UNIVERSITY OF CALIFORNIA SCRIPPS INSTITUTION OF OCEANOGRAPHY

data report

PHYSICAL AND CHEMICAL DATA
CCOFI CRUISE 5808
6-21 August 1958

SIO Reference 59-48
11 March 1959

UNIVERSITY OF CALIFORNIA

SCRIPPS INSTITUTION OF OCEANOGRAPHY

PHYSICAL AND CHEMICAL DATA

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6-21 August 1958

Sponsored by

Marine Research Committee

SIO Reference 59-48
11 March 1959

Approved for distribution:

Roger Revelle

Roger Revelle, Director

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FIGURES

INTRODUCTION

The data presented in this report were collected on the one hundred and eleventh consecutive cruise of the California Cooperative Oceanic Fisheries Investigations program. The R/V Black Douglas of the U. S. Bureau of Commercial Fisheries participated in this cruise.

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

STANDARD PROCEDURES

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

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

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

FOOTNOTES

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.

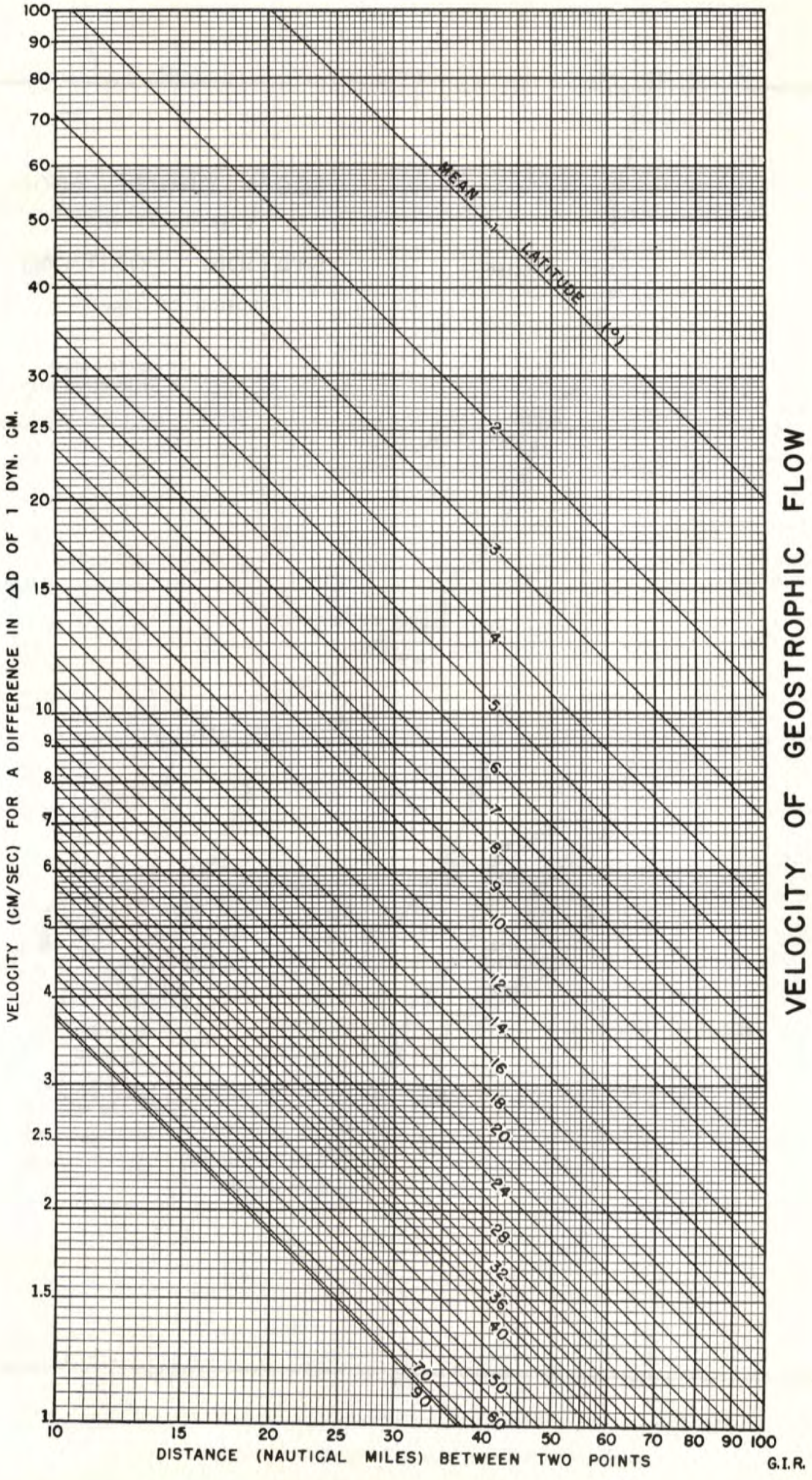
Values which are not drawn through because they seem to be in error without apparent reason are indicated by one of the following notations.

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 5808 data is numbered 245.


