

CORRECTIONS MADE:

STATION POSITIONS ~~418~~

UNIVERSITY OF CALIFORNIA SCRIPPS INSTITUTION OF OCEANOGRAPHY

# data report

PHYSICAL AND CHEMICAL DATA

CCOFI Cruise 5703

(MLR 94)

6-30 March 1957

and

CCOFI Cruise 5704

(MLR 95)

5-30 April 1957

SIO Reference 58-24

1 August 1958

UNIVERSITY OF CALIFORNIA  
SCRIPPS INSTITUTION OF OCEANOGRAPHY

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CCOFI CRUISE 5704

(MLR 95)

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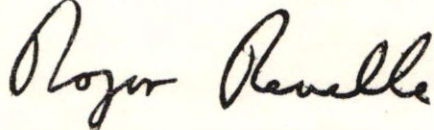
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Marine Research Committee

SIO Reference 58-24

1 August 1958

Approved for distribution:



Roger Revelle, Director



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## INTRODUCTION

The data of this report were collected on the ninety-fourth and ninety-fifth consecutive cruises of the California Cooperative Oceanic Fisheries Investigations program. The R/V Black Douglas of the U. S. Fish and Wildlife Service and the R/V Orca of the Scripps Institution of Oceanography participated in the ninety-fourth cruise while the R/V Black Douglas, and the R/V Horizon and R/V Stranger of the Scripps Institution participated in the ninety-fifth cruise.

The data are tabulated at observed depths; the interpolated and computed values are tabulated at standard depths accompanied by charts of horizontal distribution. The presentation of data in this report does not constitute publication, and the interpretations herein may be subject to modification as the program continues.

The stations occupied in the Gulf of California are based on a special grid; therefore, they will appear in each report following the data obtained in the normal station pattern. In each group stations are listed in numerical order. The designation "G" in the station number is used to denote Gulf of California stations.

## STANDARD PROCEDURES

Processing of the data was carried out using the method described by Klein.<sup>1/</sup> Certain approximations have been introduced for the determination of the integrated pressure terms which may result in errors whose maximum values are less than 0.5 dynamic centimeter at 0 over 200 decibars, 1.0 dynamic centimeter at 0 over 500 decibars, and 2.0 dynamic centimeters at 0 over 1000 decibars. The 125-meter level was introduced into the integration to obtain greater accuracy in the determination of  $\Delta D$ . 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

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<sup>1/</sup> Klein, Hans T. A new technique for processing physical oceanographic data. (MS). Contribution from the Scripps Institution of Oceanography, New Series, No. 000.



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, each messenger time and wire angle is given in the order of increasing depth. A line is left blank between the observed data of each cast.

#### FOOTNOTES

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

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

p: pretrip or posttrip.

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

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

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

## FIGURES

1. CCOFI Cruise 5703 (MLR 94), station positions
2. Surface currents measured by geomagnetic electrokinetograph (GEK)
3. Horizontal distribution of temperature at 10 meters
4. Horizontal distribution of salinity at 10 meters



