

CORRECTIONS MADE :
STATION POSITIONS HS

UNIVERSITY OF CALIFORNIA SCRIPPS INSTITUTION OF OCEANOGRAPHY

data report

PHYSICAL AND CHEMICAL DATA

CCOFI CRUISE 5705
(MLR 96)
9-23 May 1957

and

CCOFI CRUISE 5706
(MLR 97)
5-23 June 1957

SIO Reference 58-33
15 July 1958

UNIVERSITY OF CALIFORNIA
SCRIPPS INSTITUTION OF OCEANOGRAPHY

PHYSICAL AND CHEMICAL DATA

CCOFI CRUISE 5705

(MLR 96)

9-23 May 1957

and

CCOFI CRUISE 5706

(MLR 97)

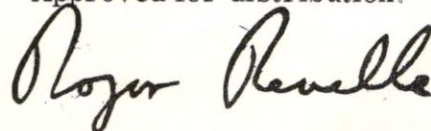
5-23 June 1957

Sponsored by

Marine Research Committee

SIO Reference 58-33
15 July 1958

Approved for distribution:



Roger Revelle, Director

CONTENTS

INTRODUCTION	iii
CRUISE 5705	
List of Figures.	v
Personnel	vi
Tabulated Data.	119
Observations at 10 and 50 Meters (Net-Tow Stations).	119
CRUISE 5706	
List of Figures.	vii
Personnel	ix
Tabulated Data.	131
Hydrographic Casts.	131
Observations at 10 and 50 Meters (Net-Tow Stations).	152
DISTRIBUTION LIST	172

INTRODUCTION

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

^{1/} 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 of casts. 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).

FORMAT

Beginning with this report, these data will be 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 1953 volume, the first page of the Cruise 5705 data is numbered 119 and the first page of the Cruise 5706 data is numbered 131.

