 20, 1959; 0100 GCT; 25°54.5'N, 113°07.5'W; sounding, 106 fm; wind, 320°, force 5; weather, clear; sea, rough; wire angle, 16°.

133.30

0	25.53	34.57	4.61	499	0	25.53	34.57	4.61	22.88	499	0.00
10	25.53	34.56	4.45	500	10	25.53	34.56	4.45	22.87	500	0.05
29	23.67	34.47	5.15	453	20	25.29	34.55	4.54	22.93	494	0.10
48	19.36	33.88	5.64	383	30	23.45	34.45	5.20	23.41	448	0.15
72	16.32	33.93	4.56	309	50	18.75	33.86	5.59	24.23	370	0.23
97	13.96	33.96	3.12	257	75	15.20	33.86	4.05	25.07	290	0.31
121	13.40	34.19	2.00	230	100	13.95	33.99	3.05	25.44	255	0.38
150	13.66	34.61	0.64	204	125	13.41	34.25	1.77	25.75	225	0.44
					150	13.66	34.61	0.64	25.98	204	0.50



SIO  
CCOFI  
5910

OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T_3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_3$	$\Delta D$
m	°C	‰	ml/L	10 <sup>-5</sup> cm/g	m	°C	‰	ml/L	g/L	10 <sup>-5</sup> cm/g	dyn. m

133.40

BLACK DOUGLAS; October 19, 1959; 1855 GCT; 25°34.5'N, 113°45.5'W; sounding, 1260 fm; wind, 330°, force 5; weather, partly cloudy; sea, rough; wire angle, 04°.

2	26.10	34.67	4.47	509	0	(26.10)	(34.67)	(4.47)	(22.77)	(509)	(0.00)
12	26.10	34.69	4.51	508	10	26.10	34.68	4.50	22.78	508	0.05
37	22.10	34.27	5.16	425	20	26.06	34.69	4.53	22.80	506	0.10
47	21.14	34.32	5.16	396	30	23.80	34.43	5.01	23.29	460	0.15
62	19.12	34.21	5.02	353	50	20.85	34.32	5.16	24.03	389	0.23
78	16.74	33.98	4.64	315	75	17.20	34.02	4.74	24.73	322	0.32
103	13.80	33.96	2.92	254	100	14.23	33.97	3.34	25.36	262	0.40
123	13.44	34.22	1.50	228	125	13.44	34.23	1.48	25.72	228	0.46
143	12.73	34.32	1.16	207	150	12.62	34.39	0.96	26.02	200	0.52
173	12.42	34.54	0.44	186	200	12.32	34.71	0.18	26.32	171	0.61
203	12.30	34.72	0.17	170	250	11.37	34.70	0.15	26.49	155	0.69
243	11.50	34.71	0.14	156	300	10.48	34.60	0.14	26.58	147	0.77
273	10.89	34.62	0.14	152	400	8.43	34.42	0.34	26.78	128	0.92
323	10.10	34.59	0.14	141	500	7.28	34.43	0.23	26.95	111	1.04
389	8.58	34.42	0.34	130	600	6.26					
489	7.38	34.43	0.24	112							
578	6.44	34.44	0.15	100							
653	5.88	-	-	-							

133.50

BLACK DOUGLAS; October 19, 1959; 1208 GCT; 25°15.5'N, 114°28'W; sounding, 1800 fm; wind, 320°, force 5; weather, cloudy; sea, high; wire angle, 15°.

0	25.84	34.52	4.37	512	0	25.84	34.52	4.37	22.74	512	0.00
9	25.84	34.56	4.31	509	10	25.83	34.56	4.31	22.77	509	0.05
33	25.77	34.56	4.43	507	20	25.82	34.56	4.31	22.77	509	0.10
43	20.25	34.05	5.34	393	30	25.81	34.56	4.35	22.78	508	0.15
58	17.48	33.96	5.05	333	50	19.40	34.01	5.29	24.18	375	0.24
72	15.44	33.91	4.00	291	75	14.80	33.92	3.58	25.21	277	0.32
97	13.02	34.01	2.82	236	100	12.98	34.06	2.66	25.69	231	0.39
116	12.62	34.16	1.91	217	125	12.62	34.27	1.45	25.92	209	0.44
135	12.60	34.42	0.99	198	150	12.29	34.45	0.89	26.12	190	0.50
165	11.88	34.48	0.81	180	200	11.74	34.65	0.43	26.38	165	0.58
195	11.78	34.64	0.45	166	250	11.12	34.61	0.34	26.47	157	0.67
234	11.29	34.61	0.37	160	300	10.69	34.62	0.30	26.56	148	0.75
262	11.00	34.62	0.31	154	400	9.42	34.58	0.22	26.74	131	0.89
311	10.58	34.62	0.31	147	500	7.32	34.47	0.22	26.99	108	1.02
376	9.82	34.60	0.23	136	600	5.34	34.48	0.21	27.25	83	1.12
471	8.04	34.49	0.23	117							
560	5.66	34.49	0.20	86							
633	5.19	34.48	0.22	82							

133.60

BLACK DOUGLAS; October 19, 1959; 0555 GCT; 24°54.5'N, 115°02'W; sounding, 2000 fm; wind, 320°, force 5; weather, clear; sea, very rough; wire angle, 32°.

