CORRECTIONS MADE:
STATION POSITIONS HS
10/62 Corr - Notes

UNIVERSITY OF CALIFORNIA SCRIPPS INSTITUTION OF OCEANOGRAPHY

data report

PHYSICAL AND CHEMICAL DATA

CCOFI Cruise 5811
13-24 November 1958

and

CCOFI Cruise 5812
1-11 December 1958

SIO Reference 59-50
22 April 1959

Note: Parentheses should be added to top and or bottom levels of values at standard depths to indicate extrapolation where first observed depth is greater than zero or the bottom depth is less than the deepest standard depth

Errata

28 oct 63

UNIVERSITY OF CALIFORNIA

SCRIPPS INSTITUTION OF OCEANOGRAPHY

PHYSICAL AND CHEMICAL DATA

CCOFI CRUISE 5811
13-24 November 1958

and

CCOFI CRUISE 5812
1-11 December 1958

Sponsored by

Marine Research Committee

SIO Reference 59-50
22 April 1959

Approved for distribution:

Roger Revelle

Roger Revelle, Director

CONTENTS

INTRODUCTION

The data presented in this report were collected on the one hundred and fourteenth and one hundred and fifteenth consecutive cruises of the California Cooperative Oceanic Fisheries Investigations program. The R/V Paolina-T participated in the one hundred and fourteenth cruise and the R/V Orca participated in the one hundred and fifteenth cruise.

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

STANDARD PROCEDURES

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

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

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

FOOTNOTES

Footnotes which appear frequently are "loose bottle cap" and "possible evaporation." To avoid any confusion as to their meaning the following explanation is included.

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.

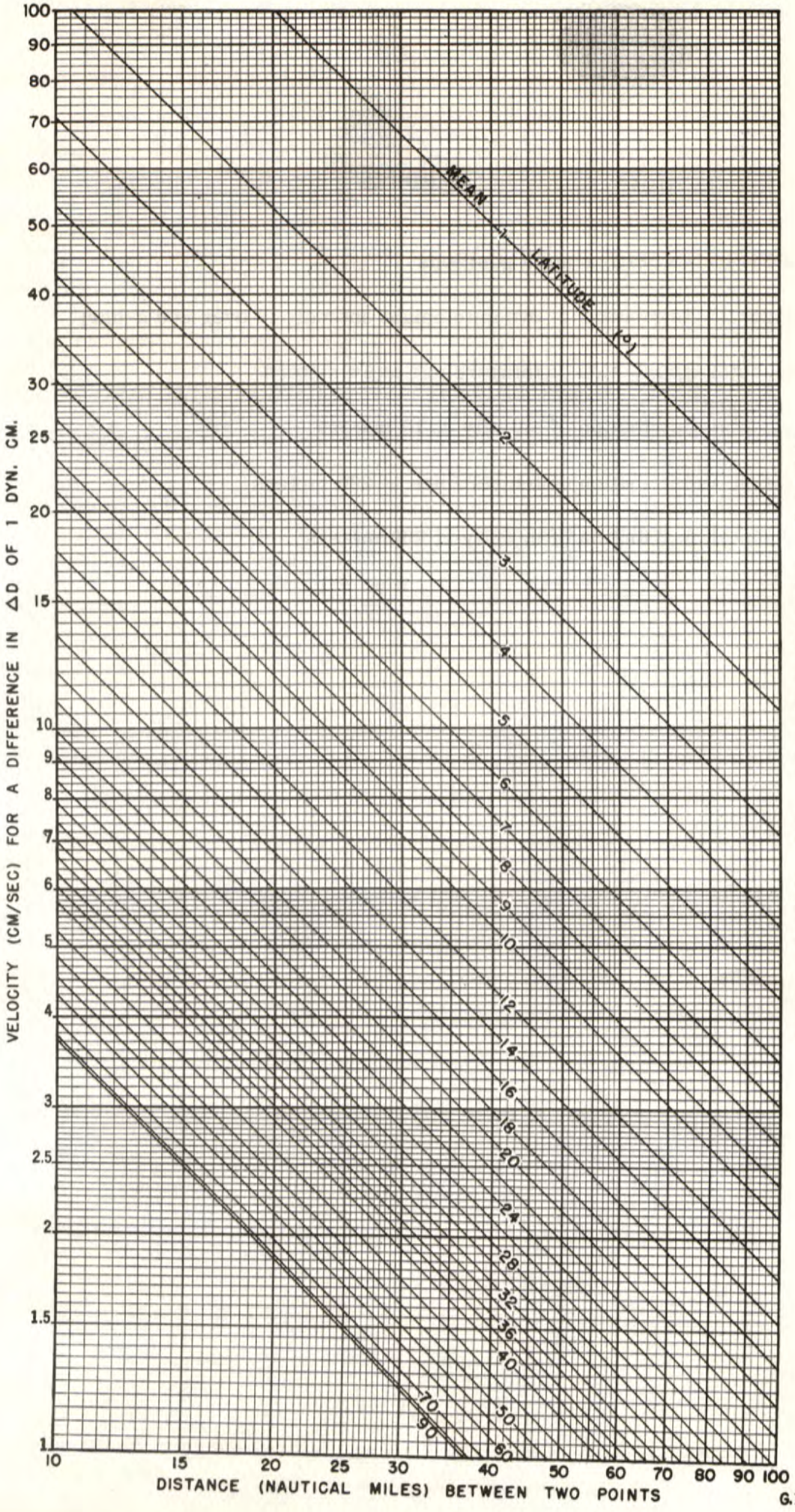
Values which are not drawn through because they seem to be in error without apparent reason are indicated by one of the following notations.

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 1958 volume, the first page of the Cruise 5811 data is numbered 352; the first page of the Cruise 5812 data, 362.


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

FIGURES

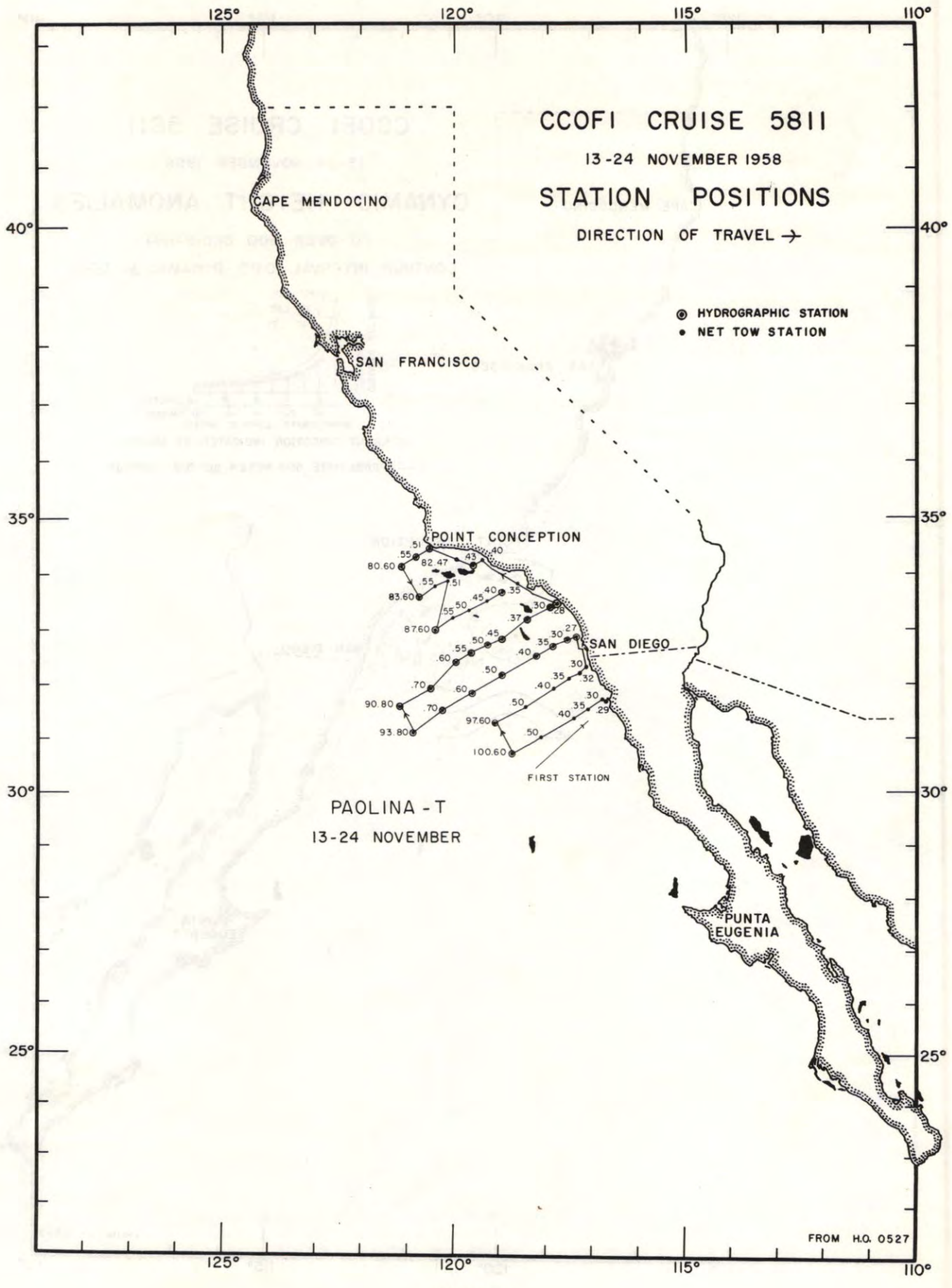

CCOFI CRUISE 5811
13-24 NOVEMBER 1958
STATION POSITIONS
DIRECTION OF TRAVEL →
HYDROGRAPHIC STATION
NET TOW STATION
CAPE MENDOCINO
SAN FRANCISCO
POINT CONCEPTION
SAN DIEGO
PUNTA EUGENIA
FIRST STATION
PAOLINA - T
13-24 NOVEMBER
FROM H.O. 0527
125°
120°
115°
110°
40°
35°
30°
25°