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

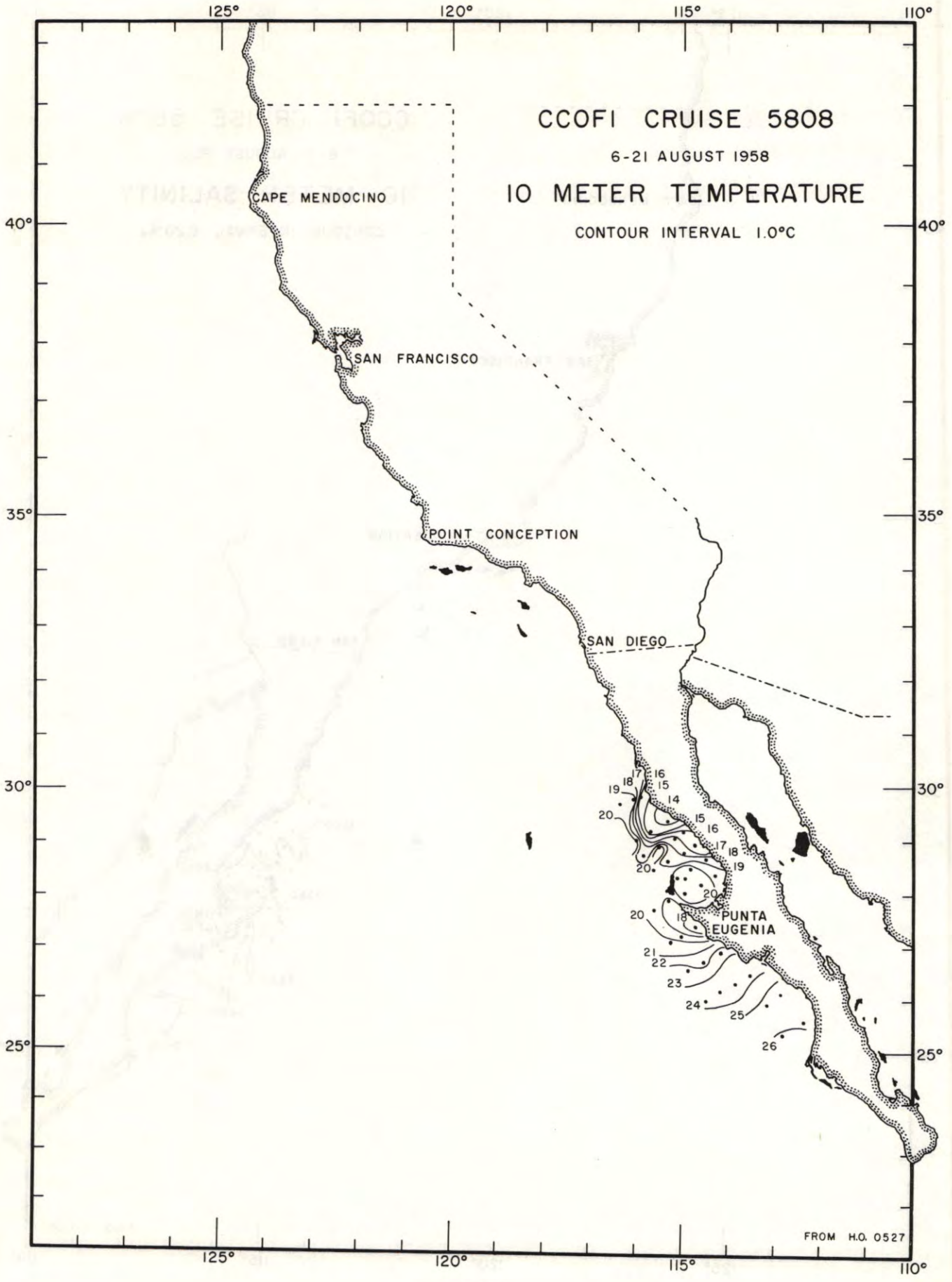

CCOFI CRUISE 5808
6-21 AUGUST 1958
10 METER TEMPERATURE
CONTOUR INTERVAL 1.0°C
CAPE MENDOCINO
SAN FRANCISCO
POINT CONCEPTION
SAN DIEGO
PUNTA EUGENIA
FROM H.O. 0527
125°
120°
115°
110°
40°
35°
30°
25°