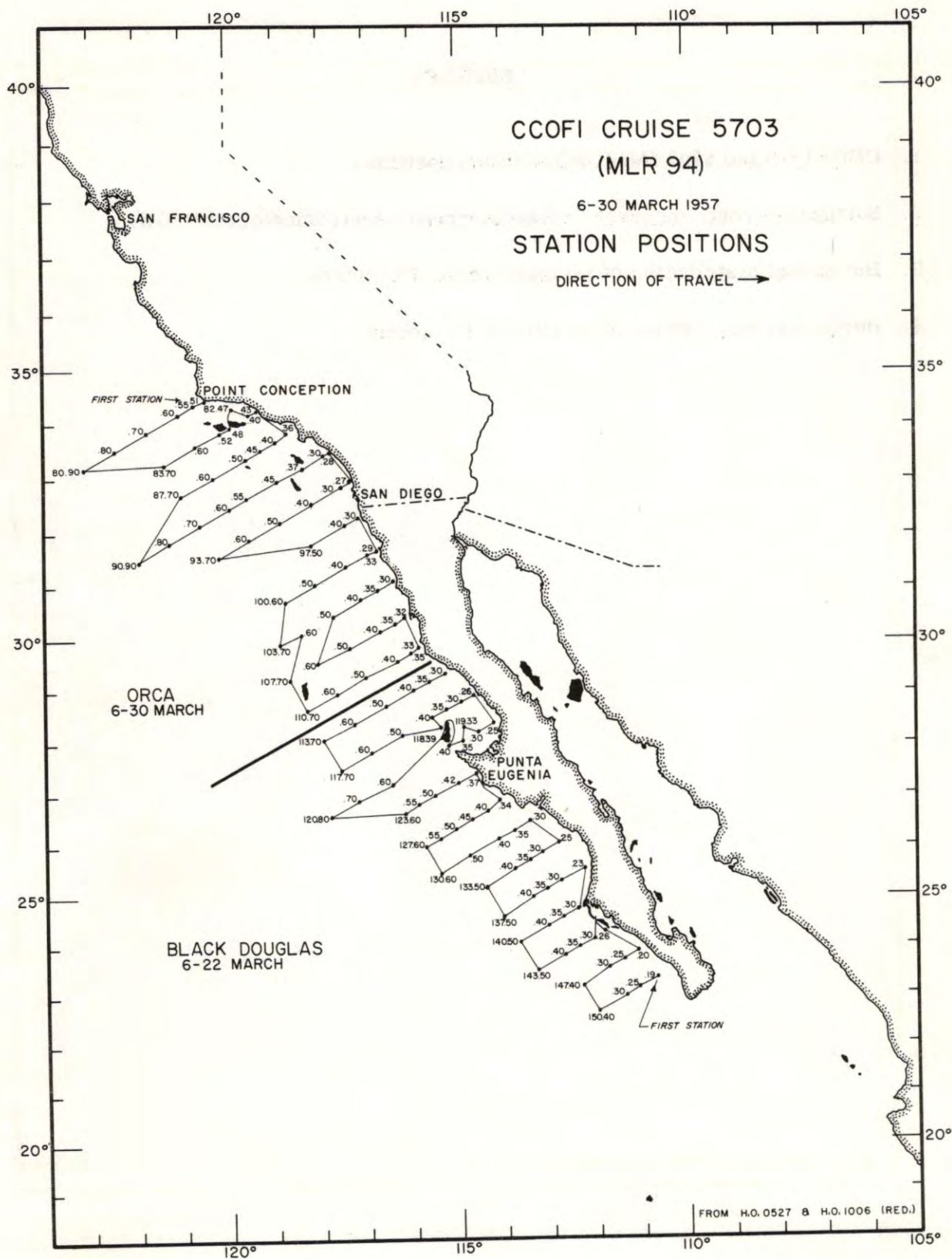


FIGURE 1