1	24.53	34.40	4.62	482	0	(24.53)	(34.40)	(4.62)	(23.06)	(482)	(0.00)
9	24.52	34.40	4.66	482	10	24.51	34.40	4.67	23.06	482	0.05
26	23.94	34.31	4.90	472	20	24.46	34.40	4.70	23.07	481	0.10
35	21.17	33.96	5.18	423	30	22.82	34.17	5.05	23.37	452	0.14
48	18.84	-	-	-	50	18.78	33.80	5.20	24.18	375	0.23
61	18.61	33.80	5.21	371	75	17.12	33.86	4.86	24.63	332	0.31
81	16.60	33.89	4.64	318	100	14.52	34.06	2.80	25.38	261	0.39
98	14.65	34.05	2.93	265	125	12.08	34.09	2.14	25.89	212	0.45
115	13.32	34.24	1.88	224	150	10.62	33.98	2.15	26.07	195	0.50
132	11.33	34.00	2.28	206	200	10.48	34.35	1.14	26.38	165	0.59
157	10.56	34.02	2.09	191	250	9.92	34.47	0.95	26.58	147	0.67
211	10.47	34.42	0.96	160	300	9.38	34.50	0.52	26.69	136	0.75
253	9.86	34.47	0.95	146	400	8.18	34.45	0.37	26.84	122	0.88
300	9.38	34.50	0.52	136	500	7.18	34.44	0.27	26.98	109	1.00
371	8.50	34.45	0.44	127							
443	7.84	34.47	0.26	116							
522	6.92	34.43	0.28	106							



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

SIO  
CCOFI  
5910

BLACK DOUGLAS; October 19, 1959; 0003 GCT; 24°34.5'N, 115°39'W; sounding, 2000 fm; wind, 340°, force 5; weather, partly cloudy; sea, rough; wire angle, 15°.

133.70

0	23.60	34.28	4.59	465	0	23.60	34.28	4.59	23.24	465	0.00
10	23.60	34.22	4.50	469	10	23.60	34.22	4.50	23.19	469	0.05
29	23.52	34.22	4.56	467	20	23.58	34.22	4.51	23.19	469	0.09
39	22.03	33.14	4.79	433	30	23.51	34.22	4.55	23.22	466	0.14
54	19.10	33.99	5.24	368	50	19.63	34.02	5.20	24.12	380	0.22
93	14.57	33.79	4.03	282	75	16.18	33.85	4.69	24.84	312	0.31
112	13.69	34.10	2.33	248	100	14.41	33.91	3.53	25.28	270	0.39
132	12.76	34.16	1.96	220	125	12.78	34.11	2.02	25.76	224	0.45
151	12.66	34.35	1.27	204	150	12.66	34.35	1.27	25.98	204	0.50
181	11.53	34.47	0.87	175	200	11.67	34.65	0.41	26.40	164	0.60
215	11.73	34.70	0.26	161	250	11.14	34.64	0.24	26.49	155	0.68
244	11.23	34.65	0.24	156	300	10.55	34.60	0.18	26.57	148	0.76
292	10.68	34.61	0.19	150	400	8.70	34.49	0.25	26.80	126	0.90
346	9.76	34.59	0.26	136	500	7.13	34.41	0.26	26.96	111	1.02
429	8.13	34.46	0.23	121	600	(6.38)	(34.49)	(0.17)	(27.13)	(94)	(1.13)
513	6.96	34.41	0.26	109							
597	6.38	34.49	0.17	95							

BLACK DOUGLAS; October 17, 1959; 0844 GCT; 25°34'N, 112°19'W; sounding, 39 fm; wind, 280°, force 2; weather, partly cloudy; sea, slight; wire angle, 01°.

137.23

0	24.82	34.47	4.58	486	0	24.82	34.47	4.58	23.01	486	0.00
10	24.82	34.47	4.58	486	10	24.82	34.47	4.58	23.01	486	0.05
30	24.27	34.34	4.52	479	20	24.64	34.42	4.56	23.03	484	0.10
50	20.38	34.18	4.65	386	30	24.27	34.34	4.52	23.09	479	0.15
					50	20.38	34.18	4.65	24.06	386	0.23

BLACK DOUGLAS; October 17, 1959; 1213 GCT; 25°20'N, 112°46'W; sounding, 150 fm; wind, 280°, force 3; weather, clear; sea, moderate; wire angle, 03°.

137.30

0	25.32	34.54	4.59	495	0	25.32	34.54	4.59	22.92	495	0.00
9	25.32	34.56	4.42	494	10	25.30	34.56	4.42	22.93	494	0.05
29	23.78	34.30	4.58	468	20	24.71	34.49	4.48	23.06	481	0.10
49	20.4	34.22	5.23	384	30	23.69	34.30	4.58	23.21	467	0.15
74	17.80	34.09	4.41	330	50	20.40	34.22	5.23	24.09	383	0.23
98	15.40	34.30	2.37	262	75	17.78	34.09	4.39	24.66	329	0.32
123	15.32	34.47	1.53	248	100	15.38	34.32	2.29	25.38	260	0.40
163	14.42	34.72	0.46	211	125	15.32	34.48	1.48	25.54	246	0.46
203	12.70	34.69	0.17	180	150	14.98	34.68	0.79	25.74	226	0.52
253	11.41	34.69	0.09	156	200	12.84	34.69	0.18	26.20	182	0.62
					250	11.48	34.69	0.10	26.46	158	0.71

BLACK DOUGLAS; October 17, 1959; 1506 GCT; 25°10'N, 113°04.5'W; sounding, 600 fm; wind, 310°, force 3; weather, partly cloudy; sea, moderate; wire angle, 03°.