FIGURE 2

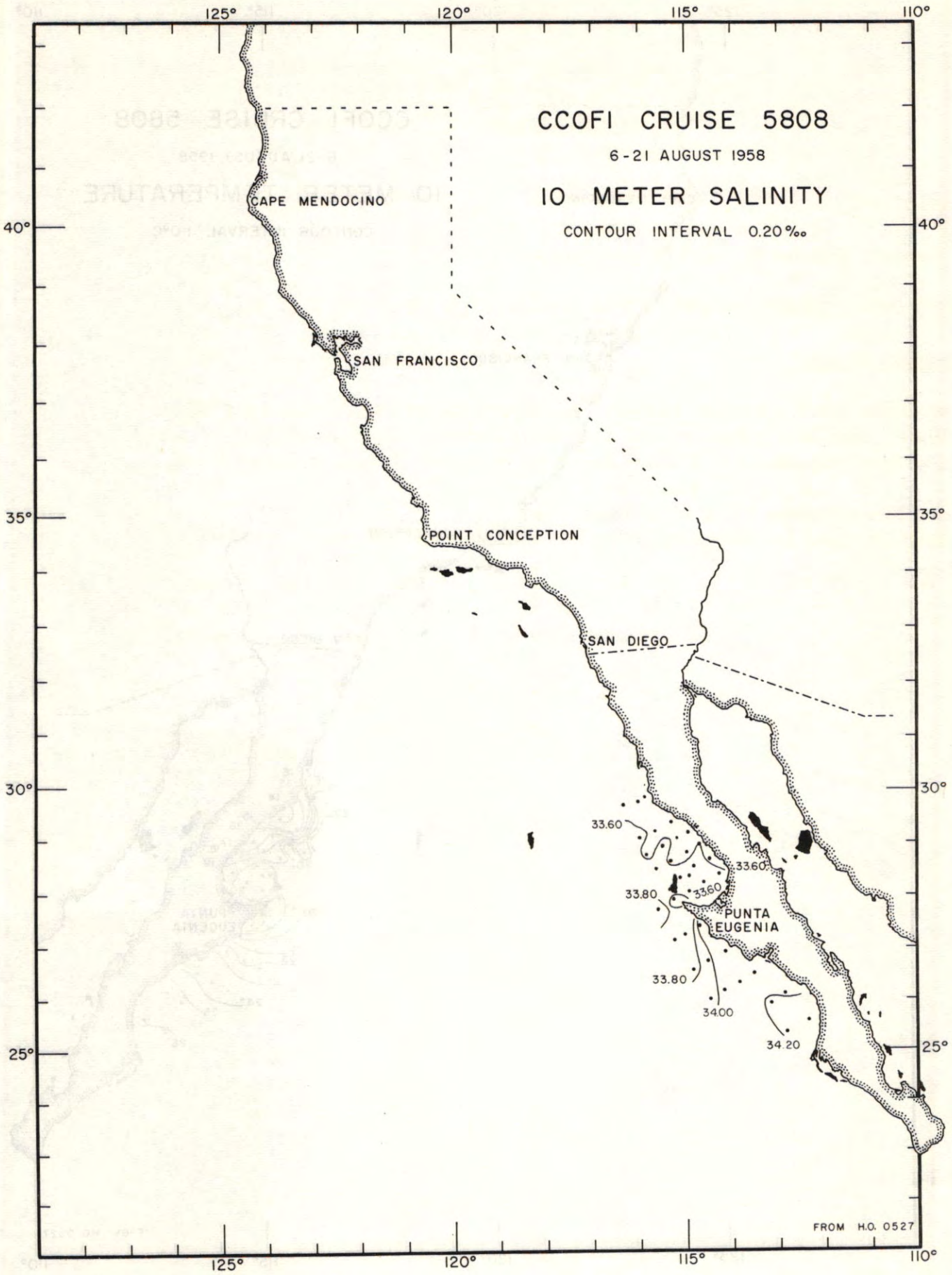

CCOFI CRUISE 5808
6-21 AUGUST 1958
10 METER SALINITY
CONTOUR INTERVAL 0.20‰
CAPE MENDOCINO
SAN FRANCISCO
POINT CONCEPTION
SAN DIEGO
PUNTA EUGENIA
33.60
33.60
33.80
33.60
33.80
34.00
34.20
125°
120°
115°
110°
40°
35°
30°
25°
FROM H.O. 0527

FIGURE 3

PERSONNEL

SHIP'S CAPTAIN

Forster, Charles W., R/V Black Douglas

PERSONNEL PARTICIPATING IN THE COLLECTION OF DATA

R/V Black Douglas

Wolf, Robert S., Fishery Research Biologist, Bureau of Commercial Fisheries
Casey, Harold D., Fishery Aid, Bureau of Commercial Fisheries
Claussen, Leighton G., Fishery Research Biologist, Bureau of Commercial Fisheries
Goffman, Jackson E., Marine Technician
Wolf, Richard L., observer, Bureau of Commercial Fisheries

OBSERVED					INTERPOLATED				COMPUTED		
Z m	T °C	S ‰	O_2 ml/L	δ_{T_3} 10^{-5} cm/g	Z m	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_{T_3} 10^{-5} cm/g	ΔD dyn. m
BLACK DOUGLAS; August 7, 1958; 0315 GCT; 29°22'5'N, 115°17.5' W; sounding, 30 fm; wind, 280°, force 2; weather, partly cloudy; sea, slight; wire angle, 02°.											113.30
0	18.30	33.55	5.20	382	0	18.30	33.55	5.20	24.11	382	0.00
9	14.15	33.58	4.91	288	10	13.98	33.58	4.85	25.11	286	0.03
18	13.24	33.56	3.60	273	20	13.20	33.56	3.56	25.26	272	0.06
27	12.78	33.58	3.29	262							
BLACK DOUGLAS; August 7, 1958; 0623 GCT; 29°12'N, 115°39'W; sounding, 650 fm; wind, 280°, force 3; weather, clear; sea, slight; wire angle, 08°.											113.35
0	17.08	33.53	6.41	355	0	17.08	33.53	6.41	24.39	355	0.00
9	15.42	33.58	6.22	315	10	14.80	33.58	6.22	24.94	303	0.03
28	13.54	33.56	6.26	278	20	14.00	33.57	6.23	25.10	287	0.06
38	12.86	33.54	4.60	267	30	13.40	33.56	6.18	25.22	276	0.09
47	11.86	33.50	4.49	252	50	11.66	33.50	4.45	25.51	248	0.14
56	11.42	33.51	4.43	244	75	11.20	33.60	4.07	25.67	233	0.20
66	11.38	33.51	4.47	242	100	10.82	33.84	3.12	25.92	209	0.26
79	11.12	33.66	-	227	150	11.08	34.24	1.40	26.18	184	0.36
93	10.90	33.78	3.25	214	200	10.59	34.34	1.10	26.35	168	0.45
106	10.77	33.92	2.98	202	250	10.30	34.40	0.99	26.45	159	0.53
128	10.98	34.09	1.92	193	300	9.57	34.39	0.86	26.56	148	0.61
155	11.08	34.27	1.39	182	400	8.62	34.39	0.63	26.71	134	0.76
186	10.68	34.31	1.19	172	500	7.15	34.31	0.58	26.88	118	0.89
230	10.58	34.40	1.07	163							
301	9.56	34.39	0.85	147							
392	8.72	34.39	0.66	135							
512	6.92	34.30	0.58	116							
BLACK DOUGLAS; August 7, 1958; 0925 GCT; 29°02'N, 115°58.5'W; sounding, 950 fm; wind, 290°, force 2; weather, clear; sea, slight; wire angle, 12°.											113.40
0	20.33	33.66	5.61	423	0	20.33	33.66	5.61	23.68	423	0.00
9	20.16	33.69	5.64	416	10	20.15	33.69	5.65	23.75	416	0.04
28	18.30	33.56	6.03	381	20	19.68	33.67	5.74	23.85	406	0.08
38	16.77	33.51	6.05	349	30	18.08	33.55	6.06	24.16	376	0.12
47	15.09	33.44	5.90	319	50	14.79	33.46	5.81	24.85	311	0.19
56	14.06	33.55	5.44	290	75	11.83	33.66	3.83	25.60	240	0.26
65	12.60	33.58	4.49	259	100	11.62	34.07	2.07	25.96	206	0.32
79	11.69	33.68	3.69	236	150	11.63	34.30	1.02	26.13	189	0.42
91	11.52	33.96	2.50	212	200	11.05	34.39	0.77	26.31	172	0.51
104	11.72	34.14	1.78	202	250	10.80	34.46	0.71	26.42	162	0.59
126	11.70	34.27	1.17	192	300	10.17	34.49	0.68	26.54	150	0.67
152	11.62	34.31	1.01	188	400	8.86	34.39	0.59	26.68	136	0.82
182	11.37	34.40	0.88	177	500	7.45	34.34	0.63	26.85	121	0.96
224	11.01	34.43	0.75	169							
294	10.24	34.49	0.69	152							
384	9.03	34.40	0.59	139							
503	7.41	34.34	0.64	120							
BLACK DOUGLAS; August 7, 1958; 2158 GCT; 29°11'N, 114°55'W; sounding, 41 fm; wind, 300°, force 3; weather, clear; sea, slight; wire angle, 03°.											115.27
0	19.00	33.55	5.84	398	0	19.00	33.55	5.84	23.94	398	0.00
9	16.82	33.57	6.30	346	10	16.65	33.56	6.28	24.52	343	0.04
18	13.88	33.50	5.04	290	20	13.75	33.50	4.94	25.11	286	0.07
32	12.60	33.60	4.10	258	30	12.79	33.58	4.23	25.36	263	0.10
55	11.29	33.75	3.37	224	50	11.46	33.71	3.46	25.70	230	0.14