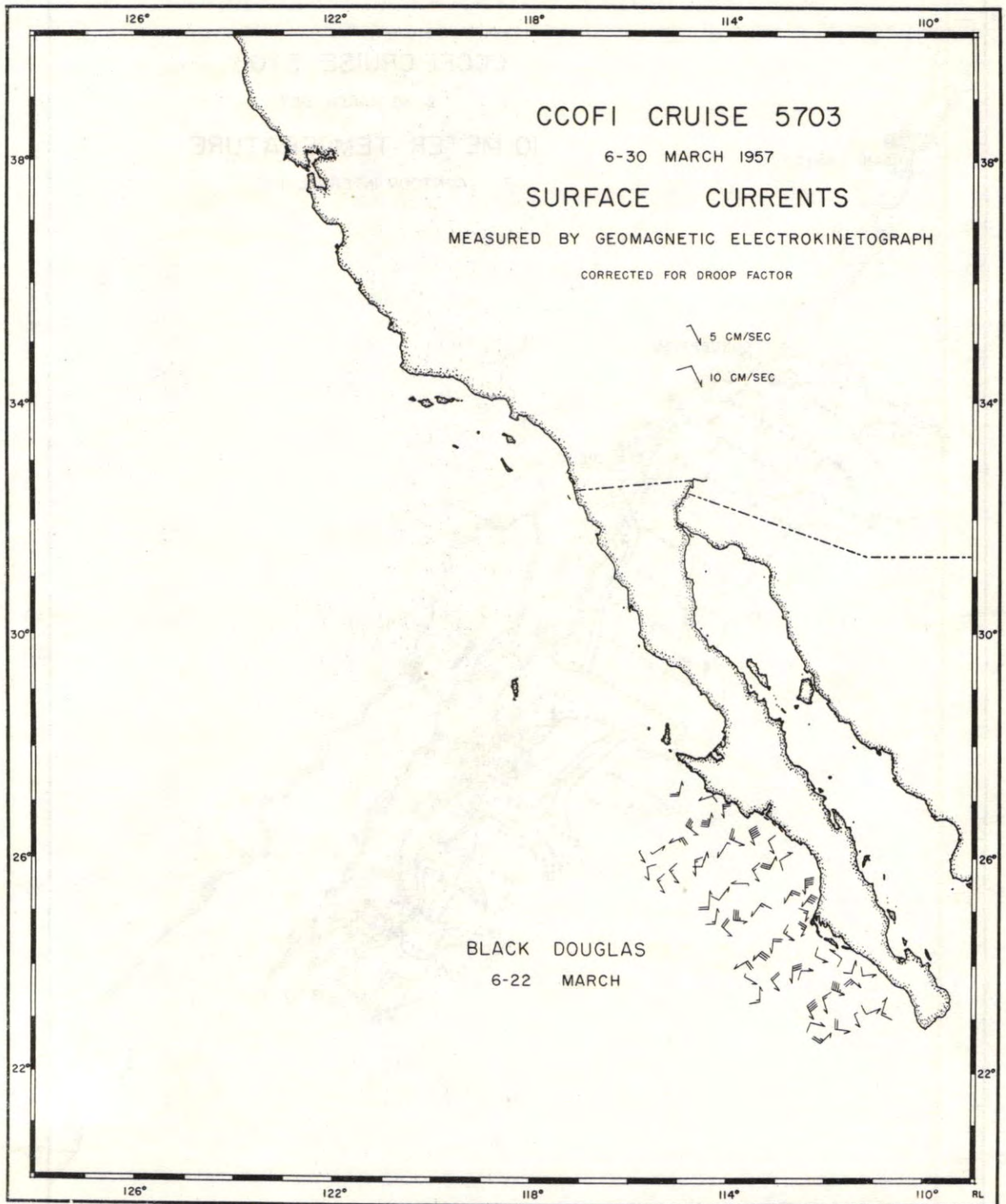


FIGURE 2

FROM H.O. CHART 0527



