

UNIVERSITY OF CALIFORNIA SCRIPPS INSTITUTION OF OCEANOGRAPHY

data report

PHYSICAL AND CHEMICAL DATA

CCOFI Cruise 5903
11-28 March 1959

SIO Reference 60-36
15 February 1960

UNIVERSITY OF CALIFORNIA
SCRIPPS INSTITUTION OF OCEANOGRAPHY

PHYSICAL AND CHEMICAL DATA

CCOFI CRUISE 5903

11-28 March 1959

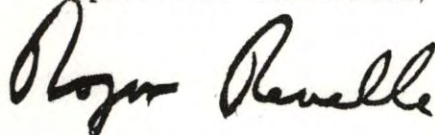
Sponsored by

Marine Research Committee

SIO Reference 60-20

15 February 1960

Approved for distribution;




Roger Revelle, Director

CONTENTS

List of Figures	ii
Introduction	iii
Personnel	v
Tabulated Data	105
Distribution List	123

FIGURES

1. CCOFI Cruise 5903, 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

Approved for distribution

Roger Revelle, Director

INTRODUCTION

The data presented in this report were collected on the one hundred and eighteenth consecutive cruise of the California Cooperative Oceanic Fisheries Investigations program. The R/V Orca, the R/V Paolina-T and the R/V Stranger of the Scripps Institution participated in this cruise.

The data are tabulated at observed depths, and the interpolated and computed values are tabulated at standard depths. They are accompanied by charts of horizontal distribution. The presentation of data in this report does not constitute publication; however, the data contained in this report have been carefully edited and no modifications should be necessary before final publication.

STANDARD PROCEDURES

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

To indicate degree of accuracy, temperatures are recorded in tenths of a degree when obtained by bucket thermometer, thermograph, or bathythermograph, while temperatures from reversing thermometers are recorded in hundredths of a degree. Extrapolated values and values interpolated between remote observations are entered within parentheses. A hyphen is used to indicate a missing observed value. The time is the time of messenger release. When more than one cast was made on a station, messenger times and wire angles are given in the order of increasing depth. A line is left blank between the observed data of each cast.

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

FOOTNOTES

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

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

p: pretrip or posttrip.

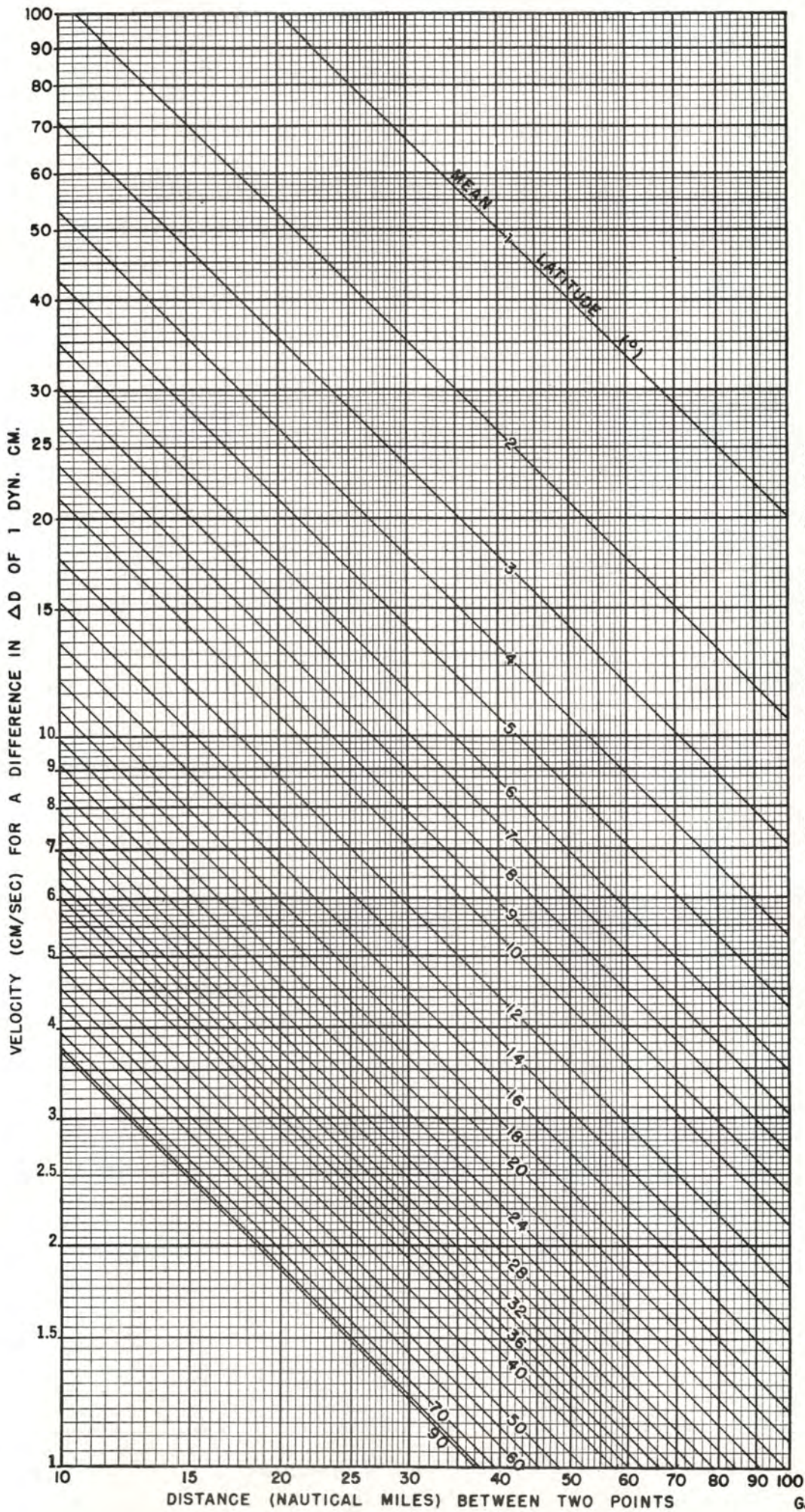
Values which are not drawn through because they seem to be in error without apparent reason are indicated by one of the following notations.

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

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

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 5903 data is numbered 105.