FIGURES

1. CCOFI Cruise 5705 (MLR 96), 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

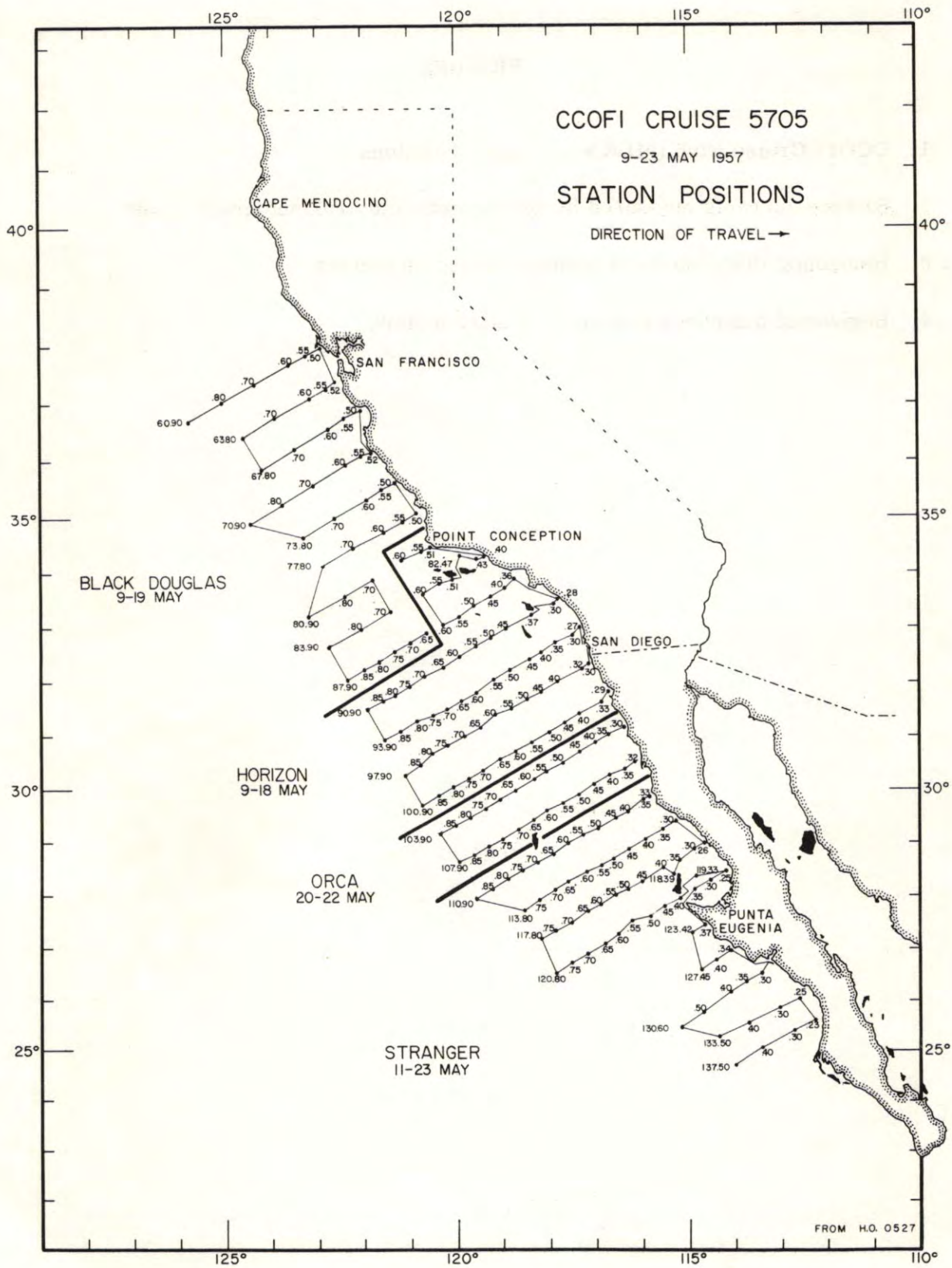


FIGURE 1