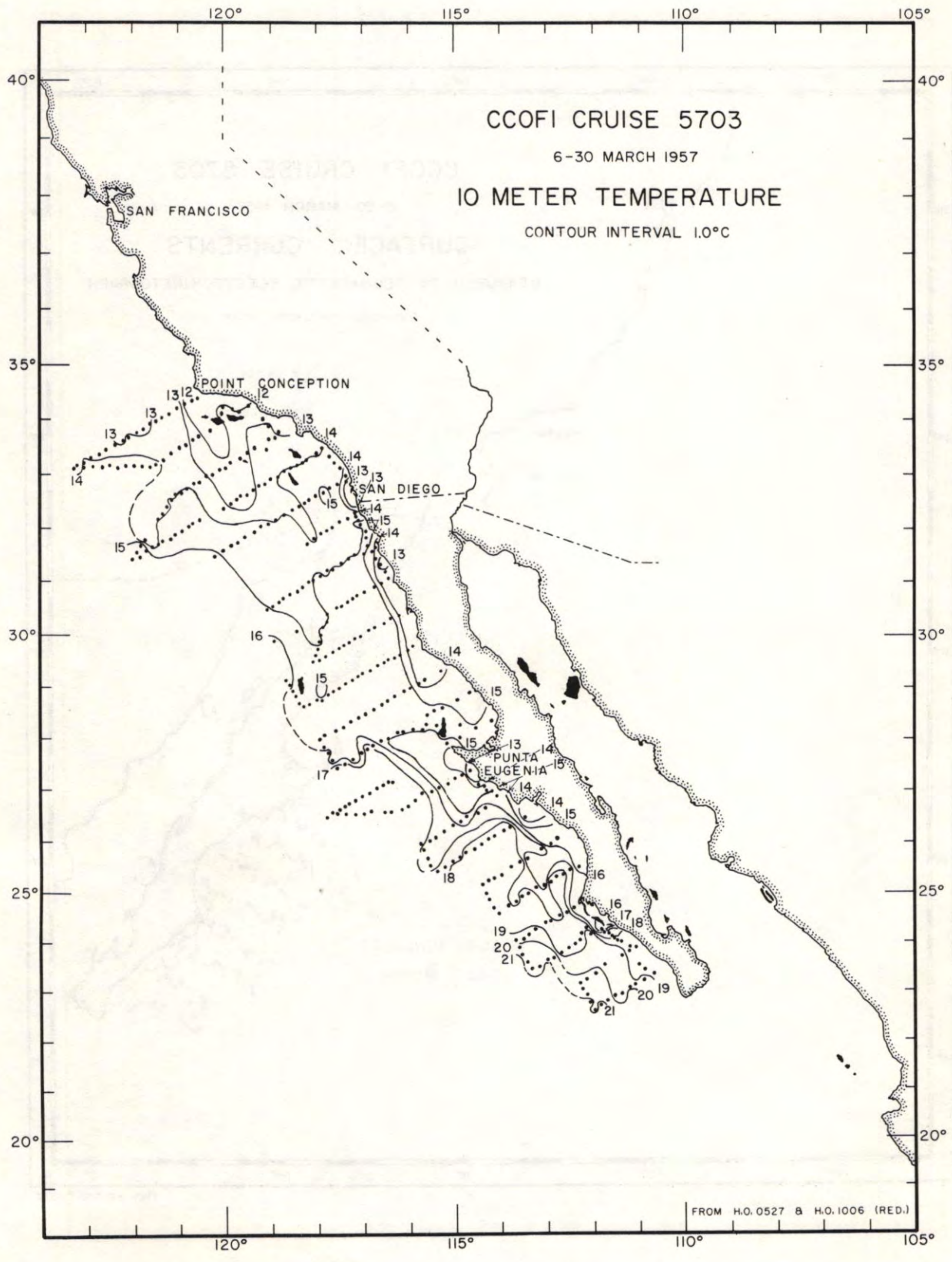
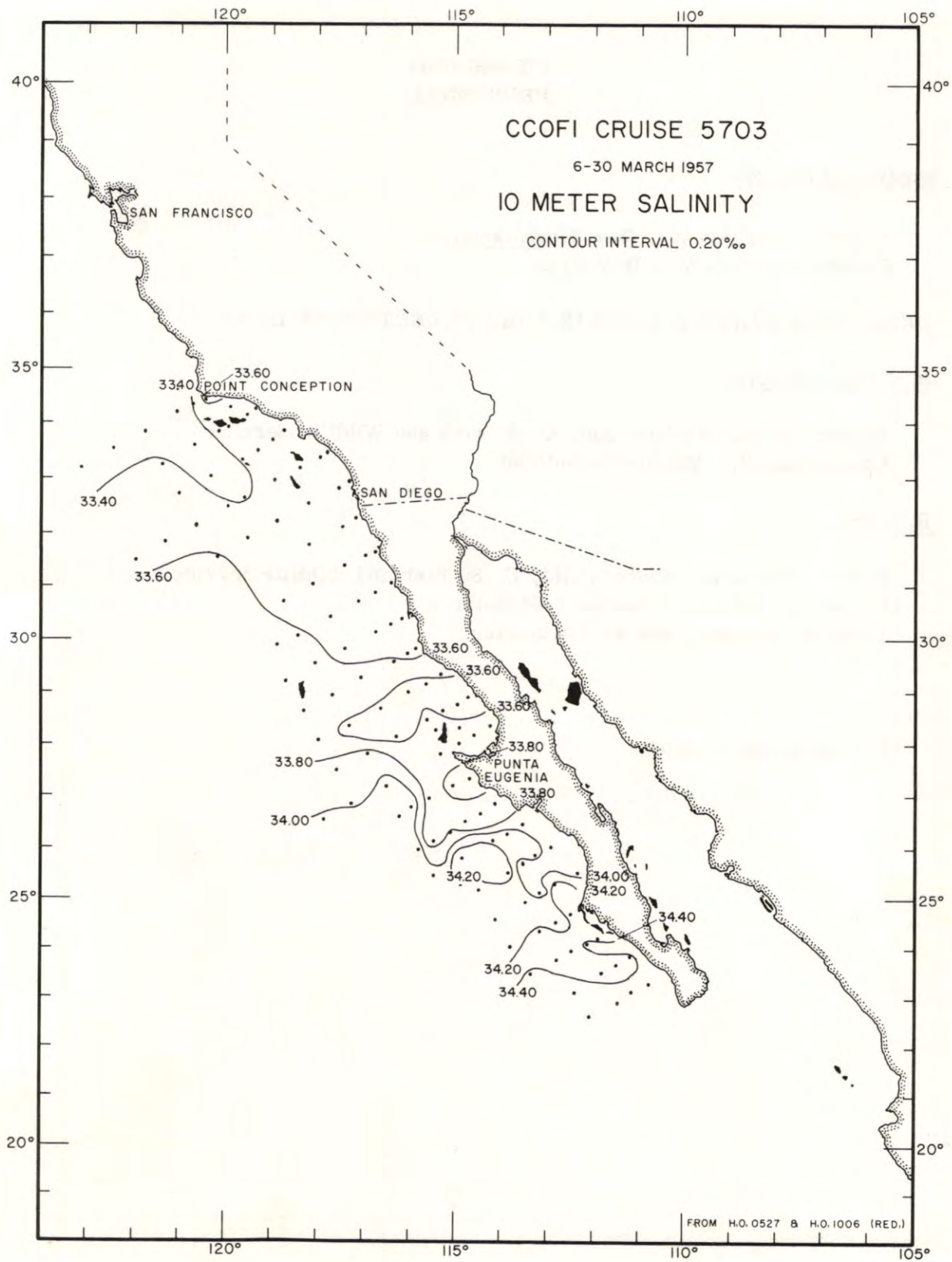


