

UNIVERSITY OF CALIFORNIA SCRIPPS INSTITUTION OF OCEANOGRAPHY

data report

PHYSICAL AND CHEMICAL DATA

CCOFI Cruise 6103
8-13 March 1961

CCOFI Cruise 6104-5
4 April-12 May 1961

and

CCOFI Cruise 6105
17-29 May 1961

SIO Reference 62-15
28 December 1961

UNIVERSITY OF CALIFORNIA
SCRIPPS INSTITUTION OF OCEANOGRAPHY

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CCOFI Cruise 6103
8-13 March 1961

CCOFI Cruise 6104-5
4 April-12 May 1961

and

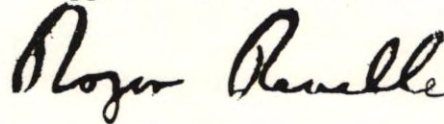
CCOFI Cruise 6105
17-29 May 1961

Sponsored by

Marine Research Committee

SIO Reference 62-15
26 December 1961

Approved for distribution:



Roger Revelle, Director

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INTRODUCTION

The data presented in this report were collected by the RV Black Douglas of the Bureau of Commercial Fisheries and the RV Horizon of the Scripps Institution of Oceanography on Cruises 6103, 6104-5 and 6105 of the California Cooperative Oceanic Fisheries Investigations program. The RV Black Douglas participated in all three cruises; the RV Horizon, 6104-5 and 6105. The first two figures in this cruise numbering system represent the year of the cruise; the last two figures, the month. In the case of quarterly cruises the last figures are hyphenated. The cruises preceding this one in the series are 6008, 6009 and 6009-10 (Scripps Institution report, SIO Ref. 62-10) and 6101-2 (SIO Ref. 61-24).

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 .

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. The salinity values obtained by salinometer are recorded to three decimal places, provided they meet accepted standards. The third decimal place has been offset to emphasize that the accuracy of the observations is not to one unit in that place, but that the values recorded "have a reproducibility of $\pm 0.004\%$ salinity at the 95 percent probability level, and a probable accuracy of $\pm 0.01\%$ salinity or better at the same level of probability."^{2/} The values are recorded to two decimal places when obtained by chlorinity titration, or by salinometer where only one determination

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

^{2/}Quotation from Department of Oceanography, University of Washington, Tech. Rep. No. 66, UW Ref. 60-18, October 1960.

per sample was obtained, or where there is doubt concerning the accuracy of a particular sample, or of all samples on a station. The accuracy of all samples obtained by salinometer and recorded to two decimal places is believed to be equal to or better than those obtained by manual titration.

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.

On stations where more than one cast is lowered, the various property curves may not agree perfectly. This discrepancy may be caused by changes in geographical position, real property changes with time, slight error in measurement, or a combination of these factors. Stations with overlapping casts have the following footnote: Overlapping casts; reconciliation of property curves when necessary.

FOOTNOTES

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

Loose bottle cap: The cap is definitely loose so that it could be moved with very little applied pressure. The salinity values obtained from these samples may be usable depending on time and/or conditions of storage.

Possible evaporation: Either the cap was sealed with less than usual pressure, the bottle edge chipped, the rubber washer cracked, or the bale broke on opening, etc.

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

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

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

p: pretrip or posttrip.

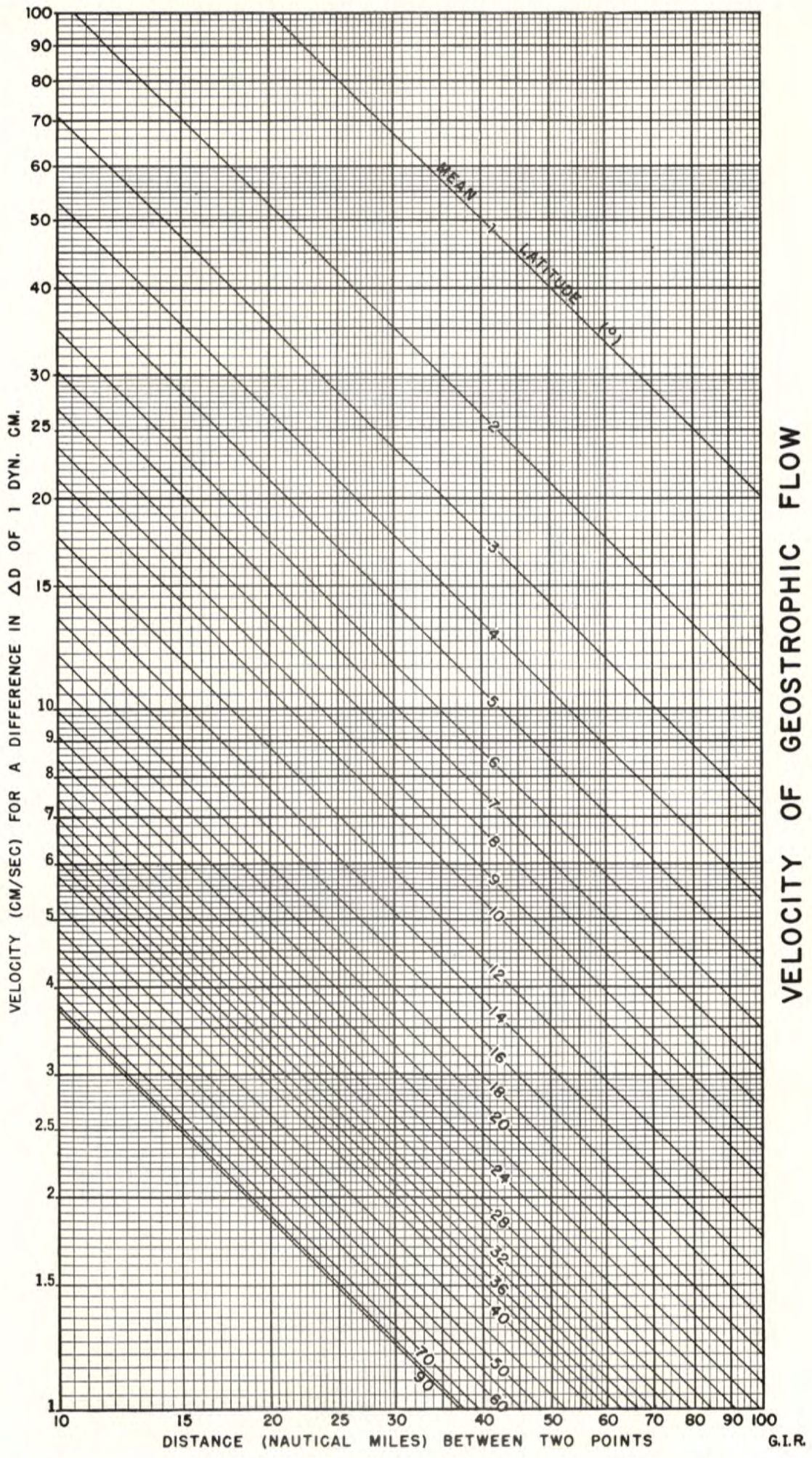
Values which are not drawn through because they seem to be in error without apparent reason are indicated by one of the following notations.