VELOCITY OF GEOSTROPHIC FLOW

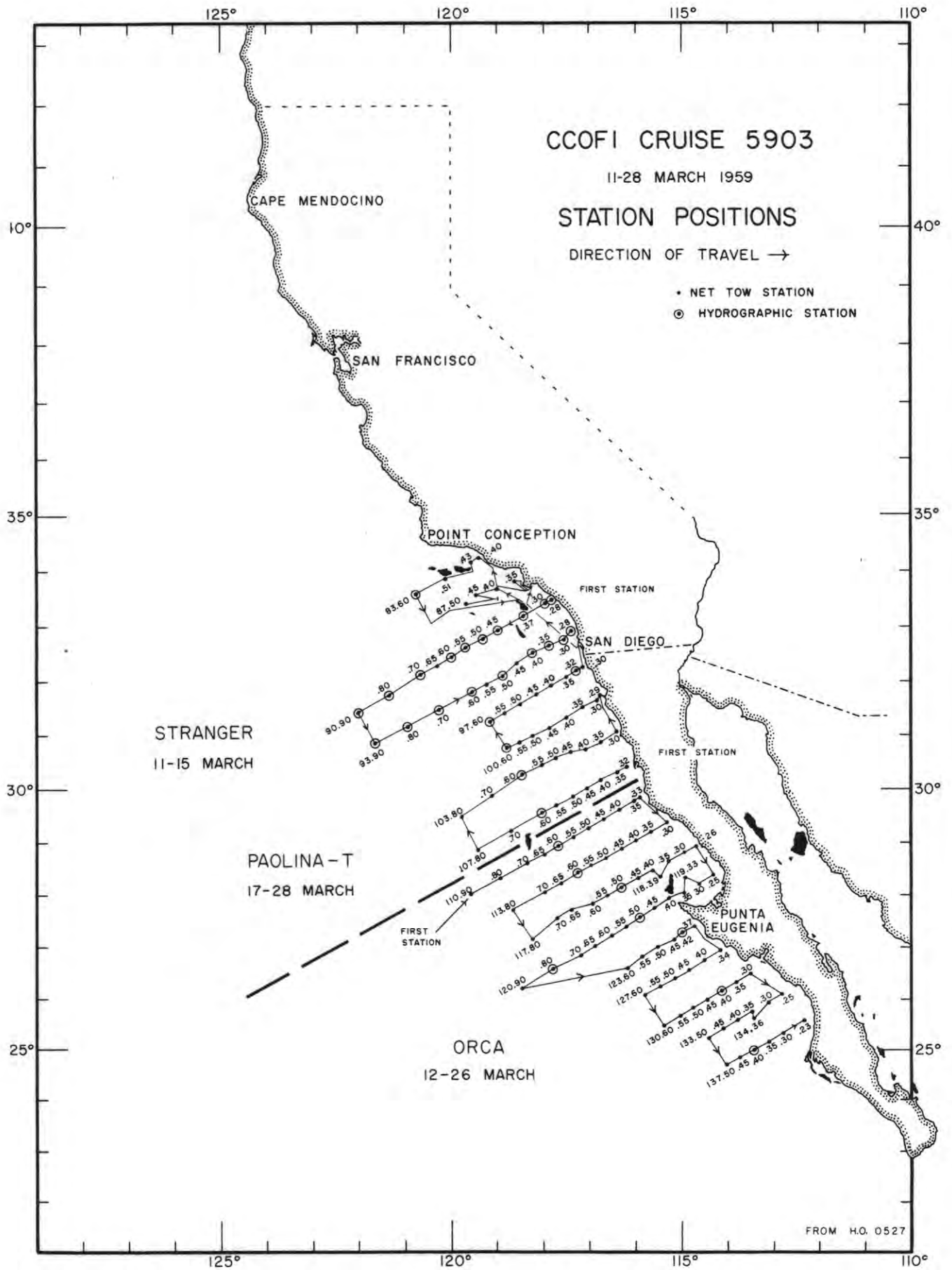


FIGURE 1

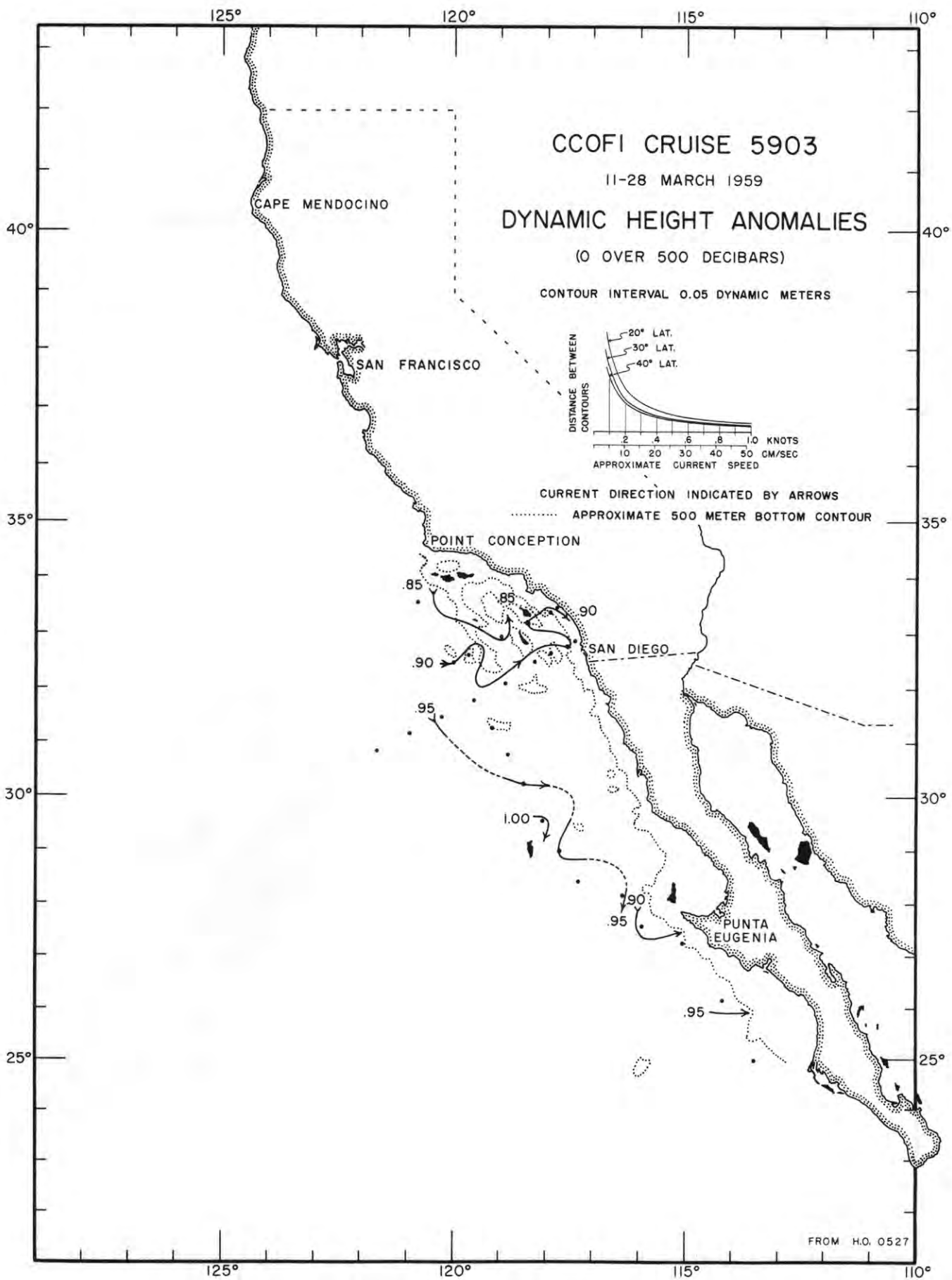


FIGURE 2

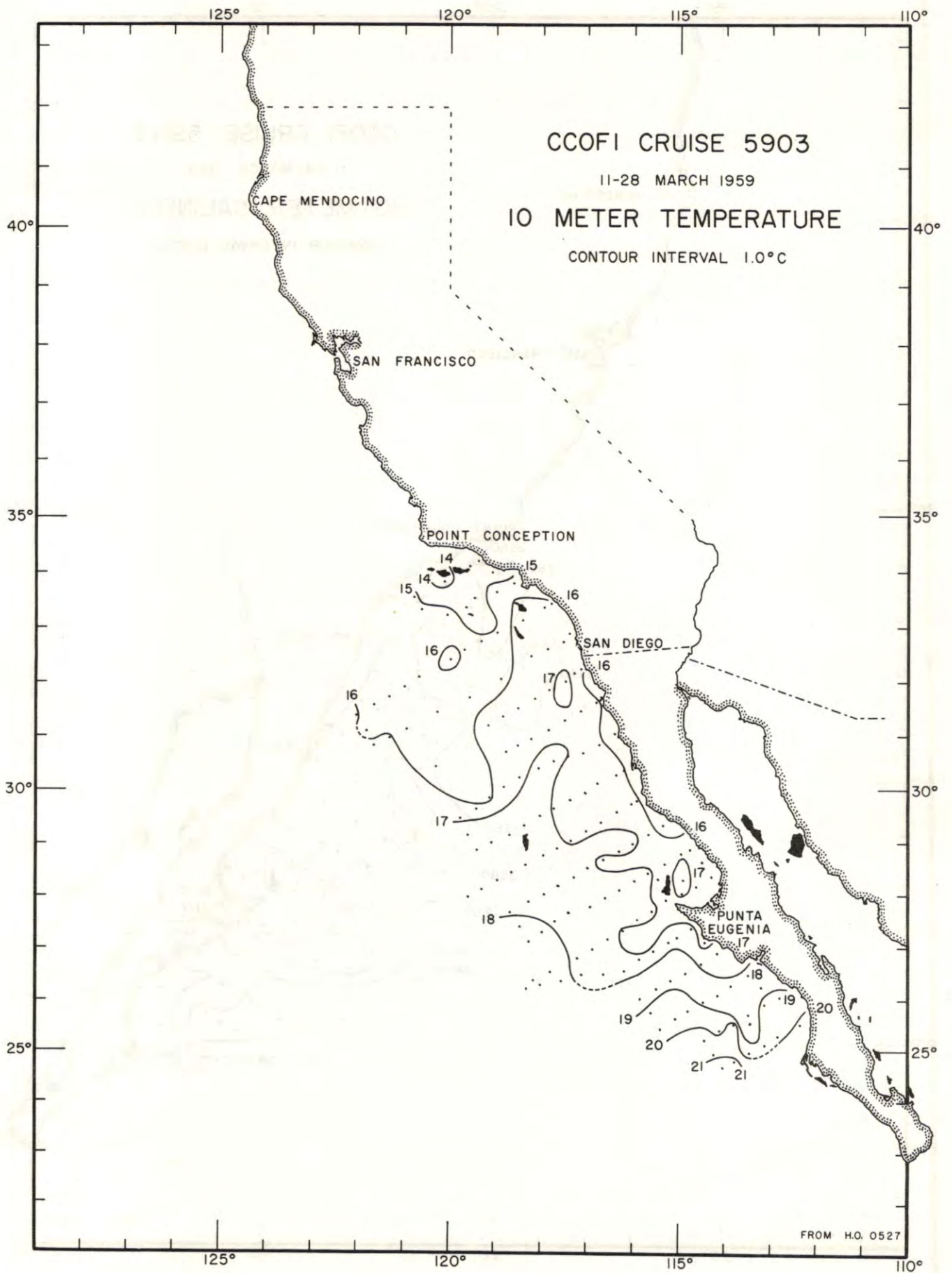


FIGURE 3

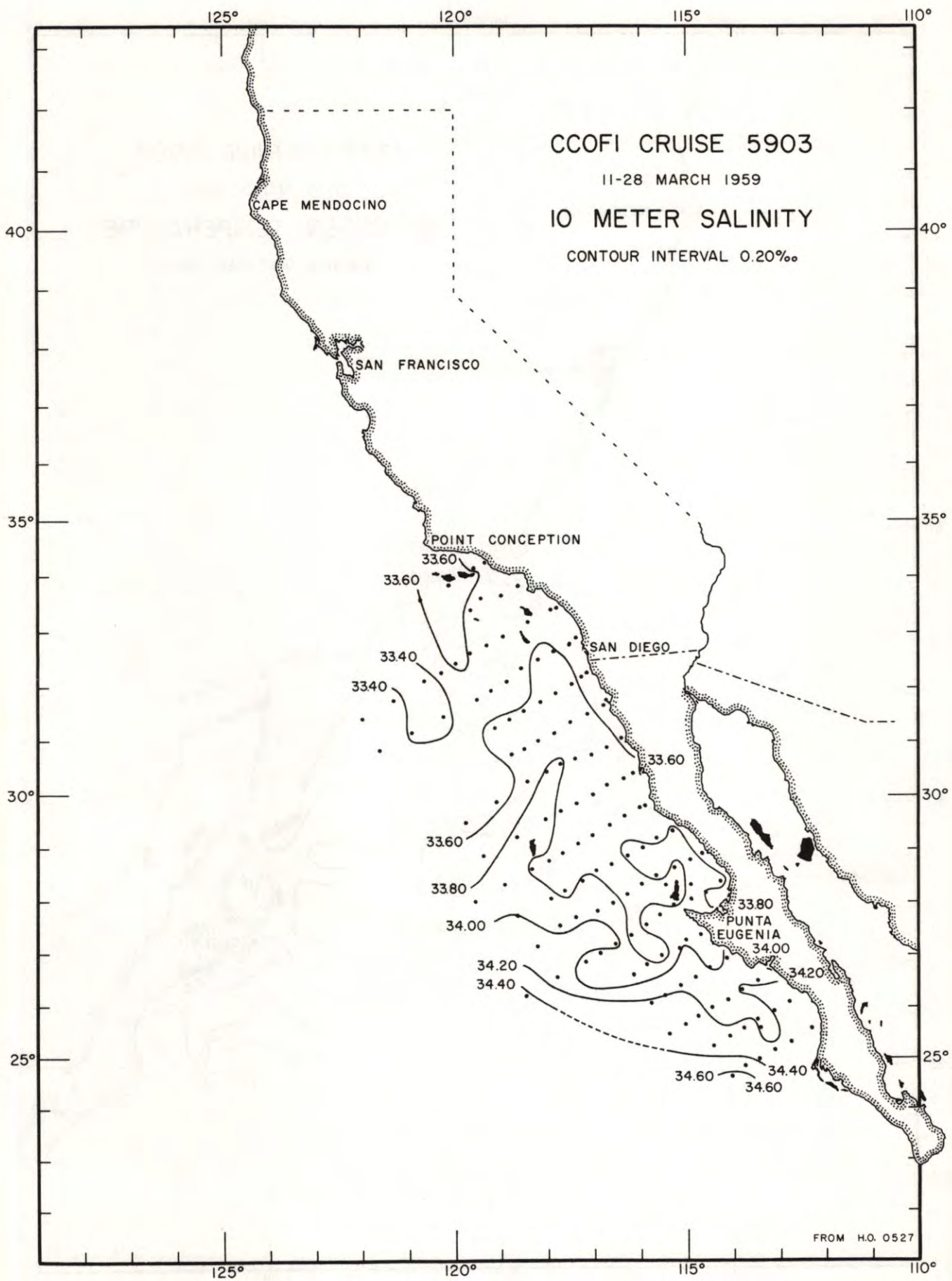


FIGURE 4

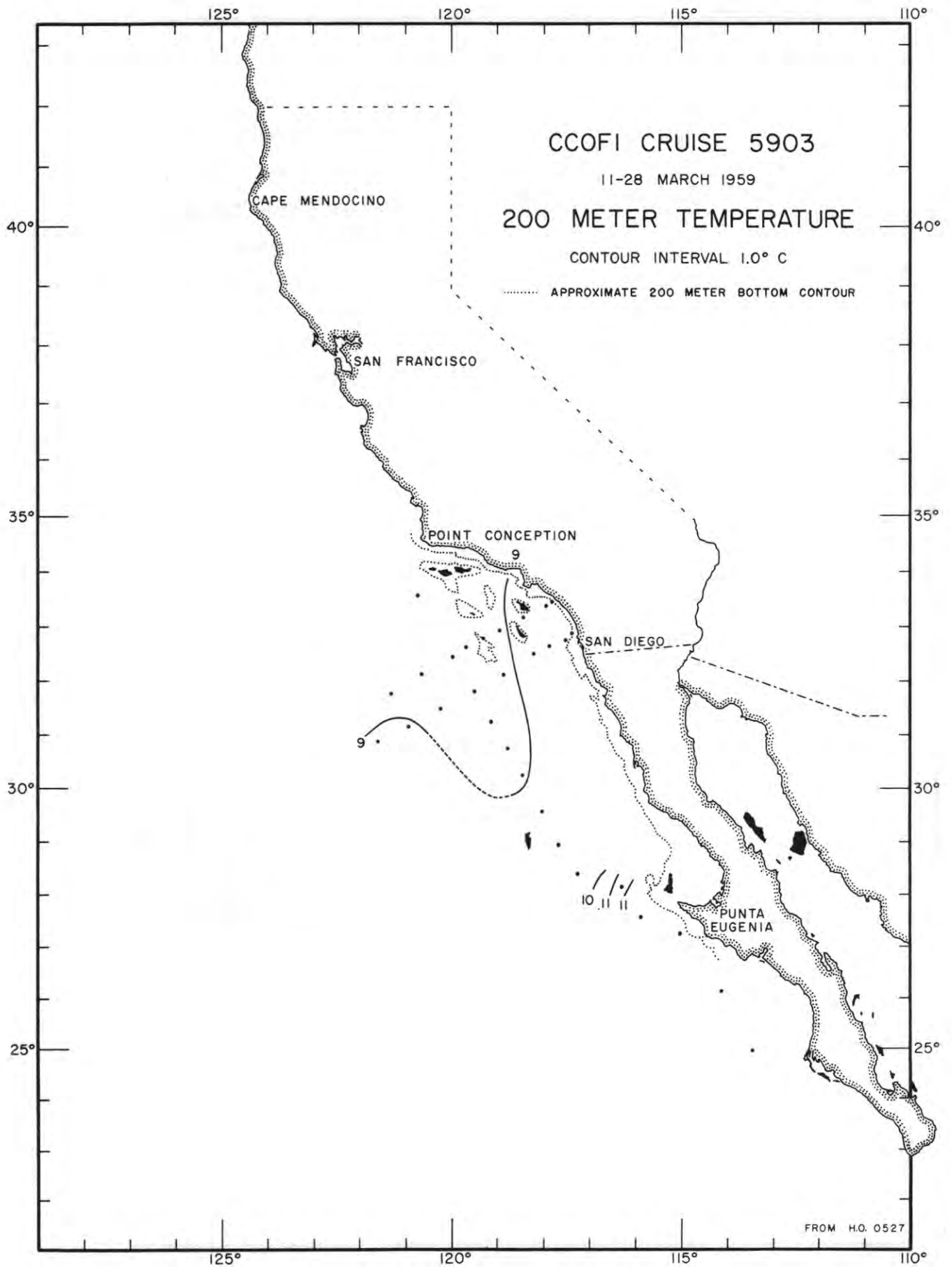


FIGURE 5

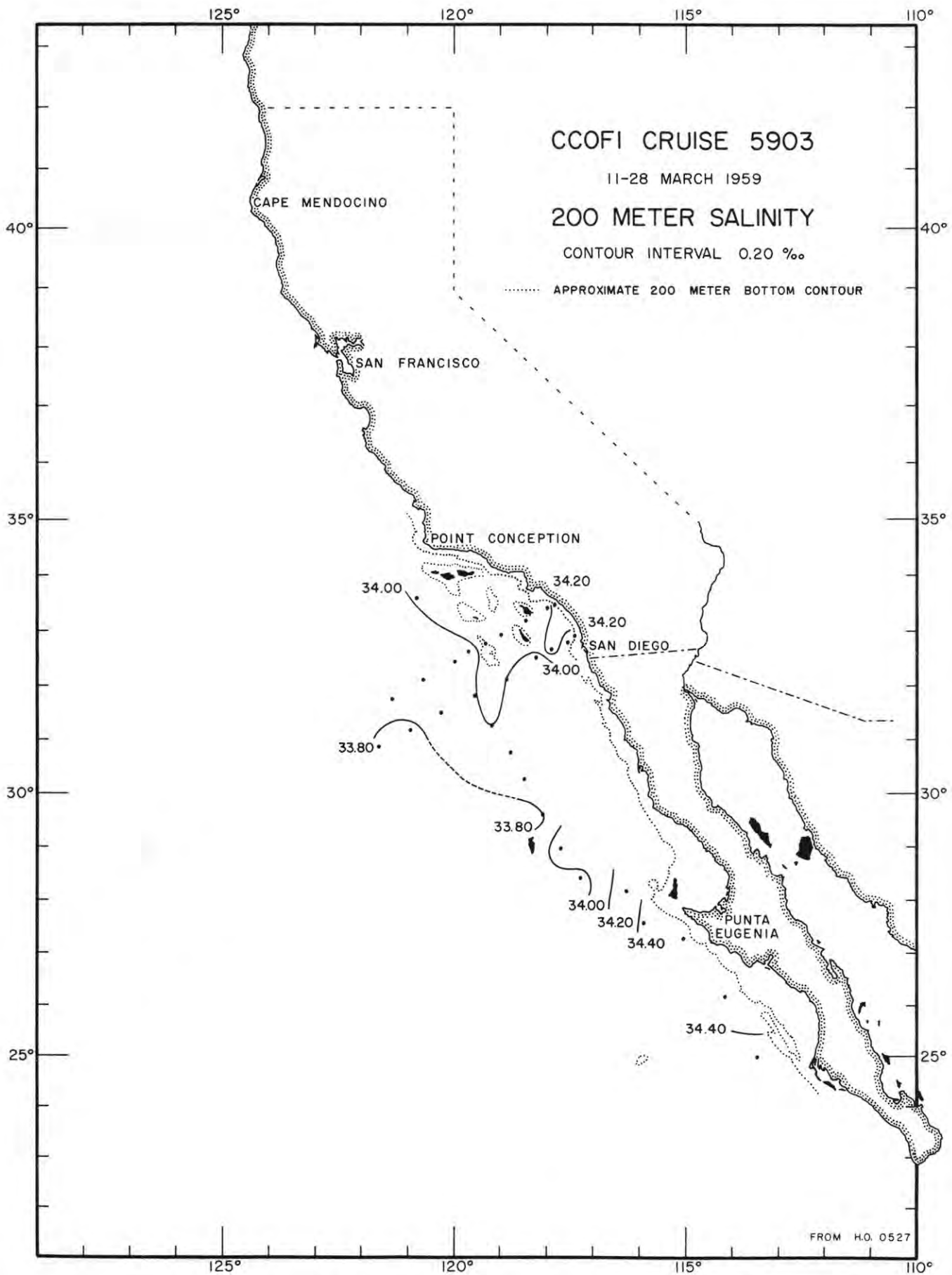


FIGURE 6

PERSONNEL

SHIPS' CAPTAINS

Miller, Frank, R/V Paolina-T
Phinney, Alan W. , R/V Orca
Smith, Charles H. , R/V Stranger

PERSONNEL PARTICIPATING IN THE COLLECTION OF DATA

R/V Orca

Farrar, Lloyd J. , Fishery Aid, Bureau of Commercial Fisheries
Joyal, Norman F. , Marine Technician
Old, James H. , Fishery Aid, Bureau of Commercial Fisheries

R/V Paolina-T

Kiwala, Robert S. , Marine Technician
Blackburn, Gene T. , Fishery Aid, Bureau of Commercial Fisheries

R/V Stranger

Kiwala, Robert S. , Marine Technician
Bingman, Allen R. , Marine Technician
Blackburn, Gene T. , Fishery Aid, Bureau of Commercial Fisheries
Gaty, Cornelia V. , Engineering Aid
Ryan, Carol E. , Engineering Aid

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

SIO
CCOFI
5903

PAOLINA-T; March 26, 1959; 1535 GCT; 33°34.5'N, 120°45'W; sounding, 625 fm; wind, 270°, force 7; weather, overcast; sea, very rough; wire angle, 10°.

83.60

3	15.22	33.58	5.62	311	0	(15.22)	(33.58)	(5.62)	(24.86)	(311)	(0.00)
13	15.22	33.60	5.59	309	10	15.22	33.60	5.60	24.87	309	0.03
33	15.24	33.57	5.58	313	20	15.22	33.59	5.59	24.86	310	0.06
63	15.24	33.57	5.62	313	30	15.23	33.58	5.58	24.84	312	0.09
73	14.28	33.55	5.17	294	50	15.24	33.57	5.60	24.83	313	0.16
88	10.88	33.60	3.90	227	75	13.80	33.55	4.95	25.14	284	0.23
103	10.08	33.68	3.59	208	100	10.26	33.66	3.66	25.88	213	0.29
118	9.47	33.75	3.50	194	150	9.13	33.86	2.87	26.22	181	0.39
143	9.24	33.83	2.99	184	200	8.17	34.01	2.25	26.49	155	0.48
163	8.88	33.89	2.70	174	250	7.54	34.11	1.69	26.66	139	0.55
192	8.29	33.98	2.34	158	300	6.98	34.16	1.17	26.79	127	0.62
221	7.94	34.07	1.97	147	400	6.34	34.26	0.59	26.95	112	0.74
251	7.53	34.11	1.68	138	500	5.81	34.32	0.44	27.07	100	0.86
300	6.98	34.16	1.17	127	600	5.34	34.38	0.32	27.16	91	0.96
355	6.60	34.22	0.74	118							
440	6.12	34.29	0.50	106							
525	5.68	34.34	0.40	98							
611	5.30	34.38	0.30	90							

STRANGER; March 12, 1959; 0505 GCT; 33°28'N, 117°47'W; sounding, 305 fm; wind, 320°, force 2; weather, clear; sea, slight; wire angle, 00°.

90.28

2	16.37	33.57	5.78	336	0	(16.37)	(33.57)	(5.78)	(24.59)	(336)	(0.00)
13	15.97	33.55	5.88	329	10	16.04	33.55	5.86	24.65	330	0.03
33	14.88	33.53	5.80	308	20	15.79	33.54	5.88	24.70	326	0.07
43	13.45	33.55	4.79	278	30	15.20	33.53	5.84	24.82	314	0.10
53	12.94	33.58	4.51	265	50	13.03	33.58	4.59	25.30	268	0.16
64	12.77	33.58	4.29	262	75	11.88	33.67	3.70	25.60	240	0.22
73	12.01	33.66	3.51	243	100	11.09	33.73	3.28	25.79	221	0.28
84	11.42	33.67	3.79	232	150	9.85	33.92	2.88	26.15	188	0.38
105	10.96	33.75	3.22	217	200	9.70	34.21	1.70	26.40	164	0.47
119	10.16	33.77	3.20	203	250	9.18	34.27	1.32	26.54	151	0.55
144	9.85	33.87	3.01	191	300	8.55	34.29	1.16	26.66	139	0.63
173	9.95	34.11	2.09	174	400	7.49	34.25	0.79	26.78	127	0.76
207	9.62	34.22	1.63	161	500	6.65	34.29	0.65	26.93	113	0.89
258	9.08	34.27	1.28	149							
306	8.48	34.29	1.13	138							
411	7.38	34.25	0.76	126							
513	6.56	34.29	0.62	112							
538	6.44	34.28	0.38	112							

STRANGER; March 12, 1959; 0705 GCT; 33°24.5'N, 117°55.5'W; sounding, 300 fm; wind, 320°, force 2; weather, clear; sea, slight; wire angle, 00°.