FIGURE 3



10m S  
5703

FIGURE 4



CRUISE 5703  
PERSONNEL

SHIPS' CAPTAINS

Forster, Charles W., R/V Black Douglas  
Colbeth, Clifford W., R/V Orca

PERSONNEL PARTICIPATING IN THE COLLECTION OF DATA

R/V Black Douglas

Farrar, Lloyd, Fishery Aid, U. S. Fish and Wildlife Service  
Kaye, Hugh R., Marine Technician

R/V Orca

Justice, David K., Fishery Aid, U. S. Fish and Wildlife Service  
\*Froerer, Arthur I., Marine Technician  
Tuve, J. Michael, Marine Technician

\*Did not complete cruise

**CCOFI Cruise 5703**

**Observations 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
80.51-O	7	2100	34°26.0'	120°32.0'	98	270°	3	partly cloudy	moderate	9.94	33.69	9.77	33.77
80.55-O	7	2310	34°19.0'	120°49.0'	400	310°	3	fog	rough	11.84	33.43	12.82	33.40
80.60-O	8	0200	34°09.0'	121°09.0'	1200	340°	3	fog	rough	13.14	33.34	12.22	33.30
80.70-O	8	0812	33°49.0'	121°51.0'	2000	240°	3	fog	rough	12.79	33.28	12.56	33.27
80.80-O	8	1400	33°29.0'	122°32.0'	2000	320°	1	drizzle	moderate	13.56	33.27	11.91	33.24
80.90-O	8	1900	33°09.0'	123°12.0'	2000	250°	2	cloudy	moderate	13.68	33.22	11.33	33.32
82.47-O	9	1940	34°15.0'	119°58.0'	300	160°	2	cloudy	slight	12.37	33.49	9.92	33.71
83.40-O	10	0001	34°14.0'	119°22.0'	12	320°	3	partly cloudy	moderate	12.54	33.49	-	-
83.43-O	9	2210	34°07.0'	119°35.0'	150	260°	4	cloudy	moderate	12.54	33.48	10.15	33.58
83.48-O	9	1715	33°58.0'	119°56.0'	44	130°	1	cloudy	slight	12.41	33.48	12.00 <sup>a)</sup>	33.50 <sup>a)</sup>
83.52-O	9	1500	33°50.0'	120°12.0'	242	310°	1	rain	moderate	11.23	33.48	12.26	33.40
83.60-O	9	1109	33°34.0'	120°45.0'	2000+	250°	1	cloudy	moderate	13.25	33.24	12.88	33.36
83.70-O	9	0455	33°14.0'	121°26.0'	2000+	190°	1	cloudy	moderate	14.11	33.41	14.06	33.44
87.36-O	10	0505	33°48.0'	118°45.0'	480	320°	2	partly cloudy	rough	12.43	33.48	10.42	33.58
87.40-O	10	0609	33°40.0'	118°59.0'	500	300°	5	partly cloudy	rough	13.46	33.46	12.79	33.48
87.45-O	11	2002	33°30.0'	119°19.0'	925	290°	2	partly cloudy	rough	13.17	33.48	11.04	33.50
87.50-O	11	2315	33°20.0'	119°39.0'	40	320°	3	cloudy	rough	12.57	33.42	10.18	33.49

a) Depth, 40 meters.

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
87.60-O	12	0450	33°00.0'	120°22.0'	400	330°	2	cloudy	rough	13.08	33.31	12.98	-
87.70-O	12	1005	32°40.0'	121°03.0'	2000+	270°	3	cloudy	rough	13.92	33.52	13.87	33.55
90.28-O	17	0900	33°30.0'	117°47.0'	150	140°	1	partly cloudy	moderate	14.16	33.44	10.22	33.62
90.30-O	17	0725	33°25.0'	117°55.0'	340	260°	1	partly cloudy	moderate	13.90	33.48	10.56	33.57
90.37-O	17	0335	33°11.0'	118°24.0'	600	300°	6	clear	very rough	14.32	33.49	11.34	33.46
90.45-O	16	2320	32°55.0'	118°56.0'	950	320°	6	partly cloudy	very rough	13.54	33.48	11.02	33.44
90.55-O	16	1745	32°35.0'	119°37.0'	600	300°	8	cloudy	rough	12.64	33.39	11.42	33.39
90.60-O	16	1440	32°25.0'	119°58.0'	460	280°	3	cloudy	rough	13.24	33.44	13.71	33.42
90.70-O	13	0735	32°05.0'	120°38.0'	2000+	320°	6	partly cloudy	rough	14.34	33.54	13.95	33.55
90.80-O	13	0200	31°45.0'	121°19.0'	2000+	320°	4	partly cloudy	rough	14.16	33.50	13.94	33.51
90.90-O	12	2030	31°25.0'	121°59.0'	2000+	330°	4	partly cloudy	rough	15.04	33.55	14.84	33.51
93.27-O	17	1405	32°56.0'	117°19.0'	80	090°	1	cloudy	moderate	12.69	33.47	10.44	33.62
93.30-O	17	1755	32°50.0'	117°32.0'	400	140°	1	cloudy	moderate	14.31	33.46	10.95	33.52
93.40-O	17	2258	32°30.0'	118°12.0'	1050	-	1	cloudy	moderate	14.86	33.55	12.77	33.43
93.50-O	18	0350	32°10.0'	118°53.0'	800	150°	2	partly cloudy	slight	13.36	33.46	12.76	33.48
93.60-O	18	0905	31°51.0'	119°34.0'	1220	130°	4	cloudy	moderate	14.27	33.55	14.00	33.54
93.70-O	18	1414	31°30.0'	120°15.0'	2000+	110°	4	rain	moderate	15.19	33.60	14.62	33.51
97.30-O	19	2045	32°16.0'	117°09.0'	33	040°	2	cloudy	rough	14.22	33.54	9.90	33.72
97.40-O	19	1802	32°07.0'	117°28.0'	378	var.	2	cloudy	moderate	14.52	33.49	11.32	33.48