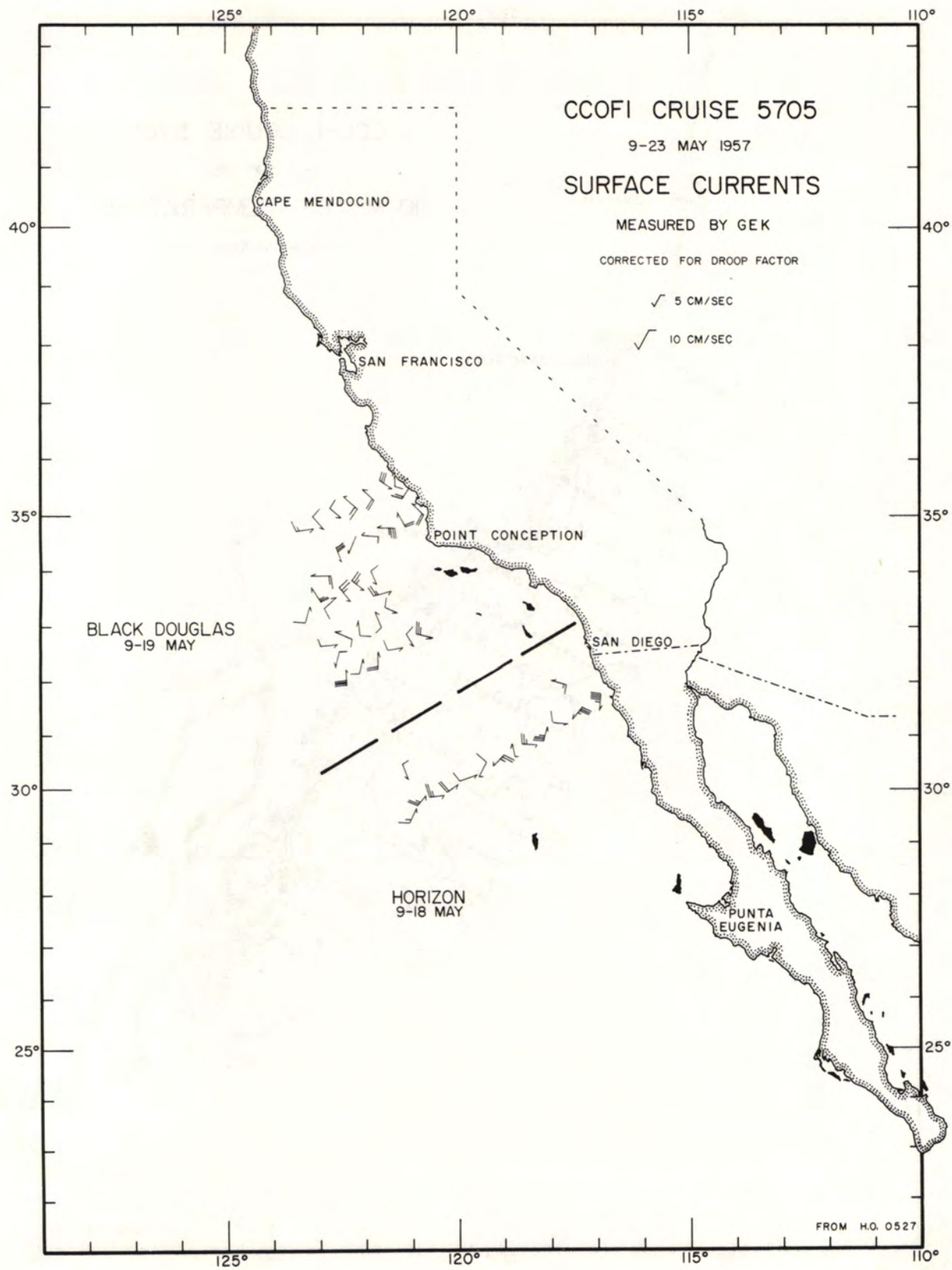


FIGURE 2

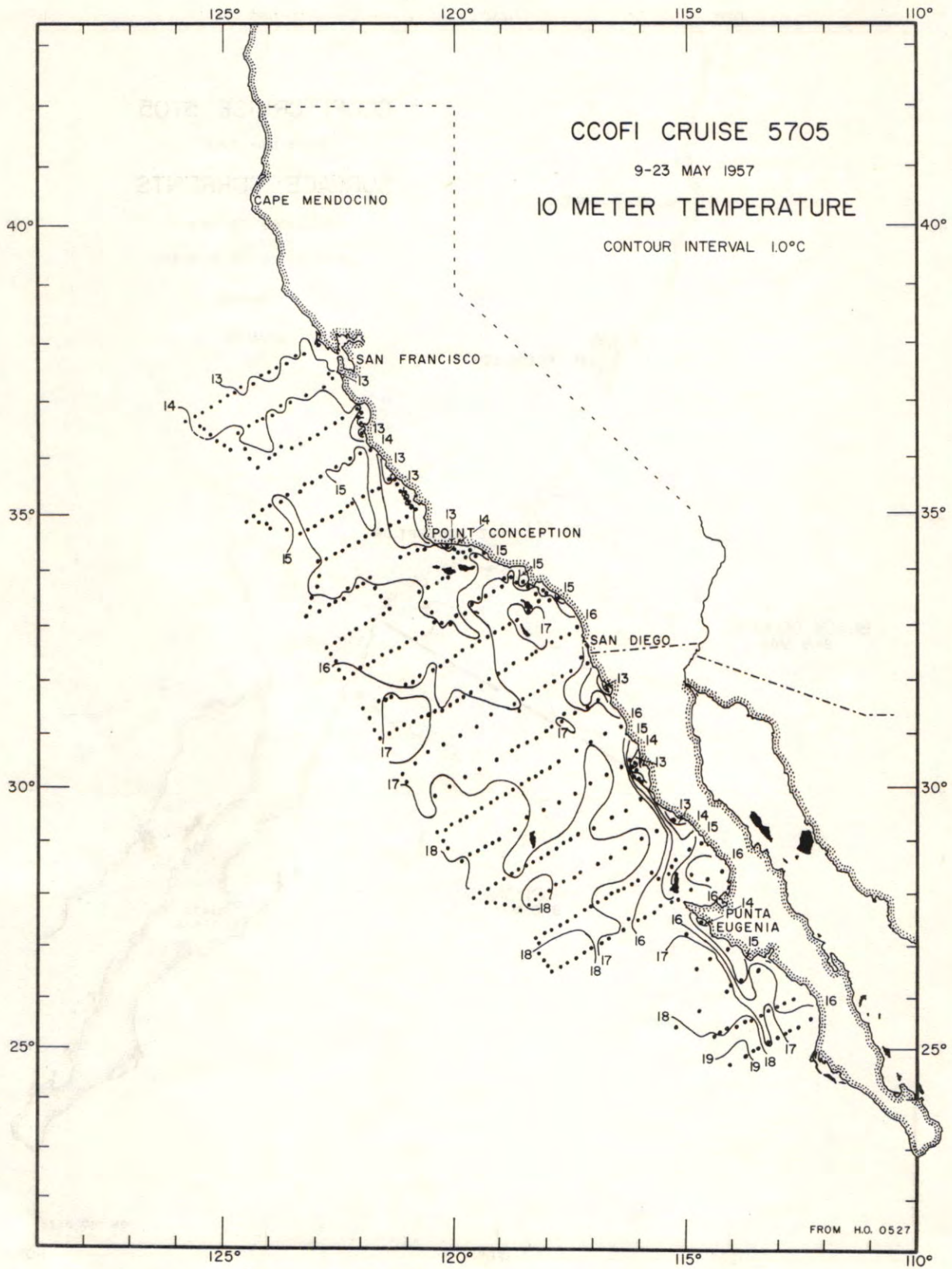


FIGURE 3

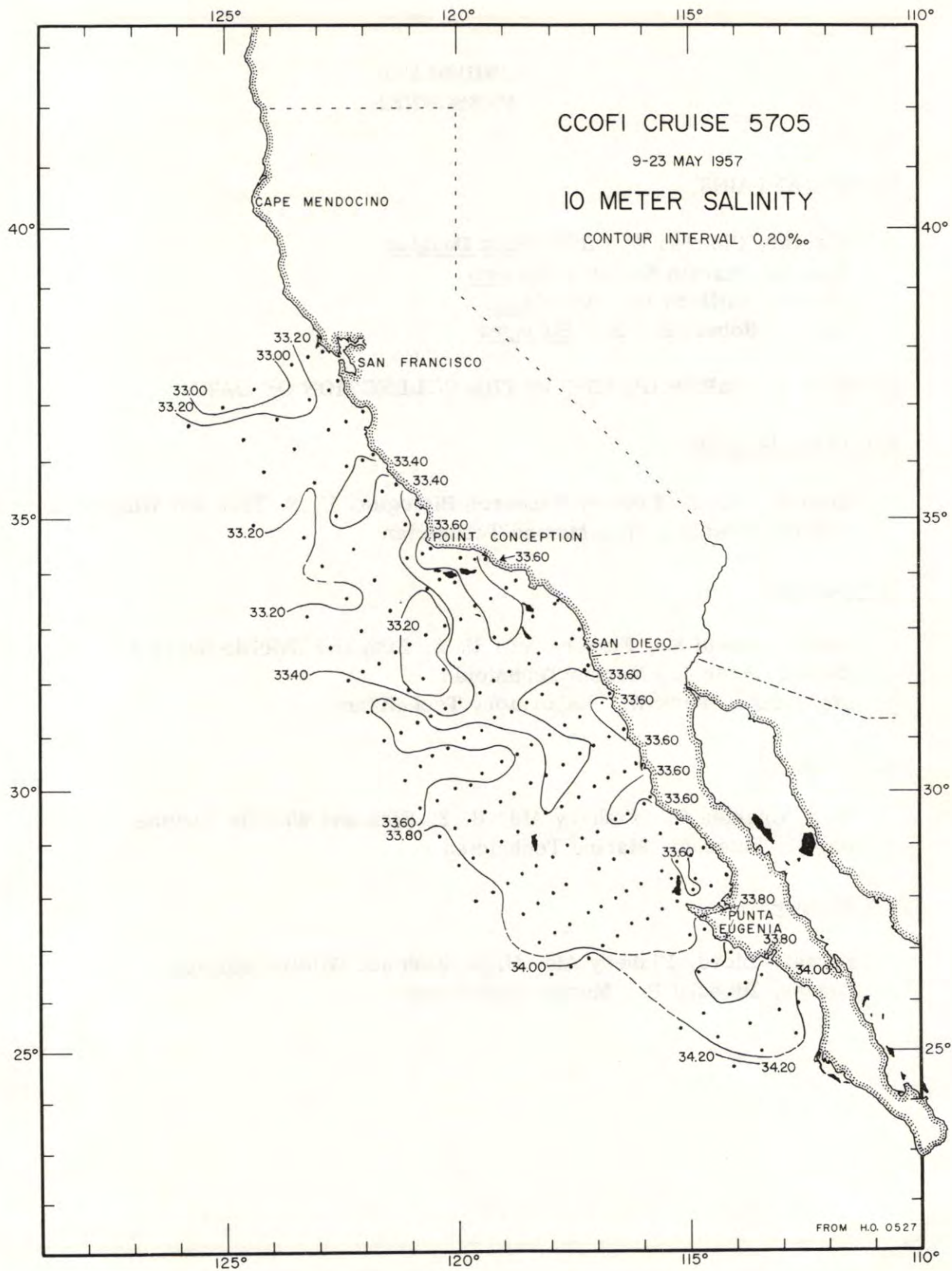


FIGURE 4

CRUISE 5705
PERSONNEL

SHIPS' CAPTAINS

Forster, Charles W., R/V Black Douglas
Hopkins, Marvin K., R/V Horizon
Colbeth, Clifford W., R/V Orca
Haines, Robert B., R/V Stranger