FIGURE 1

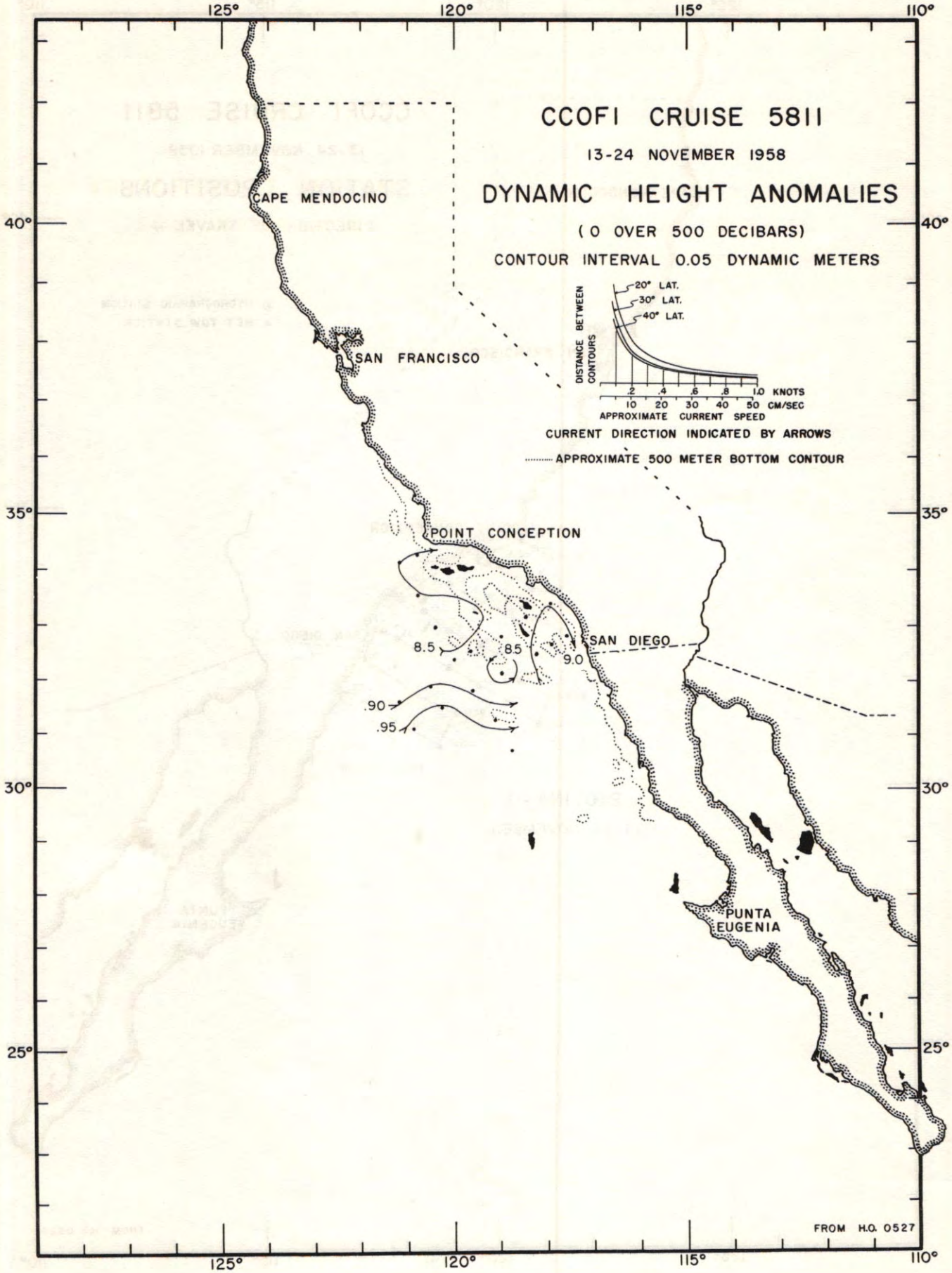

CCOFI CRUISE 5811
13-24 NOVEMBER 1958
DYNAMIC HEIGHT ANOMALIES
(0 OVER 500 DECIBARS)
CONTOUR INTERVAL 0.05 DYNAMIC METERS
20° LAT.
30° LAT.
40° LAT.
DISTANCE BETWEEN CONTOURS
.2 .4 .6 .8 1.0 KNOTS
10 20 30 40 50 CM/SEC
APPROXIMATE CURRENT SPEED
CURRENT DIRECTION INDICATED BY ARROWS
APPROXIMATE 500 METER BOTTOM CONTOUR
CAPE MENDOCINO
SAN FRANCISCO
POINT CONCEPTION
SAN DIEGO
PUNTA EUGENIA
8.5
8.5
9.0
.90
.95
125°
120°
115°
110°
40°
35°
30°
25°
FROM H.O. 0527

FIGURE 2

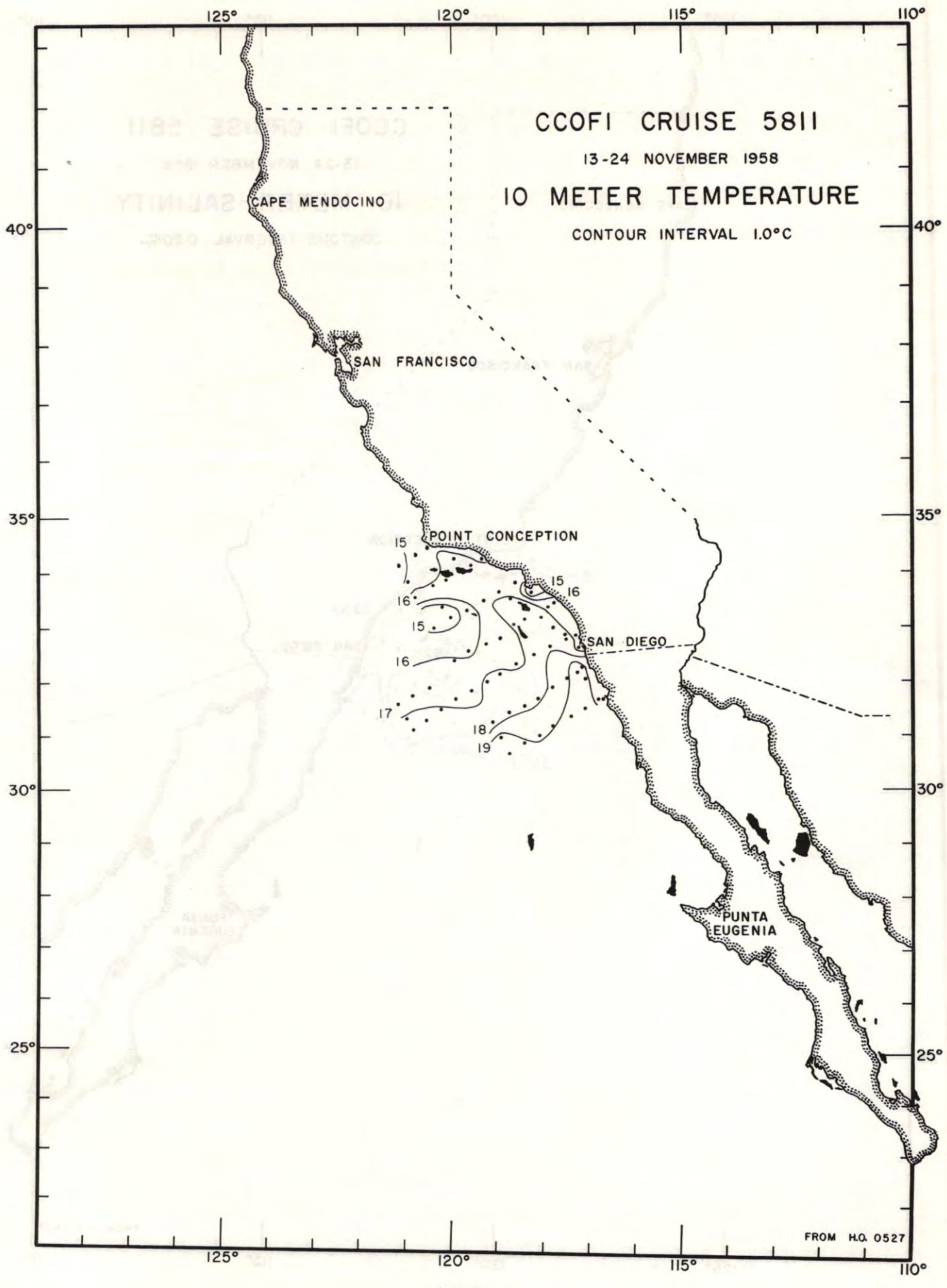

CCOFI CRUISE 5811
13-24 NOVEMBER 1958
10 METER TEMPERATURE
CONTOUR INTERVAL 1.0°C
CAPE MENDOCINO
SAN FRANCISCO
POINT CONCEPTION
SAN DIEGO
PUNTA EUGENIA
15
16
15
16
15
16
17
18
19
125°
120°
115°
110°
40°
35°
30°
25°
FROM H.O. 0527