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

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

FORMAT

These data are typed in the format of the University of California Press publication, Oceanic Observations of the Pacific. So that these pages can be used as copy for the 1961 volume, the first page of Cruise 6103 data is numbered 50; Cruise 6104-5, 53; Cruise 6105, 101.



FIGURES

1. CCOFI Cruise 6105, station positions
2. Horizontal distribution of temperature at 10 meters
3. Horizontal distribution of salinity at 10 meters

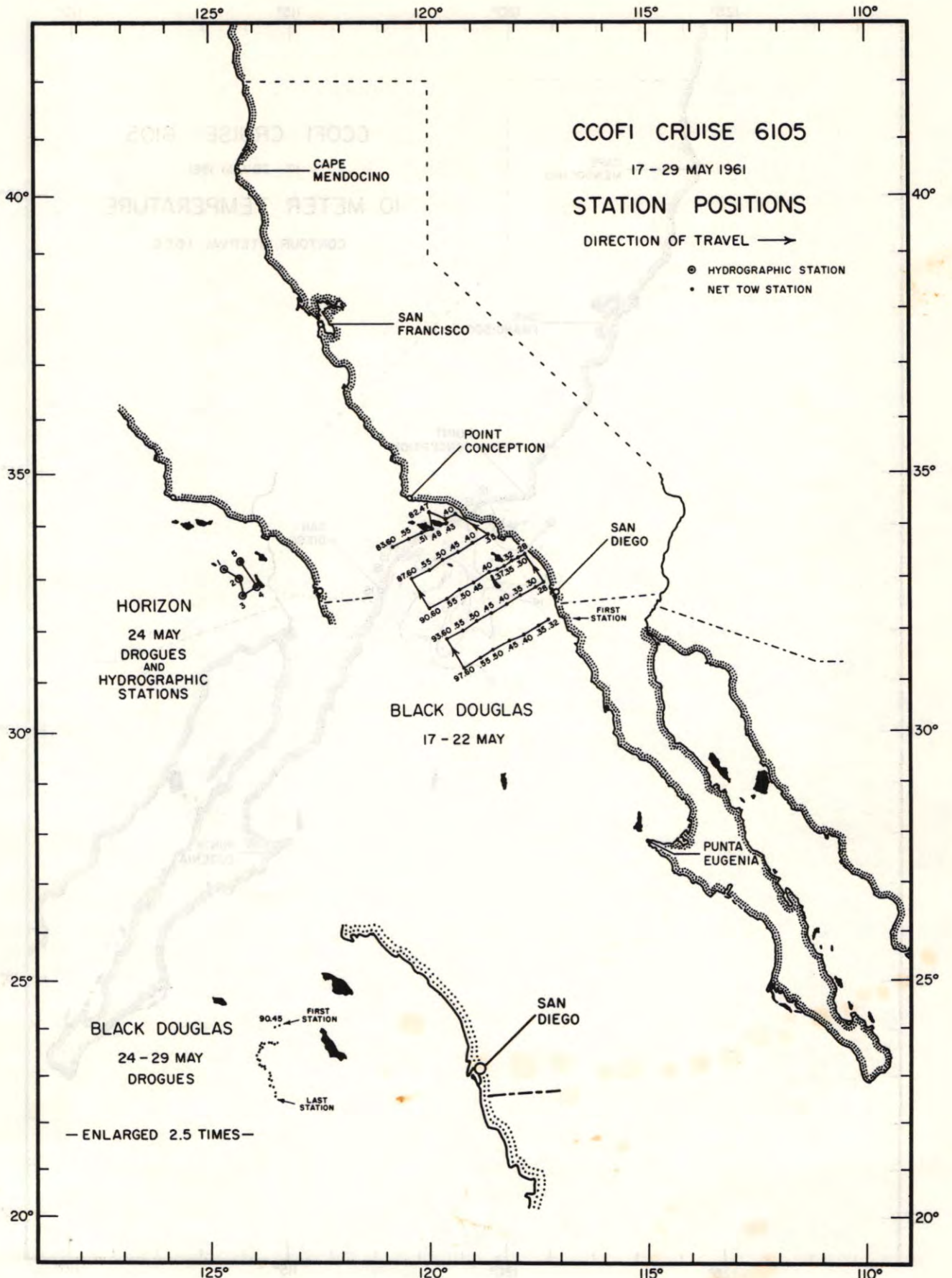


FIGURE 1

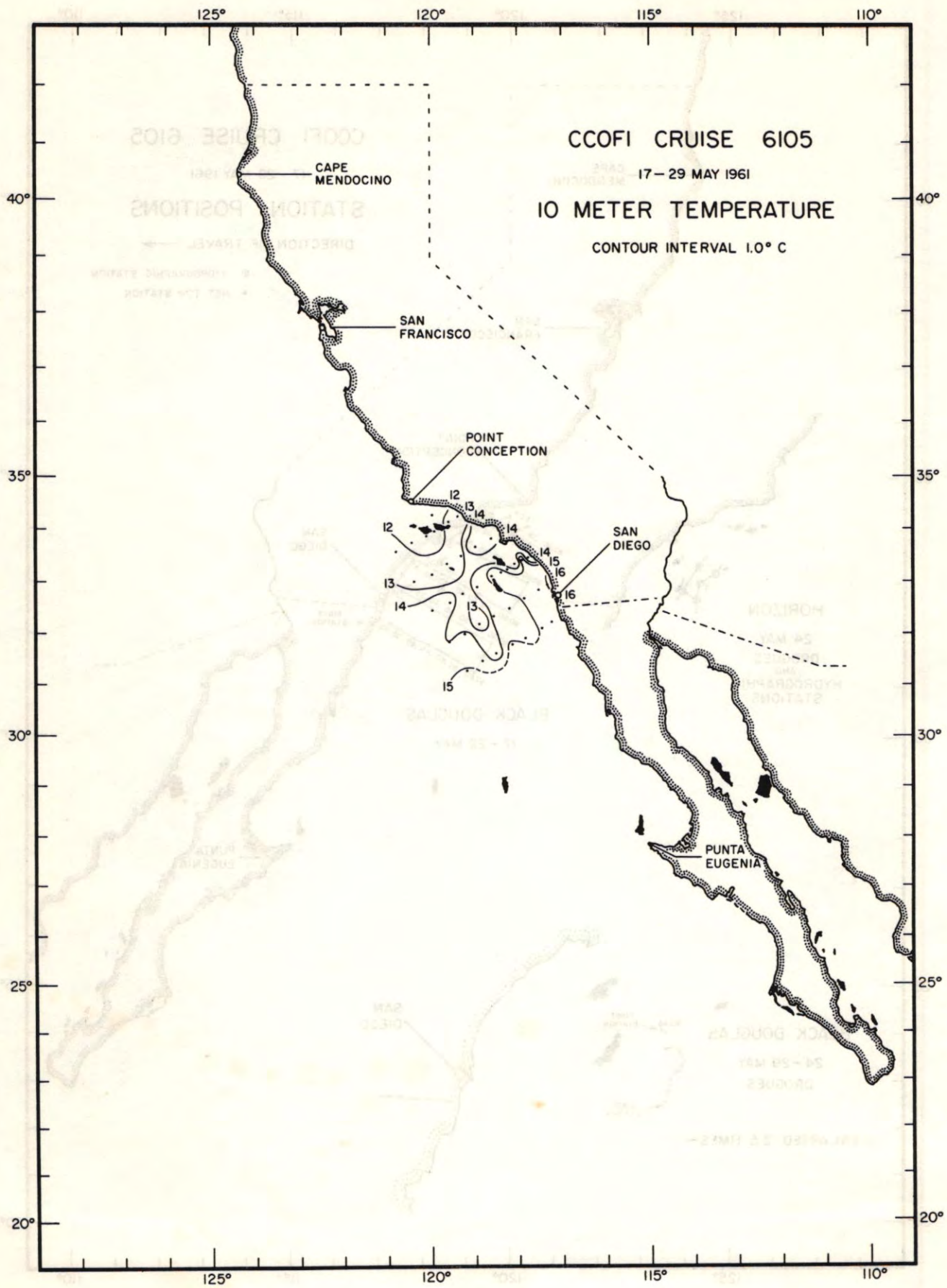


FIGURE 2

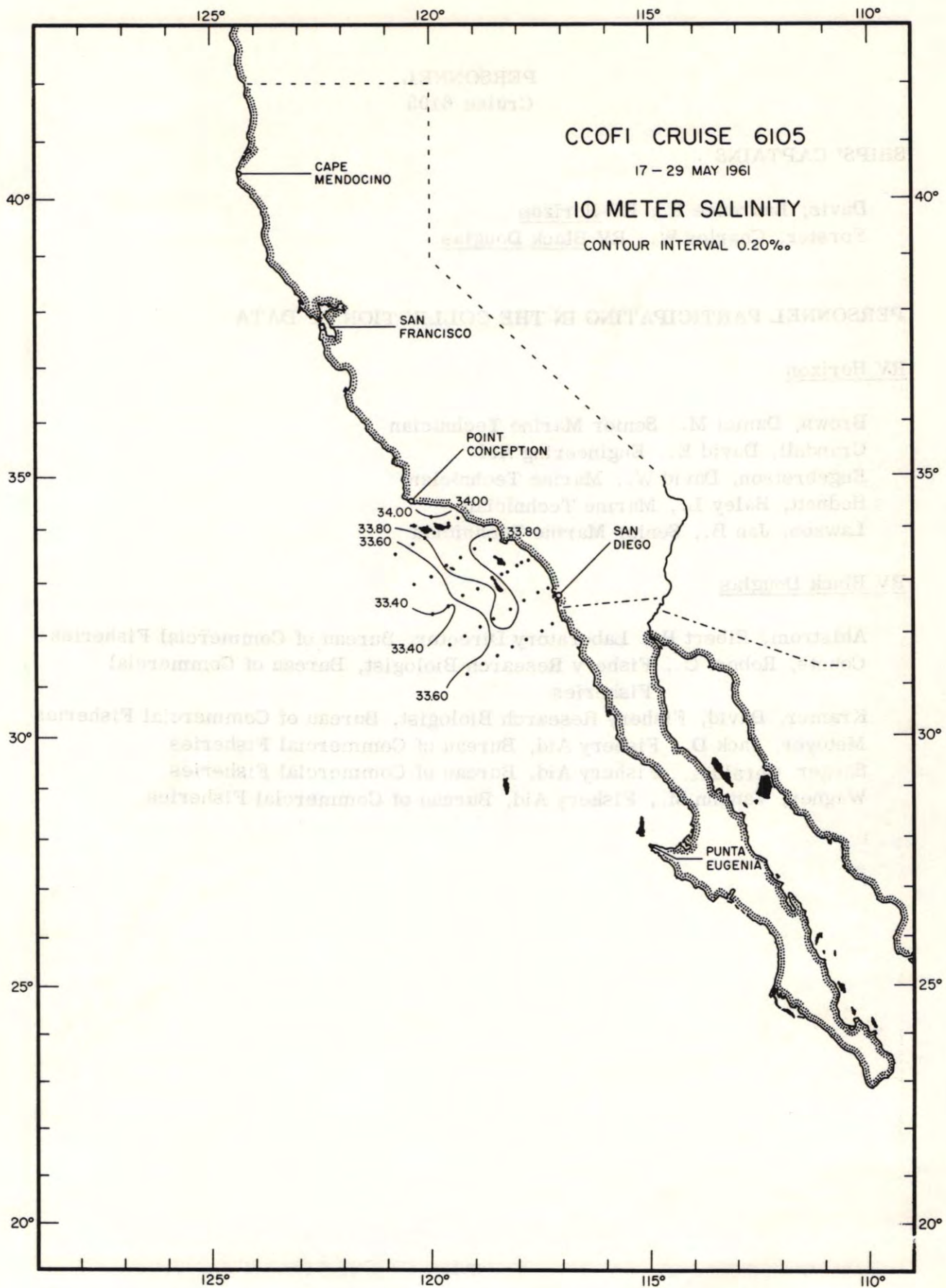


FIGURE 3

PERSONNEL
Cruise 6105

SHIPS' CAPTAINS

Davis, Laurence E., RV Horizon
Forster, Charles W., RV Black Douglas

PERSONNEL PARTICIPATING IN THE COLLECTION OF DATA

RV Horizon

Brown, Daniel M., Senior Marine Technician
Crandall, David E., Engineering Aid