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CCOFI 5808

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
115.30	BLACK DOUGLAS; August 7, 1958; 1949 GCT; 29°04'N, 115°08'W; sounding, 50 fm; wind, 300°, force 3; weather, partly cloudy; sea, slight; wire angle, 02°.										
0	18.65	33.58	6.24	388	0	18.65	33.58	6.24	24.04	388	0.00
9	17.74	33.57	6.09	367	10	17.60	33.57	6.06	24.29	364	0.04
23	15.45	33.51	5.77	321	20	15.60	33.51	5.78	24.72	324	0.07
41	14.03	33.57	4.85	288	30	14.60	33.53	5.27	24.95	302	0.10
60	11.72	33.57	3.82	244	50	12.82	33.57	4.26	25.34	264	0.16
78	11.51	33.69	3.31	232	75	11.55	33.65	3.55	25.65	235	0.22
115.35	BLACK DOUGLAS; August 7, 1958; 1608 GCT; 28°55'N, 115°27.5'W; sounding, 500 fm; wind, 310°, force 3; weather, partly cloudy; sea, moderate; wire angle, 11°.										
0	20.74	33.72	5.49	429	0	20.74	33.72	5.49	23.61	429	0.00
9	20.72	33.74	5.50	427	10	20.65	33.74	5.52	23.65	425	0.04
28	16.74	33.55	6.06	346	20	18.15	33.62	5.92	24.20	372	0.08
37	15.90	33.51	5.93	330	30	16.55	33.54	6.02	24.52	342	0.12
46	14.22	33.46	5.39	300	50	13.60	33.48	5.05	25.12	285	0.18
55	13.03	33.53	4.73	272	75	12.72	33.74	3.75	25.49	250	0.25
64	12.78	33.68	3.86	255	100	11.87	33.92	2.50	25.80	221	0.31
78	12.69	33.86	2.71	240	150	11.75	34.30	1.15	26.11	191	0.41
91	11.87	33.86	2.71	225	200	11.10	34.33	1.03	26.25	178	0.51
104	12.18	34.03	1.84	218	250	10.41	34.35	0.99	26.40	164	0.59
126	11.63	34.05	2.00	208	300	9.88	34.46	0.66	26.58	147	0.68
152	11.76	34.32a)	1.10	190	400	8.41	34.34	0.72	26.72	134	0.82
182	11.40	34.34	1.04	182	500	7.20	34.37	0.52	26.91	115	0.95
226	10.63	34.32	1.03	170							
299	9.90	34.46	0.66	148							
389	8.58	34.34	0.72	136							
509	7.08	34.37	0.50	114							
115.40	BLACK DOUGLAS; August 7, 1958; 1228 GCT; 28°45'N, 115°47'W; sounding, 750 fm; wind, 320°, force 2; weather, clear; sea, slight; wire angle, 12°.										
0	20.28	33.71	5.58	418	0	20.28	33.71	5.58	23.72	418	0.00
9	18.66	33.59	6.07	387	10	18.50	33.59	6.03	24.08	384	0.04
28	15.80	33.61	5.50	321	20	17.80	33.59	5.88	24.27	366	0.08
37	14.29	33.53	5.36	296	30	15.69	33.61	5.49	24.77	319	0.11
46	13.35	33.58	4.96	274	50	12.82	33.62	4.20	25.38	260	0.17
55	13.26	33.87	2.61	250	75	12.93	34.09	1.33	25.72	228	0.23
64	12.68	33.95	2.12	234	100	12.88	34.20	1.06	25.81	219	0.29
77	12.94	34.14	1.31	225	150	12.21	34.25	1.06	25.99	203	0.40
90	12.92	34.16	1.08	223	200	11.28	34.31	1.34	26.20	182	0.49
102	12.86	34.21	1.06	218	250	10.47	34.44	1.33	26.45	159	0.58
123	12.32	34.17	1.24	211	300	9.18	34.37	1.61	26.61	144	0.66
148	12.24	34.25	1.03	203	400	8.42	34.36	0.66	26.72	133	0.80
176	11.80	34.29	1.34	192	500	6.92	34.33	0.40	26.92	114	0.93
219	11.60	34.50	0.92	174							
289	9.23	34.37	1.64	144							
380	8.70	34.36	0.85	136							
500	6.92	34.33	0.40	114							
117.26	BLACK DOUGLAS; August 8, 1958; 0042 GCT; 28°56'N, 114°41'W; sounding, 42 fm; wind, 280°, force 3; weather, partly cloudy; sea, slight; wire angle, 05°.										
0	18.58	33.56	6.10	387	0	18.58	33.56	6.10	24.05	387	0.00
9	16.77	33.60	6.34	343	10	16.60	33.60	6.33	24.56	339	0.04
18	15.18	33.53	6.19	314	20	14.90	33.53	6.11	24.88	308	0.07
32	13.48	33.54	4.64	279	30	13.79	33.54	5.10	25.12	285	0.10
55	11.29	33.64	3.03	232	50	11.78	33.62	3.32	25.58	242	0.15