FIGURE 3

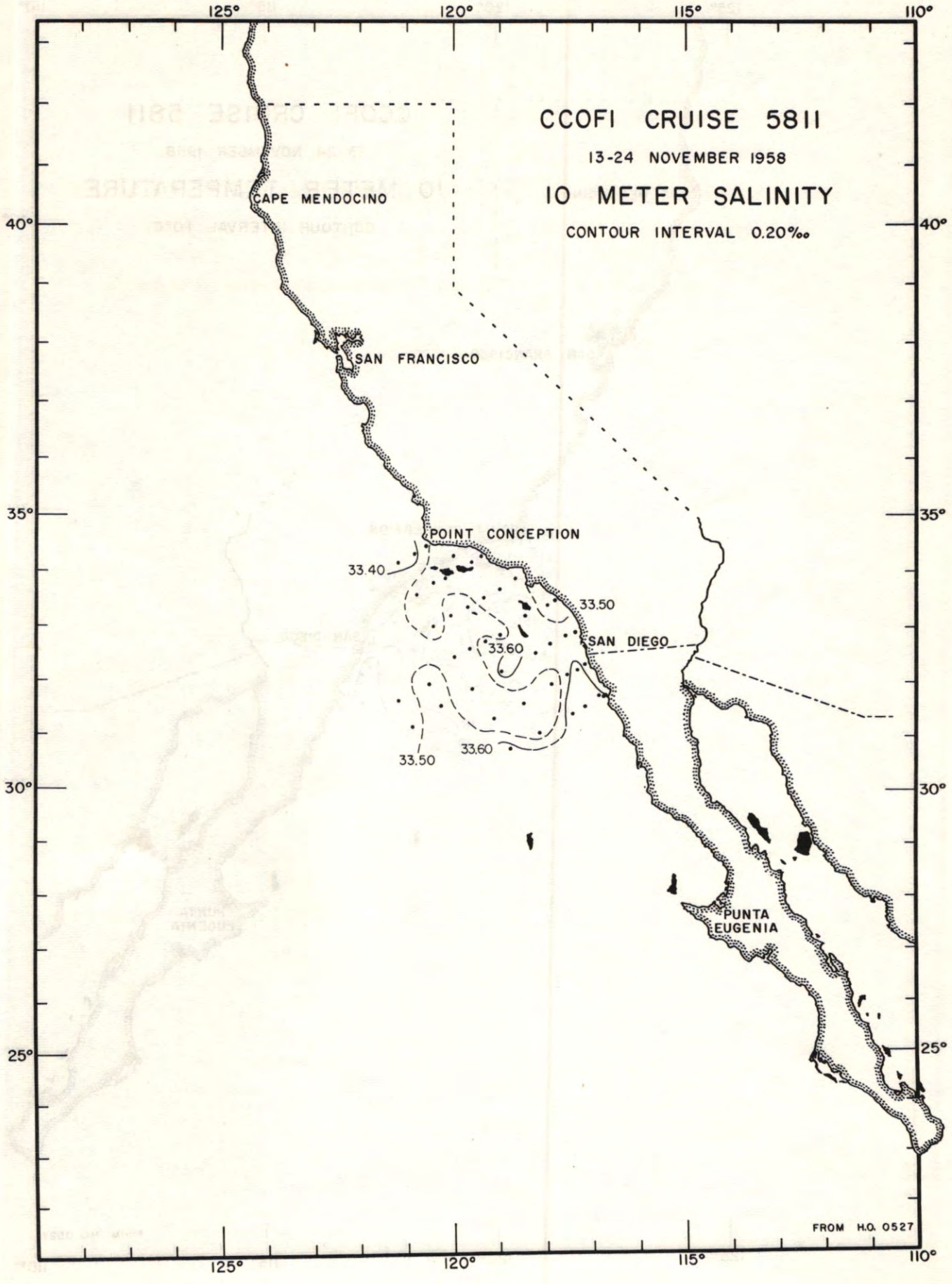

CCOFI CRUISE 5811
13-24 NOVEMBER 1958
10 METER SALINITY
CONTOUR INTERVAL 0.20‰
CAPE MENDOCINO
SAN FRANCISCO
POINT CONCEPTION
SAN DIEGO
PUNTA EUGENIA
33.40
33.50
33.60
33.60
33.50
125°
120°
115°
110°
40°
35°
30°
25°
FROM H.O. 0527

FIGURE 4

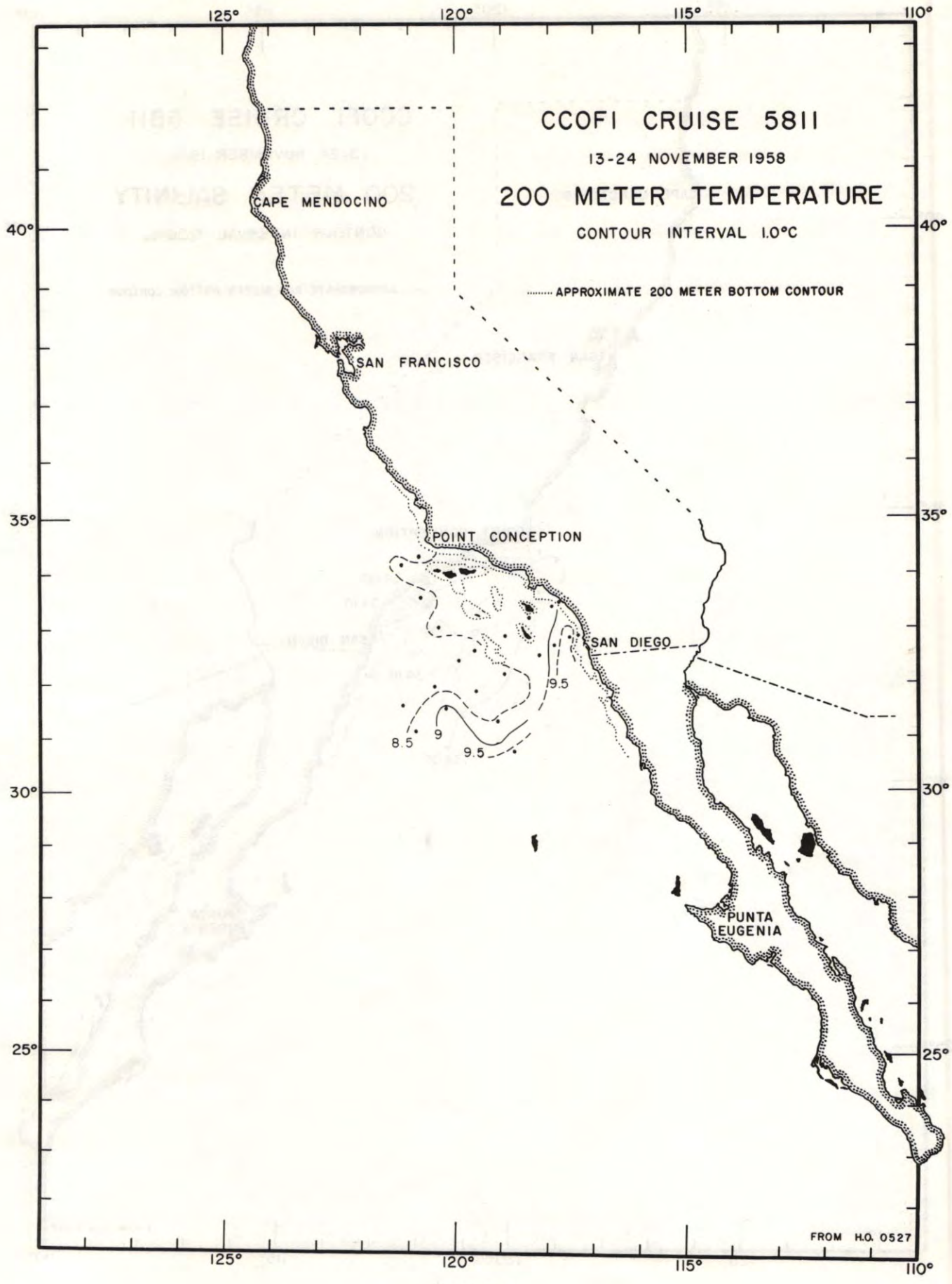

CCOFI CRUISE 5811
13-24 NOVEMBER 1958
200 METER TEMPERATURE
CONTOUR INTERVAL 1.0°C
APPROXIMATE 200 METER BOTTOM CONTOUR
CAPE MENDOCINO
SAN FRANCISCO
POINT CONCEPTION
SAN DIEGO
PUNTA EUGENIA
8.5
9
9.5
9.5
125°
120°
115°
110°
40°
35°
30°
25°
FROM H.O. 0527

FIGURE 5

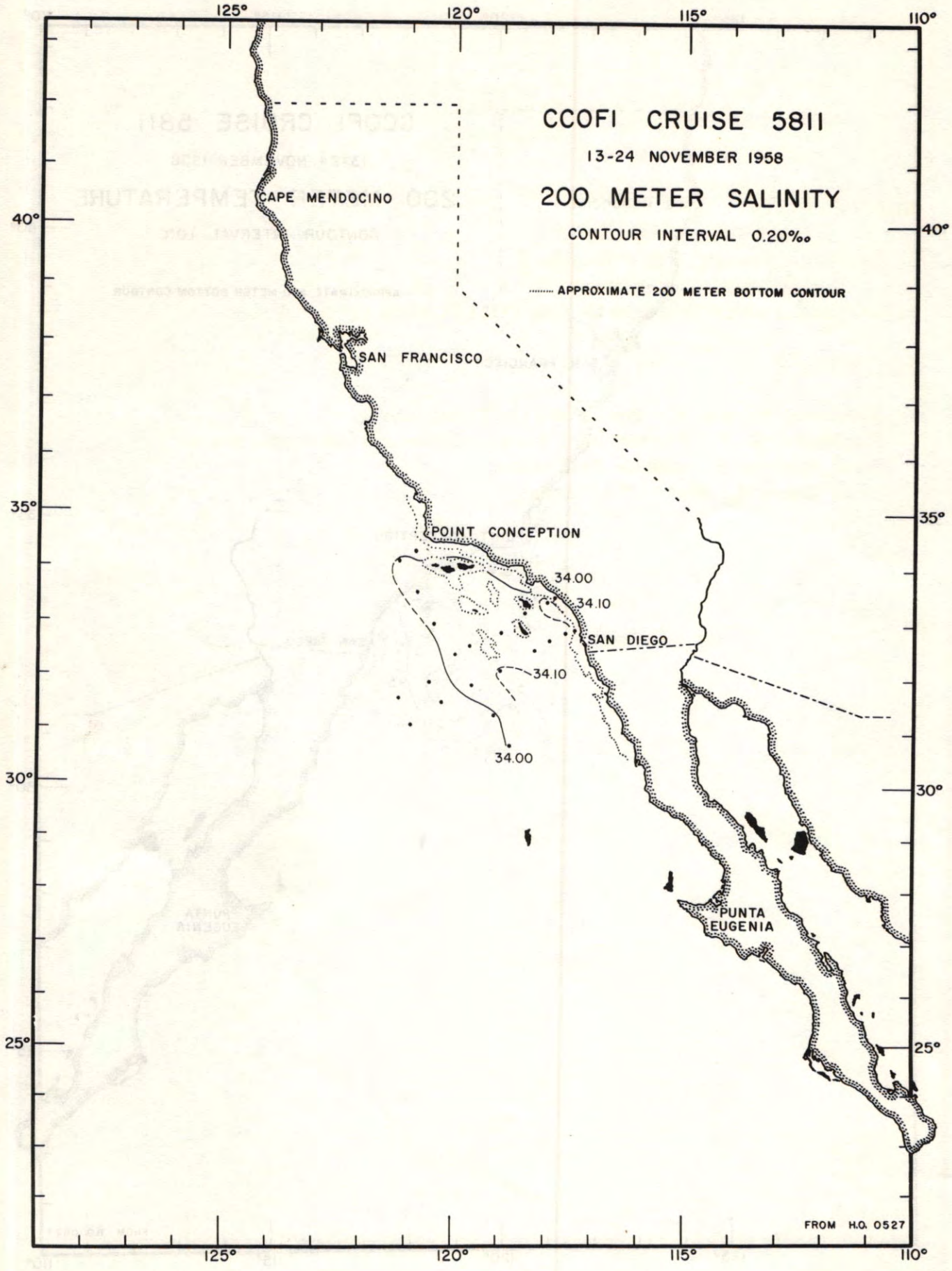

CCOFI CRUISE 5811
13-24 NOVEMBER 1958
200 METER SALINITY
CONTOUR INTERVAL 0.20‰
APPROXIMATE 200 METER BOTTOM CONTOUR
CAPE MENDOCINO
SAN FRANCISCO
POINT CONCEPTION
SAN DIEGO
34.00
34.10
34.10
34.00
PUNTA EUGENIA
FROM H.O. 0527
125°
120°
115°
110°
40°
35°
30°
25°