Engebretson, David W., Marine Technician
Hodnett, Haley L., Marine Technician
Lawson, Jan B., Senior Marine Technician

RV Black Douglas

Ahlstrom, Elbert H., Laboratory Director, Bureau of Commercial Fisheries
Counts, Robert C., Fishery Research Biologist, Bureau of Commercial Fisheries
Kramer, David, Fishery Research Biologist, Bureau of Commercial Fisheries
Metoyer, Jack D., Fishery Aid, Bureau of Commercial Fisheries
Sanger, Gerald A., Fishery Aid, Bureau of Commercial Fisheries
Wagner, Vaughn M., Fishery Aid, Bureau of Commercial Fisheries

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

SIO
CCOFI
6105

HORIZON; May 24, 1961; 2235 GCT; 33°16'N, 118°56'W; sounding, 465 fm; wind, 320°, force 2; weather, overcast; sea, very rough; wire angle, 08°.

88⁵.43
H-5

1	15.57	33.70 3	5.95	309	0	(15.57)	(33.70)	(5.95)	(24.87)	(309)	(0.00)
11	15.20	33.69 7	6.02	302	10	15.23	33.70	6.02	24.94	303	0.03
30	10.60	33.72 2	3.63	214	20	11.80	33.71	4.30	25.65	235	0.06