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

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

BLACK DOUGLAS; August 8, 1958; 0305 GCT; 28°48'N, 114°56.5'W; sounding, 55 fm; wind, 280°, force 3; weather, partly cloudy; sea, moderate; wire angle, 11°. 117.30

0	18.73	33.58	6.06	390	0	18.73	33.58	6.06	24.02	390	0.00
8	17.71	33.57	5.98	366	10	17.50	33.57	5.98	24.32	362	0.04
22	16.25	33.56	5.96	334	20	16.60	33.56	5.98	24.54	341	0.07
40	13.12	33.52	4.68	274	30	15.80	33.56	5.82	24.70	325	0.11
59	12.12	33.58a)	4.04	250	50	12.55	33.55	4.35	25.38	260	0.16
77	11.33	33.69a)	3.18	228	75	11.40	33.68	3.32	25.70	230	0.22

BLACK DOUGLAS; August 8, 1958; 0617 GCT; 28°38'N, 115°16'W; sounding, 100 fm; wind, 300°, force 3; weather, partly cloudy; sea, moderate; wire angle, 08°. 117.35

0	19.12	33.54	5.77	402	0	19.12	33.54	5.77	23.90	402	0.00
9	18.83	33.58	5.85	392	10	18.72	33.58	5.88	24.03	389	0.04
18	16.16	33.53	5.85	335	20	15.90	33.53	5.78	24.65	330	0.08
28	14.97	33.53	5.31	310	30	14.78	33.54	5.21	24.92	305	0.11
41	13.82	33.55	4.62	285	50	13.14	33.57	4.36	25.28	270	0.16
64	12.40	33.60	4.12	254	75	11.97	33.66	3.88	25.58	242	0.23
87	11.55	33.73	3.43	230	100	11.40	33.83	3.12	25.82	219	0.29
123	11.64	34.16	1.68	200	150	11.60	34.26	1.26	26.11	191	0.39
160	11.54	34.27	1.24	189							

BLACK DOUGLAS; August 8, 1958; 0910 GCT; 28°28'N, 115°35.5'W; sounding, 400 fm; wind, 320°, force 2; weather, partly cloudy; sea, slight; wire angle, 12°. 117.40

0	19.42	33.57	5.81	407	0	19.42	33.57	5.81	23.84	407	0.00
10	19.39	33.64	5.97	401	10	19.39	33.64	5.97	23.91	401	0.04
28	16.66	33.60	5.86	340	20	18.05	33.62	5.82	24.22	371	0.08
38	15.53	33.58	5.74	318	30	16.42	33.60	5.83	24.60	335	0.11
47	14.94	33.57	5.45	306	50	14.55	33.57	5.18	24.99	298	0.18
56	13.94	33.60	4.67	284	75	13.25	33.96	1.77	25.56	244	0.24
65	13.50	33.89	2.48	254	100	12.83	34.10	1.30	25.75	225	0.30
79	13.18	33.99	1.66	240	150	11.76	34.17	1.47	26.00	202	0.41
92	12.83	34.04	1.49	230	200	11.28	34.32	1.00	26.22	181	0.51
105	12.82	34.15	1.10	222	250	10.69	34.37	0.91	26.36	168	0.60
126	12.47	34.22	0.99	210	300	10.20	34.42	0.86	26.48	156	0.68
152	11.72	34.16	1.50	201	400	8.50	34.40	0.52	26.74	131	0.83
183	11.50	34.30	1.04	187	500	7.40	34.36	0.50	26.88	118	0.96
226	10.94	34.35	0.93	173							
297	10.23	34.42	0.87	156							
388	8.66	34.40	0.52	133							
508	7.32	34.36	0.50	117							

BLACK DOUGLAS; August 8, 1958; 1936 GCT; 28°40.5'N, 114°25.5'W; sounding, 45 fm; wind, 290°, force 3; weather, partly cloudy; sea, slight; wire angle, 00°. 118^{5}.25

0	19.51	33.60	5.77	407	0	19.51	33.60	5.77	23.84	407	0.00
9	18.72	33.57	5.89	390	10	18.50	33.57	5.90	24.08	384	0.04
28	15.74	33.56	5.92	323	20	17.12	33.57	5.92	24.40	354	0.08
46	13.36	33.58	4.53	273	30	15.40	33.56	5.86	24.80	316	0.11
69	11.22	33.71	2.53	226	50	12.97	33.60	4.18	25.33	265	0.17