FIGURE 6

PERSONNEL
Cruise 5811

SHIP'S CAPTAIN

Davis, Laurence E., R/V Paolina-T

PERSONNEL PARTICIPATING IN THE COLLECTION OF DATA

R/V Paolina-T

Anderson, Norman E., Senior Marine Technician
Blackburn, G. T., Fishery Aid, Bureau of Commercial Fisheries
Joyal, Norman F., Marine Technician
Pine, James S., Marine Technician

SIO

CCOFI 5811

OBSERVED					INTERPOLATED				COMPUTED		
Z m	T °C	S ‰	O_2 ml/L	δT_3 10^{-5} cm/g	Z m	T °C	S ‰	O_2 ml/L	σ_t g/L	δT_3 10^{-5} cm/g	ΔD dyn. m
80.51	PAOLINA-T; November 22, 1958; 0228 GCT; 34°26.5'N, 120°31.5'W; sounding, 43 fm; wind, 290°, force 4; weather, missing; sea, moderate; wire angle, 00°.										
2	15.23	33.51	5.84	316	0	15.23	33.51	5.84	24.80	316	0.00
12	15.00	33.50	5.66	312	10	15.05	33.50	5.68	24.83	313	0.03
33	13.82	33.48	5.10	290	20	14.68	33.49	5.50	24.89	307	0.06
53	12.84	33.49	4.67	271	30	14.25	33.48	5.37	24.98	298	0.09
					50	12.86	33.49	4.68	25.26	272	0.15
80.55	PAOLINA-T; November 22, 1958; 0513 GCT; 34°19'N, 120°48.5'W; sounding, 400 fm; wind, 320°, force 5; weather, missing; sea, rough; wire angle, 10°.										
2	15.30	33.39	6.21	327	0	15.30	33.39	6.21	24.68	327	0.00
12	15.32	33.39	6.18	327	10	15.31	33.39	6.20	24.68	327	0.03
32	15.25	33.39	6.24	325	20	15.30	33.39	6.21	24.69	326	0.06
48	12.40	33.19	6.24	285	30	15.27	33.39	6.21	24.69	326	0.10
57	11.58	33.22	6.04	268	50	12.33	33.19	6.22	25.14	283	0.16
67	10.87	33.32	5.78	248	75	10.45	33.38	5.29	25.62	237	0.22
77	10.39	33.39	5.16	234	100	9.49	33.53	4.63	25.91	210	0.28
96	9.59	33.51	4.67	213	150	8.68	33.80	4.03	26.25	178	0.38
111	9.22	33.62	4.58	200	200	8.12	33.94	3.21	26.44	160	0.46
125	8.97	33.72	4.51	188	250	7.30	34.01	2.49	26.62	143	0.54
150	8.68	33.80	4.03	178	300	6.78	34.09	2.02	26.76	130	0.61
179	8.38	33.89	3.55	167	400	6.20	34.22	1.03	26.94	113	0.74
218	7.84	33.97	2.90	153	500	5.65	34.26	0.65	27.04	103	0.85
273	6.96	34.04	2.28	136	600	5.11	34.32	0.50	27.15	93	0.95
358	6.42	34.20	1.31	117							
463	5.82	34.25	0.75	106							
609	5.04	34.33	0.48	92							
80.60	PAOLINA-T; November 22, 1958; 0853 GCT; 34°09'N, 121°09'W; sounding, 1175 fm; wind, 320°, force 5; weather, overcast; sea, very rough; wire angle, 15°.										
2	14.72	33.38	5.66	315	0	14.72	33.38	5.66	24.81	315	0.00
11	14.70	33.38	5.68	315	10	14.70	33.38	5.67	24.82	314	0.03
31	14.71	33.39	5.57	314	20	14.70	33.39	5.62	24.82	314	0.06
46	14.26	33.35	5.37	308	30	14.71	33.39	5.60	24.82	314	0.09
55	11.80	33.40	4.62	258	50	13.10	33.36	5.00	25.13	285	0.15
64	11.41	33.47	4.48	246	75	10.09	33.36	4.52	25.67	233	0.22
74	10.18	33.36	4.52	234	100	9.40	33.61	3.98	25.98	203	0.27
94	9.57	33.48	4.30	215	150	9.30	33.92	2.44	26.24	178	0.37
107	9.76	33.80	3.01	194	200	8.81	34.03	2.01	26.41	163	0.46
121	9.58	33.84	2.83	188	250	7.87	34.10	1.90	26.61	144	0.53
147	9.36	33.91	2.49	180	300	7.25	34.13	1.57	26.72	134	0.61
175	9.06	33.99	2.22	170	400	6.39	34.19	0.86	26.88	118	0.74
213	8.64	34.05	1.91	159	500	5.69	34.26	0.62	27.03	104	0.85
266	7.57	34.11	1.87	139	600	(5.21)	(34.40)	(0.32)	(27.20)	(88)	(0.95)
349	6.82	34.16	1.06	125							
450	5.94	34.22	0.71	110							
594	5.24	34.39	0.35	89							
83.43	PAOLINA-T; November 21, 1958; 1844 GCT; 34°08'N, 119°34'W; sounding, 134 fm; wind, calm; weather, partly cloudy; sea, slight; wire angle, 00°.										
2	16.68	33.57	5.38	344	0	16.68	33.57	5.38	24.50	344	0.00
7	16.62	33.58	5.31	342	10	16.61	33.57	5.32	24.52	342	0.03
12	16.60	33.56	5.33	342	20	16.48	33.57	5.39	24.56	338	0.07
18	16.52	33.57	5.40	340	30	14.28	33.51	4.85	25.00	296	0.10
23	16.26	33.57	5.35	334	50	12.65	33.50	4.48	25.32	266	0.16
32	13.88	33.50	4.74	290	75	11.12	33.61	3.90	25.69	231	0.22
42	12.78	33.49	4.40	269							
52	12.61	33.50	4.47	265							
62	11.90	33.58	4.08	247							
71	11.28	33.60	3.95	234							
86	10.83	33.65	3.78	223							

OBSERVED					INTERPOLATED				COMPUTED		
Z m	T °C	S ‰	O_2 ml/L	δT_3 10^{-5} cm/g	Z m	T °C	S ‰	O_2 ml/L	σ_t g/L	δT_3 10^{-5} cm/g	ΔD dyn. m

PAOLINA-T; November 22, 1958; 1449 GCT; 33°34'N, 120°45'W; sounding, 830 fm; wind, 320°, force 5; weather, overcast; sea, very rough; wire angle, 18°. 83.60

4	16.44	33.53	5.37	340	0	16.5	(33.53)	(5.37)	(24.52)	(342)	(0.00)
14	16.38	33.54	5.47	339	10	16.41	33.54	5.42	24.55	340	0.03
33	15.58	33.51	5.29	324	20	16.28	33.54	5.45	24.59	336	0.07
47	13.28	33.44	5.08	282	30	15.76	33.52	5.32	24.68	327	0.10
56	12.86	33.50	4.59	270	50	13.18	33.45	5.02	25.18	280	0.16
66	11.75	33.49	4.44	250	75	11.03	33.58	4.11	25.68	232	0.22
74	11.10	33.58	4.13	232	100	9.92	33.70	3.40	25.98	204	0.28
93	10.06	33.66	3.63	210	150	9.07	33.87	2.65	26.24	178	0.38
106	9.80	33.73	3.26	200	200	8.34	34.06	2.12	26.50	154	0.46
120	9.58	33.76	3.06	194	250	7.95	34.10	1.73	26.60	144	0.54
144	9.14	33.85	2.70	181	300	7.42	34.15		26.70	135	0.61
169	8.82	34.02	2.45	164	400	6.39	34.20		26.90	116	0.74
206	8.26	34.07	2.03	152	500	5.80	34.26	0.63	27.01	106	0.86
254	7.89	34.11	1.70	144							
333	7.05	34.17	0.62u	128							
431	6.18	34.22	0.74	112							
572	5.42	34.31	0.46	97							

PAOLINA-T; November 23, 1958; 1931 GCT; 33°40'N, 118°59'W; sounding, 450 fm; wind, 090°, force 2; weather, haze; sea, moderate; wire angle, 02°. 87.40

1	16.92	33.55	5.34	350	0	16.92	33.55	5.34	24.44	350	0.00
11	16.50	33.53	5.47	342	10	16.51	33.53	5.47	24.52	343	0.03
22	16.33	33.51	5.37	339	20	16.38	33.52	5.38	24.54	340	0.07
32	15.70	33.49	5.37	328	30	15.83	33.50	5.37	24.64	330	0.10
37	15.40	33.50	5.21	321	50	13.32	33.48	4.92	25.17	281	0.16
42	15.02	33.48	5.16	315	75	11.70	33.65	3.70	25.62	238	0.23
47	13.98	33.48	5.09	293	100	10.93	33.70	3.32	25.79	221	0.29
52	13.07	33.48	4.79	276	150	9.56	33.89	2.72	26.18	184	0.39
57	12.90	33.48	4.66	272							
62	12.02	33.58	3.98	249							
67	11.92	33.64	3.90	242							
72	11.80	33.64	3.82	240							
82	11.48	33.68	3.42	232							
91	11.42	33.68	3.54	231							
101	10.92	33.70	3.31	221							
126	10.26	33.82	2.95	201							
150	9.56	33.89	2.72	184							

PAOLINA-T; November 23, 1958; 0514 GCT; 33°00'N, 120°21.5'W; sounding, 530 fm; wind, 280°, force 6; weather, partly cloudy; sea, very rough; wire angle, 08°. 87.60