90.30

2	16.51	33.54	5.77	342	0	(16.51)	(33.54)	(5.77)	(24.53)	(341)	(0.00)
12	16.07	33.53	5.85	332	10	16.09	33.53	5.84	24.62	333	0.03
33	15.70	33.51	5.93	326	20	15.93	33.52	5.90	24.66	330	0.07
44	15.07	33.53	5.75	312	30	15.77	33.51	5.92	24.68	328	0.10
53	14.63	33.53	5.42	303	50	14.79	33.53	5.54	24.91	306	0.16
69	12.76	33.53	4.76	266	75	12.36	33.56	4.47	25.42	257	0.23
87	11.70	33.64	3.83	239	100	11.29	33.64	3.76	25.69	231	0.30
104	11.11	33.64	3.72	228	150	10.17	33.82	3.11	26.03	199	0.40
130	10.42	33.79	3.27	206	200	9.20	34.11	2.08	26.41	163	0.50
151	10.16	33.82	3.10	199	250	8.66	34.18	1.61	26.56	149	0.58
181	9.50	34.02	2.55	174	300	8.29	34.26	1.12	26.67	138	0.65
208	9.09	34.12	1.97	160	400	7.22	34.24	0.83	26.81	125	0.78
237	8.80	34.16	1.72	153	500	6.62	34.28	0.52	26.93	114	0.91
277	8.40	34.22	1.36	142							
332	8.10	34.29	0.87	133							
406	7.17	34.23	0.82	124							
482	6.73	34.28	0.56	115							
564	6.15	34.26	0.40	109							

SIO

CCOFI
5903

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

90.37

STRANGER; March 12, 1959; 1054 GCT; 33°10.5'N, 118°23.5'W; sounding, 630 fm; wind, 320°, force 2;
weather, clear; sea, slight; wire angle, 03°.

1	16.26	33.55	5.85	335	0	(16.26)	(33.55)	(5.85)	(24.60)	(335)	(0.00)
11	16.28	33.53	6.07	337	10	16.26	33.53	6.05	24.58	337	0.03
32	15.91	33.51	5.81	330	20	16.20	33.52	6.03	24.59	336	0.07
42	15.62	33.58	5.94	320	30	15.96	33.51	5.84	24.64	331	0.10
52	15.14	33.59	5.44	309	50	15.25	33.59	5.52	24.85	311	0.16
67	13.16	33.53	5.46	273	75	12.74	33.55	5.06	25.35	264	0.24
84	12.33	33.58	4.57	255	100	12.02	33.64	4.22	25.55	244	0.30
104	11.32	33.67	3.90	230	150	9.75	33.91	2.82	26.17	186	0.41
128	10.47	33.82	3.38	204	200	9.31	34.11	2.10	26.40	164	0.50
148	9.78	33.90	2.86	187	250	8.86	34.28	1.50	26.59	145	0.58
178	9.59	34.04	2.70	174	300	8.21	34.23	1.32	26.66	139	0.65
207	9.21	34.14	1.93	161	400	7.08	34.26	0.90	26.85	121	0.78
236	9.12	34.30	1.54	147	500	6.20	34.30	0.39	26.99	108	0.90
276	8.35	34.21	1.41	142							
335	8.06	34.27	1.15	134							
410	6.94	34.26	0.86	119							
485	6.30	34.29	0.41	109							
567	5.86	34.32	0.33	102							

90.45

STRANGER; March 12, 1959; 1457 GCT; 32°55.5'N, 118°56.5'W; sounding, 290 fm; wind, direction missing,
force 1; weather, clear; sea, slight; wire angle, 00°.

2	16.10	33.53	5.86	333	0	(16.10)	(33.53)	(5.86)	(24.62)	(333)	(0.00)
12	14.86	33.51	6.03	309	10	15.15	33.51	6.01	24.82	314	0.03
33	13.94	33.50	5.72	291	20	14.22	33.50	5.89	25.00	296	0.06
43	13.48	33.52	5.04	280	30	14.10	33.50	5.82	25.03	294	0.09
53	12.84	33.57	4.61	265	50	13.10	33.56	4.74	25.28	270	0.15
69	11.69	33.58	4.18	243	75	11.25	33.65	4.07	25.70	230	0.21
84	11.12	33.68	4.00	225	100	10.74	33.76	3.63	25.88	213	0.27
104	10.62	33.77	3.54	211	150	9.59	34.00	2.80	26.27	176	0.37
129	10.00	33.89	3.12	192	200	8.75	34.09	2.03	26.46	158	0.45
149	9.60	34.00	2.81	177	250	8.15	34.15	1.76	26.61	144	0.53
179	9.08	34.08	2.32	163	300	7.71	34.22	1.40	26.73	132	0.60
207	8.65	34.09	1.95	156	400	6.70	34.30	0.60	26.94	113	0.73
236	8.30	34.12	1.81	148	500	6.28	34.29	0.54	26.98	108	0.84
274	7.92	34.19	1.64	138							
333	7.44	34.25	1.14	127							
407	6.65	34.30	0.59	113							
481	6.38	34.29	0.56	110							
562	5.90	34.31	0.44	103							

90.50

STRANGER; March 12, 1959; 1754 GCT; 32°46.5'N, 119°18.5'W; sounding, 260 fm; wind, 250°, force 1;
weather, clear; sea, slight; wire angle, 00°.