40	10.00	33.76 4	3.19	201	30	10.60	33.72	3.63	25.87	214	0.08
49	9.80	33.82 8	2.88	193	50	9.78	33.83	2.86	26.10	192	0.12
64	9.47	33.88 8	2.74	183	75	9.44	33.93	2.57	26.23	179	0.17
78	9.43	33.95 8	2.51	178	100	9.14	34.01	2.48	26.34	169	0.21
97	9.14	33.99 7	2.50	170	125	8.99	34.11	1.87	26.45	159	0.25
121	8.99	34.09 6	1.95	160	150	8.99	34.22	1.44	26.54	151	0.29
140	9.06	34.21 3	1.56	153	200	8.68	34.26	1.02	26.62	143	0.37
169	8.78	34.23 8	1.26	147	250	7.92	34.23	0.89	26.71	135	0.44
197	8.69	34.26 3	1.03	144	300	7.61	34.25	0.80	26.76	130	0.50
227	8.06	34.21 8	0.96	138	400	6.85	34.29	0.57	26.90	116	0.63
265	7.84	34.24 5	0.86	133	500	6.03	34.33	0.33	27.04	103	0.74
322	7.46	34.24 7	0.78	127							
395	6.90	34.29 2	0.58	117							
468	6.28	34.31 6	0.38	107							
545	5.78	34.34 2	0.31	99							

HORIZON; May 24, 1961; 1040 GCT; 33°06'N, 119°17'W; sounding, 900 fm; wind, 280°, force 5; weather, partly cloudy; sea, very rough; wire angle, 28°.