2	14.92	33.50	5.54	310	0	14.92	33.50	5.54	24.86	310	0.00
12	14.92	33.51	5.46	310	10	14.92	33.51	5.48	24.86	310	0.03
32	14.02	33.47	5.16	294	20	14.92	33.51	5.41	24.86	310	0.06
47	12.17	33.48	4.58	259	30	14.04	33.47	5.17	25.01	296	0.09
57	11.48	33.46	4.57	248	50	11.65	33.47	4.57	25.48	251	0.15
67	10.61	33.48	4.36	232	75	10.32	33.51	4.07	25.75	225	0.21
76	10.32	33.51	4.06	225	100	9.59	33.80	3.01	26.10	192	0.26
96	9.66	33.77	3.09	195	150	9.01	34.02	2.24	26.36	167	0.35
110	9.40	33.86	2.82	184	200	8.60	34.11	1.95	26.51	153	0.43
124	9.22	33.97	2.47	177	250	8.04	34.16	1.50	26.63	142	0.51
149	9.04	34.01	2.25	168	300	7.42	34.21	1.16	26.76	130	0.58
177	8.78	34.09	2.11	158	400	6.80	34.28	0.77	26.90	116	0.70
236	8.30	34.14	1.69	147	500	6.20	34.33	0.47	27.02	105	0.82
268	7.78	34.18	1.33	136	600	5.60	34.38	0.33	27.14	94	0.92
352	7.06	34.26	0.92	121							
456	6.44	34.31	0.54	109							
600	5.60	34.38	0.33	94							

SIO

CCOFI
5811

OBSERVED					INTERPOLATED				COMPUTED		
Z m	T °C	S ‰	O_2 ml/L	δT_3 10^{-5} cm/g	Z m	T °C	S ‰	O_2 ml/L	σ_t g/L	δT_3 10^{-5} cm/g	ΔD dyn. m
90.28	PAOLINA-T; November 21, 1958; 0319 GCT; 33°28.5'N, 117°47'W; sounding, 210 fm; wind, 040°, force 2; weather, partly cloudy; sea, slight; wire angle, 00°.										
1	16.50	33.49	5.44	345	0	16.50	33.49	5.44	24.50	345	0.00
11	15.10	33.47	5.62	316	10	15.15	33.47	5.61	24.77	318	0.03
32	14.24	33.49	5.00	298	20	14.72	33.48	5.40	24.88	308	0.06
52	13.32	33.55	4.49	275	30	14.30	33.49	5.06	24.98	299	0.09
77	12.42	33.58	4.29	256	50	13.39	33.55	4.50	25.22	276	0.15
102	10.82	33.72	3.20	218	75	12.65	33.60	4.33	25.40	259	0.22
126	10.46	33.87	2.72	201	100	10.90	33.71	3.28	25.81	220	0.28
165	9.72	33.96	2.41	182	150	10.00	33.93	2.53	26.13	189	0.38
206	9.19	34.07	2.07	165	200	9.36	34.06	2.14	26.36	168	0.47
256	8.44	34.14	1.66	149	250	8.54	34.13	1.70	26.54	151	0.56
306	7.94	34.22	1.31	136	300	8.00	34.20	1.38	26.67	138	0.63
90.30	PAOLINA-T; November 21, 1958; 0119 GCT; 33°24.5'N, 117°55'W; sounding, 350 fm; wind, calm; weather, partly cloudy; sea, slight; wire angle, 07°.										
1	16.88	33.49	5.33	354	0	16.88	33.49	5.33	24.40	354	0.00
11	16.50	33.48	5.47	346	10	16.54	33.48	5.45	24.48	346	0.04
31	15.82	33.45	5.75a)	333	20	16.20	33.47	5.58	24.54	340	0.07
41	15.14	33.43	5.29	320	30	15.90	33.45	5.72	24.60	334	0.10
51	14.14	33.46	4.98	298	50	14.12	33.46	5.00	24.98	298	0.17
61	13.40	33.54	4.48	277	75	13.03	33.53	4.27	25.27	271	0.24
70	13.16	33.53	4.35	273	100	12.32	33.58	3.82	25.45	254	0.30
86	12.74	33.53	4.07	265	150	10.41	33.76	2.94	25.93	208	0.42
101	12.28	33.58	3.81	254	200	8.77	34.14	1.77	26.50	154	0.51
115	11.80	33.61	3.54	242	250	8.15	34.32	1.44	26.74	132	0.59
140	10.94	33.68	3.17	222	300	7.80	34.30	1.08	26.78	128	0.66
170	9.31	34.01	2.23	172	400	6.98	34.32	0.56	26.90	116	0.78
204	8.70	34.14	1.74	153	500	6.18	34.36	0.34	27.05	103	0.90
252	8.14	34.32	1.42	132							
331	7.58	34.29	0.85	126							
431	6.71	34.33	0.48	111							
559	5.77	34.37	0.25	96							
90.37	PAOLINA-T; November 20, 1958; 1938, 2021, 2048 GCT; 33°11'N, 118°24'W; sounding, 647 fm; wind, direction missing, force 1; weather, partly cloudy; sea, slight; wire angle, 00°, 00°, 00°.										
1	17.52	33.55	6.02	363	0	17.52	33.55	6.02	24.30	363	0.00
11	17.03	33.58	6.18	350	10	17.05	33.58	6.18	24.43	351	0.04
31	16.38	33.54	6.07	339	20	16.94	33.58	6.16	24.46	348	0.07
41	15.57	33.51	6.07	324	30	16.43	33.54	6.07	24.55	340	0.10
52	13.86	33.48	5.35	290	50	13.98	33.48	5.40	25.04	293	0.17
61	12.77	33.61	4.68	260	75	12.38	33.66	3.77	25.50	248	0.24
71	12.48	33.66	3.88	252	100	11.44	33.78	3.31	25.76	224	0.30
85	12.01	33.71	3.59	239	150	9.88	33.87	3.17	26.11	191	0.40
100	11.44	33.78	3.31	224	200	8.72	34.04	2.46	26.44	160	0.49
					250	8.19	34.14	1.92	26.60	145	0.57
113	11.03	33.81	3.22	215	300	7.90	34.21	1.58	26.69	136	0.64
138	10.24	33.85	3.21	198	400	7.06	34.27	0.96	26.86	120	0.77
168	9.31	33.91	3.00	179	500	6.19	34.31	0.49	27.01	106	0.89
204	8.66	34.05	2.42	159							
253	8.18	34.14	1.91	145							
334	7.64	34.27	1.32	128							
434	6.70	34.27	0.75	115							
565	5.89	34.35	0.35	100							

a) Alternate value, 5.08 ml/L, not used in interpolation.

OBSERVED					INTERPOLATED				COMPUTED		
Z m	T °C	S ‰	O_2 ml/L	δT_3 10^{-5} cm/g	Z m	T °C	S ‰	O_2 ml/L	σ_t g/L	δT_3 10^{-5} cm/g	ΔD dyn. m

PAOLINA-T; November 20, 1958; 1355, 1418 GCT; 32°49.5'N, 118°55.5'W; sounding, 950 fm; wind, direction missing, force 1; weather, partly cloudy; sea, slight; wire angle, 00°, 03°. 90.45

3	16.51	33.50	5.37	344	0	16.51	33.50	5.37	24.50	344	0.00
13	16.50	33.49	5.47	345	10	16.50	33.49	5.46	24.50	345	0.03
33	16.52	33.48	5.42	346	20	16.51	33.48	5.46	24.50	345	0.07
43	15.34	33.42	5.44	325	30	16.52	33.48	5.43	24.49	346	0.10
53	13.87	33.39	5.38	298	50	14.02	33.39	5.39	24.96	300	0.17
63	13.02	33.37	5.24	283	75	12.47	33.45	4.88	25.31	267	0.24
73	12.47	33.44	4.89	268	100	10.67	33.50	4.38	25.69	231	0.30
87	11.16	33.48	4.36	241	150	9.22	33.90	2.89	26.24	179	0.40
102	10.60	33.51	4.38	230	200	8.61	34.05	2.18	26.46	158	0.49
117	9.76	33.69	3.60	200	250	8.15	34.13	1.87	26.60	145	0.57
141	9.35	33.86	3.00	183	300	7.50	34.17	1.60	26.72	134	0.64
170	8.98	33.98	2.69	169	400	6.70	34.20	0.84	26.85	121	0.77
					500	6.20	34.26	0.48	26.97	110	0.89
205	8.54	34.06	2.13	156							
255	8.05	34.14	1.84	144							
334	7.06	34.18	1.31	127							
434	6.57	34.21	0.68	118							
565	5.87	34.34	0.41	100							

PAOLINA-T; November 20, 1958; 1025 GCT; 32°43'N, 119°16'W; sounding, 60 fm; wind, 340°, force 2; weather, clear; sea, moderate; wire angle, 00°. 90.50

2	16.60	33.54	5.19	343	0	16.60	33.54	5.19	24.51	343	0.00
12	16.60	33.53	5.32	344	10	16.60	33.53	5.31	24.50	344	0.03
32	16.61	33.53	5.31	344	20	16.60	33.53	5.31	24.50	344	0.07
52	14.20	33.39	5.44	304	30	16.61	33.53	5.31	24.50	344	0.10
77	12.82	33.42	4.83	275	50	14.40	33.40	5.44	24.88	308	0.17
103	11.08	33.53	4.21	236	75	12.86	33.42	4.87	25.22	276	0.24
					100	11.40	33.51	4.31	25.56	243	0.31

PAOLINA-T; November 20, 1958; 0732 GCT; 32°34.5'N, 119°37'W; sounding, 500 fm; wind, 340°, force 2; weather, partly cloudy; sea, slight; wire angle, 03°. 90.55

1	15.62	33.44	5.28	330	0	15.62	33.44	5.28	24.65	330	0.00
11	15.65	33.45	5.55	330	10	15.65	33.45	5.54	24.65	330	0.03
31	15.56	33.44	5.32	328	20	15.02	33.45	5.54	24.65	330	0.07
57	15.35	33.43	5.36	325	30	15.56	33.44	5.33	24.67	328	0.10
67	12.98	33.42	5.01	278	50	15.55	33.44	5.32	24.67	328	0.16
76	11.78	33.43	4.72	255	75	12.20	33.42	4.85	25.35	264	0.24
86	10.72	33.44	4.36	236	100	10.05	33.51	4.05	25.81	220	0.30
101	10.00	33.52	4.02	219	150	8.84	33.88	2.55	26.29	174	0.40
116	9.70	33.60	3.73	208	200	8.02	34.06	1.88	26.56	149	0.48
135	9.11	33.77	2.94	186	250	7.82	34.10	1.57	26.62	143	0.56
155	8.78	33.90	2.47	172	300	7.32	34.18	1.15	26.75	130	0.63
179	8.45	33.96	2.15	163	400	6.74	34.27	0.59	26.90	116	0.76
203	7.98	34.07a)	1.82	147	500	6.36	34.32	0.47	27.00	107	0.87
251	7.81	34.10a)	1.55	143							
331	7.00	34.22	0.93	123							
432	6.62	34.28	0.64	114							
562	5.82	34.35	0.33	99							

a) The use of these values results in an unusual density structure, but nevertheless values were accepted in drawing the property curve.