2	15.88	33.55	5.88	327	0	(15.88)	(33.55)	(5.88)	(24.69)	(327)	(0.00)
13	15.40	33.51	6.04	320	10	15.48	33.51	6.02	24.74	321	0.03
33	14.70	33.51	5.91	305	20	15.19	33.51	6.03	24.81	315	0.06
53	13.86	33.51	5.52	289	30	14.81	33.51	5.95	24.88	308	0.10
80	12.08	33.55	4.66	252	50	14.21	33.51	5.70	25.01	296	0.16
104	10.58	33.64	4.02	219	75	12.41	33.54	4.82	25.39	259	0.22
129	9.92	33.75	3.50	200	100	10.86	33.62	4.17	25.74	226	0.29
168	9.26	34.00	2.41	172	150	9.54	33.90	2.90	26.19	183	0.39
207	8.82	34.09	1.98	159	200	8.89	34.08	2.03	26.44	160	0.48
260	8.50	34.18	1.54	147	250	8.58	34.17	1.64	26.56	149	0.56
306	7.96	-	1.43	-							
411	7.05	34.25	0.81	122							

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

STRANGER; March 12, 1959; 2050 GCT; 32°37'N, 119°39.5'W; sounding, 540 fm; wind, 320°, force 1; weather, clear; sea, rough; wire angle, 05°.

90.55

1	16.10	33.57		330	0	(16.10)	(33.57)		(24.65)	(330)	(0.00)
11	15.78	33.56		324	10	15.80	33.56		24.71	325	0.03
32	15.54	33.55		320	20	15.66	33.56		24.74	322	0.06
56	15.06	33.51		313	30	15.57	33.55		24.75	320	0.10
66	15.00	33.51		312	50	15.18	33.52		24.82	314	0.16
76	14.50	33.51		301	75	14.63	33.51		24.92	305	0.24
91	12.84	33.51		269	100	11.60	33.53		25.55	245	0.31
106	11.28	33.55		237	150	9.65	33.75		26.06	196	0.42
130	10.73	33.63		223	200	8.79	33.94		26.35	169	0.51
150	9.65	33.75		196	250	8.24	34.09		26.55	149	0.60
174	9.12	33.86		180	300	7.59	34.16		26.70	135	0.67
203	8.75	33.95		168	400	6.92	34.30		26.90	116	0.80
232	8.52	34.07		155	500	6.28	34.33		27.01	106	0.92
272	7.88	34.12		142							
331	7.37	34.21		129							
406	6.89	34.31		115							
481	6.40	34.33		107							
563	5.96	34.33		102							

STRANGER; March 12, 1959; 2350 GCT; 32°25'N, 119°58'W; sounding, 500 fm; wind, 290°, force 1; weather, clear; sea, very rough; wire angle, missing.

90.60

1	17.09	33.64	5.78	347	0	(17.09)	(33.64)	(5.78)	(24.48)	(347)	(0.00)
11	16.45	33.64	5.88	333	10	16.47	33.64	5.87	24.62	333	0.03
32	16.18	33.66	5.89	325	20	16.20	33.65	5.89	24.68	327	0.07
58	15.71	33.64	4.94	317	30	16.19	33.66	5.89	24.70	326	0.10
68	14.06	33.56	4.98	289	50	15.80	33.64	5.02	24.78	318	0.16
78	12.68	33.62	4.49	258	75	13.01	33.61	4.61	25.34	265	0.24
93	11.58	33.59	4.29	240	100	11.17	33.60	4.21	25.68	232	0.30
108	10.75	33.61	4.14	225	150	9.68	33.82	3.30	26.10	192	0.41
132	10.06	33.71	3.71	206	200	8.58	33.99	2.60	26.42	162	0.50
151	9.66	33.82	3.29	192	250	7.97	34.09	1.90	26.59	146	0.58
176	9.11	33.90	3.03	177	300	7.50	34.15	1.61	26.70	135	0.65
205	8.48	34.00	2.50	160	400	6.49	34.22	1.09	26.90	117	0.78
234	8.14	34.07	2.01	150	500	6.07	34.25	0.69	26.97	109	0.90
273	7.72	34.12	1.77	140							
332	7.22	34.18	1.41	129							
407	6.43	34.22	1.05	116							
483	6.12	34.24	0.72	110							
565	5.84	34.32	0.53	101							

STRANGER; March 13, 1959; 0530 GCT; 32°05'N, 120°38'W; sounding, 2400 fm; wind, 290°, force 1; weather, clear; sea, very rough; wire angle, 25°.

90.70

2	15.56	33.36	5.89	334	0	(15.56)	(33.36)	(5.89)	(24.61)	(334)	(0.00)
11	15.53	33.35	5.90	334	10	15.53	33.35	5.90	24.61	334	0.03
31	15.26	33.35	5.94	328	20	15.42	33.35	5.92	24.63	332	0.07
53	14.66	33.42	6.08	311	30	15.27	33.35	5.94	24.66	329	0.10
62	14.44	33.44	5.76	305	50	14.85	33.41	6.05	24.80	316	0.16
71	13.74	33.37	5.86	296	75	13.15	33.33	5.80	25.10	288	0.24
84	11.99	33.30	5.63	268	100	10.65	33.48	5.00	25.68	232	0.31
97	10.83	33.46	5.11	237	150	9.11	33.73	3.77	26.12	190	0.41
120	9.78	33.58	4.31	211	200	8.51	33.92	3.27	26.38	166	0.58
137	9.22	33.69	3.83	194	250	7.71	34.03	2.50	26.58	147	0.58
160	9.06	33.75	3.60	187	300	7.23	34.09	1.82	26.69	136	0.66
187	8.67	33.88	3.45	172	400	6.22	34.17	0.88	26.89	117	0.79
214	8.36	33.95	3.10	162							
250	7.71	34.03	2.50	147							
304	7.19	34.09	1.78	135							
373	6.40	34.14	0.99	121							
445	6.04	34.22	0.74	111							

SIO
CCOFI
5903

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

90.80

STRANGER; March 13, 1959; 1047 GCT; 31°44.5'N, 121°18'W; sounding, 2050 fm; wind, 290°, force 3; weather, clear; sea, rough; wire angle, 13°.

2	15.74	33.42		333	0	(15.74)	(33.42)		(24.62)	(333)	(0.00)
11	15.75	33.42		333	10	15.75	33.42		24.62	333	0.03
31	15.78	33.46		332	20	15.77	33.45		24.63	332	0.07
61	15.71	33.46		330	30	15.78	33.46		24.64	331	0.10
71	15.78	33.48		330	50	15.76	33.46		24.65	330	0.17
87	15.38	33.53		318	75	15.80	33.49		24.65	330	0.25
101	14.26	33.47		299	100	14.27	33.47		24.97	300	0.33
115	12.54	33.28		280	150	10.05	33.54		25.82	218	0.46
138	10.81	33.52		232	200	8.72	33.86		26.30	173	0.56
158	9.70	33.56		211	250	8.02	33.98		26.49	155	0.65
187	8.92	33.82		180	300	7.31	34.06		26.66	139	0.72
216	8.48	33.91		167							
244	8.10	33.97		157							
293	7.40	34.05		141							
346	6.78	34.11		128							
399p	6.20	34.16		117							
480p	5.71	34.28		103							
600p	5.36	34.31		96							

90.90

STRANGER; March 13, 1959; 1609 GCT; 31°24'N, 121°58.5'W; sounding, 2000+ fm; wind, 310°, force 5; weather, overcast; sea, very rough; wire angle, 16°.

3	16.00	33.53		331	0	(16.00)	(33.53)		(24.64)	(331)	(0.00)
13	16.00	33.57		328	10	16.00	33.56		24.67	328	0.03
33	16.02	33.55		330	20	16.01	33.55		24.66	329	0.06
					30	16.02	33.55		24.65	330	0.10

93.28

STRANGER; March 15, 1959; 2035 GCT; 32°55'N, 117°22'W; sounding, 270 fm; wind, 320°, force 1; weather, clear; sea, moderate; wire angle, 05°.

2	16.82	33.56		347	0	(16.82)	(33.56)		(24.47)	(347)	(0.00)
13	16.14	33.54		333	10	16.34	33.55		24.58	337	0.03
23	15.56	33.53		321	20	15.74	33.53		24.70	325	0.07
43	13.90	33.54		287	30	15.52	33.53		24.75	321	0.10
53	13.02	33.55		270	50	13.28	33.55		25.23	275	0.16
64	12.47	33.61		255	75	11.82	33.57		25.53	246	0.22
74	11.86	33.57		247	100	11.03	33.72		25.80	221	0.28
83	11.45	33.62		236	150	10.28	33.93		26.09	193	0.39
98	11.05	33.71		222	200	9.63	34.19		26.40	164	0.48
112	10.78	33.78		212	250	9.25	34.26		26.52	153	0.56
127	10.55	33.84		204	300	8.69	34.24		26.60	145	0.64
152	10.25	33.94		192	400	7.59	34.23		26.75	130	0.78
181	9.86	34.14		172	500	6.60	34.26		26.92	115	0.91
215	9.50	34.22		159							
263	9.14	34.26		150							
312	8.52	34.23		143							
416	7.42	34.23		128							
517	6.41	34.27		112							

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

SIO
CCOFI
5903

STRANGER; March 15, 1959; 1820 GCT; 32°46'N, 117°29.5'W; sounding, 340 fm; wind, 320°, force 1; weather, clear; sea, moderate; wire angle, 07°.

93.30

2	16.69	33.57		343	0	(16.69)	(33.57)		(24.52)	(343)	(0.00)
12	16.52	33.57		340	10	16.56	33.57		24.54	341	0.03
34	14.74	33.53		305	20	15.95	33.56		24.67	328	0.07
59	12.38	33.57		256	30	15.10	33.53		24.84	312	0.10
68	11.68	33.62		240	50	13.28	33.55		25.24	274	0.16
78	11.44	33.66		233	75	11.51	33.65		25.65	235	0.22
93	11.03	33.75		219	100	10.93	33.79		25.87	214	0.28
108	10.82	33.82		210	150	10.30	33.99		26.13	189	0.38
132	10.54	33.93		197	200	9.89	34.17		26.34	169	0.47
153	10.24	34.00		187	250	9.55	34.26		26.47	157	0.56
176	9.92	34.07		177	300	9.28	34.31		26.55	149	0.63
204	9.88	34.18		168	400	7.82	34.29		26.77	129	0.78
233	9.60	34.23		160	500	6.56	34.28		26.94	113	0.90
288p	9.44	34.31		152							
345p	8.56	34.28		140							
413p	7.66	34.29		127							
484p	6.72	34.27		116							
561p	6.06	34.33		103							

STRANGER; March 15, 1959; 1514 GCT; 32°38'N, 117°51'W; sounding, 310 fm; wind, 310°, force 1; weather, overcast; sea, moderate; wire angle, 05°.

93.35

2	16.72	33.58		343	0	(16.72)	(33.58)		(24.51)	(343)	(0.00)
12	16.50	33.60		337	10	16.54	33.60		24.57	338	0.03
33	15.72	33.55		324	20	16.22	33.59		24.63	332	0.07
44	15.50	33.54		320	30	15.82	33.56		24.70	325	0.10
54	14.56	33.54		300	50	14.91	33.54		24.89	307	0.16
69	13.22	33.54		274	75	12.71	33.53		25.34	264	0.23
84	12.10	33.53		254	100	11.46	33.60		25.62	238	0.30
104	11.38	33.62		234	150	10.35	33.89		26.05	197	0.41
128	10.63	33.74		213	200	9.78	34.21		26.40	164	0.50
148	10.38	33.88		198	250	9.29	34.31		26.55	150	0.58
177	9.78	34.07		174	300	8.65	34.33		26.67	138	0.66
208	9.78	34.24		162	400	7.50	34.31		26.83	123	0.79
237	9.46	34.29		153	500	6.70	34.30		26.94	113	0.91
276	8.95	34.33		142							
335	8.19	34.33		131							
409	7.42	34.31		122							
484	6.82	34.30		115							
566	6.09	34.31		105							

STRANGER; March 15, 1959; 1045 GCT; 32°30'N, 118°12.5'W; sounding, 1005 fm; wind, 310°, force 1; weather, clear; sea, moderate; wire angle, 04°.

93.40

2	16.64	33.61		340	0	(16.64)	(33.61)		(24.55)	(340)	(0.00)
13	16.64	33.62		339	10	16.64	33.62		24.56	339	0.03
33	15.66	33.51		325	20	16.60	33.62		24.57	338	0.07
43	15.48	33.53		320	30	15.74	33.51		24.69	326	0.10
58	15.06	33.51		313	50	15.33	33.52		24.79	317	0.16
73	13.88	33.50		289	75	13.73	33.50		25.10	287	0.24
100	11.54	33.55		243	100	11.54	33.55		25.57	243	0.31
120	10.68	33.65		220	150	9.91	33.77		26.03	199	0.42
140	10.20	33.72		207	200	9.21	33.98		26.31	172	0.51
159	9.66	33.82		191	250	8.59	34.16		26.55	149	0.60
190	9.28	33.94		176	300	8.25	34.25		26.66	139	0.67
223	9.08	34.09		162	400	7.02	34.27		26.86	120	0.80
253	8.54	34.17		148	500	6.35	34.28		26.96	111	0.92
302	8.24	34.25		138	600	5.92	34.31		27.04	103	1.04
356	7.56	34.29		125							
441	6.64	34.25		116							
526	6.23	34.29		108							
613	5.85	34.31		102							

SIO

CCOFI
5903

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

93.50

STRANGER; March 15, 1959; 0050 GCT; 32°04.5'N, 118°51'W; sounding, 530 fm; wind, 320°, force 5;
weather, clear; sea, very rough; wire angle, 27°.