88⁵.48
D-1

0	14.24	33.72 6	5.75	280	0	14.24	33.73	5.75	25.17	280	0.00
9	14.22	33.72 6	5.77	280	10	14.22	33.73	5.77	25.18	280	0.03
30	10.44	33.83 7	3.55	203	20	13.50	33.75	5.44	25.35	264	0.06
38	9.48	33.91 9	2.57	181	30	10.44	33.84	3.55	25.99	203	0.08
50	9.21	33.97 6	2.46	173	50	9.21	33.98	2.46	26.30	173	0.12
64	9.10	33.98 9	2.41	170	75	9.07	34.04	2.08	26.38	166	0.16
85	9.04	34.09 4	1.80	162	100	8.97	34.12	1.74	26.46	158	0.20
101	8.96	34.12 1	1.73	158	125	8.53	34.13	1.40	26.55	150	0.24
119	8.59	34.10 4	1.57	154	150	8.39	34.17	1.29	26.58	146	0.28
144	8.45	34.15 5	1.34	149	200	8.07	34.22	1.07	26.67	138	0.35
169	8.17	34.18 9	1.20	141	250	7.70	34.25	0.75	26.75	131	0.42
203	8.06	34.22 4	-	137	300	7.34	34.28	0.56	26.83	123	0.48
228	7.84	34.24 0	0.85	133	400	6.50	34.30	0.40	26.96	111	0.60
272	7.60	34.26 2	-	128	500	5.93	34.33	0.33	27.06	101	0.71
328	7.05	34.28 6	0.48	119							
417	6.40	34.30 2	0.40	109							
498	5.94	34.33 0	0.33	101							
569	5.72	34.34 3	0.25	98							

HORIZON; May 24, 1961; 1321 GCT; 32°55.5'N, 118°56.5'W; sounding, 920 fm; wind, 270°, force 5; weather, cloudy; sea, very rough; wire angle, 20°.

9045
D-2

2	13.78	33.77 3	5.57	267	0	(13.78)	(33.77)	(5.57)	(25.31)	(267)	(0.00)
11	13.78	33.77 4	5.57	267	10	13.78	33.77	5.57	25.31	267	0.03
34	9.62	33.89 8	2.58	185	20	13.00	33.79	5.01	25.48	251	0.05
42	9.30	33.94 8	2.51	176	30	10.00	33.87	2.83	26.09	193	0.08
55	9.17	33.95 9	2.38	174	50	9.22	33.95	2.42	26.28	175	0.11
69	8.98	34.00	2.14	168	75	8.94	34.01	2.09	26.38	166	0.15
93	8.89	34.06 7	1.90	161	100	8.83	34.09	1.76	26.45	159	0.20
110	8.72	34.11 4	1.62	155	125	8.62	34.14	1.52	26.53	151	0.23
129	8.60	34.14 8	1.50	151	150	8.43	34.19	1.30	26.60	145	0.27
155	8.38	34.19 6	1.25	144	200	8.00	34.23	0.99	26.69	136	0.34
183	8.14	34.21 8	1.11	139	250	7.53	34.27	0.85	26.79	127	0.41
219	7.84	34.24 7	0.88	133	300	7.14	34.27	0.59	26.85	121	0.47
247	7.56	34.26 7	0.86	127	400	6.48	34.31	0.47	26.97	110	0.59
293	7.19	34.27 3	0.62	122							
353	6.78	34.28 9	0.50	115							
448	6.16	34.32 1	0.47	104							

S10

CCOFI
6105

OBSERVED				COMPUTED	INTERPOLATED				COMPUTED		
Z	T	S	O ₂	δ _T	Z	T	S	O ₂	σ _t	δ _T	ΔD
m	°C	‰	ml/L	cl/ton	m	°C	‰	ml/L	g/L	cl/ton	dyn m

91.42 HORIZON; May 24, 1961; 1837 GCT; 32°48'N, 118°34.5'W; sounding, 320 fm; wind, 220°, force 2; weather,
H-4 overcast; sea, slight; wire angle, 08°.

1	14.70	33.65 9	5.90	294	0	(14.70)	(33.66)	(5.90)	(25.03)	(294)	(0.00)
11	14.63	33.65 1	5.97	294	10	14.64	33.65	5.96	25.03	294	0.03
30	12.02	33.65 5	4.75	244	20	14.62	33.65	5.96	25.04	293	0.06
40	11.08	33.71 6	4.08	222	30	12.02	33.66	4.75	25.56	244	0.09
49	10.53	33.73 4	3.51	211	50	10.49	33.74	3.47	25.91	210	0.13
63	9.88	33.83 4	3.11	194	75	9.40	33.93	2.60	26.24	179	0.18
77	9.35	33.93 9	-	177	100	9.07	34.02	2.25	26.36	167	0.22
96	9.10	34.01 2	2.27	168	125	8.79	34.08	2.04	26.45	158	0.26
120	8.84	34.06 5	2.10	161	150	8.60	34.15	1.57	26.54	150	0.30
140	8.66	34.13 3	1.78	153	200	8.18	34.21	1.18	26.66	140	0.38
169	8.54	34.17 3	1.34	148	250	8.00	34.28	0.79	26.73	132	0.45
197	8.19	34.20 6	1.19	140	300	7.46	34.28	0.60	26.81	125	0.51
226	8.13	34.25 6	0.99	136	400	6.71	34.31	0.43	26.94	113	0.64
265	7.86	34.29 7	0.68	130	500	6.01	34.33	0.33	27.05	102	0.75
322	7.26	34.27 9	0.58	122							
394	6.76	34.30 8	0.44	113							
466	6.25	34.32 1	0.35	106							
543	5.74	34.35 7	0.33	97							