SIO

CCOFI 5811

OBSERVED					INTERPOLATED				COMPUTED		
Z m	T °C	S ‰	O_2 ml/L	δT_3 10^{-5} cm/g	Z m	T °C	S ‰	O_2 ml/L	σ_t g/L	δT_3 10^{-5} cm/g	ΔD dyn. m

90.60 PAOLINA-T; November 20, 1958; 0237, 0323 GCT; 32°25.5'N, 119°57'W; sounding, 550 fm; wind, 360°, force 4; weather, partly cloudy; sea, rough; wire angle, 05°, 06°.

3	16.05	33.48	5.89	336	0	16.05	33.48	5.89	24.59	336	0.00
12	16.04	33.48	5.89	336	10	16.04	33.48	5.89	24.59	336	0.03
32	15.99	33.44	6.05	337	20	16.01	33.45	6.00	24.58	337	0.07
57	15.94	33.45	6.06	336	30	15.99	33.44	6.03	24.58	337	0.10
67	12.75	33.33	5.56	280	50	15.96	33.45	6.05	24.59	336	0.17
76	11.42	33.40	5.26	252	75	11.43	33.40	5.27	25.47	252	0.24
86	11.01	33.46	5.09	240	100	10.09	33.58	4.24	25.85	216	0.30
101	10.07	33.58	4.24	216	150	8.72	33.86	3.00	26.29	174	0.40
115	9.46	33.66	3.65	200	200	8.09	34.04	2.33	26.52	152	0.48
					250	7.61	34.15	1.62	26.68	137	0.56
134	9.01	33.80	3.12	183	300	7.19	34.22	1.24	26.80	126	0.62
156	8.62	33.88	2.95	171	400	6.44	34.28	0.77	26.95	111	0.75
180	8.36	33.96	2.70	161	500	5.98	34.32	0.50	27.04	103	0.86
204	8.04	34.05	2.28	150							
254	7.59	34.16	1.54	136							
332	6.88	34.25	1.06	120							
433	6.26	34.29	0.67	108							
563	5.76	34.34	0.40	98							

90.70 PAOLINA-T; November 19, 1958; 1948 GCT; 31°53.6'N, 120°29.5'W; sounding, 2125 fm; wind, 360°, force 3; weather, cloudy; sea, moderate; wire angle, 05°.

3	16.73	33.58	4.98	343	0	16.73	33.58	4.98	24.51	343	0.00
13	16.71	33.58	5.36	343	10	16.72	33.58	5.30	24.51	343	0.03
33	16.66	33.60	5.34	340	20	16.69	33.58	5.36	24.52	342	0.07
62	15.89	33.48	5.22	332	30	16.67	33.60	5.35	24.54	341	0.10
73	13.82	33.37	5.44	298	50	16.48	33.58	5.31	24.56	339	0.17
83	12.72	33.43	5.44	272	75	13.60	33.38	5.44	25.04	293	0.25
98	11.33	33.47	4.80	244	100	11.18	33.48	4.77	25.58	242	0.32
112	10.25	33.55	4.56	221	150	9.22	33.74	4.11	26.12	190	0.43
127	9.60	33.57	3.98	209	200	8.32	33.97	2.94	26.44	160	0.52
148	9.22	33.73	4.12	191	250	7.54	34.04	2.29	26.61	144	0.59
167	8.96	33.79	3.57	183	300	7.05	34.08	1.94	26.71	134	0.66
196	8.40	33.95	3.15	163	400	6.20	34.23	0.89	26.94	112	0.79
221	7.98	34.01	2.42	152	500	5.46	34.28	0.68	27.08	99	0.90
275	7.26	34.05	2.21	139	600	4.94	34.31	0.57	27.16	92	1.00
359	6.58	34.17	1.11	121							
467	5.68	34.27	0.73	103							
604	4.92	34.31	0.56	91							

90.80 PAOLINA-T; November 19, 1958; 1330 GCT; 31°35.5'N, 121°09'W; sounding, 2300 fm; wind, 340°, force 4; weather, partly cloudy; sea, rough; wire angle, 16°.

2	16.62	33.49	5.32	347	0	16.62	33.49	5.32	24.47	347	0.00
12	16.61	33.49	5.28	347	10	16.61	33.49	5.29	24.47	347	0.03
31	16.62	33.48	5.21	348	20	16.62	33.49	5.24	24.46	348	0.07
60	16.60	33.47	5.29	349	30	16.62	33.48	5.22	24.46	348	0.10
69	14.23	33.28	5.32	313	50	16.61	33.47	5.27	24.45	349	0.17
78	13.06	33.42	4.89	280	75	13.25	33.40	4.95	25.13	284	0.25
91	11.80	33.50	4.54	251	100	11.43	33.51	4.64	25.56	244	0.32
107	11.16	33.51	4.70	238	150	9.12	33.74	3.46	26.14	189	0.43
121	10.01	33.58	4.44	215	200	8.25	33.96	2.82	26.44	160	0.52
140	9.32	33.68	3.62	196	250	7.42	34.06	2.20	26.64	141	0.59
159	9.00	33.78	3.38	185	300	6.93	34.13	1.15	26.76	129	0.66
187	8.46	33.92	2.95	166	400	6.15	34.21	0.95	26.94	113	0.79
209	8.10	33.98	2.70	156	500	5.59	34.27	0.57	27.06	101	0.90
258	7.32	34.07	2.11	138							
337	6.66	34.16	1.33	123							
442	5.81	34.24	0.73	107							
579	5.32	34.32	0.38	95							

OBSERVED					INTERPOLATED				COMPUTED		
Z m	T °C	S ‰	O_2 ml/L	δT_3 10^{-5} cm/g	Z m	T °C	S ‰	O_2 ml/L	σ_t g/L	δT_3 10^{-5} cm/g	ΔD dyn. m
PAOLINA-T; November 17, 1958; 1951 GCT; 32°54.5'N, 117°21'W; sounding, 300 fm; wind, calm; weather, partly cloudy; sea, moderate; wire angle, 02°.											93.27
1	16.80	33.49	5.11	352	0	16.80	33.49	5.11	24.42	352	0.00
11	16.63	33.52	5.22	346	10	16.64	33.52	5.22	24.48	346	0.03
32	14.98	33.44	5.34	316	20	16.12	33.50	5.28	24.59	336	0.07
52	13.41	33.58	4.24	275	30	15.12	33.45	5.34	24.77	318	0.10
77	12.36	33.63	3.89	251	50	13.55	33.58	4.30	25.21	277	0.16
101	11.61	33.71	3.21	232	75	12.44	33.63	3.93	25.46	253	0.23
126	10.44	33.85	2.75	202	100	11.65	33.71	3.24	25.67	233	0.29
165	9.34	34.05	2.07	169	150	9.64	34.00	2.25	26.25	178	0.39
205	8.86	34.11	1.87	158	200	8.92	34.10	1.88	26.45	159	0.48
PAOLINA-T; November 17, 1958; 2210 GCT; 32°49'N, 117°30.5'W; sounding, 480 fm; wind, direction missing, force 1; weather, partly cloudy; sea, moderate; wire angle, 09°.											93.30
1	17.74	33.55	5.47	368	0	17.74	33.55	5.47	24.25	368	0.00
11	17.48	33.53	5.32	364	10	17.52	33.53	5.34	24.28	364	0.04
31	13.70	33.53	4.76	284	20	15.00	33.53	4.94	24.86	310	0.07
41	13.19	33.55	4.32	272	30	13.71	33.53	4.75	25.14	284	0.10
51	12.80	33.60	3.82	262	50	12.82	33.60	3.83	25.36	262	0.15
60	12.81	33.58	3.97	264	75	12.28	33.63	3.61	25.49	250	0.22
70	12.44	33.62	3.68	254	100	11.69	33.77	2.93	25.72	228	0.28
85	12.00	33.66	3.41	243	150	10.59	33.90	2.53	26.02	200	0.39
99	11.70	33.77	2.93	229	200	9.64	34.02	2.39	26.26	177	0.48
115	11.14	33.75	2.96	220	250	8.90	34.16	1.78	26.50	154	0.57
139	10.72	33.84	2.73	207	300	8.26	34.20	1.46	26.64	142	0.64
167	10.42	33.95	2.37	194	400	7.24	34.30	0.80	26.86	120	0.78
201	9.62	34.02	2.39	176	500	6.54	34.34	0.43	27.01	106	0.90
251	8.88	34.16	1.77	154							
331	7.86	34.22	1.26	134							
430	6.96	34.33	0.60	114							
560	5.74	34.34	0.33	98							
PAOLINA-T; November 18, 1958; 0210 GCT; 32°39.5'N, 117°51.5'W; sounding, 390 fm; wind, 360°, force 1; weather, partly cloudy; sea, moderate; wire angle, 05°.											93.35
0	17.79	33.51	6.26	372	0	17.79	33.51	6.26	24.20	372	0.00
10	17.78	33.54	6.18a)	370	10	17.78	33.54	6.18	24.23	370	0.04
30	17.50	33.53	6.12	364	20	17.65	33.54	6.13	24.26	367	0.07
40	14.45	33.34	6.40	312	30	17.50	33.53	6.12	24.29	364	0.11
50	13.58	33.41	5.76	290	50	13.58	33.41	5.76	25.07	290	0.18
61	13.01	33.52	5.33	272	75	12.26	33.55	4.73	25.43	255	0.24
71	12.38	33.53	4.90	259	100	11.20	33.63	4.28	25.70	230	0.31
85	11.98	33.68	3.97b)	241	150	10.38	33.90	2.76	26.06	196	0.41
100	11.20	33.63	4.28	230	200	9.46	34.06	2.37	26.32	171	0.51
114	10.84	33.71	3.90	219	250	8.64	34.15	2.12	26.53	152	0.59
138	10.64	33.84	3.15	206	300	8.00	34.20	1.74	26.67	138	0.66
167	9.99	33.98	2.47	184	400	6.90	34.28	0.89	26.88	118	0.80
201	9.44	34.06	2.37	170	500	6.19	34.35	0.47	27.04	103	0.91
251	8.62	34.15	2.11	151							
329	7.66	34.22	1.52	132							
429	6.65	34.29	0.67	113							
559	5.84	34.41	0.31	94							

a) Alternate value, 5.36 ml/L, not used in interpolation.
b) Alternate value, 4.17 ml/L, not used in interpolation.