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
97.50-O	19	1100	31°45.0'	118°11.0'	1300	130°	3	rain	moderate	14.70	33.49	14.69	33.55
100.29-O	21	0700	31°42.0'	116°43.0'	80	220°	2	missing	moderate	13.76	33.51	10.53	33.62
100.33-O	21	0925	31°35.0'	116°59.0'	800	270°	1	cloudy	moderate	15.08	33.55	12.21	-
100.40-O	21	1312	31°21.0'	117°27.0'	1000	270°	1	cloudy	moderate	14.94	33.53	13.61	33.47
100.50-O	21	1830	31°01.0'	118°08.0'	850	280°	3	drizzle	slight	14.84	33.53	14.40	33.50
100.60-O	21	2330	30°40.0'	118°47.0'	1560	320°	6	cloudy	very rough	14.68	33.51	14.67	33.51
103.30-O	30	0435	31°05.0'	116°25.0'	30	310°	3	partly cloudy	moderate	13.50	33.53	10.16	33.64
103.35-O	30	0200	30°55.0'	116°45.0'	900	310°	4	partly cloudy	rough	15.47	33.57	13.64	33.48
103.40-O	29	2315	30°45.0'	117°06.0'	1000	350°	3	partly cloudy	moderate	15.56	33.58	15.09	33.57
103.50-O	29	1800	30°26.0'	117°44.0'	1440	300°	2	partly cloudy	moderate	15.26	33.54	14.54	33.55
103.60-O	22	1300	30°05.0'	118°25.0'	1800	360°	6	partly cloudy	rough	15.50	33.66	15.42	33.64
103.70-O	22	0716	29°53.0'	118°53.0'	1800	330°	6	partly cloudy	rough	16.04	33.77	16.06	33.75
107.32-O	28	1918	30°26.0'	116°11.0'	365	300°	3	fog	slight	13.82	33.48	10.64	-
107.35-O	28	2112	30°19.0'	116°23.0'	1000	300°	3	fog	moderate	15.26	33.54	14.12	33.48
107.40-O	29	0010	30°10.0'	116°43.0'	1500	270°	3	cloudy	slight	15.42	33.56	14.76	33.55
107.50-O	29	0525	29°50.0'	117°24.0'	1575	340°	3	partly cloudy	moderate	15.10	33.51	14.40	33.47
107.60-O	29	1023	29°32.0'	118°02.0'	2000	300°	3	cloudy	moderate	15.62	33.61	15.42	33.62
107.70-O	27	0541	29°12.0'	118°40.0'	2000	320°	2	clear	moderate	16.04	33.68	15.88	33.68
110.33-O	28	0930	29°50.0'	115°52.0'	45	340°	3	fog	moderate	13.64	33.58	10.67	33.65