PERSONNEL PARTICIPATING IN THE COLLECTION OF DATA

R/V Black Douglas

Kramer, David, Fishery Research Biologist, U. S. Fish and Wildlife Service
Jeffers, John N., Jr., Marine Technician

R/V Horizon

Justice, David K., Fishery Aid, U. S. Fish and Wildlife Service
Davoll, Peter J., Marine Technician
Richardson, Park W., Laboratory Technician

R/V Orca

Reid, Charles F., Fishery Aid, U. S. Fish and Wildlife Service
Davoll, Peter J., Marine Technician

R/V Stranger

Farrar, Lloyd, Fishery Aid, U. S. Fish and Wildlife Service
Rogers, Richard P., Marine Technician

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	10 Meters		50 Meters	
						Dir	Force			T	S	T	S
60.50-B	16	1810	37°57.5'	122°53.0'	23	320°	4	partly cloudy	moderate	12.64	33.31	9.54 ^{a)}	33.69 ^{a)}
60.55-B	16	2123	37°47.5'	123°15.0'	70	300°	4	partly cloudy	rough	13.41	33.21	10.50	33.30
60.60-B	17	0000	37°37.0'	123°37.0'	1800	300°	5	missing	moderate	13.06	33.04	9.74	33.48
60.70-B	17	0515	37°17.0'	124°21.0'	2100	280°	4	missing	rough	13.12	32.81	10.46	32.99
60.80-B	17	1030	36°57.0'	125°04.0'	2400	280°	3	missing	moderate	13.58	32.96	12.86	33.30
60.90-B	17	1603	36°37.0'	125°47.0'	2350	320°	3	overcast	moderate	14.47	33.21	13.44	33.23
63.52-B	16	1300	37°19.0'	122°36.0'	47	320°	4	cloudy	rough	13.40	33.21	12.08	33.37
63.55-B	16	1000	37°11.0'	122°49.5'	170	320°	4	partly cloudy	rough	13.96	33.29	9.66	33.61
63.60-B	16	0550	37°02.5'	123°11.5'	1400	320°	6	partly cloudy	very rough	13.98	33.19	10.82	33.40
63.70-B	16	0030	36°42.5'	123°55.5'	2100	320°	6	missing	rough	14.30	33.21	13.22	33.21
63.80-B	15	1940	36°22.5'	124°38.5'	2200	320°	5	partly cloudy	rough	14.28	33.22	13.62	33.24
67.50-B	14	2050	36°49.0'	122°04.5'	55	300°	4	partly cloudy	very rough	14.22	33.30	12.15	33.56
67.55-B	14	2340	36°39.0'	122°26.0'	1100	270°	4	partly cloudy	high	14.64	33.25	10.60	33.57
67.60-B	15	0245	36°29.0'	122°47.5'	1600	280°	4	partly cloudy	very rough	14.71	33.27	11.19	33.24
67.70-B	15	0810	36°09.0'	123°31.5'	2000	320°	5	partly cloudy	very rough	14.62	33.26	13.48	33.26
67.80-B	15	1412	35°49.0'	124°13.5'	2100	340°	6	cloudy	rough	14.58	33.22	13.78	33.22
70.52-B	14	1600	36°08.5'	121°49.5'	360	290°	1	cloudy	rough	14.52	33.35	11.19	33.54