9	15.66	33.52		324	0	15.7	(33.53)		(24.71)	(325)	(0.00)
27	15.64	33.49a)		326	10	15.66	33.52		24.72	324	0.03
36	15.40	33.51		320	20	15.65	33.52		24.70	326	0.06
50	14.44	33.49		302	30	15.60	33.49		24.70	326	0.10
65	13.44	-		-	50	14.44	33.49		24.95	302	0.16
87	12.08	33.53		253	75	12.82	33.51		25.29	269	0.23
104	11.24	33.60		234	100	11.45	33.58		25.61	239	0.30
121	10.24	33.66		213	150	9.69	33.82		26.10	192	0.40
139	9.87	33.76		199	200	8.89	34.00		26.38	166	0.49
164	9.46	33.93		180	250	8.42	34.15		26.57	148	0.58
194	8.92	33.97		169	300	7.99	34.13		26.62	143	0.65
220	8.80	34.10		157	400	6.97	34.24		26.85	121	0.79
264	8.24	34.15		146	500	6.31	34.28		26.97	109	0.91
313	7.88	34.12		142							
389	7.03	34.24		122							
468	6.52	34.26		114							
549	5.96	34.33		102							

93.60

STRANGER; March 14, 1959; 1750 GCT; 31°45.5'N, 119°33'W; sounding, 2000+ fm; wind, 320°, force 7;
weather, cloudy; sea, very rough; wire angle, 12°.

5	15.74	33.53		(327)	0	15.8	(33.53)		(24.69)	(327)	(0.00)
15	15.74	33.52		326	10	15.74	33.52		24.70	326	0.03
40	15.76	33.51		327	20	15.75	33.52		24.69	327	0.06
70	13.59	33.39		292	30	15.76	33.52		24.69	327	0.10
80	12.44	33.46		266	50	15.15	33.47		24.78	318	0.16
101	10.93	33.51		235	75	13.07	33.41		25.17	281	0.24
116	10.05	33.69		207	100	11.00	33.51		25.64	236	0.30
130	9.96	33.70		205	150	9.29	33.75		26.11	191	0.41
160	8.96	33.78		184	200	8.50	34.00		26.44	160	0.50
180	8.62	33.90		170	250	8.10	34.10		26.58	147	0.58
211	8.42	34.04		156	300	7.65	34.18		26.70	135	0.65
245	8.16	34.09		148	400	7.00	34.23		26.84	122	0.78
272	7.86	34.14		141	500	6.31	34.26		26.95	111	0.91
324	7.52	34.20		131	600	5.60	34.31		27.08	99	1.02
388	7.08	34.23		123							
487	6.40	34.25		113							
579	5.73	34.30		101							
655	5.26	34.34		93							

93.70

STRANGER; March 14, 1959; 1119 GCT; 31°27'N, 120°13.5'W; sounding, 2000+ fm; wind, 320°, force 7;
weather, overcast; sea, very rough; wire angle, 29°.

1	15.32	33.35		330	0	(15.32)	(33.35)		(24.65)	(330)	(0.00)
10	15.32	33.33		331	10	15.32	33.33		24.64	331	0.03
33	15.35	33.37		329	20	15.33	33.35		24.65	330	0.07
60	14.71	33.35		317	30	15.34	33.37		24.66	329	0.10
69	14.48	33.35		312	50	15.38	33.39		24.67	328	0.16
87	13.66	33.60		278	75	14.31	33.38		24.90	306	0.24
101	12.72	33.64		257	100	12.80	33.64		25.40	259	0.32
114	11.91	33.64		242	150	9.49	33.68		26.03	199	0.43
142	9.69	33.61		207	200	8.44	33.95		26.41	163	0.52
161	9.22	33.76		189	250	7.72	34.00		26.56	149	0.60
188	8.62	33.91		169	300	7.12	34.07		26.69	136	0.68
220	8.16	33.99		156	400	6.54	34.20		26.88	118	0.81
248	7.74	34.00		149	500	5.78	34.25		27.01	106	0.93
295	7.18	34.06		137	600	5.31	34.32		27.13	95	1.03
357	6.84	34.16		126							
451	6.16	34.23		111							
537	5.56	-		-							
611	5.28	34.33		94							

a) Salinity bottle numbers from 27 to 139 meters, inclusive, were listed out of order on the data sheet; present order is assumed to be correct, but these salinity data must be considered doubtful.

110

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

SIO
CCOFI
5903

STRANGER; March 14, 1959; 0340 GCT; 31°08.5'N, 120°54.5'W; sounding, 2000+ fm; wind, 340°, force 7; weather, clear; sea, very rough; wire angle, 25°.

93.80

2	15.70	33.40		334	0	(15.70)	(33.40)		(24.61)	(334)	(0.00)
12	15.70	33.39		335	10	15.70	33.39		24.60	335	0.03
35	15.70	33.44		331	20	15.70	33.41		24.62	333	0.07
63	15.96	33.58		326	30	15.70	33.43		24.63	332	0.10
73	15.98	33.49		334	50	15.81	33.50		24.66	329	0.17
91	15.14	33.73		298	75	15.98	33.48		24.62	333	0.25
104	14.76	33.75		289	100	14.89	33.75		25.05	292	0.33
118	13.95	33.66		279	150	11.18	33.64		25.71	229	0.46
147	11.43	33.62		236	200	9.14	33.74		26.14	188	0.57
167	10.26	33.74		207	250	8.30	33.97		26.44	160	0.66
194	9.28	33.73		192	300	7.41	34.06		26.65	140	0.73
228	8.64	33.88		171	400	6.63	34.16		26.83	123	0.87
256	8.20	33.98		157	500	6.00	34.24		26.98	109	0.99
303	7.35	34.07		139	600	5.48					
364	6.88	34.12		129							
459	6.25	34.22		114							
545	5.72	34.25		105							
620	5.42	-		-							

STRANGER; March 13, 1959; 2111 GCT; 30°50'N, 121°35'W; sounding, 2000+ fm; wind, 300°, force 5; weather, cloudy; sea, rough; wire angle, 26°.

93.90

1	16.10	33.53	5.76	333	0	(16.10)	(33.53)	(5.76)	(24.62)	(333)	(0.00)
10	16.09	33.53	5.65	333	10	16.09	33.53	5.65	24.62	333	0.03
29	15.96	33.53	5.66	330	20	16.01	33.53	5.66	24.64	331	0.07
57	16.18	33.64	5.93	327	30	15.96	33.53	5.67	24.66	329	0.10
67	16.20	33.68	5.93	325	50	16.14	33.62	5.89	24.68	328	0.16
81	16.20	33.67	5.79	325	75	16.20	33.67	5.88	24.71	325	0.25
94	16.12	33.85	5.68	310	100	13.98	33.69	5.53	25.21	277	0.32
108	13.53	33.66	5.48	271	150	10.38	33.58	4.63	25.80	220	0.45
131	11.80	33.58	5.01	245	200	9.02	33.78	3.72	26.18	185	0.55
150	10.38	33.58	4.63	220	250	8.42	33.91	3.10	26.38	166	0.64
178	9.51	33.56	4.15	208	300	7.61	34.00	2.38	26.57	148	0.72
205	8.95	33.81	3.63	181	400	6.56	34.10	1.33	26.79	127	0.87
234	8.68	33.87	3.33	173	500	5.98	34.13	0.58	26.97	110	0.99
281	7.88	33.99	2.59	152							
333	7.22	34.02	2.01	141							
413	6.43	34.11	1.23	124							
496	6.00	34.22	0.59	111							
579	5.46	34.29	0.54	99							

ORCA; March 12, 1959; 0050 GCT;^{a)} 32°11.5'N, 117°17.5'W; sounding; 732 fm; wind, 070°, force 4; weather, clear; sea, rough; wire angle, 19°.

97.32

416	-	34.32b)	0.62	-							
426	7.31	34.31	0.73	120							
436	7.26	34.31	0.65	120							
445	7.26	34.33	0.70	118							
455	7.14	34.34	0.55	116							
464	7.05	34.34	0.50	115							
474	6.86	34.34	0.46	113							
483	6.74	34.33	0.46	112							
493	6.64	34.33	0.43	110							
503	6.58	34.34	0.37	108							
512	6.52	34.34	0.37	108							
522	6.40	34.34	0.37	106							
531	6.32	34.36	0.33	104							
541	6.26	34.34	0.30	104							
552	6.15	34.34	0.29	103							
562	6.10	34.36	0.33	101							
571	6.06	34.35	0.32	102							
580	6.03	34.34	0.30	102							

a) Special cast.

b) Salinity bottle number was not recorded on the data sheet. Since standard handling and titrating procedures were used, this salinity value is assumed to be listed correctly.

SIO
CCOFI
5903

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

97.60 PAOLINA-T; March 22, 1959; 0112 GCT; 31°14.5'N, 119°08'W; sounding, 1900 fm; wind, 270°, force 4; weather, cloudy; sea, very rough; wire angle, 18°.

2	16.58	33.73	5.66	329	0	(16.58)	(33.73)	(5.66)	(24.66)	(329)	(0.00)
12	16.59	33.68	5.70	333	10	16.59	33.68	5.70	24.62	332	0.03
31	16.46	33.70	5.53	328	20	16.53	33.68	5.64	24.64	331	0.07
60	16.24	33.66	5.68	327	30	16.46	33.70	5.54	24.66	329	0.10
70	15.58	33.57	5.76	319	50	16.40	33.70	5.55	24.67	328	0.16
83	14.18	33.55	5.23	292	75	15.14	33.56	5.63	24.86	311	0.24
98	12.38	33.58	4.49	255	100	12.30	33.59	4.45	25.46	253	0.32
113	11.81	33.64	4.31	241	150	10.05	33.73	3.56	25.98	204	0.43
137	10.56	33.65	3.94	218	200	8.82	34.00	2.45	26.39	165	0.53
157	9.84	33.78	3.36	198	250	8.33	34.20	1.67	26.62	143	0.60
185	9.12	33.95	2.66	173	300	7.76	34.28	1.26	26.77	129	0.68
213	8.60	34.04	2.23	159	400	6.83	34.27	0.68	26.89	117	0.80
242	8.40	34.14	1.82	148	500	6.24	34.33	0.50	27.02	105	0.92
290	7.87	34.29	1.29	130	600	(5.59)	(34.43)	(0.33)	(27.18)	(90)	(1.02)
342	7.38	34.24	0.90	127							
425	6.60	34.29	0.61	113							
508	6.21	34.34	0.47	104							
593	5.64	34.42	0.33	92							

100.60 PAOLINA-T; March 21, 1959; 1957 GCT; 30°45'N, 118°46'W; sounding, 1780 fm; wind, 270°, force 3; weather, partly cloudy; sea, rough; wire angle, 14°.

1	16.81	33.69	5.81	338	0	(16.81)	(33.69)	(5.81)	(24.57)	(338)	(0.00)
11	16.70	33.69	5.65	335	10	16.71	33.69	5.69	24.60	335	0.03
31	16.66	33.71	5.42	332	20	16.68	33.70	5.55	24.62	333	0.07
41	16.26	33.66	5.42	327	30	16.67	33.71	5.43	24.62	332	0.10
56	15.51	33.57	5.47	318	50	16.00	33.63	5.44	24.72	324	0.17
71	14.48	33.57	5.31	296	75	14.05	33.58	5.18	25.10	288	0.24
96	11.96	33.61	4.34	245	100	11.65	33.62	4.22	25.60	239	0.31
116	10.94	33.66	3.83	224	150	9.68	33.76	3.38	26.06	196	0.42
136	10.24	33.68	3.80	211	200	8.81	33.94	2.63	26.35	169	0.51
155	9.52	33.79	3.23	191	250	7.99	34.06	2.30	26.56	149	0.59
184	8.96	33.89	2.89	176	300	7.56	34.19	1.54	26.72	133	0.67
218	8.62	34.01	2.31	161	400	6.85	34.27	0.61	26.89	118	0.80
247	8.04	34.05	2.31	150	500	6.15	34.34	0.47	27.03	104	0.91
294	7.60	34.19	1.57	134	600	(5.54)	(34.37)	(0.29)	(27.14)	(94)	(1.02)
346	7.28	34.17	1.08	131							
428	6.62	34.30	0.52	112							
512	6.08	34.34	0.47	103							
596	5.56	34.37	0.29	94							

103.60 PAOLINA-T; March 19, 1959; 1414 GCT; 30°16.5'N, 118°28.5'W; sounding, 1700 fm; wind, 340°, force 4; weather, partly cloudy; sea, rough; wire angle, 10°.