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
110.35-O	28	0750	29°46.0'	116°00.0'	350	340°	3	fog	moderate	13.99	33.56	11.90	33.59
110.40-O	28	0355	29°36.0'	116°19.0'	1150	340°	3	cloudy	moderate	15.65	33.61	15.33	33.60
110.50-O	27	2238	29°17.0'	117°00.0'	2000	330°	3	cloudy	rough	15.76	33.62	15.36	-
110.60-O	27	1700	28°56.0'	117°39.0'	2000	340°	3	cloudy	moderate	15.60	33.64	14.83	33.56
110.70-O	27	1130	28°37.0'	118°18.0'	1800	320°	3	clear	moderate	15.59	33.66	15.28	33.61
113.30-B	22	0915	29°22.5'	115°17.5'	30	320°	6	cloudy	very rough	13.96	33.62	11.64	33.58
113.35-B	22	0640	29°12.0'	115°39.0'	560	320°	7	partly cloudy	rough	13.75	33.46	12.12	33.48
113.40-B	22	0357	29°02.0'	115°58.5'	1000	320°	5	partly cloudy	rough	15.22	33.54	14.32	33.51
113.50-B	21	2322	28°42.0'	116°35.5'	2000	320°	4	cloudy	rough	15.49	33.58	14.44	33.53
113.60-B	21	1840	28°22.0'	117°16.5'	2000	310°	3	overcast	rough	15.49	33.58	15.38	33.58
113.70-B	21	1340	28°02.0'	117°55.5'	1900	310°	3	overcast	rough	15.68	33.62	15.68	33.60
117.26-B	19	1915	28°56.0'	114°41.0'	40	220°	6	overcast	rough	14.94	33.52	11.02	33.54
117.30-B	20	0930	28°48.0'	114°56.5'	55	280°	6	cloudy	rough	14.78	33.48	12.10	33.44
117.35-B	20	1236	28°38.0'	115°16.0'	120	300°	6	partly cloudy	rough	15.21	33.58	15.50	33.70
117.40-B	20	1502	28°28.0'	115°35.5'	550	270°	3	partly cloudy	very rough	15.36	33.68	15.15	33.55
117.50-B	20	2230	28°07.5'	116°14.5'	1800	220°	4	partly cloudy	very rough	15.28	33.54	14.02	33.49
117.60-B	21	0347	27°47.5'	116°54.0'	2000	300°	4	partly cloudy	very rough	17.22	33.92	16.96	33.86
117.70-B	21	0842	27°27.5'	117°32.5'	2100	310°	3	partly cloudy	rough	17.30	33.88	17.33	33.87
118.39-B	20	1715	28°18.5'	115°24.0'	150	200°	3	partly cloudy	very rough	15.72	33.68	14.30	33.66

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
119.33-B	19	2130	28°19.0'	114°53.0'	60	220°	4	cloudy	moderate	15.77	33.69	13.52	33.53
120.25-B	20	0155	28°23.0'	114°14.5'	29	230°	4	cloudy	moderate	15.72	33.69	13.00	33.61
120.30-B	19	2338	28°13.0'	114°34.0'	58	220°	4	cloudy	moderate	15.18	33.62	12.65	33.51
120.35-B	19	1935	28°03.0'	114°54.0'	43	180°	2	cloudy	moderate	15.52	33.66	12.94	33.57
120.40-B	19	1720	27°56.5'	115°14.0'	20	190°	4	cloudy	rough	14.52	33.73	-	-
120.60-B	19	0257	27°12.0'	116°22.0'	2000	130°	6	partly cloudy	very rough	17.95	34.15	17.62	34.04
120.70-B	18	2035	26°52.5'	117°10.0'	2100	180°	5	partly cloudy	rough	17.56	33.98	17.52	33.98
120.80-B	18	1520	26°32.5'	117°48.5'	2200	200°	5	partly cloudy	rough	17.86	34.02	17.87	34.03
123.37-B	17	1715	27°24.0'	114°39.5'	37	320°	3	partly cloudy	moderate	12.62	33.96	11.92	34.20
123.42-B	17	2005	27°14.0'	114°59.5'	1100	330°	3	partly cloudy	moderate	14.17	33.83	11.90	33.94
123.50-B	18	0015	26°59.0'	115°30.5'	2000	310°	2	partly cloudy	moderate	16.88	33.79	17.52	34.07
123.55-B	18	0302	26°49.0'	115°52.0'	2100	310°	2	clear	rough	17.96	34.19	17.90	34.16
123.60-B	18	0522	26°38.5'	116°09.0'	2350	300°	2	clear	rough	17.90	34.14	17.82	-
127.34-B	17	1152	26°55.5'	114°06.0'	42	360°	3	partly cloudy	moderate	15.35	33.75	11.86	33.81
127.40-B	17	0840	26°41.5'	114°21.5'	1200	320°	5	cloudy	very rough	16.12	33.78	15.86	33.75
127.45-B	17	0600	26°30.5'	114°42.5'	2150	320°	4	cloudy	rough	15.10	33.69	14.55	33.64
127.50-B	17	0257	26°20.0'	115°03.0'	2000	320°	4	cloudy	rough	16.19	33.80	15.58	33.69
127.55-B	17	0006	26°09.0'	115°23.0'	1900	320°	4	cloudy	rough	16.18	33.75	16.06	33.75
127.60-B	16	2105	25°59.0'	115°43.0'	2100	340°	2	cloudy	rough	17.54	34.09	17.52	34.07