137.35

0	25.92	34.64	4.23	506	0	25.92	34.64	4.23	22.80	506	0.00
10	25.92	34.63	4.32	506	10	25.92	34.63	4.32	22.80	506	0.05
30	23.16	34.34	4.55	448	20	25.63	34.60	4.33	22.87	500	0.10
40	21.20	34.23	4.85	404	30	23.16	34.34	4.55	23.41	448	0.15
55	19.94	-	5.00	-	50	20.41	34.18	4.97	24.05	387	0.23
71	17.89	34.07	4.71	334	75	17.45	34.08	4.56	24.72	323	0.32
96	16.37	34.35	2.32	279	100	16.12	34.36	2.07	25.25	273	0.40
116	15.04a)	34.54	1.20	237	125	13.82	34.43	0.97	25.81	220	0.46
136	14.04a)	34.56	0.91	215	150	13.59	34.66	0.65	26.03	199	0.51
157	13.31	34.67	0.56	192	200	11.70	34.59	0.46	26.34	169	0.61
186	11.78	34.53	0.56	174	250	11.28	34.70	0.23	26.51	153	0.69
221	11.62	34.65	0.28	163	300	10.57	34.67	0.12	26.62	143	0.77
251	11.27	34.70	0.22	153	400	9.03	34.57	0.16	26.80	126	0.91
301	10.56	34.67	0.12	143	500	7.34	34.46	0.17	26.97	110	1.03
356	9.73	34.61	0.13	134	600	6.29	34.42	0.18	27.08	99	1.14
442	8.37	34.52	0.17	120							
527	6.91	34.53	0.17	106							
612	6.22	34.42	0.18	98							

a) A temperature inversion of about 1.5°C indicated by the bathythermograph observation was not entered in the temperature curve because it was below the grid on the card.

445







OBSERVED					INTERPOLATED				COMPUTED		
Z	T	S	O <sub>2</sub>	$\delta T_3$	Z	T	S	O <sub>2</sub>	$\sigma_t$	$\delta T_3$	$\Delta D$
m	°C	‰	ml/L	10 cm/g	m	°C	‰	ml/L	g/L	10 cm/g	dyn. m

SIO  
CCOFI  
5910

BLACK DOUGLAS; October 18, 1959; 0635 GCT; 24°20'N, 114°39.5'W; sounding, 1841 fm; wind, 320°, force 4; weather, cloudy; sea, rough; wire angle, 15°.

13760

0	25.04	34.45	4.32	494	0	25.04	34.45	4.32	22.93	494	0.00
10	25.02	34.47	4.56	492	10	25.02	34.47	4.56	22.95	492	0.05
29	24.99	34.45	4.55	492	20	25.02	34.46	4.50	22.95	492	0.10
39	19.67	34.10	5.35	374	30	24.99	34.45	4.55	22.95	492	0.15
53	15.74	33.94	4.53	296	50	16.60	34.00	4.78	24.86	310	0.23
68	13.42	33.86	3.81	254	75	13.40	34.02	2.96	25.57	242	0.30
91	14.18	34.65	0.83	211	100	13.86	34.68	0.56	25.98	204	0.35
111	13.54	34.67	0.42	197	125	13.29	34.71	0.36	26.12	190	0.40
130	13.22	34.72	0.34	187	150	12.78	34.75	0.32	26.26	177	0.45
149	12.82	34.75	0.32	178	200	11.70	34.68	0.25	26.42	162	0.54
177	12.21	34.71	0.20	169	250	10.81	34.62	0.25	26.54	151	0.62
210	11.48	34.67	0.30	159	300	10.17	34.56	0.33	26.61	144	0.69
239	10.96	34.63	0.25	153	400	8.55	34.51	0.27	26.83	124	0.83
286	10.40	34.58	0.31	147	500	7.19	34.47	0.24	27.00	107	0.95
340	9.30	34.50	0.40	135	600	(6.23)	(34.44)	(0.24)	(27.10)	(97)	(1.06)
421	8.28	34.50	0.25	120							
504	7.13	34.47	0.24	106							
587	6.34	34.44	0.24	98							

BLACK DOUGLAS; October 18, 1959; 1147, 1601 GCT; 23°58.5'N, 115°23'W; sounding, 2000+ fm; wind, 330°, force 4; weather, cloudy; sea, rough; wire angle, 10°, 05°.