2	16.50	33.71	5.80	329	0	(16.50)	(33.71)	(5.80)	(24.66)	(329)	(0.00)
12	16.52	33.71	5.53	329	10	16.51	33.71	5.55	24.66	329	0.03
32	16.52	33.69	5.45	331	20	16.52	33.70	5.49	24.65	330	0.07
42	16.52	33.72	5.43	329	30	16.52	33.69	5.46	24.64	331	0.10
57	16.00	33.65	5.37	322	50	16.29	33.70	5.40	24.70	325	0.16
72	15.46	33.57	5.12	317	75	15.30	33.56	5.12	24.82	314	0.24
97	13.42	33.53	5.08	279	100	13.24	33.54	5.04	25.24	274	0.32
118	12.11	33.59	4.86	250	150	10.15	33.62	4.26	25.87	214	0.44
137	10.90	33.58	4.60	229	200	8.88	33.87	3.05	26.28	175	0.54
156	9.86	33.65	4.07	207	250	8.02	34.02	2.18	26.52	152	0.62
185	9.14	33.81	-	184	300	7.40	34.10	1.80	26.68	138	0.70
218	8.56	33.93	2.77	166	400	6.51	34.15	0.97	26.84	122	0.84
247	8.05	34.01	2.22	153	500	6.11	34.31	0.40	27.02	105	0.95
294	7.49	34.09	1.85	140	600	(5.54)	(34.34)	(0.32)	(27.12)	(96)	(1.06)
347	6.90	34.12	1.39	129							
428	6.38	34.17	0.77	119							
515	6.02	34.33	0.39	103							
597	5.56	34.34	0.32	96							

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

SIO
CCOFI
5903

PAOLINA-T; March 18, 1959; 0945 GCT; 29°32'N, 118°01'W; sounding, 1830 fm; wind, 300°, force 3; weather, clear; sea, moderate; wire angle, 17°.

107.60

1	17.30	33.85	5.50	336	0	(17.30)	(33.85)	(5.50)	(24.59)	(336)	(0.00)
11	17.30	33.86	5.31	336	10	17.30	33.86	5.31	24.59	336	0.03
30	17.26	33.87	5.36	334	20	17.32	33.87	5.33	24.60	335	0.07
59	16.98	33.85	5.38	329	30	17.26	33.87	5.36	24.61	334	0.10
68	17.11	33.92	5.40	327	50	17.00	33.85	5.38	24.66	330	0.17
82	17.20	33.93	5.30	328	75	17.20	33.93	5.33	24.67	328	0.25
95	16.98	33.95	5.21a)	322	100	17.28	33.91	5.25	24.86	310	0.33
110	15.08	33.82	5.31	290	150	11.79	33.68	4.03	25.63	237	0.47
134	12.83	33.71	4.80	254	200	9.58	33.80	3.53	26.11	191	0.58
153	11.52	33.68	3.90	232	250	8.68	34.00	2.76	26.41	163	0.66
181	10.06	33.71	3.82	206	300	8.00	34.11	2.23	26.60	145	0.75
209	9.40	33.84	-	186	400	7.05	34.22	1.12	26.82	124	0.88
235	8.92	33.95	2.94	170	500	6.40	34.34	0.46	27.00	107	1.01
281	8.19	34.08	2.42	150							
332	7.76	34.15	1.91	138							
410	6.95	34.24	0.98	121							
492	6.45	34.34	0.47	107							
575	5.95	34.34	0.39	101							

ORCA; March 13, 1959; 2315 GCT; 28°55.5'N, 117°38'W; sounding, 2000 fm; wind, 320°, force 5; weather, clear; sea, very rough; wire angle, 26°.

110.60

2	17.16	33.78	5.66	338	0	(17.16)	(33.78)	(5.66)	(24.56)	(338)	(0.00)
11	17.12	33.77	5.50	338	10	17.13	33.77	5.50	24.56	338	0.03
30	16.94	33.80	5.44	332	20	17.06	33.79	5.45	24.60	336	0.07
57	16.10	33.62	5.54	326	30	16.94	33.80	5.44	24.63	332	0.10
66	16.01	33.64	5.51	324	50	16.19	33.64	5.50	24.68	327	0.17
80	15.92	33.60	5.56	324	75	15.96	33.62	5.54	24.72	324	0.25
94	15.54	33.78	5.46	303	100	14.50	33.72	5.22	25.12	286	0.33
108	13.35	33.66	4.97	268	150	10.05	33.73	4.08	25.98	204	0.45
129	11.44	33.69	4.46	231	200	9.66	34.16	1.67	26.38	166	0.54
147	10.10	33.70	4.27	208	250	8.68	34.21	1.50	26.58	147	0.62
173	9.91	33.96	2.38	185	300	8.16	34.25	1.21	26.69	136	0.70
200	9.66	34.16	1.67	166	400	7.43	34.33	0.65	26.85	121	0.83
226	9.04	34.18	1.68	155	500	6.62	34.36	0.47	26.99	108	0.95
270	8.43	34.25	1.30	141							
320	7.98	34.26	1.12	133							
396	7.46	34.33	0.68	121							
477	6.82	34.36	0.45	110							
558	6.14	34.35	0.53	102							

ORCA; March 15, 1959; 1455 GCT; 28°23.5'N, 117°14.5'W; sounding, 1960 fm; wind, 310°, force 4; weather, overcast; sea, very rough; wire angle, missing.

113.60

2	17.22	33.81	5.76	338	0	(17.22)	(33.81)	(5.76)	(24.56)	(338)	(0.00)
11	17.22	33.81	5.65	338	10	17.22	33.81	5.64	24.56	338	0.03
30	17.23	33.82	5.54	338	20	17.22	33.81	5.59	24.56	338	0.07
59	16.80	33.73	5.50	334	30	17.23	33.82	5.54	24.57	338	0.10
68	16.72	33.71	5.24	334	50	16.90	33.74	5.51	24.60	335	0.17
83	16.56	33.72	5.32	329	75	16.66	33.71	5.27	24.63	332	0.25
97	15.81	33.73	5.33	313	100	15.45	33.72	5.28	24.91	306	0.33
111	13.46	33.63	4.89	272	150	10.75	33.66	3.99	25.80	221	0.46
134	11.25	33.66	4.40	230	200	9.50	33.92	2.63	26.21	182	0.56
153	10.66	33.66	3.91	220	250	8.92	34.15	1.99	26.49	155	0.65
180	9.80	33.87	3.12	190	300	8.36	34.24	1.46	26.65	140	0.73
209	9.38	33.95	2.34	177	400	7.55	34.33	0.53	26.84	122	0.86
237	9.08	34.12	2.10	160	500	6.48	34.34	0.26	27.00	107	0.98
284	8.49	34.21	1.65	144	600	(5.92)	(34.38)		(27.10)	(98)	(1.09)
336	8.10	34.31	0.95	131							
417	7.40	34.34	0.43	120							
499	6.49	34.34	0.26	108							
582	6.00	34.38	0.20	99							

a) Alternate value. 5.38 ml/L. not used in interpolation.

113

SIO
CCOFI
5903

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

117.50 ORCA; March 17, 1959; 0023 GCT; 28°08.5'N, 116°15.5'W; sounding, 2500 fm; wind, 350°, force 3; weather, partly cloudy; sea, rough; wire angle, 10°.

0	17.27	33.73	5.42	344	0	17.27	33.73	5.42	24.50	344	0.00
10	17.10	33.71	5.50	342	10	17.10	33.71	5.50	24.52	342	0.03
29	16.90	33.71	5.69	338	20	16.99	33.71	5.63	24.55	340	0.07
60	16.62	33.78	5.62	326	30	16.89	33.71	5.69	24.57	338	0.10
71	16.14	33.77	5.18	316	50	16.74	33.76	5.65	24.64	330	0.17
86	14.92	33.77	4.40	290	75	15.80	33.77	4.93	24.87	309	0.25
101	13.78	33.80	3.70	265	100	13.90	33.80	3.76	25.30	268	0.32
116	12.37	33.75	3.64	243	150	11.18	33.99	2.35	25.98	204	0.44
141	11.34	33.93	2.52	211	200	11.08	34.36	1.07	26.29	174	0.54
161	11.08	34.08	2.10	196	250	9.76	34.34	1.21	26.50	154	0.62
190	11.10	34.30	1.20	180	300	9.00	34.35	1.11	26.63	142	0.70
220	10.96	34.47	0.90	164	400	8.00	34.37	0.52	26.80	126	0.84
250	9.76	34.34	1.21	154	500	6.82	34.37	0.43	26.97	110	0.96
298	9.01	34.35	1.12	142	600	5.99	34.40	0.39	27.10	97	1.07
351	8.48	34.34	0.79	135							
435	7.62	34.39	0.41	119							
519	6.58	34.38	0.45	106							
609	5.95	34.40	0.38	96							

120.50 ORCA; March 18, 1959; 1245 GCT; 27°32'N, 115°52'W; sounding, 2000+ fm; wind, 320°, force 3; weather, clear; sea, rough; wire angle, 16°.

1	17.20	33.88	5.62a)	332	0	(17.20)	(33.88)	(5.62)	(24.63)	(332)	(0.00)
10	17.22	33.86	5.11	334	10	17.22	33.86	5.11	24.61	334	0.03
30	17.14	33.84	5.50	333	20	17.20	33.85	5.41	24.61	334	0.07
40	15.58	33.80	4.48	302	30	17.14	33.84	5.50	24.62	333	0.10
50	14.27	33.77	3.76	278	50	14.27	33.77	3.76	25.20	278	0.16
63	13.26	33.87	3.40	250	75	12.37	33.95	2.84	25.72	228	0.22
78	12.26	33.96	2.73	225	100	11.50	34.08	1.96	26.00	202	0.28
96	11.94	34.06	2.21	212	150	11.40	34.32	1.27	26.19	184	0.38
119	11.45	34.14	1.81	198	200	10.46	34.41	0.94	26.44	160	0.46
138	11.45	34.29	1.37	186	250	9.73	34.40	1.10	26.55	150	0.54
166	11.27	34.35	1.11	179	300	9.39	34.44	0.79	26.65	140	0.62
183	10.72	34.42	0.95	164	400	8.16	34.42	0.32	26.82	124	0.76
222	10.16	34.39	0.92	157	500	7.09	34.40	0.38	26.96	111	0.88
259	9.61	34.40	1.05	148							
316	9.30	34.47	0.62	138							
390	8.28	34.43	0.31	125							
464	7.49	34.40	0.41	116							
544	6.62	34.41	0.28	104							

120.80 ORCA; March 19, 1959; 0425 GCT; 26°33.5'N, 117°47.5'W; sounding, 2000+ fm; wind, 320°, force 5; weather, partly cloudy; sea, very rough; wire angle, 07°.

1	18.57	34.11	5.70a)	347	0	(18.57)	(34.11)	(5.70)	(24.47)	(347)	(0.00)
11	18.58	34.09	5.55	348	10	18.58	34.09	5.55	24.46	348	0.03
32	18.51	34.13	5.58	344	20	18.55	34.10	5.54	24.47	347	0.07
62	17.94	33.99	5.69	341	30	18.52	34.13	5.57	24.50	344	0.10
212b)	10.14	34.25	1.75	167	50	18.50	34.13	5.58	24.50	344	0.17
241	9.78	34.31	1.43	157							
292	8.89	34.30	1.18	144							
347	8.14	34.34	0.73	130							
434	7.20	34.37	0.35	115							
520	6.48	34.34	0.48	108							
607	5.90	34.40	0.35	96							

- a) On Stations 120.50 and 120.80 the station number appears to be reversed on the oxygen sheets; the data are now assumed to be listed correctly.
b) Pretrip; depth too uncertain for interpolation.

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

SIO
CCOFI
5903

ORCA; March 20, 1959; 1255 GCT; 27°14'N, 115°00'W; sounding, 500 fm; wind, 320°, force 3; weather, overcast; sea, moderate; wire angle, 10°.

123.42

2	17.50	33.98	5.90	332	0	(17.50)	(33.98)	(5.90)	(24.63)	(332)	(0.00)
11	17.52	33.93	5.90	335	10	17.51	33.93	5.90	24.60	335	0.03
31	17.50	33.93	5.86	335	20	17.51	33.93	5.89	24.60	335	0.07
57	16.48	33.84	5.62	319	30	17.50	33.93	5.87	24.60	335	0.10
66	14.97	33.78	5.41	291	50	17.26	33.92	5.81	24.64	332	0.17
77	14.02	33.77	5.10	273	75	14.18	33.78	5.15	25.23	275	0.24
92	12.99	33.66	4.69	260	100	12.33	33.68	4.04	25.52	247	0.31
105	12.54	33.78	3.84	244	150	10.99	34.14	2.20	26.12	190	0.42
130	11.36	33.95	2.72	210	200	10.63	34.43	0.93	26.42	162	0.51
150	10.99	34.14	2.20	190	250	10.05	34.49	0.60	26.56	148	0.59
173	11.01	34.30	1.42	178	300	9.41	34.48	0.50	26.66	139	0.66
201	10.62	34.43	0.92	162	400	8.05	34.43	0.31	26.84	122	0.80
230	10.30	34.48	0.64	153	500	6.91	34.40	0.26	26.98	108	0.92
268	9.83	34.49	0.58	144							
326	9.06	34.47	0.42	134							
399	8.06	34.43	0.31	122							
474	7.14	34.41	0.28	111							
554	6.45	34.40	0.24	102							

ORCA; March 22, 1959; 0328 GCT; 26°07.5'N, 114°07'W; sounding, 1100 fm; wind, direction missing, force 1; weather, overcast; sea, moderate; wire angle, 17°.