SIO

CCOFI
5811

OBSERVED					INTERPOLATED				COMPUTED		
Z m	T °C	S ‰	O_2 ml/L	$\delta_{T}{}^{-5}{}_{3}$ 10^{-5} cm/g	Z m	T °C	S ‰	O_2 ml/L	σ_t g/L	$\delta_{T}{}^{-5}{}_{3}$ 10^{-5} cm/g	ΔD dyn. m

93.40 PAOLINA-T; November 18, 1958; 0602 GCT; 32°30'N, 118°12.5'W; sounding, 900 fm; wind, 320°, force 3; weather, clear; sea, slight; wire angle, 05°.

2	17.52	33.48	5.31	368	0	17.52	33.48	5.31	24.25	368	0.00
12	17.52	33.51	5.26	366	10	17.52	33.51	5.27	24.27	366	0.04
32	17.52	33.50	5.41	367	20	17.52	33.50	5.32	24.27	366	0.07
42	16.00	33.37	5.54	343	30	17.52	33.50	5.40	24.26	367	0.11
53	13.95	33.30	5.52	306	50	14.06	33.30	5.52	24.88	308	0.18
63	13.49	33.34	5.20	294	75	12.75	33.38	4.94	25.22	276	0.25
72	12.87	33.37	4.97	280	100	11.14	33.45	4.56	25.57	242	0.32
87	11.78	33.40	4.77	257	150	9.53	33.85	3.04	26.16	187	0.42
102	11.00	33.46	4.50	240	200	8.94	34.03	2.14	26.39	164	0.51
116	10.00	33.57	3.92	215	250	8.08	34.16	1.69	26.62	143	0.59
141	9.64	33.78	3.20	194	300	7.52	34.20	1.25	26.74	131	0.66
171	9.26	33.96	2.78	175	400	6.90	34.28	0.73	26.89	117	0.79
205	8.88	34.04	2.08	163	500	6.30	34.34	0.47	27.01	105	0.91
253	8.02	34.16	1.67	142							
333	7.25	34.22	1.04	126							
432	6.76	34.31	0.61	113							
560	5.85	34.25	0.33	99							

93.50 PAOLINA-T; November 17, 1958; 1234 GCT; 32°09'N, 118°56.7'W; sounding, 840 fm; wind, 320°, force 3; weather, clear; sea, moderate; wire angle, 07°.

2	17.34	33.69	5.06	348	0	17.34	33.69	5.06	24.46	348	0.00
12	17.34	33.68	5.66	349	10	17.34	33.68	5.66	24.45	349	0.04
32	17.33	33.71	4.66	347	20	17.34	33.70	5.10	24.46	348	0.07
47	13.66	33.57	4.68	280	30	17.33	33.71	4.68	24.47	347	0.10
58	11.88	33.58	3.84	246	50	13.02	33.57	4.41	25.31	268	0.17
68	10.77	33.64	3.43	222	75	10.33	33.64	3.27	25.86	215	0.23
78	10.31	33.66	3.21	214	100	9.49	33.79	2.78	26.12	190	0.28
97	9.59	33.75	2.80	195	150	8.74	33.97	2.02	26.38	166	0.37
111	9.23	33.86	2.75	182	200	8.25	34.10	1.75	26.56	149	0.45
126	9.02	33.89	2.49	176	250	7.74	34.19	1.50	26.70	135	0.52
150	8.74	33.97	2.02	166	300	7.20	34.23	1.24	26.81	125	0.59
179	8.46	34.05	1.87	156	400	6.41	34.28	0.53	26.95	111	0.71
218	8.04	34.14	1.63	143	500	5.92	34.32	0.43	27.05	102	0.82
271	7.48	34.21	1.41	131	600	5.50	34.36	0.42	27.13	95	0.92
355	6.70	34.26	0.68	116							
458	6.09	34.30	0.45	106							
603	5.47	34.36	0.42	94							

93.60 PAOLINA-T; November 18, 1958; 1839 GCT; 31°50.5'N, 119°34'W; sounding, 1220 fm; wind, 310°, force 4; weather, partly cloudy; sea, moderate; wire angle, 17°.

0	16.52	33.48	5.47	346	0	16.52	33.48	5.47	24.48	346	0.00
9	16.48	33.48	5.51	345	10	16.48	33.48	5.51	24.50	345	0.03
28	16.46	33.51	5.45	343	20	16.47	33.50	5.48	24.50	344	0.07
58	14.02	33.40	5.67	300	30	16.46	33.51	5.46	24.52	342	0.10
67	13.52	33.41	5.56	288	50	16.25	33.51	5.48	24.57	338	0.17
77	12.24	33.49	4.96	260	75	12.57	33.48	5.04	25.32	266	0.25
94	10.81	33.49	4.64	235	100	11.64	33.52	4.56	25.71	229	0.31
108	10.32	33.58	4.34	219	150	9.10	33.77	3.36	26.16	186	0.41
116	9.96	33.61	4.15	201	200	8.15	34.02	2.52	26.52	152	0.50
135	9.32	33.71	3.63	194	250	7.58	34.10	2.00	26.65	140	0.58
153	9.02	33.79	3.28	185	300	7.28	34.18	1.51	26.75	130	0.64
179	8.50	33.98	2.93	162	400	6.68	34.32	0.96	26.96	111	0.77
203	8.10	34.04	2.48	152	500	6.05	34.35	0.73	27.06	101	0.88
253	7.57	34.10	1.99	140							
333	7.10	34.23	1.21	124							
440	6.41	34.34	0.89	107							
579	5.56	34.36	0.48	95							

OBSERVED					INTERPOLATED				COMPUTED		
Z m	T °C	S ‰	O_2 ml/L	δT_3 10^{-5} cm/g	Z m	T °C	S ‰	O_2 ml/L	σ_t g/L	δT_3 10^{-5} cm/g	ΔD dyn. m

PAOLINA-T; November 19, 1958; 0047 GCT; 31°30.5'N, 120°13'W; sounding, 2000 fm; wind, 360°, force 4; weather, cloudy; sea, moderate; wire angle, 05°. 93.70

2	17.05	33.52	6.13	355	0	17.05	33.52	6.13	24.39	355	0.00
12	17.04	33.51	6.19	355	10	17.04	33.51	6.19	24.39	355	0.04
32	16.97	33.51	6.10	354	20	17.02	33.51	6.17	24.39	355	0.07
63	16.92	33.51	6.13	352	30	16.98	33.51	6.11	24.40	354	0.11
72	15.54	33.46	6.34	326	50	16.95	33.51	6.12	24.41	353	0.18
83	14.45	33.46	6.34	304	75	15.25	33.46	6.35	24.76	320	0.26
98	12.81	33.49	5.87	270	100	12.68	33.48	5.80	25.31	268	0.34
112	11.68	33.46	5.26	252	150	9.98	33.69	3.88	25.96	206	0.46
128	10.68	33.51	4.89	231	200	9.08	33.98	2.40	26.33	170	0.55
148	10.00	33.67	3.98	208	250	8.24	34.07	2.34	26.53	152	0.63
167	9.69	33.82	3.16	192	300	7.66	34.12	1.94	26.65	140	0.71
197	9.17	33.97	2.40	172	400	6.68	34.20	1.00	26.86	120	0.85
221	8.62	34.04	2.40	159	500	5.80	34.24	0.67	27.00	107	0.96
274	7.94	34.09	2.20	145	600	5.37	34.31	0.46	27.12	95	1.07
358	7.06	34.19	1.25	126							
466	6.04	34.22	0.76	111							
605	5.23	34.32	0.45	94							

PAOLINA-T; November 19, 1958; 0706 GCT; 31°06'N, 120°51'W; sounding, 2000 fm; wind, 020°, force 5; weather, partly cloudy; sea, rough; wire angle, 06°. 93.80

2	17.12	33.46	5.31	361	0	17.12	33.46	5.31	24.32	361	0.00
11	17.13	33.45	5.44	361	10	17.13	33.45	5.43	24.32	361	0.04
30	17.12	33.46	5.49	361	20	17.12	33.46	5.46	24.32	361	0.07
61	17.12	33.46	5.37	361	30	17.12	33.46	5.49	24.32	361	0.11
70	15.74	33.44	5.47	332	50	17.12	33.46	5.40	24.32	361	0.18
80	14.74	33.38	5.76	315	75	15.17	33.40	5.66	24.74	322	0.26
94	13.55	33.48	5.21	284	100	12.98	33.48	4.96	25.22	274	0.34
109	12.04	33.46	4.66	258	150	9.61	33.59	4.07	25.94	208	0.46
132	10.27	33.53	4.57	222	200	8.60	33.91	2.77	26.36	168	0.56
163	9.20	33.66	3.67	196	250	7.95	34.01	2.30	26.53	151	0.64
191	8.70	33.86	2.99	174	300	7.26	34.07	1.94	26.68	138	0.71
215	8.40	33.95	2.58	162	400	6.28	34.18	0.98	26.89	117	0.85
270	7.64	34.04	2.14	145	500	5.66	34.24	0.54	27.02	106	0.96
305	7.20	34.07	1.90	137	600	5.20	34.31	0.42	27.13	94	1.07
353	6.62	34.14	1.31	124							
461	5.88	34.21	0.69	110							
600	5.20	34.31	0.42	94							

PAOLINA-T; November 13, 1958; 0225 GCT;[a] 32°12'N, 117°16'W; sounding, 800 fm; wind, 270°, force 3; weather, partly cloudy; sea, rough; wire angle, 05°. 97.32

492	6.31	34.42	0.31	99
502	6.25	34.35	0.14	104
513	6.16	34.40	0.25	99
523	6.04	34.38	0.34	99
532	6.02	34.40	0.23	98
543	5.95	34.38	0.27	98
553	5.87	34.38	0.21	97
563	5.84	34.38	0.28	96
572	5.78	34.40	0.28	94
582	5.72	34.38	0.42	95
592	5.65	34.38	0.26	94
602	5.58	34.42	0.24	90
612	5.52	34.40	0.23	91

a) Test cast.