13770

0	24.28	34.37	4.46	478	0	24.28	34.37	5.37	23.10	478	0.00
10	24.30	34.40	4.54	476	10	24.30	34.40	5.47	23.12	476	0.05
29	23.54	34.28	4.64	463	20	23.81	34.30	4.60	23.19	469	0.10
39	23.19	34.25	4.72	456	30	23.53	34.28	4.64	23.25	463	0.14
55	18.42	33.83	5.30	364	50	21.83	34.13	4.93	23.61	429	0.23
68	15.66a)	33.74	4.98	308	75	14.82	33.70	4.77	25.03	294	0.32
94	13.50a)	33.78	3.91	261	100	14.01	34.08	3.44	25.49	250	0.39
114	13.30a)	34.40	1.37	212	125	13.50	34.61	0.73	26.01	201	0.45
135	13.70	34.76	0.39	194	150	13.38	34.82	0.26	26.20	183	0.50
154	13.27	34.83	0.24	180	200	12.36	34.81	0.15	26.40	164	0.59
182	12.58	34.79	0.17	170	250	11.78	34.78	0.13	26.48	156	0.67
217	12.18	34.83	0.15	160	300	10.88	34.68	0.16	26.57	148	0.75
247	11.82	34.79	0.13	156	400	8.72	34.54	0.24	26.83	123	0.89
297	10.94	34.68	0.15	149	500	7.60	34.52	0.15	26.98	109	1.01
350	9.50	34.60	0.28	131	600	6.36	34.49	0.12	27.12	95	1.12
433	8.06	34.51	0.23	116	700	5.65	34.49	0.12	27.22	86	1.22
518	7.32	34.51	0.17	106	800	5.08	34.52	0.17	27.31	77	1.31
602	6.28	34.49	0.19	94	1000	4.23	34.56	0.32	27.43	66	1.48
					1200	3.64	34.60	0.53	27.53	57	1.62
396b)	8.95	34.56	0.13	126	1500	3.00	34.60	0.86	27.59	51	1.81
496	7.72	34.52	0.11	111	2000	2.14	34.65	1.73	27.70	40	2.09
595	6.47	34.49	0.11	96	2500	1.81	34.65	2.09			
695	5.68	34.49	0.13	86	3000	1.68	34.68	2.60			
795	5.10	34.52	0.17	78							
997	4.23	34.56	0.32	66							
1195	3.66	34.60	0.53	57							
1394	3.24	34.58	0.68	55							
1594	2.79	34.63	1.04	47							
1792	2.46	34.63	1.41	44							
1991	2.16	34.65	1.71	40							
2191	1.98	34.65	2.03	39							
2388	1.87	34.65	2.08	38							
2587	1.79	34.65	2.19	37							
2785	1.72	34.67	2.39	36							
2985	1.68	34.68	2.58	34							
3084	1.66	34.70	2.60	33							
3184	1.65	34.64r	2.58	-							

- a) A temperature inversion of about 2°C indicated by the bathythermograph observation was modified in the property curve because of poor agreement.  
 b) Overlapping casts; reconciliation of property curves when necessary.

51447



Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	10 Meters	
						Dir	Force			T	S
60.52-F	X-23	1215	37°54.0'	123°02.0'	40	340°	2	clear	moderate	12.41	33.63
63.55-F	21	1845	37°12.5'	122°50.0'	185	320°	4	cloudy	rough	14.21	33.58
67.50-F	19	1510	36°49.0'	122°05.0'	58	330°	1	partly cloudy	moderate	14.69	33.64
70.55-F	17	2150	36°03.5'	122°02.0'	750	-	1	overcast	slight	16.62	33.65
73.51-F	17	1555	35°35.5'	121°21.0'	200	-	1	fog	slight	16.44	33.65
77.50-F	15	2010	35°04.0'	120°52.0'	78	320°	4	clear	rough	17.80	33.69
87.50-F	11	2215	33°20.0'	119°39.5'	35	270°	2	cloudy	moderate	18.54	33.69
93.45-O	9	1405	32°20.0'	118°32.0'	-	-	-	missing	missing	19.85	33.66
93.55-O	9	2013	32°02.0'	119°12.5'	900	310°	3	partly cloudy	very rough	18.84	33.58
97.35-O	12	1100	32°02.0'	117°31.0'	525	300°	2	partly cloudy	moderate	20.22	33.68
97.45-O	12	0430	31°43.0'	118°09.0'	1200	300°	3	overcast	moderate	19.64	33.69
97.55-O	11	2242	31°23.0'	118°47.0'	300	310°	2	cloudy	slight	19.18	33.48
100.29-O	12	1935	31°42.0'	116°43.5'	70	330°	1	fog	slight	18.14	33.58
100.35-O	13	2320	31°31.0'	117°07.0'	650	290°	2	fog	slight	19.88	33.70
100.45-O	14	0540	31°11.0'	117°47.0'	2000	270°	2	cloudy	slight	20.30	33.73
100.55-O	14	1115	30°50.5'	118°27.0'	2000+	270°	2	overcast	slight	20.35	33.80
103.45-O	16	1129	30°32.5'	117°25.0'	1000	300°	2	cloudy	moderate	19.86	33.58
103.55-O	16	0606	30°14.0'	118°04.0'	2000	300°	2	cloudy	moderate	20.48	33.78
107.45-O	17	0950	30°02.0'	117°03.0'	1000+	300°	3	cloudy	rough	20.43	33.73
107.55-O	17	1530	29°42.0'	117°42.0'	2000	300°	3	cloudy	moderate	19.86	33.71