91.47⁵
H-3

HORIZON; May 24, 1961; 1545 GCT; 32°36'N, 118°53.5'W; sounding, 400 fm; wind, 280°, force 5; weather,
overcast; sea, very rough; wire angle, 32°.

0	14.19	33.79 0	5.80	274	0	14.19	33.79	5.80	25.24	274	0.00
8	14.18	33.81 0	5.95	272	10	14.17	33.81	5.95	25.26	272	0.03
28	11.04	33.79 9	5.01	216	20	11.70	33.80	5.33	25.73	226	0.05
35	10.48	33.79 4	4.39	207	30	10.93	33.80	4.88	25.87	213	0.07
47	9.64	33.76 2	3.57	195	50	9.58	33.77	3.48	26.08	194	0.12
60	9.40	33.79 6	3.26	189	75	8.87	33.91	2.79	26.31	173	0.16
78	8.75	33.92 3	2.75	169	100	8.46	33.99	2.60	26.43	161	0.20
94	8.48	33.95 4	2.73	163	125	8.53	34.08	1.83	26.49	155	0.24
110	8.46	34.03 1	2.22	158	150	8.37	34.16	1.46	26.58	147	0.28
132	8.54	34.10 1	1.66	153	200	7.90	34.24	0.99	26.72	133	0.35
156	8.30	34.16 7	1.40	145	250	7.50	34.24	0.78	26.78	128	0.42
188	7.99	34.21 6	1.02	137	300	7.24	34.27	0.67	26.83	123	0.48
210	7.82	34.26 3	0.96	131	400	6.52	34.30	0.46	26.96	111	0.60
250	7.50	34.24 3	0.78	128	500	6.05	34.33	0.42	27.04	103	0.71
301	7.23	34.27 3	0.67	123							
384	6.62	34.30 0	0.50	112							
460	6.25	34.31 4	0.42	107							
527	5.90	34.34 0	0.42	100							

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	10 Meters		50 Meters	
						Dir	Force			T	S	T	S
82.47-B	V-22	1000	34°15.0'	119°58.0'	300	270°	4	missing	moderate	11.38	34.00	10.21	34.05
83.40-B	22	0510	34°13.5'	119°21.5'	11	240°	2	missing	rough	12.37	33.95	-	-
83.43-B	22	0650	34°08.0'	119°34.0'	134	240°	4	missing	moderate	12.07	33.93	10.12	34.05
83.48-B	22	1240	33°58.0'	119°55.0'	120	300°	3	partly cloudy	moderate	11.18	33.92	10.60	33.96
83.51-B	22	1440	33°52.0'	120°07.5'	100	300°	5	partly cloudy	rough	11.25	33.80	9.76	33.96
83.55-B	22	1700	33°44.0'	120°24.0'	540	320°	6	cloudy	rough	11.80	33.71	10.30	33.92
83.60-B	22	1945	33°34.0'	120°45.0'	740	320°	5	cloudy	rough	12.62	33.45	12.44	33.44
87.35-B	21	2315	33°50.0'	118°37.5'	250	260°	1	overcast	moderate	14.92	33.75	10.06	33.93
87.40-B	21	2045	33°40.0'	118°58.0'	450	300°	1	overcast	moderate	15.30	33.77	9.91	33.80
87.45-B	21	1807	33°30.0'	119°18.5'	900	320°	4	cloudy	rough	12.66	33.86	9.26	-
87.50-B	21	1510	32°20.0'	119°39.5'	40	320°	5	cloudy	rough	12.56	33.82	9.76	34.00
87.55-B	21	1210	33°08.5'	119°58.0'	550	300°	5	missing	very rough	12.70	33.43	11.24	33.57
87.60-B	21	0905	33°00.0'	120°20.5'	350	300°	5	missing	very rough	12.74	33.57	11.54	33.67
90.28-B	20	0835	33°28.5'	117°46.5'	250	280°	4	missing	moderate	13.14	33.74	9.96	33.95
90.30-B	20	1005	33°24.5'	117°55.0'	300	320°	3	clear	slight	15.30	33.71	10.08	33.87
90.32-B	20	1110	33°20.5'	118°03.0'	400	320°	4	clear	moderate	13.54	33.76	9.60	33.98
90.35-B	20	1255	33°14.5'	118°15.5'	380	270°	3	partly cloudy	moderate	14.82	33.73	10.00	33.89
90.35-B	24	1050	33°14.5'	118°15.5'	450	230°	4	clear	very rough	15.46	33.78	10.29	33.79
90.37-B	20	1420	33°10.5'	118°23.5'	650	270°	3	cloudy	moderate	15.11	33.69	10.18	33.77

TEMPERATURE AND SALINITY AT 10 AND 50 METERS (NET-TOW STATIONS)