BLACK DOUGLAS; August 8, 1958; 1700 GCT; 28°30.5'N, 114°45.5'W; sounding, 60 fm; wind, 300°, force 3; weather, partly cloudy; sea, slight; wire angle, 10°. 118^{5}.30

0	20.59	33.63	5.20	431	0	20.59	33.63	5.20	23.59	431	0.00
8	20.52	33.68	5.34	426	10	20.51	33.68	5.35	23.64	426	0.04
27	19.32	33.62	5.65	401	20	19.62	33.64	5.59	23.84	408	0.08
45	17.05	33.57	5.61	351	30	19.20	33.62	5.66	23.94	398	0.12
68	13.28	33.58	4.17	272	50	16.15	33.57	5.41	24.64	332	0.20
90	11.40	33.72	2.19	228	75	12.62	33.62	3.73	25.42	257	0.27

a) Salinity samples at 59 and 77 meters appear to have been reversed; they are assumed to be in the order listed.

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CCOFI 5808

OBSERVED					INTERPOLATED				COMPUTED		
Z m	T °C	S ‰	O_2 ml/L	δ_{T_3} 10^{-5} cm/g	Z m	T °C	S ‰	O_2 ml/L	σ_t g/L	δ_{T_3} 10^{-5} cm/g	ΔD dyn. m

118.35 BLACK DOUGLAS; August 8, 1958; 1312 GCT; 28°20.5'N, 115°05'W; sounding, 65 fm; wind, 320°, force 4; weather, partly cloudy; sea, moderate; wire angle, 00°.

0	20.71	33.68	5.35	431	0	20.71	33.68	5.35	23.59	431	0.00
9	20.73	33.68	5.38	432	10	20.73	33.68	5.38	23.59	431	0.04
28	19.29	33.58	5.74	403	20	20.57	33.66	5.41	23.62	428	0.09
46	16.96	33.58	5.90	348	30	19.17	33.58	5.77	23.92	400	0.13
69	13.79	33.82	2.94	264	50	15.95	33.64	5.59	24.75	321	0.20
93	13.01	33.87	2.25	246	75	13.58	33.84	2.73	25.40	259	0.27
					100	(12.87)	(33.88)	(2.17)	(25.58)	(242)	(0.34)

119.33 BLACK DOUGLAS; August 8, 1958; 1500 GCT; 28°19'N, 114°53'W; sounding, 62 fm; wind, 320°, force 3; weather, partly cloudy; sea, slight; wire angle, 04°.

0	20.70	33.66	5.17	432	0	20.70	33.66	5.17	23.58	432	0.00
9	20.71	33.69	5.29	430	10	20.71	33.69	5.29	23.60	430	0.04
28	20.20	33.64	5.36	421	20	20.63	33.68	5.30	23.61	429	0.09
47	19.41	33.63	5.37	402	30	20.17	33.64	5.36	23.70	420	0.13
69	15.56	33.55	5.27	320	50	19.20	33.62	5.37	23.95	397	0.21
92	12.28	33.58	3.58	254	75	14.80	33.56	5.10	24.92	304	0.30

120.25 BLACK DOUGLAS; August 8, 1958; 2210 GCT; 28°23'N, 114°14.5'W; sounding, 28 fm; wind, 270°, force 3; weather, partly cloudy; sea, slight; wire angle, 00°.

0	20.12	33.64	5.49	419	0	20.12	33.64	5.49	23.71	419	0.00
9	19.38	33.63	5.58	401	10	19.37	33.63	5.58	23.91	401	0.04
28	16.42	33.61	5.85	334	20	18.17	33.62	5.70	24.16	377	0.08
37	14.92	33.58	5.28	304	30	15.98	33.60	5.74	24.71	324	0.11

120.30 BLACK DOUGLAS; August 9, 1958; 0057 GCT; 28°13'N, 114°34'W; sounding, 52 fm; wind, 320°, force 3; weather, partly cloudy; sea, moderate; wire angle, 10°.

0	20.92	33.68	4.65	436	0	20.92	33.68	4.65	23.54	436	0.00
9	20.74	33.69	5.21	431	10	20.68	33.69	5.21	23.61	429	0.04
23	20.01	33.68	5.14	414	20	20.25	33.68	5.15	23.71	420	0.08
41	17.31	33.58	5.61	356	30	19.08	33.65	5.28	23.98	394	0.13
59	13.68	33.58	4.49	280	50	15.55	33.58	5.36	24.78	318	0.20
78	11.76	33.68	2.90	236	75	11.96	33.67	3.10	25.58	241	0.27

120.35 BLACK DOUGLAS; August 9, 1958; 0333 GCT; 28°03'N, 114°54'W; sounding, 47 fm; wind, 330°, force 4; weather, partly cloudy; sea, moderate; wire angle, 04°.

0	20.68	33.69	5.39	430	0	20.68	33.69	5.39	23.60	430	0.00
9	20.55	33.66	5.39	428	10	20.54	33.66	5.40	23.62	428	0.04
28	17.66	33.55	6.04	367	20	19.60	33.61	5.65	23.83	408	0.08
46	15.52	33.55	5.44	320	30	17.40	33.55	6.03	24.34	360	0.12
69	12.74	33.68	2.95	254	50	15.00	33.56	5.10	24.88	308	0.19

74
97

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

BLACK DOUGLAS; August 9, 1958; 0839 GCT; 27°43'N, 115°33'W; sounding, 1150 fm; wind, 290°, force 2; weather, clear; sea, slight; wire angle, 05°. 120.45