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
110.45-O	X-20	1351	29°26.0'	116°38.0'	500	320°	4	cloudy	very rough	21.05	33.87
110.55-O	20	0750	29°06.0'	117°19.0'	2000+	300°	4	cloudy	rough	21.44	33.94
113.45-B	29	0848	28°54.5'	116°20.0'	1000	240°	3	overcast	rough	20.80	33.94
113.55-B	29	0338	28°32.0'	116°57.0'	1700	270°	3	overcast	very rough	20.96	33.97
117.45-B	27	0450	28°18.0'	115°56.0'	1950	310°	5	overcast	rough	20.62	33.87
117.55-B	27	1015	27°58.0'	116°34.5'	2000	290°	5	overcast	very rough	20.98	33.95
120.40-B	24	2350	27°56.5'	115°14.0'	24	320°	4	clear	moderate	20.54	33.78
120.55-B	24	1545	27°25.0'	116°13.0'	1940	310°	4	partly cloudy	rough	22.28	34.14
123.55-B	23	0335	26°48.0'	115°49.5'	2000	320°	3	clear	moderate	22.09	34.07
127.45-B	22	0108	26°33.0'	114°48.5'	1650	330°	5	clear	rough	22.92	34.31
127.55-B	21	1930	26°13.5'	115°27.0'	1880	320°	4	partly cloudy	moderate	21.68	34.00
130.45-B	20	1710	25°58.5'	114°26.5'	2000	320°	5	cloudy	rough	24.97	34.54
130.55-B	20	2305	25°40.0'	115°06.0'	1900	330°	5	cloudy	very rough	23.24	34.22
133.35-B	19	2200	25°44.5'	113°26.5'	500	320°	4	partly cloudy	very rough	25.92	34.59
133.45-B	19	1550	25°24.0'	114°05.0'	1740	320°	5	cloudy	high	25.78	34.52
133.55-B	19	0905	25°05.0'	114°45.0'	2000	320°	5	cloudy	high	25.74	34.54
134.36-B	19	2055	25°37.5'	113°25.0'	75	330°	4	partly cloudy	very rough	25.92	34.60
137.45-B	17	2040	24°50.0'	113°43.0'	1750	300°	4	partly cloudy	rough	26.03	34.54
137.55-B	18	0225	24°30.0'	114°20.5'	1900	320°	4	missing	rough	25.60	34.52

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



## DISTRIBUTION LIST

Inter-American Tropical Tuna Commission  
(c/o Scripps Institution of Oceanography)

Mr. Edward B. Bennett  
Mr. T. J. Chow  
Dr. M. B. Schaefer

U. S. Bureau of Commercial Fisheries  
(c/o Scripps Institution of Oceanography)

Dr. E. H. Ahlstrom  
Mr. Frederick H. Berry  
Mr. Gerald V. Howard

Scripps Institution of Oceanography

Mrs. A. Alvarinho de Leira  
Dr. Leo D. Berner  
Dr. Maurice Blackburn  
Dr. Edward Brinton  
Dr. Abraham Fleminger  
Mr. Jeffery D. Frautschy  
Mr. John D. Isaacs  
Dr. Martin W. Johnson  
Mr. Hans T. Klein  
Mr. Garth I. Murphy  
Dr. C. B. Murty  
Mr. Joseph L. Reid, Jr.  
Dr. Roger Revelle  
Mrs. Margaret K. Riedel  
Mrs. Margaret K. Robinson  
Mr. Gunnar I. Roden  
Dr. Richard H. Rosenblatt  
Mr. Richard A. Schwartzlose  
Mr. Charles G. Worrall (20)  
Library (4)  
Library, SFA



MR. D. L. ALVERSON  
CHIEF, NO. PAC. FISHERIES EXPLORATIO  
& GEAR RESEARCH  
2725 MONTLAKE BLVD.  
SEATTLE 2, WASH.

DR. ERNEST R. ANDERSON  
CODE 2233  
U. S. NAVY ELECTRONICS LABORATORY  
SAN DIEGO 52, CALIFORNIA

MR. WILLIAM ANDERSON  
BUREAU OF COMMERCIAL FISHERIES  
BIOLOGICAL LABORATORY  
BRUNSWICK, GEORGIA

MR. THOMAS S. AUSTIN  
BUREAU OF COMMERCIAL FISHERIES  
BIOLOGICAL LABORATORY  
% NATIONAL OCEANOGRAPHIC DATA CENTER  
WASHINGTON 25, D. C.

MR. WILLIAM E. BATZLER  
CODE 2232  
U. S. NAVY ELECTRONICS LABORATORY  
SAN DIEGO 52, CALIFORNIA

MR. W. R. BEYER  
DIRECTOR OF PURCHASING  
FLORIDA STATE UNIVERSITY  
TALLAHASSEE, FLORIDA

DR. ROLF BOLIN  
HOPKINS MARINE STATION  
PACIFIC GROVE, CALIFORNIA

BRITISH JOINT SERVICES  
(NAVY STAFF)  
1910 K ST. N. W.  
WASHINGTON, D. C.

CAPT. E. B. BROWN  
U. S. COAST AND GEODETIC SURVEY  
417 S. HILL ST. ROOM 535  
LOS ANGELES 13, CALIFORNIA

LABORATORY DIRECTOR  
BUREAU OF COMMERCIAL FISHERIES  
BIOLOGICAL LABORATORY  
U. S. FISH AND WILDLIFE SERVICE  
WASHINGTON 25, D. C.

LIBRARIAN  
BUREAU OF COMMERCIAL FISHERIES  
BIOLOGICAL LABORATORY  
P. O. BOX 3830  
HONOLULU 12, HAWAII

LABORATORY DIRECTOR  
BUREAU OF COMMERCIAL FISHERIES  
ICHTHYOLOGICAL LABORATORY  
U. S. NATIONAL MUSEUM  
WASHINGTON 25, D. C.