SIO
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Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	10 Meters		50 Meters	
						Dir	Force			T	S	T	S
90.39-B	V-24	0840	33°18.0'	118°29.5'	650	290°	4	clear	very rough	15.24	33.71	10.50	33.74
90.40-B	20	1620	33°05.0'	118°36.5'	350	270°	3	cloudy	moderate	15.54	33.85	10.09	33.80
90.42 ⁵ -B	24	0614	33°00.0'	118°46.0'	750	270°	6	clear	very rough	14.56	33.71	9.94	33.91
90.42 ⁵ -B	24	1450	33°00.0'	118°46.0'	780	270°	3	cloudy	rough	14.39	33.78	9.64	33.92
90.45-B	20	1900	32°55.0'	118°56.0'	950	270°	4	partly cloudy	rough	14.44	33.77	9.32	33.98
90.45-B	24	0418	32°55.0'	118°56.0'	880	270°	6	clear	very rough	14.34	33.79	9.26	-
90.45-B	24	1635	32°55.0'	118°56.0'	950	270°	5	overcast	rough	14.20	33.79	9.30	34.00
90.45 ³ -B	25	1945	32°55.0'	118°52.5'	740	270°	3	cloudy	moderate	13.94	33.85	9.46	33.95
90.47 ⁵ -B	24	1810	32°50.0'	119°16.5'	750	260°	4	overcast	rough	14.37	33.80	9.14	34.00
90.47 ⁵ -B	25	1735	32°50.0'	119°16.5'	680	270°	4	overcast	rough	14.34	33.80	9.16	34.01
90.50-B	20	2155	32°45.0'	119°17.0'	200	300°	4	partly cloudy	moderate	13.28	33.64	9.98	33.67
90.50-B	25	1535	32°45.0'	119°17.0'	180	300°	4	cloudy	rough	12.82	33.82	10.55	33.81
90.55-B	21	0050	32°35.0'	119°32.5'	575	300°	5	partly cloudy	moderate	14.52	33.40	12.22	33.48
90.60-B	21	0347	32°25.0'	119°58.0'	490	320°	5	cloudy	rough	14.57	33.40	12.19	33.46
91 ⁵ .42 ⁵ -B	25	0020	32°42.5'	118°54.0'	520	280°	5	cloudy	rough	15.22	33.84	9.86	34.04
91 ⁵ .45-B	24	2245	32°37.5'	118°44.5'	550	280°	4	overcast	very rough	14.50	33.75	9.79	33.99
91 ⁵ .47 ⁵ -B	24	2105	32°32.5'	118°54.5'	700	280°	4	overcast	rough	14.22	33.87	9.54	33.86
91 ⁵ .49-B	25	1205	32°00.5'	119°29.5'	350	280°	5	missing	very rough	13.36	33.62	11.05	33.80
93.28-B	19	1230	32°55.0'	117°22.0'	300	280°	1	overcast	slight	16.00	33.69	10.06	33.89

TEMPERATURE AND SALINITY AT 10 AND 50 METERS (NET-TOW STATIONS)

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	10 Meters		50 Meters	
						Dir	Force			T	S	T	S
93.30-B	V-19	1105	32°50.0'	117°31.5'	450	-	-	missing	calm	15.76	33.73	10.52	33.78
93.35-B	19	0815	32°40.0'	117°52.0'	350	270°	1	missing	slight	15.01	33.68	10.64	33.77
93.40-B	19	0520	32°30.0'	118°12.5'	900	270°	1	missing	slight	14.38	33.82	10.55	33.87
93.42 ⁵ -B	25	0310	32°25.0'	118°22.5'	600	280°	3	overcast	rough	14.47	33.81	10.05	33.84
93.45-B	19	0220	32°20.0'	118°33.0'	800	280°	1	partly cloudy	slight	14.08	33.86	11.62	33.84
93.45-B	25	0505	33°20.0'	118°33.0'	750	270°	4	missing	rough	14.32	33.78	9.64	33.90
93.47 ⁵ -B	25	0645	32°14.5'	118°32.5'	860	270°	4	missing	rough	14.08	33.81	9.82	33.95
93.50-B	19	0000	32°10.5'	118°53.0'	700	090°	1	partly cloudy	slight	12.34	33.53	11.46	33.77
93.50-B	25	0830	32°10.5'	118°53.0'	850	280°	5	missing	very rough	13.42	33.80	10.83	33.79
93.55-B	18	2140	32°00.0'	119°13.5'	750	090°	2	partly cloudy	slight	14.02	33.50	12.37	33.58
93.60-B	18	1845	31°50.0'	119°33.5'	1200	300°	2	partly cloudy	moderate	14.00	33.49	12.60	33.44
97.32-B	17	2200	32°12.0'	117°15.0'	600	270°	3	overcast	moderate	15.14	33.77	10.14a)	33.89
97.35-B	18	0005	32°05.0'	117°28.0'	500	270°	3	overcast	moderate	15.45	33.74	10.48	33.77
97.40-B	18	0222	31°55.0'	117°49.5'	580	280°	3	overcast	moderate	14.83	33.68	11.44	33.64
97.45-B	18	0545	31°45.5'	118°09.5'	800	270°	4	overcast	moderate	15.04	33.68	-	33.73
97.50-B	18	0825	31°35.5'	118°30.0'	1200	290°	3	missing	moderate	13.40	33.73	13.08	33.77
97.55-B	18	1100	31°28.5'	118°50.0'	250	300°	3	missing	slight	14.30	33.62	12.58	33.62
97.60-B	18	1330	31°15.0'	119°10.5'	1800	320°	3	cloudy	moderate	15.01	33.63	14.88	33.73

TEMPERATURE AND SALINITY AT 10 AND 50 METERS (NET-TOW STATIONS)

a) Alternate value, 11.83°C.