130.40

0	18.84	34.15	5.35	351	0	18.84	34.15	5.35	24.43	351	0.00
9	18.80	34.14	5.80u	350	10	18.79	34.14		24.44	350	0.04
29	18.60	34.13	5.20	346	20	18.69	34.14		24.46	348	0.07
53	18.32	34.09	5.16	342	30	18.59	34.13	5.19	24.48	346	0.10
62	16.58	33.86	5.14	319	50	18.35	34.09	5.16	24.52	343	0.17
73	15.80	33.77	5.15	309	75	15.48	33.76	5.14	24.92	304	0.25
86	14.06	33.74	5.00	275	100	12.55	33.73	4.11	24.52	247	0.32
100	12.55	33.73	4.11	247	150	11.67	34.21	1.74	26.06	196	0.44
122	12.00	33.91	3.11	224	200	10.91	34.43	0.87	26.38	166	0.53
141	11.70	34.13	2.08	202	250	10.30	34.52	0.50	26.55	150	0.61
164	11.64	34.34	1.28	186	300	9.58	34.51	0.34	26.66	139	0.68
192	11.04	34.42	0.94	170	400	8.26	34.48	0.21	26.84	122	0.82
221	10.62	34.50	0.69	156	500	7.43	34.48	0.09	26.97	110	0.94
261	10.18	34.52	0.43	148							
315	9.36	34.51	0.32	135							
387	8.35	34.47	0.22	123							
460	7.86	34.49	0.13	115							
540	6.96	34.45	0.06	105							

ORCA; March 23, 1959; 1935 GCT; 24°58'N, 113°25'W; sounding, 1500 fm; wind, 340°, force 2; weather, cloudy; sea, moderate; wire angle, 15°.

137.40

2	19.64	34.31	5.54	359	0	(19.64)	(34.31)	(5.54)	(24.34)	(359)	(0.00)
11	19.52	34.32	5.55	355	10	19.53	34.32	5.55	24.38	355	0.04
31	19.27	34.37	5.53	345	20	19.41	34.34	5.55	24.43	351	0.07
61	19.16	34.38	5.45	341	30	19.28	34.37	5.54	24.49	345	0.11
71	18.78	34.28	5.44	340	50	19.18	34.38	5.46	24.52	342	0.17
85	17.73	34.10	5.44	328	75	18.72	34.27	5.44	24.56	339	0.26
100	15.50	33.90	4.31	293	100	15.50	33.90	4.31	25.04	293	0.34
115	13.52	33.90	3.31	253	150	11.87	34.11	2.23	25.94	207	0.46
138	12.34	34.10	2.36	216	200	10.85	34.38	1.24	26.34	170	0.56
157	11.62	34.11	2.17	203	250	10.38	34.55	0.52	26.56	149	0.64
186	11.01	34.30	1.55	178	300	9.73	34.54	0.37	26.66	139	0.72
214	10.70	34.46	0.90	161	400	8.42	34.50	0.27	26.84	122	0.85
243	10.48	34.54	0.54	151	500	7.17	34.43	0.18	26.97	110	0.97
291	9.85	34.54	0.40	141	600	(6.19)	(34.45)	(0.15)	(27.12)	(96)	(1.08)
345	9.14	34.54	0.27	130							
427	8.02	34.47	0.26	119							
510	7.06	34.43	0.17	109							
594	6.24	34.45	0.15	96							

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	10 Meters	
						Dir	Force			T	S
83.40-P	III-26	0015	34°14.0'	119°22.0'	12	280°	3	partly cloudy	moderate	14.12	33.58
83.43-P	26	0155	34°08.0'	119°34.0'	142	280°	4	partly cloudy	rough	14.24	33.59
83.51-P	26	0740	33°52.0'	120°07.5'	66	240°	8	partly cloudy	very rough	13.11	33.64
87.35-P	24	1635	33°50.0'	118°37.5'	430	260°	3	clear	rough	15.22	33.59
87.40-P	27	1745	33°40.0'	118°58.5'	465	340°	3	clear	very rough	15.44	33.58
87.45-P	27	2045	33°34.5'	119°26.5'	100	340°	5	clear	very rough	14.60	33.58
87.50-P	28	0235	33°23.0'	119°38.0'	63	290°	8	clear	very high	14.48	33.58
90.65-S	13	0230	32°15.0'	120°16.0'	2000	290°	2	clear	very rough	16.69	33.58
93.45-S	15	0630	32°20.0'	118°33.0'	980	320°	2	clear	moderate	16.29	33.58
93.55-S	14	2130	31°55.0'	119°12.0'	550	320°	6	cloudy	very rough	15.65	33.51
97.30-P	22	1910	32°16.0'	117°09.0'	30	300°	1	partly cloudy	moderate	16.08	33.54
97.32-P	22	1758	32°12.0'	117°16.0'	780	-	1	partly cloudy	moderate	16.74	33.57
97.35-P	22	1540	32°03.0'	117°27.0'	690	340°	2	cloudy	moderate	17.14	33.70
97.40-P	22	1235	31°53.0'	117°48.0'	830	200°	4	cloudy	rough	16.89	33.70
97.45-P	22	1000	31°43.0'	118°08.5'	840	290°	4	cloudy	very rough	16.56	33.62
97.50-P	22	0705	31°34.0'	118°29.0'	1480	280°	4	cloudy	very rough	16.58	33.61
97.55-P	22	0410	31°23.5'	118°49.0'	650	300°	4	cloudy	very rough	16.51	33.66

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
100.29-P	III-21	0125	31°42.0'	116°43.5'	68	310°	2	cloudy	moderate	15.50	33.57
100.30-P	21	0235	31°40.5'	116°46.5'	235	310°	2	cloudy	moderate	16.10	33.58
100.35-P	21	0535	31°30.0'	117°08.0'	500	290°	2	cloudy	moderate	16.86	33.61
100.40-P	21	0850	31°19.5'	117°29.5'	650	300°	2	cloudy	moderate	16.87	33.65
100.45-P	21	1200	31°08.0'	117°50.5'	1000	300°	3	overcast	moderate	16.72	33.64
100.50-P	21	1431	30°58.0'	118°13.0'	950	300°	2	partly cloudy	rough	16.45	33.62
100.55-P	21	1700	30°51.0'	118°30.0'	1150	270°	3	partly cloudy	rough	16.61	33.66
103.30-P	20	1855	31°04.0'	116°23.5'	30	-	1	overcast	moderate	15.04	33.55
103.35-P	20	1542	30°52.5'	116°43.5'	970	340°	1	overcast	slight	16.66	33.69
103.40-P	20	1242	30°43.5'	117°05.0'	990	320°	1	partly cloudy	moderate	16.74	33.71
103.45-P	19	2235	30°39.0'	117°23.5'	1230	340°	4	overcast	rough	17.00	33.70
103.50-P	19	2025	30°33.5'	117°42.5'	1200	340°	4	overcast	rough	17.12	33.80
103.55-P	19	1720	30°26.5'	118°02.0'	1770	340°	4	overcast	rough	17.18	33.82
103.70-P	19	0835	29°52.5'	119°05.0'	1850	340°	5	cloudy	very rough	15.99	33.45
103.80-P	19	0310	29°28.0'	119°45.0'	2180	320°	5	partly cloudy	rough	16.84	33.46
107.32-P	17	1625	30°25.5'	116°11.0'	230	-	1	overcast	moderate	16.00	33.64
107.35-P	17	1845	30°19.5'	116°21.0'	1070	-	1	overcast	slight	16.72	33.66

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
107.40-P	III-17	2135	30°09.0'	116°45.0'	1510	280°	2	overcast	moderate	16.84	33.66
107.45-P	18	0030	29°59.5'	117°02.5'	1180	280°	2	overcast	moderate	16.99	33.66
107.50-P	18	0324	29°50.5'	117°21.5'	1450	280°	2	cloudy	moderate	16.89	33.62
107.55-P	18	0625	29°41.5'	117°42.5'	1970	360°	3	partly cloudy	rough	16.96	33.68
107.70-P	18	1505	29°12.0'	118°40.5'	2000+	300°	4	cloudy	rough	17.42	33.86
107.80-P	18	2025	28°52.5'	119°23.5'	2000	280°	4	partly cloudy	rough	17.32	33.75
110.33-O	14	1630	29°50.5'	115°52.0'	50	300°	3	overcast	rough	16.26	33.68
110.35-O	14	1510	29°46.5'	116°00.0'	750	110°	4	overcast	rough	16.74	33.68
110.40-O	14	1115	29°35.5'	116°18.5'	1335	330°	4	partly cloudy	rough	16.48	33.68
110.45-O	14	0820	29°25.5'	116°39.0'	500	330°	4	cloudy	very rough	16.36	33.62
110.50-O	14	0525	29°15.5'	116°59.0'	1925	320°	6	cloudy	high	16.86	33.66
110.55-O	14	0230	29°03.5'	117°19.0'	2000	330°	5	partly cloudy	very rough	16.94	33.68
110.65-O	13	2010	28°46.0'	117°56.5'	2000	320°	3	clear	moderate	17.04a)	33.79
110.70-O	13	1740	28°36.0'	118°18.0'	1750	330°	2	clear	moderate	17.14	33.78
110.80-O	13	1245	28°18.0'	118°55.0'	2000	300°	2	partly cloudy	rough	17.46	33.86

a) Alternate value, 17.32°C.

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	10 Meters	
						Dir	Force			T	S
110.90-O	III-13	0750	27°59.0'	119°33.0'	2080	300°	2	partly cloudy	rough	17.64	33.89
113.30-O	14	2125	29°22.5'	115°18.0'	30	300°	3	partly cloudy	rough	15.09	33.83
113.35-O	15	0015	29°12.5'	115°38.0'	500	290°	5	overcast	very rough	16.76	33.68
113.40-O	15	0300	29°02.5'	115°57.5'	975	290°	5	overcast	very rough	17.26	33.85
113.45-O	15	0555	28°52.5'	116°17.0'	1100	290°	4	overcast	very rough	17.03	33.82
113.50-O	15	0835	28°42.5'	116°36.5'	2400	300°	5	overcast	very rough	16.97	33.68
113.55-O	15	1130	28°33.0'	116°56.0'	1850	300°	5	overcast	very rough	17.04	33.71
113.65-O	15	1825	28°12.5'	117°35.0'	2000	320°	2	overcast	rough	17.26	33.77
113.70-O	15	2135	28°02.0'	117°54.5'	2000	320°	2	cloudy	rough	17.62	33.89
113.80-O	16	0240	27°42.5'	118°38.5'	2000	320°	4	partly cloudy	very rough	17.96	34.00
117.26-O	17	1630	28°56.0'	114°40.5'	48	-	1	overcast	slight	16.36	33.77
117.30-O	17	1435	28°48.0'	114°56.5'	55	360°	2	cloudy	slight	16.96	33.83
117.35-O	17	1150	28°38.0'	115°16.0'	125	300°	2	clear	moderate	16.41	33.66
117.40-O	17	0650	28°28.0'	115°35.5'	400	020°	3	partly cloudy	rough	17.17	33.82
117.45-O	17	0335	28°18.0'	115°55.0'	1780	350°	4	partly cloudy	rough	17.22	33.76
117.55-O	16	2105	27°57.5'	116°34.0'	1900+	350°	4	clear	rough	17.51	33.84
117.60-O	16	1825	27°47.5'	116°53.5'	2100	350°	4	clear	very rough	17.52	33.84

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
117.65-O	III-16	1455	27°42.5'	117°22.5'	2000+	360°	5	clear	very rough	17.81	33.99
117.70-O	16	1210	27°31.5'	117°39.5'	2000	330°	2	partly cloudy	rough	17.78	33.97
117.80-O	16	0715	27°08.5'	118°12.5'	2100	360°	2	partly cloudy	rough	18.22	34.04
118.39-O	17	0900	28°19.0'	115°24.5'	178	020°	2	partly cloudy	rough	16.80	33.73
119.33-O	18	0200	28°19.0'	114°53.0'	62	300°	3	overcast	moderate	17.38	33.86
120.25-O	17	2135	28°23.0'	114°15.0'	28	360°	3	overcast	moderate	16.90	33.82
120.30-O	18	0000	28°13.0'	114°34.0'	50	360°	3	overcast	moderate	16.78	33.80
120.35-O	18	0430	28°03.0'	114°54.0'	47	320°	2	overcast	rough	17.08	33.83
120.40-O	18	0640	27°56.5'	115°14.0'	22	320°	3	overcast	rough	16.86	33.80
120.45-O	18	0925	27°43.0'	115°33.0'	1180	320°	3	overcast	rough	17.10	33.82
120.55-O	18	1555	27°21.5'	116°11.5'	2000	300°	4	clear	rough	16.90	33.75
120.60-O	18	1855	27°11.0'	116°30.5'	2000	300°	5	clear	very rough	17.94	34.02
120.65-O	18	2105	27°00.0'	116°51.0'	2000+	320°	5	clear	very rough	17.90	33.96
120.70-O	18	2335	26°49.0'	117°10.0'	2000+	320°	5	clear	very rough	17.92	33.87
120.90-O	19	1010	26°13.0'	118°27.5'	2000+	320°	5	partly cloudy	very rough	18.60	34.49
123.37-O	20	1555	27°24.0'	114°40.0'	38	320°	4	overcast	rough	17.42a)	33.98

a) Alternate value, 16.76°C.