MR. J. G. BURNETTE, CHAIRMAN  
MARINE RESEARCH COMMITTEE  
P. O. BOX 807  
LOS ALTOS, CALIFORNIA

DR. WAYNE V. BURT  
ASSOC. PROF. OF OCEANOGRAPHY  
SCHOOL OF SCIENCE  
OREGON STATE COLLEGE  
CORVALLIS, OREGON

LIBRARIAN 4  
DEPARTMENT OF FISH AND GAME  
CALIFORNIA STATE FISHERIES LAB.  
TERMINAL ISLAND, CALIFORNIA

CAPTAN DE NAVIO  
LUIS R. A. CAPURRO  
SERVICIO DE HIDROGRAFIA NAVAL  
AVENIDA MONTES DE OCA 2124  
BUENOS AIRES, ARGENTINA

LIBRARY  
OCEANOGRAPHIC GROUP  
CENTRAL FISHERIES EXPERIMENT STATION  
PUSAN, KOREA

MR. HAROLD B. CLEMENS, JR.  
MARINE RESOURCES OPERATIONS  
CALIFORNIA STATE FISHERIES LAB.  
TERMINAL ISLAND, CALIFORNIA

CHIEF, DIVISION OF FISHERIES  
COMMONWEALTH SCIENTIFIC &  
INDUST. RESEARCH ORG.  
P. O. BOX 21  
CRUNULLA, NSW, AUSTRALIA

DR. G. M. CRESSWELL  
DEPARTMENT OF EARTH SCIENCES  
STANFORD RESEARCH INSTITUTE  
MENLO PARK, CALIFORNIA

MR. R. S. CROKER, DIRECTOR  
CALIF. DEPT. OF FISH AND GAME  
MARINE FISHERIES LABORATORY BRANCH  
772 CAPITOL AVENUE  
SACRAMENTO 14, CALIFORNIA

HERRN PROF. DR. A. DEFANT  
STERNWARTSTRASSE 38  
INNSBRUCK  
AUSTRIA

DEUTSCHE AKADEMIE DER  
WISSENSCHAFTEN ZU BERLIN  
INSTITUT FUR MEERESKUNDE  
WARNEHUNDE, SEESTR. 15  
BERLIN, GERMANY

DEUTSCHES HYDROGRAPHISCHES INSTITUT  
BERNHARD-NOCHT-STR. 78  
HAMBURG 4, GERMANY

DIRECCION GENERAL DE PESCA E  
INDUSTRIAS CONEXAS  
ESTACION DE BIOLOGIA MARINA  
CASA DEL MARINA  
MAZATLAN, SINALOA, MEXICO

CHIEF  
DIVISION OF BIOLOGICAL RESEARCH  
BUREAU OF COMMERCIAL FISHERIES  
U. S. DEPARTMENT OF THE INTERIOR  
WASHINGTON 25, D. C.

MR. ROBERT L. EBERHARDT  
TECHNOLOGY - ASW & OCEAN SYSTEMS  
LOCKHEED AIRCRAFT CORPORATION  
CALIFORNIA DIVISION  
BURBANK, CALIFORNIA

DR. S. A. EL WARDANI  
SCIENCES  
SAN JOSE STATE COLLEGE  
SAN JOSE, CALIFORNIA

DIRECTOR OF RESEARCH  
FISH COMMISSION OF OREGON  
ROUTE 1, BOX 31A  
CLACKAMAS, OREGON

DR. RICHARD H. FLEMING  
UNIVERSITY OF WASHINGTON  
OCEANOGRAPHIC LABORATORIES  
SEATTLE 5, WASHINGTON

DR. PAUL M. FYE  
WOODS HOLE OCEANOGRAPHIC INST.  
WOODS HOLE, MASSACHUSETTS

PROF. JAMES A. GAST  
DIVISION OF NATURAL RESOURCES  
HUMBOLDT STATE COLLEGE  
ARCATA, CALIFORNIA

DR. ROBERT H. GIBBS, JR.  
DEPT. OF BIOLOGY  
BOSTON UNIVERSITY  
BOSTON 15, MASS.

MR. RAFAEL SOTO GIL  
SECRETARIO GENERAL  
UNIVERSIDAD DE BAJA CALIFORNIA  
MEXICALI, B. C.  
MEXICO

MR. C. G. GUNNERSON  
DEPARTMENT OF WATER RESOURCES  
DIVISION OF RESOURCES PLANNING  
P. O. BOX 388  
SACRAMENTO 2, CALIFORNIA

HANCOCK LIBRARY OF BIOLOGY & OCEANOGRAPHY  
ALLAN HANCOCK FOUNDATION  
UNIVERSITY OF SO. CALIF.  
LOS ANGELES 7, CALIF.

DR. WILLIAM J. HARGIS, JR., DIRECTOR  
VIRGINIA INSTITUTE OF MARINE  
SCIENCES  
GLOUCESTER POINT, VIRGINIA

MR. JOHN HAWK  
% SEAFARERS' INTERNATIONAL UNION OF  
NORTH AMERICA  
450 HARRISON STREET  
SAN FRANCISCO 5, CALIFORNIA

DR. ROBERT W. HIATT  
UNIVERSITY OF HAWAII  
HONOLULU 12, HAWAII

MR. T. HIRANO  
TOKAI REGIONAL FISHERIES  
RESEARCH LABORATORY  
TSUKUSHIMA  
TOKYO, JAPAN

DIRECTOR 2  
IGY, WDC-A, OCEANOGRAPHY  
TEXAS A. AND M. COLLEGE  
COLLEGE STATION, TEXAS

DIR.. INST. DE GEOFISICA  
TORRE DE CIENCIAS, 3ER PISO  
UNIVERSIDAD NACIONAL AUTONOMA  
DE MEXICO  
VILLA OBREGON, D. F., MEXICO

DR. W. C. JACOBS, DIRECTOR  
NATIONAL OCEANOGRAPHIC DATA CENTER  
WASHINGTON 25, D. C.