0	19.84	33.95	5.82	390	0	19.84	33.95	5.82	24.02	390	0.00
10	19.88	33.89	5.73	395	10	19.88	33.89	5.73	23.97	395	0.04
29	17.00	33.68	5.35	342	20	18.48	33.76	5.60	24.23	370	0.08
38	15.78	33.73	4.70	312	30	16.80	33.68	5.28	24.57	338	0.11
48	14.68	33.77	4.07	286	50	14.27	33.76	3.98	25.18	279	0.17
57	13.63	33.73	3.90	268	75	12.78	33.88	3.12	25.60	240	0.24
66	13.00	33.82	3.48	249	100	12.19	34.00	2.70	25.80	220	0.30
79	12.68	33.90	2.91	238	150	11.70	34.40	0.90	26.21	182	0.40
93	12.28	33.95	2.86	226	200	11.40	34.51	0.50	26.34	169	0.49
105	12.10	34.08	2.29	214	250	10.78	34.58	0.42	26.50	154	0.57
128	11.88	34.31	1.28	192	300	10.00	34.56	0.40	26.63	142	0.65
154	11.69	34.42	0.83	181	400	8.00	34.36	0.55	26.80	126	0.78
185	11.37	34.43	0.78	174	500	6.95	34.36	0.40	26.94	112	0.91
229	11.05	34.58	0.45	158							
300	10.00	34.56	0.40	142							
391	8.10	34.36	0.56	128							
511	6.82	34.36	0.38	111							

BLACK DOUGLAS; August 10, 1958; 2035 GCT; 26°29'N, 113°29'W; sounding, 44 fm; wind, 300°, force 2; weather, overcast; sea, moderate; wire angle, 02°. 130.30

0	24.41	34.17	4.92	496	0	24.41	34.17	4.92	22.91	496	0.00
9	24.02	34.13	5.02	487	10	23.85	34.13	5.05	23.04	484	0.05
19	20.86	34.28	5.34	392	20	20.60	34.29	5.31	24.08	384	0.09
32	17.59	34.39	2.93	304	30	17.70	34.39	3.06	24.90	306	0.13
56	15.68	34.29	2.22	269	50	16.57	34.38	2.45	25.16	282	0.18

BLACK DOUGLAS; August 10, 1958; 1735 GCT; 26°17.5'N, 113°47'W; sounding, 200 fm; wind, 250°, force 2; weather, rain; sea, moderate; wire angle, 03°. 130.35

0	23.67	34.07	4.93	482	0	23.67	34.07	4.93	23.06	482	0.00
9	23.62	34.07	5.04	480	10	23.62	34.07	5.04	23.08	480	0.05
28	18.44	33.86	5.61	362	20	23.52	34.07	5.05	23.10	478	0.10
46	16.06	34.13	3.61	288	30	18.07	33.86	5.53	24.40	354	0.14
64	15.06	34.33	1.78	253	50	15.80	34.20	3.18	25.22	276	0.20
91	14.50	34.63	0.58	219	75	14.65	34.45	1.30	25.64	236	0.26
136	13.76	34.61	0.47	206	100	14.48	34.66	0.50	25.84	217	0.32
182	12.72	34.67	0.39	182	150	13.47	34.62	0.44	26.03	199	0.43
227	11.77	34.61	0.25	168	200	12.00	34.60	0.38	26.30	173	0.52
273	11.00	34.62	0.21	154	250	11.39	34.62	0.25	26.43	161	0.61
323	10.30	34.56	0.27	147	300	10.61	34.59	0.25	26.54	150	0.69

BLACK DOUGLAS; August 10, 1958; 1410 GCT; 26°09'N, 114°07.5'W; sounding, 1150 fm; wind, 320°, force 3; weather, overcast; sea, moderate; wire angle, 14°. 130.40

0	24.00	34.02	4.74	495	0	24.00	34.02	4.74	22.92	495	0.00
9	23.74	34.03	4.96	486	10	23.65	34.03	5.00	23.04	484	0.05
28	17.38	33.62	5.89	355	20	20.38	33.80	5.60	23.77	414	0.09
37	16.48	33.65	5.64	333	30	17.15	33.62	5.83	24.44	350	0.13
46	16.00	33.68	5.60	320	50	16.20	33.80	4.90	24.80	316	0.20
55	15.12	33.75	4.67	296	75	14.60	34.22	2.23	25.47	252	0.27
64	15.57	34.14	3.02	277	100	13.70	34.42	1.30	25.81	219	0.33
78	14.36	34.23	2.03	246	150	12.66	34.65	0.38	26.21	182	0.43
90	13.96	34.38	1.35	226	200	11.35	34.58	0.30	26.40	164	0.52
103	13.62	34.44	1.24	216	250	10.92	34.60	0.26	26.50	154	0.60
125	13.17	34.54	0.60	199	300	10.22	34.58	0.22	26.60	144	0.68
150	12.66	34.65	0.38	182	400	9.06	34.49	0.30	26.72	133	0.82
182	11.80	34.62	0.35	168	500	7.64	34.43	0.34	26.89	117	0.95
224	11.26	34.61	0.29	160							
294	10.28	34.58	0.22	145							
384	9.24	34.50	0.27	135							
501	7.63	34.43	0.34	117							

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130.45

BLACK DOUGLAS; August 10, 1958; 1100 GCT; 25°59'N, 114°25.5'W; sounding, 2000 fm; wind, 280°, force 2; weather, partly cloudy; sea, slight; wire angle, 09°.