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	10 Meters		50 Meters	
						Dir	Force			T	S	T	S
Drogue 44, Tow 1 ^{a)}	V-25	2145	33°04.0'	118°57.5'	900	270°	2	cloudy	moderate	14.42	33.80	9.53	33.80
Drogue 33, Tow 1	25	2225	33°03.5'	119°00.0'	900	280°	3	cloudy	moderate	14.24	33.77	9.28	33.96
Drogue 52, Tow 1	25	2335	32°57.5'	118°59.0'	950	280°	4	overcast	rough	14.24	33.86	9.38	33.95
Drogue 49, Tow 1	26	0200	32°51.0'	119°01.0'	900	320°	5	overcast	rough	14.26	33.78	9.22	34.02
Drogue 52, Tow 2	26	0400	32°57.0'	119°00.5'	900	320°	5	missing	rough	14.08	33.87	9.42	34.02
Drogue 52, 12, Tow 3 ^{b)}	26	0615	32°57.0'	119°01.0'	900	300°	5	missing	rough	14.14	33.88	9.33	34.00
Drogue 52, 12, Tow 4 ^{b)}	26	0840	32°57.5'	119°01.5'	850	280°	3	missing	moderate	14.00	33.85	9.23	34.01
Drogue 52, 12, Tow 5 ^{b)}	26	1130	32°57.5'	119°02.5'	950	250°	3	clear	rough	13.96	33.81	9.30	34.01
Drogue 52, 12, Tow 6 ^{b)}	26	1420	32°57.5'	119°03.0'	900	320°	3	cloudy	rough	13.94	33.86	9.20	34.05
Drogue 12, Tow 7	26	1722	32°57.5'	119°04.0'	900	-	3	partly cloudy	rough	14.02	33.93	9.34	34.14
Drogue 12, Tow 8	26	2020	32°56.5'	119°07.5'	800	270°	4	partly cloudy	rough	14.10	33.82	9.39	34.05
Drogue 12, Tow 9	26	2335	32°56.5'	119°08.0'	800	290°	5	partly cloudy	rough	14.26	33.86	9.26	33.99
Drogue 12, Tow 10	27	0210	32°54.5'	119°08.5'	900	320°	5	partly cloudy	rough	14.14	33.82	9.20	34.04
Drogue 12, Tow 11	27	0600	32°54.0'	119°08.5'	800	270°	6	clear	very rough	14.24	33.80	9.20	33.96
Drogue 7, Tow 12	27	0825	32°53.0'	119°09.0'	800	290°	6	missing	very rough	14.08	33.75	9.18	33.98
Drogue 7, Tow 13	27	1115	32°52.5'	119°09.5'	800	320°	7	missing	high	13.86	33.71	9.21	34.04

TEMPERATURE AND SALINITY AT 10 AND 50 METERS (NET-TOW STATIONS)

a) Drogue stations, all occupied by RV Black Douglas, are listed in chronological order.

b) Drogues 52 and 12 were so close that both numbers are indicated here.

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	10 Meters		50 Meters	
						Dir	Force			T	S	T	S
Drogue 7, Tow 14	V-27	1355	32°51.5'	119°09.5'	900	320°	6	cloudy	very rough	13.93	33.86	9.26	34.00
Drogue 7, Tow 15	27	1715	32°50.3'	119°10.0'	600	320°	6	partly cloudy	very rough	13.96	33.80	9.15	34.01
Drogue 7, Tow 16	27	2030	32°49.0'	119°09.5'	450	-	6	cloudy	very rough	14.03	33.98	9.14	33.98
Drogue 7, Tow 17	27	2320	32°48.0'	119°09.0'	350	280°	6	cloudy	high	14.08	33.83	9.10	-
Drogue 7, Tow 18	28	0215	32°46.5'	119°08.5'	300	300°	6	partly cloudy	very rough	14.05	33.83	9.06	34.02
Drogue 7, Tow 19	28	0536	32°45.0'	119°07.0'	100	300°	6	clear	very rough	13.96	33.84	9.09	34.09
Drogue 7, Tow 20	28	0825	32°44.5'	119°06.5'	47	300°	4	clear	very rough	13.88	33.98	8.96	34.09
Drogue 7, Tow 21	28	1120	32°43.5'	119°05.0'	50	300°	5	missing	very rough	13.84	33.89	9.32	33.97
Drogue 7, Tow 22	28	1420	32°41.0'	119°03.0'	150	320°	3	partly cloudy	rough	13.82	33.86	9.01	34.05
Drogue 7, Tow 23	28	1723	32°40.5'	119°02.5'	170	320°	3	cloudy	rough	13.87	33.80	9.27	34.04
Drogue 7, Tow 24	28	2025	32°38.5'	119°02.5'	175	300°	4	cloudy	rough	13.90	33.85	9.19	34.03
Drogue 7, Tow 25	28	2325	32°37.0'	119°01.5'	350	290°	3	cloudy	rough	14.11	33.89	9.20	34.04
Drogue 7, Tow 26	29	0220	32°36.0'	119°00.5'	350	290°	3	missing	rough	14.05	33.86	9.32	34.01
Drogue 6, Tow 27	29	0525	32°33.5'	119°00.0'	450	300°	3	clear	rough	14.28	33.84	9.42	34.05
Drogue 6, Tow 28	29	0825	32°31.5'	118°59.5'	500	300°	3	clear	rough	14.24	33.87	9.35	34.13

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