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

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	10 Meters	
						Dir	Force			T	S
123.45-O	III-20	1045	27°08.5'	115°10.5'	2000	320°	4	overcast	rough	17.80	34.00
123.50-O	20	0750	26°58.5'	115°30.0'	1990	320°	4	overcast	rough	17.16	33.79
123.55-O	20	0530	26°48.5'	115°50.5'	2000	340°	3	overcast	rough	17.20	33.81
123.60-O	20	0215	26°36.0'	116°09.0'	2000+	320°	3	cloudy	very rough	17.53	33.87
127.34-O	20	2035	26°55.5'	114°06.0'	39	140°	3	overcast	moderate	17.30	34.05
127.40-O	20	2343	26°43.0'	114°29.0'	-	270°	4	cloudy	rough	17.94	33.98
127.45-O	21	0255	26°32.0'	114°48.5'	2000	290°	2	cloudy	rough	18.64	34.15
127.50-O	21	0515	26°23.0'	115°08.0'	2000+	330°	5	overcast	rough	18.78	34.18
127.55-O	21	0820	26°13.0'	115°27.5'	2000+	330°	3	overcast	rough	18.69	34.20
127.60-O	21	1100	26°03.5'	115°47.0'	2000+	320°	3	clear	moderate	18.76	34.21
130.30-O	22	0855	26°29.0'	113°28.5'	42	-	1	cloudy	moderate	18.43	34.18
130.35-O	22	0600	26°18.5'	113°48.5'	210	-	1	overcast	slight	18.34	34.22
130.45-O	22	0025	25°57.5'	114°26.0'	2000+	290°	2	overcast	moderate	18.92	34.16
130.50-O	21	2140	25°48.0'	114°45.0'	2000+	-	1	cloudy	moderate	19.29	34.23
130.55-O	21	1900	25°39.0'	115°02.5'	2000	-	1	cloudy	moderate	19.77	34.34
130.60-O	21	1605	25°27.0'	115°23.0'	2100	320°	3	cloudy	moderate	19.76	34.36
133.25-O	22	1410	26°03.0'	112°45.5'	44	-	1	cloudy	smooth	19.38	34.35

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
133.30-O	III-22	1710	25°55.0'	113°07.5'	104	210°	1	partly cloudy	slight	19.02	34.22
133.35-O	23	0035	25°44.5'	113°26.5'	360	-	1	partly cloudy	smooth	18.33	34.14
133.40-O	23	0330	25°34.5'	113°45.0'	1500	260°	1	clear	smooth	20.04	34.40
133.45-O	23	0610	25°24.5'	114°04.5'	2000+	260°	2	cloudy	moderate	19.55a)	34.29
133.50-O	23	0900	25°14.5'	114°24.0'	2000+	270°	3	overcast	moderate	20.74	34.33
134.36-O	22	2310	25°38.5'	113°26.0'	78	-	1	partly cloudy	calm	18.50	34.19
137.23-O	24	0615	25°33.5'	112°18.5'	41	290°	5	clear	rough	20.02	34.39
137.30-O	24	0210	25°19.5'	112°46.0'	268	290°	5	clear	rough	19.72	34.31
137.35-O	23	2330	25°09.0'	113°05.5'	600	320°	3	partly cloudy	rough	19.16	34.21
137.45-O	23	1625	24°49.0'	113°43.0'	1400	340°	3	overcast	moderate	21.03	34.56
137.50-O	23	1400	24°40.5'	114°00.0'	2000+	340°	2	overcast	moderate	21.61	34.61

a) Alternate value, 19.73°C.

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

DISTRIBUTION LIST

Mr. D. L. Alverson, Chief
North Pacific Fisheries Exploration and
Gear Research
Bureau of Commercial Fisheries
2725 Montlake Boulevard
Seattle 2, Washington

Mr. William Anderson
Bureau of Commercial Fisheries
Brunswick, Georgia

Mr. William E. Batzler
Code 2232
U. S. Navy Electronics Laboratory
San Diego 52, California

British Joint Services
(Navy Staff)
1910 K Street N. W.
Washington, D. C.

Mr. J. G. Burnette, Chairman
Marine Research Committee
P. O. Box 807
Los Altos, California

Librarian (4)
Department of Fish and Game
California State Fisheries Laboratory
Terminal Island, California

Library
Oceanographic Group
Central Fisheries Experiment Station
Pusan, Korea

Dr. Ernest R. Anderson
Code 2233
U. S. Navy Electronics Laboratory
San Diego 52, California

Mr. Thomas S. Austin
Bureau of Commercial Fisheries
Biological Laboratory
P. O. Box 3830
Honolulu 12, Hawaii

Dr. Rolf Bolin
Hopkins Marine Station
Pacific Grove, California

Librarian
Bureau of Commercial Fisheries
Biological Laboratory
P. O. Box 3830
Honolulu 12, Hawaii

Dr. Wayne V. Burt
Assoc. Prof. of Oceanography
School of Science
Oregon State College
Corvallis, Oregon

Mr. Ray Cannon
Ocean Fish Protective Association
645 N. Serrano Street
Los Angeles 4, California

Mr. Harold B. Clemens, Jr.
Marine Resources Operations
California State Fisheries Laboratory
Terminal Island, California

Chief, Division of Fisheries
Commonwealth Scientific and Industrial
Research Organization
P. O. Box 21
Crunulla, N. S. W., Australia

Mr. R. S. Croker, Director
California Department of Fish and Game
Marine Fisheries Laboratory Branch
772 Capitol Avenue
Sacramento 14, California

Deutsches Hydrographisches Institut
Bernhard-Nocht-Str. 78
Hamburg 4, Germany

Director of Research
Fish Commission of Oregon
Route 1, Box 31A
Clackamas, Oregon

Dr. Paul M. Fye
Woods Hole Oceanographic Institution
Woods Hole, Massachusetts

Mr. C. G. Gunnerson
Department of Water Resources
Division of Resources Planning
P. O. Box 1079
Sacramento 5, California

Dr. William J. Hargis, Jr., Director
Virginia Fisheries Laboratory
Gloucester Point, Virginia

Dr. Robert W. Hiatt
University of Hawaii
Honolulu 12, Hawaii

Dr. G. M. Cresswell
Department of Earth Sciences
Stanford Research Institute
Menlo Park, California

Herrn Professor Dr. A. Defant
Sternwartestrasse 38
Innsbruck
Austria

Chief
Division of Biological Research
U. S. Fish and Wildlife Service
Bureau of Commercial Fisheries
Washington 25, D. C.

Dr. Richard H. Fleming
University of Washington
Oceanographic Laboratories
Seattle 5, Washington

Dr. Robert H. Gibbs, Jr.
Department of Biology
Boston University
Boston 15, Massachusetts

Hancock Library of Biology and
Oceanography
Allan Hancock Foundation
University of Southern California
Los Angeles 7, California

Mr. John Hawk
c/o Seafarers' International Union of
North America
450 Harrison Street
San Francisco 5, California

Mr. T. Hirano
Tokai Regional Fisheries Research
Laboratory
Tsukishima
Tokyo, Japan

Director
Instituto de Geofísica
Torre de Ciencias, 3er piso
Universidad Nacional Autónoma de
México
Villa Obregón, D. F.
México

Japan Meteorological Agency
Oceanographical Section
Tokyo, Japan

Dr. E. Koto
Institute of Fisheries
Hokkaido University
Hakodate, Japan

Cdr. J. R. Lumby, Director
IGY WDC-A, Oceanography
Texas A. and M. College
College Station, Texas

Mr. Joseph Mardesich
Franco-Italian Packing Company
Fish Harbor Wharf
Terminal Island, California

Mr. Jotaro Masuzuwa
Japan Meteorological Agency
Oceanographical Section
Tokyo, Japan

Dr. Hugh J. McLellan
Department of Oceanography
Texas A. and M. College
College Station, Texas

Dr. R. C. Miller, Director
California Academy of Science
Golden Gate Park
San Francisco 18, California

Mr. Milton C. James
Pacific Marine Fishery Commission
340 State Office Building
1400 S. W. Fifth Avenue
Portland 1, Oregon

Dr. H. Kitamura
Oceanographic Section
Kobe Marine Observatory
Kobe, Japan

Dr. E. C. LaFond
Code 2250
U. S. Navy Electronics Laboratory
San Diego 52, California

Dr. John Lyman
National Science Foundation
Washington 25, D. C.

Mr. John C. Marr
Bureau of Commercial Fisheries
Biological Laboratory
P. O. Box 3830
Honolulu 12, Hawaii

Dr. J. L. McHugh, Chief
Division of Biological Research
Bureau of Commercial Fisheries
Washington 25, D. C.

Mr. Arthur H. Mendonca
c/o R. E. Booth Company, Inc.
280 Battery Street
San Francisco 11, 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

Mr. A. W. H. Needler, Director
Pacific Biological Station
Nanaimo, B. C.
Canada

Dr. Robert M. Norris
Department of Physical Sciences
University of California
Santa Barbara Campus
Goleta, California

Chief of Naval Research
Office of Naval Research
Geophysics Branch, Code 416
Washington 25, D. C.

Dr. E. L. Pickard
Institute of Oceanography
University of British Columbia
Vancouver, B. C.
Canada

Dr. D. W. Pritchard, Director
Chesapeake Bay Institute
The Johns Hopkins University
121 Maryland Hall
Baltimore 18, Maryland

Mr. John Radovich
California Department of Fish and Game
California State Fisheries Laboratory
Terminal Island, California

Mr. Don T. Saxby
California Division
California Packing Corporation
2600 Seventh Street
Berkeley 10, California

National Marine Consultants, Inc.
2913 De la Vina
Santa Barbara, California
Attn: Dr. Richard Kent

Mr. Kenneth S. Norris
University of California
Department of Zoology
Los Angeles 24, California

Director
Norwegian Polar Institute
Observatorieggt 1
Oslo, Norway

Dr. Yngve H. Olsen
Journal of Marine Research
Yale University
New Haven, Connecticut

Dr. G. Pogade, Librarian
Deutscher Wetterdienst Seewetteramt
Hamburg, Germany

Pusan Fisheries College
Pusan
Korea

Dr. Gordon A. Riley
Bingham Oceanographic Foundation
Yale University
New Haven, Connecticut

Dr. O. E. Sette, Chief
Bureau of Commercial Fisheries
Biological Laboratory
450-B Jordan Hall
Stanford, California

Mr. D. Shoji
Japanese Hydrographic Office
Tsukiji
Tokyo, Japan

Mr. Henry M. Stommel
Woods Hole Oceanographic Institution
Woods Hole, Massachusetts

Dr. Y. Takenouti
Oceanographical Section
Japan Meteorological Agency
Chuo-ku
Tokyo, Japan

Department of Oceanography
Texas A. and M. College
College Station, Texas

U. S. Hydrographic Office (2)
Navy Department
Washington 25, D. C.
Attn: Dr. Boyd E. Olson
Division of Oceanography

University of California
Department of Zoology
Berkeley 4, California

Director
University of Miami
Marine Laboratory
Coral Gables, Florida

Librarian (2)
University of Washington
Oceanographic Laboratories
Seattle 5, Washington

Mr. W. E. Stewart
c/o California State Chamber of
Commerce
350 Bush Street
San Francisco 4, California

Miss Margaret Storey, Librarian
Natural History Museum
Stanford, California

Mr. Norman Tebble
Annelida Section
British Museum (Natural History)
Cromwell Road
London SW7, England

Dr. M. Uda
Tokyo University of Fisheries
Minato-ku
Tokyo, Japan

Library, Code 2420 (2)
U. S. Navy Electronics Laboratory
San Diego 52, California

University of California (2)
Serials Department
General Library
Berkeley 4, California

Librarian
University of Washington
Oceanographic Laboratories
Friday Harbor, Washington

Director
University of Washington
School of Fisheries
Seattle 4, Washington

Mr. Gilbert C. Van Camp, Sr.
772 Tuna Street
Terminal Island, California

Dr. Lionel A. Walford
Laboratory Director
Biological Laboratory
Bureau of Commercial Fisheries
734 Jackson Place, N. W.
Washington 25, D. C.

Mr. William E. Warne
California Department of Fish and Game
926 J Street
Sacramento 14, California

Dr. Kozo Yoshida
Geophysical Institute
Tokyo University
Bunkyo-ku
Tokyo, Japan

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

Dr. M. B. Schaefer

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

Mr. Richard C. Vetter
Secretary to the Committee on
Oceanography
National Academy of Sciences
2101 Constitution Avenue
Washington 25, D. C.

Dr. Boyd W. Walker
University of California
Department of Zoology
Los Angeles 24, California

Dr. M. Pat Wennekens
Oceanic Research Division
(Code 508)
Naval Ordnance Test Station
China Lake, California

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

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

Mr. Joseph L. Reid, Jr.
Dr. Roger Revelle
Mrs. Margaret K. Riedel
Mrs. Margaret K. Robinson
Mr. Gunnar I. Roden
Mr. Richard A. Schwartzlose
Dr. Warren S. Wooster
Mr. Charles G. Worrall (20)
Library (4)
Library, SFA