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
0	23.77	34.01	4.81	488	0	23.77	34.01	4.81	22.99	488	0.00
10	23.82	33.98	4.96	493	10	23.82	33.98	4.96	22.94	493	0.05
28	19.56	33.78	5.50	395	20	21.65	33.88	4.99	23.48	442	0.10
38	17.85	33.69	5.58	360	30	19.10	33.76	5.53	24.07	385	0.14
47	17.06	33.70	4.81	342	50	16.77	33.71	4.90	24.60	335	0.21
57	15.74	33.76	5.33	309	75	12.98	33.68	3.92	25.39	260	0.28
65	13.86	33.64	4.53	279	100	11.97	34.04	2.68	25.88	213	0.34
79	12.68	33.69	3.72	253	150	11.45	34.42	1.03	26.26	176	0.44
93	11.66	33.95	3.32	215	200	11.45	34.65	0.27	26.44	160	0.53
105	11.47	33.98	2.50	210	250	10.80	34.62	0.24	26.54	151	0.61
128	12.35	34.44	0.88	192	300	10.25	34.62	0.24	26.64	141	0.68
155	11.22	34.42	1.09	173	400	8.48	34.49	0.16	26.82	124	0.82
186	11.62	34.66	0.32	162	500	7.41	34.44	0.17	26.94	112	0.94
231	11.04	34.63	0.24	154							
304	10.18	34.62	0.24	140							
396	8.55	34.49	0.16	125							
515	7.26a)	34.44	0.18	111							

a) Alternate value, 7.36°C, not used in interpolation.

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind Dir	Wind Force	Weather	Sea	10 Meters T	10 Meters S	50 Meters T	50 Meters S
110.33-B	VIII-6	2200	29°50.5'	115°52.0'	50	calm		partly cloudy	smooth	15.60	33.49	12.54	33.48
110.35-B	6	2030	29°46.5'	116°00.0'	600	220°	1	partly cloudy	smooth	19.54	33.52	15.34	33.41
110.40-B	6	1800	29°42.0'	116°19.5'	1250	calm		cloudy	smooth	19.48	33.51	16.26	33.46
112.30-B	21	0700	29°35.0'	115°29.0'	-	-	-	missing	missing	15.44	33.53	-	-
116.25-B	20	0805	29°06.0'	114°40.5'	-	-	-	missing	missing	17.94	33.55	-	-
117.24-B	20	0555	28°55.0'	114°31.0'	-	-	-	missing	missing	18.00	33.56	-	-
118.28-B	20	0045	28°43.5'	114°45.0'	53	300°	4	missing	moderate	20.78	33.58	14.30	33.56
118.33-B	19	2210	28°29.5'	115°00.0'	70	320°	4	partly cloudy	moderate	22.18	33.70	18.14	33.62
118.36-B	19	2000	28°20.0'	115°11.0'	-	-	-	missing	missing	21.38	33.69	-	-
119.37-B	16	2020	28°07.5'	115°09.5'	-	-	-	missing	missing	20.76	33.68	-	-
119.40-B	17	0645	28°04.0'	115°18.0'	-	-	-	missing	missing	19.04	33.76	-	-
119.5.39-B	17	0755	28°02.0'	115°12.5'	-	-	-	missing	missing	21.45	33.68	-	-
120.33-B	19	0020	28°10.5'	114°50.0'	52	320°	5	partly cloudy	rough	22.28	-	19.90	-
120.40-B	9	0555	27°56.5'	115°14.0'	21	240°	2	partly cloudy	missing	18.68	33.58	-	-
120.5.27-B	18	1135	28°11.0'	114°15.5'	20	320°	3	clear	moderate	21.80	33.62	-	-
120.5.31-B	18	2200	28°06.0'	114°33.0'	45	320°	5	partly cloudy	moderate	22.36	-	16.68	-
120.5.37-B	18	0430	27°53.0'	115°00.5'	-	-	-	missing	missing	23.48	33.84	-	-
121.30-B	18	0900	27°58.5'	114°26.5'	18	310°	3	clear	moderate	22.12	33.76	-	-
121.34-B	18	0645	27°52.5'	114°42.5'	20	340°	4	clear	moderate	22.28	33.67	-	-

TEMPERATURE AND SALINITY AT 10 AND 50 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	50 Meters T	50 Meters S
123.37-B	VIII-9	1810	27°24.0'	114°39.5'	40	290°	2	partly cloudy	slight	17.84	34.04	15.44	-
123.42-B	9	1545	27°14.0'	114°59.5'	875	290°	2	partly cloudy	slight	19.65	33.66	14.20	33.69
123.45-B	9	1315	27°08.0'	115°11.0'	1250	290°	2	partly cloudy	moderate	20.40	33.67	15.66	33.48
126.34-B	14	1630	27°06.0'	114°13.0'	-	-	-	missing	missing	20.96	34.16	-	-
127.32-B	13	2025	26°58.0'	113°58.0'	-	-	-	missing	missing	19.86	34.15	-	-
127.34-B	10	0000	26°55.5'	114°06.0'	43	270°	3	partly cloudy	moderate	22.66	34.17	16.73	34.24
127.40-B	10	0320	26°43.5'	114°29.5'	1550	300°	3	partly cloudy	moderate	21.62	33.96	14.54	33.73
127.45-B	10	0610	26°33.5'	114°48.5'	1900	320°	2	partly cloudy	moderate	22.34	33.78	15.44	33.53
129.28-B	12	0440	26°43.5'	113°27.0'	-	-	-	missing	missing	23.94	34.39	-	-
133.25-B	11	0645	26.04.5'	112°48.0'	44	300°	2	missing	missing	25.60	34.17	17.34	34.28
133.30-B	11	0930	25°54.5'	113°07.5'	105	300°	2	missing	slight	25.25	34.34	17.76	34.22
137.23-B	11	1735	25°34.0'	112°18.5'	40	270°	1	cloudy	slight	26.05	34.30	19.95	34.59
137.30-B	11	1420	25°20.0'	112°45.5'	135	-	-	cloudy	slight	25.83	34.29	17.91	33.85

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