OBSERVED					INTERPOLATED				COMPUTED		
Z m	T °C	S ‰	O_2 ml/L	δT_3 10^{-5} cm/g	Z m	T °C	S ‰	O_2 ml/L	σ_t g/L	δT_3 10^{-5} cm/g	ΔD dyn. m

97.60 PAOLINA-T; November 14, 1958; 1037 GCT; 31°17'N, 119°06'W; sounding, 1900 fm; wind, 320°, force 4; weather, clear; sea, very rough; wire angle, 05°.

2	17.75	33.43	5.52	377	0	17.75	33.43	5.52	24.15	377	0.00
12	17.73	33.46	5.47	375	10	17.74	33.46	5.48	24.18	375	0.04
32	17.76	33.44	5.74	376	20	17.73	33.45	5.65	24.17	376	0.08
46	16.09	33.41	6.07	342	30	17.75	33.44	5.74	24.16	376	0.11
56	15.36	33.39	6.12	327	50	15.89	33.40	6.10	24.59	336	0.18
66	14.82	33.40	5.93	316	75	14.50	33.48	5.87	24.93	304	0.26
76	14.49	33.48	5.86	303	100	11.88	33.54	5.12	25.50	249	0.34
96	12.37	33.54	5.13	258	150	9.72	33.67	4.11	25.98	203	0.45
110	10.92	33.55	5.03	232	200	8.55	33.97	2.63	26.41	163	0.54
125	10.17	33.59	4.48	216	250	7.91	34.12	1.69	26.63	142	0.62
150	9.72	33.67	4.11	203	300	7.45	34.20	1.21	26.74	131	0.69
178	8.85	33.86	3.30	176	400	6.82	34.29	0.65	26.91	116	0.82
218	8.30	34.04	2.22	154	500	6.26	34.36	0.34	27.03	104	0.93
271	7.67	34.16	1.47	137	600	5.85	34.38	0.28	27.10	97	1.04
353	7.08	34.25	0.87	122							
456	6.49	34.34	0.41	108							
602	5.82	34.38	0.28	96							

100.60 PAOLINA-T; November 14, 1958; 0420 GCT; 30°42'N, 118°43.5'W; sounding, 1500+ fm; wind, 320°, force 4; weather, partly cloudy; sea, moderate; wire angle, 11°.

2	19.46	33.67	4.78	400	0	19.46	33.67	4.78	23.92	400	0.00
12	19.47	33.68	4.90	400	10	19.47	33.68	4.88	23.92	400	0.04
32	19.48	33.68	4.86	400	20	19.48	33.68	4.88	23.92	400	0.08
46	18.69	33.58	4.99	389	30	19.48	33.68	4.87	23.92	400	0.12
57	16.00	33.55	5.32	330	50	16.90	33.56	5.22	24.46	348	0.19
67	15.59	33.53	5.54	322	75	14.56	33.48	5.25	24.92	304	0.28
76	14.47	33.48	5.23	303	100	12.42	33.58	4.29	25.42	256	0.35
95	12.77	33.55	4.49	264	150	10.72	33.86	2.70	25.96	206	0.46
109	11.89	33.64	3.95	242	200	9.63	34.01	2.33	26.27	176	0.56
123	11.27	33.71	3.70	226	250	8.89	34.14	1.88	26.48	156	0.65
146	10.80	33.84	2.78	208	300	8.40	34.20	1.52	26.61	144	0.72
175	10.24	33.95	2.36	191	400	7.36	34.28	0.92	26.83	123	0.86
213	9.30	34.05	2.31	168	500	6.55	34.33	0.56	26.98	109	0.98
265	8.76	34.17	1.72	151	600	(5.82)	(34.33)	(0.35)	(27.07)	(100)	(1.10)
348	7.86	34.23	1.21	134							
452	6.84	34.33	0.67	113							
597	5.86	34.33	0.37	100							

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

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind Dir	Wind Force	Weather	Sea	10 Meters T	10 Meters S
82.47-P	XI-21	2200	34°14.5'	119°58.5'	300	270°	3	partly cloudy	slight	16.54	33.58
83.40-P	21	1632	34°13.5'	119°22.0'	11	050°	2	partly cloudy	slight	15.98	33.55
83.51-P	22	2219	33°52.0'	120°07.5'	600	320°	4	missing	rough	16.24	33.55
83.55-P	22	1857	33°47.0'	120°24.5'	600	300°	5	cloudy	rough	16.10	33.53
87.35-P	21	1014	33°50.5'	118°37.0'	140	140°	2	partly cloudy	slight	16.83	33.51
87.45-P	23	1619	33°30.0'	119°18.5'	135	-	1	overcast	moderate	16.82	33.54
87.50-P	23	1304	33°20.0'	119°39.5'	41	320°	3	fog	moderate	15.36	33.47
87.55-P	23	0833	33°12.0'	120°02.0'	600	290°	4	clear	very rough	14.63	33.48
97.30-P	15	0406	32°15.5'	117°09.0'	33	320°	4	partly cloudy	moderate	19.24	33.58
97.32-P	15	0241	32°11.5'	117°16.5'	700+	320°	4	overcast	moderate	19.50	33.64
97.35-P	15	0040	32°06.0'	117°29.0'	650	320°	4	cloudy	rough	18.98	33.57
97.40-P	14	2134	31°54.0'	117°48.5'	380	320°	3	partly cloudy	very rough	18.15	33.41
97.50-P	14	1615	31°40.0'	118°25.5'	1320	320°	5	cloudy	very rough	17.87	33.43
100.29-P	13	0818	31°42.0'	116°43.5'	125	040°	3	clear	moderate	18.28	33.60
100.30-P	13	0930	31°41.5'	116°46.5'	240	320°	3	clear	moderate	18.46	33.68
100.35-P	13	1240	31°31.5'	117°05.5'	600	320°	4	clear	rough	19.64	33.61
100.40-P	13	1643	31°22.0'	117°23.5'	1000	320°	4	partly cloudy	very rough	19.60	33.69
100.50-P	13	2233	31°01.0'	118°06.0'	950	240°	4	cloudy	rough	18.50	33.44

DISTRIBUTION LIST

Dr. E. H. Ahlstrom
Bureau of Commercial Fisheries
c/o Scripps Institution of Oceanography
La Jolla, California

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

Mr. William Anderson
Bureau of Commercial Fisheries
Brunswick, Georgia

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

Dr. Leo D. Berner
University of California
Scripps Institution of Oceanography
La Jolla, California

Dr. Rolf Bolin
Hopkins Marine Station
Pacific Grove, California

Dr. Edward Brinton
University of California
Scripps Institution of Oceanography
La Jolla, California

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

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

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 Laboratory
Terminal Island, California

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

Herrn Professor Dr. A. Defant
Sternwartestrasse 38
Innsbruck
Austria

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

Mr. Jeffery D. Frautschy
University of California
Scripps Institution of Oceanography
La Jolla, California

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

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

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

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

Dr. Martin W. Johnson
University of California
Scripps Institution of Oceanography
La Jolla, California

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

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

Mr. John D. Isaacs
Program Director, Marine Life Research
University of California
Scripps Institution of Oceanography
La Jolla, California

Japan Meteorological Agency
Oceanographical Section
Tokyo, Japan

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

Mr. Hans T. Klein
University of California
Scripps Institution of Oceanography
La Jolla, California

Dr. E. C. LaFond
Code 2235
U. S. Navy Electronics Laboratory
San Diego 52, California

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

Dr. J. L. McHugh
Virginia Fisheries Laboratory
Gloucester Point, Virginia

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

Mr. John V. Morris
French Sardine Company
582 Tuna Street
Terminal Island, California

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

Mr. Kenneth S. Norris, Curator
Marineland of the Pacific
Portuguese Bend
Marineland, California

Director
Norwegian Polar Institute
Observatoriegt 1
Oslo, Norway

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

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
Atlantic Oceanographic Group
St. Andrews, New Brunswick
Canada

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

Mr. Garth I. Murphy
Coordinator, CCOFI
University of California
Scripps Institution of Oceanography
La Jolla, 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
Washington 25, D. C.

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

Mr. Don Powell
Bureau of Commercial Fisheries
2725 Montlake Boulevard
Seattle 2, Washington

Pusan Fisheries College
Pusan
Korea

Mr. Joseph L. Reid, Jr.
University of California
Scripps Institution of Oceanography
La Jolla, California

Mrs. Margaret K. Riedel
University of California
Scripps Institution of Oceanography
La Jolla, California

Mrs. Margaret K. Robinson
University of California
Scripps Institution of Oceanography
La Jolla, California

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

Mr. Richard A. Schwartzlose
University of California
Scripps Institution of Oceanography
La Jolla, California

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

Dr. Roger Revelle
University of California
Scripps Institution of Oceanography
La Jolla, California

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

Mr. Gunnar I. Roden
University of California
Institution of Oceanography
La Jolla, California

Dr. M. B. Schaefer
Inter-American Tropical Tuna
Commission
c/o Scripps Institution of Oceanography
La Jolla, California

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

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

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

Library (4)
University of California
Scripps Institution of Oceanography
La Jolla, California

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

Librarian
University of Washington
Oceanographic Laboratories
Friday Harbor, 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. John P. Tully
Pacific Oceanographic Group
P. O. Drawer 6
Nanaimo, B. C.
Canada

U. S. Hydrographic Office (2)
Navy Department
Washington 25, D. C.
Attn: Dr. John Lyman

University of California
Department of Zoology
Berkeley 4, California

Library
University of California
Scripps Institution of Oceanography
Scripps Field Annex
La Jolla, California

Director
University of Miami
Marine Laboratory
Coral Gables, Florida

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

Director
University of Washington
School of Fisheries
Seattle 4, Washington

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. Warren S. Wooster
University of California
Scripps Institution of Oceanography
La Jolla, California

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

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

Dr. Lionel A. Walford, Chief
Atlantic Fishery Oceanographic
Research Center
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

Mr. Charles G. Worrall (20)
University of California
Scripps Institution of Oceanography
La Jolla, California