JAPAN METEOROLOGICAL AGENCY  
OCEANOGRAPHIC SECTION  
TOKYO, JAPAN

MR. ALPHONSE KEMMERICH, EXEC. DIR.  
PACIFIC MARINE FISHERIES COMMISSION  
741 STATE OFFICE BUILDING  
1400 S. W. FIFTH AVENUE  
PORTLAND 1, OREGON

DR. H. KITAMURA  
OCEANOGRAPHIC SECTION  
KOBE MARINE OBSERVATORY  
KOBE, JAPAN

DR. E. KOTO  
INSTITUTE OF FISHERIES  
HOKKAIDO UNIVERSITY  
HAKODATE, JAPAN

DR. E. C. LA FOND  
CODE 2250  
U. S. NAVY ELECTRONICS LABORATORY  
SAN DIEGO 52, CALIFORNIA

DR. JOHN LYMAN  
NATIONAL SCIENCE FOUNDATION  
WASHINGTON 25, D. C.

MR. JOSEPH M. MARDESICH  
1513 WEST FIFTEENTH STREET  
SAN PEDRO, CALIFORNIA

MR. JOHN C. MARR, REGIONAL DIRECTOR  
BUREAU OF COMMERCIAL FISHERIES  
P. O. BOX 3830  
HONOLULU 12, HAWAII



MR. JOTARO MASUZUWA  
OCEANOGRAPHICAL SECTION  
JAPAN METEOROLOGICAL AGENCY  
TOKYO, JAPAN

DR. HUGH J. McLELLAN  
DEPARTMENT OF OCEANOGRAPHY  
TEXAS A. AND M. COLLEGE  
COLLEGE STATION, TEXAS

MR. ARTHUR H. WENDONCA  
R. E. BOOTH COMPANY, INC.  
280 BATTERY STREET  
SAN FRANCISCO 11, CALIFORNIA

DR. R. C. MILLER, DIRECTOR  
CALIFORNIA ACADEMY OF SCIENCE  
GOLDEN GATE PARK  
SAN FRANCISCO 18, CALIFORNIA

LIBRARIAN  
MINISTRY OF AGRICULTURE, FISHERIES  
AND FOOD  
FISHERIES LABORATORY  
LOWESTOFT, SUFFOLK, ENGLAND

MR. JOHN V. MORRIS  
FRENCH SARDINE COMPANY  
582 TUNA STREET  
TERMINAL ISLAND, CALIFORNIA

NATIONAL MARINE CONSULTANTS, INC.  
1500 CHAPALA STREET  
SANTA BARBARA, CALIFORNIA

CHIEF OF NAVAL RESEARCH  
OFFICE OF NAVAL RESEARCH  
GEOPHYSICS BRANCH  
WASHINGTON 25, D. C.

MR. A. W. H. NEEDLER, DIRECTOR  
PACIFIC BIOLOGICAL STATION  
NANAIHO, B. C.  
CANADA

DR. KENNETH S. NORRIS  
UNIVERSITY OF CALIFORNIA  
DEPT. OF ZOOLOGY  
LOS ANGELES 24, CALIF.

MR. ROBERT M. NORRIS  
DEPT. OF PHYSICAL SCIENCES  
UNI. OF CALIF.  
SANTA BARBARA CAMPUS  
GOLETA, CALIF.

DIRECTOR  
NORWEGIAN POLAR INSTITUTE  
OBSERVATORIEGT 1  
OSLO, NORWAY

SR. RAUL E. OCAMPO T.  
INSTITUTO DE GEOPISICA  
CIUDAD UNIVERSITARIA  
MEXICO 20, D.F., MEXICO

DR. YNGVE H. OLSEN  
JOURNAL OF MARINE RESEARCH  
YALE UNIVERSITY  
NEW HAVEN, CONN.

ING. GILBERTO HARO OSIO  
CALLE F Y MADERO  
EDIFICIO NUEVA DELHI NO. 3  
MEXICALI, B.C.  
MEXICO

DR. ROBERT G. PAQUETTE  
GENERAL MOTORS CORPORATION  
DEFENSE SYSTEMS DIVISION  
BOX T  
SANTA BARBARA, CALIFORNIA

DR. G. L. PICKARD  
INST. OF OCEANOGRAPHY  
UNIVERSITY OF BRITISH COLUMBIA  
VANCOUVER, B. C.  
CANADA

DR. G. POGADE, LIBRARIAN  
DEUTSCHER WETTERDIENST SEEWETTERAMT  
HAMBURG, GERMANY

DR. D. W. PRITCHARD, DIRECTOR  
CHESAPEAKE BAY INSTITUTE  
THE JOHNS HOPKINS UNIVERSITY  
121 MARTLAND HALL  
BALTIMORE 18, MARYLAND

MR. D. W. PRIVETT, LIBRARIAN  
NATL. INST. OF OCEANOGRAPHY  
WORMLEY  
NEAR GODALMING  
SURREY, ENGLAND

PUBLICATIONS OFFICE  
101 UNIVERSITY HALL  
THE UNIVERSITY OF CALIFORNIA  
2200 UNIVERSITY AVE.  
BERKELEY 4, CALIF.

PUSAN FISHERIES COLLEGE  
PUSAN  
KOREA

MR. JOHN RADOVICH  
CALIF. DEPT. OF FISH AND GAME  
CALIFORNIA STATE FISHERIES LAB.  
TERMINAL ISLAND, CALIFORNIA

DR. G. A. RILEY  
BINGHAM OCEANOGRAPHIC FOUNDATION  
YALE UNIVERSITY  
NEW HAVEN, CONN.