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
130.30-B	15	1230	26°29.0'	113°29.0'	44	300°	1	cloudy	moderate	13.70	34.87	11.36	34.07
130.35-B	15	0140	26°18.0'	113°48.5'	200	320°	2	partly cloudy	rough	18.46	34.18	18.27	34.20
130.40-B	16	0441	26°09.0'	114°07.5'	1200	340°	4	cloudy	rough	18.54	34.20	18.24	34.16
130.50-B	16	1026	25°49.0'	114°46.0'	2000	330°	3	cloudy	moderate	18.42	34.25	18.41	34.23
130.60-B	16	1540	25°29.0'	115°24.0'	2100	340°	3	cloudy	moderate	17.48	34.04	17.24	33.96
133.25-B	15	0624	26°04.5'	112°48.0'	43	320°	3	cloudy	moderate	15.82	33.89	12.98	33.94
133.30-B	15	0337	25°54.5'	113°07.5'	110	310°	3	cloudy	moderate	17.38	34.03	14.76	33.86
133.35-B	14	2220	25°45.5'	113°26.5'	472	340°	2	partly cloudy	rough	16.42	33.85	16.21	33.86
133.40-B	14	1935	25°34.0'	113°45.5'	1750	340°	3	partly cloudy	rough	18.70	34.25	18.55	34.23
133.50-B	14	1337	25°13.0'	114°23.5'	1900	340°	5	cloudy	rough	18.17	34.11	18.20	34.14
137.23-B	13	1546	25°34.0'	112°18.5'	40	340°	5	cloudy	rough	15.76	33.98	13.58	33.98
137.30-B	13	1941	25°20.0'	112°45.5'	200	340°	5	cloudy	very rough	18.06	34.22	16.09	34.00
137.35-B	13	2240	25°10.0'	113°04.0'	600	340°	4	cloudy	very rough	16.67	33.95	14.94	33.78
137.40-B	14	0220	25°03.5'	113°24.5'	1500	340°	4	cloudy	rough	18.50	34.16	18.17	34.10
137.50-B	14	0752	24°38.5'	114°01.5'	2100	330°	5	partly cloudy	rough	18.28	34.13	18.20	34.11
140.30-B	13	0730	24°45.5'	112°24.0'	59	320°	4	partly cloudy	rough	16.54	34.21	16.40	34.22
140.35-B	13	0435	24°36.0'	112°43.0'	700	320°	4	partly cloudy	rough	17.62	34.10	16.17	34.14
140.40-B	13	0107	24°25.5'	113°02.0'	2000	320°	5	partly cloudy	rough	18.94	34.23	18.18	34.34
140.50-B	12	1945	24°05.5'	113°40.0'	2100	340°	5	clear	rough	19.18	34.14	19.07	34.14

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
143.26-B	11	0645	24°19.0'	111°48.0'	43	280°	4	partly cloudy	rough	15.97	34.32	15.19	34.48
143.30-B	11	0917	24°11.0'	112°03.0'	120	290°	4	partly cloudy	moderate	19.47	34.40	14.86	33.95
143.35-B	12	0530	24°01.0'	112°22.0'	1250	340°	4	clear	rough	18.51	34.26	16.66	34.04
143.40-B	12	0845	23°51.0'	112°40.5'	1800	340°	4	clear	rough	18.82	34.24	18.78	34.25
143.50-B	12	1415	23°31.5'	113°18.0'	2000	330°	4	partly cloudy	very rough	20.84	34.56	20.84	34.57
147.20-B	11	0000	23°56.0'	111°03.5'	65	280°	3	partly cloudy	moderate	18.26	34.37	16.21	34.60
147.25-B	10	2121	23°46.5'	111°22.5'	340	270°	3	partly cloudy	moderate	19.12	34.36	15.66	34.04
147.30-B	10	1835	23°36.0'	111°41.5'	200	290°	2	cloudy	moderate	19.64	34.38	15.44	33.99
147.40-B	10	1330	23°12.5'	112°16.5'	1800	220°	2	cloudy	slight	20.42	34.48	18.85	34.31
150.19-B	9	2145	23°23.5'	110°39.0'	120	320°	1	cloudy	calm	18.30	34.43	15.22	34.31
150.25-B	9	2306	23°12.0'	111°01.5'	600	200°	1	cloudy	slight	19.00	34.44	15.94	34.29
150.30-B	10	0336	23°02.0'	111°20.0'	1500	200°	1	cloudy	slight	19.40	34.49	16.34	34.34
150.40-B	10	0830	22°42.0'	111°57.0'	2000	200°	1	partly cloudy	slight	20.90	34.53	19.62	34.36

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

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Los Angeles 24, California