DIRECTOR PEDRO MERCADO SANCHEZ  
ESCUELA SUPERIOR CIENCIAS MARINAS  
UNIVERSIDAD AUTONOMA DE BAJA CALIF.  
APARTADO DE CORREOS 453  
ENSENADA, B. C., MEXICO

MR. DON T. SAXBY  
CALIFORNIA DIVISION  
CALIFORNIA PACKING CORPORATION  
2600 SEVENTH STREET  
BERKELEY 10, CALIFORNIA

DR. O. E. SETTE, CHIEF  
BUREAU OF COMMERCIAL FISHERIES  
BIOLOGICAL LABORATORY  
450-B JORDAN HALL  
STANFORD, CALIFORNIA

MR. W. T. SHANNON  
CALIF. DEPT. OF FISH AND GAME  
926 J STREET  
SACRAMENTO 14, CALIFORNIA

MR. D. SHOJI  
JAPANESE HYDROGRAPHIC OFFICE  
TSUKIJI  
TOKYO, JAPAN

DR. REIMER SIMONSEN  
INSTITUT FUR MEERESKUNDE  
HOHENBERGSTRASSE 2  
KIEL, GERMANY

MR. W. E. STEWART  
% CALIF. STATE CHAMBER OF COMMERCE  
350 BUSH STREET  
SAN FRANCISCO 4, CALIFORNIA

PROF. HENRY M. STONNELL  
HARVARD UNIVERSITY  
PERCE HALL  
CAMBRIDGE 38, MASSACHUSETTS

MISS MARGARET STORY, LIBRARIAN  
NATURAL HISTORY MUSEUM  
STANFORD, CALIF.

MR. Y. TAKENOUTI  
OCEANOGRAPHICAL SECTION  
JAPAN METEOROLOGICAL AGENCY  
CHUO-KU  
TOKYO, JAPAN

MR. NORMAN TEBBLE  
ANNELIDA SECTION  
BRITISH MUSEUM, NATURAL HISTORY  
CROMWELL ROAD  
LONDON SW 7, ENGLAND

DEPARTMENT OF OCEANOGRAPHY  
TEXAS A. AND M. COLLEGE  
COLLEGE STATION, TEXAS

MR. A. J. THOMSON  
OFFICIAL SECRETARY  
NEW SOUTH WALES GOVERNMENT OFFICES  
56, STRAND  
LONDON, W. C. 2, ENGLAND

DR. R. B. TIBBY  
HANCOCK FOUNDATION  
U. OF SOUTHERN CALIFORNIA  
UNIVERSITY PARK  
LOS ANGELES 7, CALIFORNIA

MR. M. UDA  
TOKYO U. OF FISHERIES  
MINATO-KU  
TOKYO, JAPAN

LIBRARIAN  
U. S. COAST AND GEODETIC SURVEY  
WASHINGTON 25, D. C.

U. S. FISH AND WILDLIFE SERVICE  
TIBURON MARINE LABORATORY  
P. O. BOX 99  
TIBURON, CALIFORNIA

U. S. HYDROGRAPHIC OFFICE 2  
NAVY DEPARTMENT  
WASHINGTON 25, D. C.  
ATTN- DR. BOYD E. OLSEN  
DIVISION OF OCEANOGRAPHY

LIBRARIAN  
U. S. NAVAL CIVIL ENGINEERING LAB.  
PORT HUENENE, CALIFORNIA

U. S. NAVY ELECTRONICS LABORATORY  
SAN DIEGO 52, CALIF.  
ATTN. CODE 2420, LIBRARY 2

UNIVERSITY OF CALIFORNIA  
DEPARTMENT OF ZOOLOGY  
BERKELEY 4, CALIF.

UNIVERSITY OF CALIFORNIA 2  
SERIALS DEPARTMENT  
GENERAL LIBRARY  
BERKELEY 4, CALIFORNIA

DIRECTOR  
UNIVERSITY OF MIAMI  
MARINE LABORATORY  
CORAL GABLES, FLORIDA

LIBRARIAN  
UNIVERSITY OF WASHINGTON  
OCEANOGRAPHIC LABORATORIES  
FRIDAY HARBOR, WASH.

LIBRARIAN  
UNIVERSITY OF WASHINGTON  
OCEANOGRAPHIC LABORATORIES  
SEATTLE 5, WASH. 2

DIRECTOR  
UNIVERSITY OF WASHINGTON  
SCHOOL OF FISHERIES  
SEATTLE 4, WASH.

MR. GILBERT C. VAN CAMP, SR.  
772 TUNA STREET  
TERMINAL ISLAND, CALIFORNIA

MR. RICHARD C. VETTER  
SEC'Y. TO COMM. ON OCE.  
NATIONAL ACADEMY OF SCIENCE  
2101 CONSTITUTION AVENUE  
WASHINGTON 25, D.C.

DR. B. W. WALKER  
UNIVERSITY OF CALIFORNIA  
DEPARTMENT OF ZOOLOGY  
LOS ANGELES 24, CALIF.

DR. M. PAT WENNEKENS  
OCEANIC RESEARCH DIV. - CODE 508  
NAVAL ORDNANCE TEST STATION  
CHINA LAKE, CALIFORNIA

DR. KOZO YOSHIDA  
GEOPHYSICAL INST.  
TOKYO UNIVERSITY  
TOKYO, JAPAN