a) Depth, 30 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
70.55-B	14	1330	36°03.0'	122°02.0'	800	280°	3	cloudy	rough	15.09	33.40	11.75	33.48
70.60-B	14	1045	35°53.0'	122°23.0'	2000	250°	1	cloudy	moderate	14.99	33.31	12.03	33.37
70.70-B	14	0600	35°33.0'	123°06.0'	2000	310°	4	cloudy	very rough	14.98	33.20	11.51	33.32
70.80-B	14	0130	35°13.0'	123°48.0'	2200	280°	3	partly cloudy	very rough	15.08	33.33	13.74	33.26
70.90-B	13	2050	34°53.0'	124°30.0'	2500	280°	3	partly cloudy	rough	14.80	33.22	12.64	33.15
73.50-B	12	2215	35°37.0'	121°16.5'	50	270°	3	partly cloudy	moderate	13.63 ^{a)}	33.39	10.38	33.64
73.55-B	13	0050	35°27.5'	121°37.0'	570	250°	3	cloudy	moderate	14.61	33.29	11.30	33.53
73.60-B	13	0357	35°18.0'	121°58.5'	1300	270°	4	cloudy	moderate	15.18	33.41	10.88	33.43
73.70-B	13	0905	34°58.0'	122°39.5'	2200	240°	2	cloudy	moderate	14.70	33.40	9.75	33.66
73.80-B	13	1424	34°38.0'	123°21.5'	2200	260°	3	cloudy	slight	15.06	33.13	13.40	33.21
77.50-B	12	1700	35°04.0'	120°52.0'	70	060°	2	partly cloudy	moderate	12.39	33.48	9.90	33.64
77.55-B	12	1405	34°52.5'	121°12.0'	320	-		partly cloudy	moderate	13.90	33.35	11.61	33.53
77.60-B	12	1057	34°42.5'	121°34.5'	500	260°	2	partly cloudy	moderate	14.36	33.38	12.30	33.47
77.70-B	12	0543	34°24.0'	122°16.0'	2050	310°	2	partly cloudy	moderate	14.74	33.31	10.92	33.40
77.80-B	12	0040	34°04.0'	122°57.0'	2300	280°	3	partly cloudy	moderate	15.07	33.36	13.26	33.33
80.51-H	10	0030	34°26.5'	120°32.0'	50	240°	2	partly cloudy	rough	12.68	33.64	9.88	33.80
80.55-H	9	2210	34°19.0'	120°47.0'	375	240°	3	partly cloudy	rough	14.36	33.66	9.76	33.78

a) Alternate value of 13.51° possible.

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
80.60-H	9	1925	34°10.0'	121°12.0'	1000	220°	2	partly cloudy	rough	14.34	33.40	11.10	33.51
80.70-B	11	0630	33°49.0'	121°51.0'	1900	230°	3	cloudy	moderate	14.36	33.37	11.94	33.44
80.80-B	11	1115	33°29.5'	122°27.5'	2400	270°	2	partly cloudy	moderate	15.00	33.15	13.12	33.20
80.90-B	11	1750	33°08.0'	123°14.0'	2200	260°	3	cloudy	rough	15.35	33.23	14.05	33.19
82.47-H	10	1010	34°14.0'	119°55.5'	300	280°	3	partly cloudy	moderate	14.69	33.61	11.88	33.63
83.40-H	10	0610	34°14.0'	119°23.0'	14	280°	5	partly cloudy	moderate	14.70	33.58	-	-
83.43-H	10	0725	34 ^{ok} 13.0'	119°34.0'	118	280°	3	partly cloudy	moderate	15.12	33.60	11.14	33.58
83.51-H	10	1330	33°51.5'	120°08.0'	93	270°	2	partly cloudy	moderate	14.81	33.57	9.97	33.75
83.55-H	10	1530	33°44.0'	120°24.5'	500	280°	3	partly cloudy	moderate	14.35	33.58	11.10	33.62
83.60-H	10	1820	33°33.5'	120°45.5'	600	280°	2	partly cloudy	moderate	15.04	33.14	12.98	33.30
83.70-B	11	0038	33°14.5'	121°26.0'	2000	230°	3	cloudy	moderate	15.58	33.28	14.50	33.34
83.80-B	10	1942	32°54.5'	112°07.5'	2200	230°	2	partly cloudy	moderate	15.62	33.33	14.30	33.37
83.90-B	10	1410	32°34.5'	122°48.0'	2200	280°	3	partly cloudy	rough	15.60	33.33	15.26	33.40
87.36-H	11	1220	33°49.5'	118°45.0'	450	270°	2	cloudy	moderate	16.46	33.53	10.68	33.59
87.40-H	11	1043	33°39.0'	118°58.0'	420	260°	2	cloudy	moderate	16.22	33.60	10.98	33.55
87.45-H	11	0600	33°29.5'	119°18.5'	800	260°	2	cloudy	moderate	16.28	33.60	11.36	33.64
87.50-H	11	0330	33°20.0'	119°38.5'	35	280°	2	partly cloudy	rough	16.01	33.59	11.22	33.69
87.55-H	11	0040	33°08.0'	119°58.0'	700	270°	2	partly cloudy	rough	14.59	33.55	11.26	33.55
87.60-H	10	2235	33°00.0'	120°19.5'	370	270°	2	cloudy	moderate	14.68	33.18	12.35	33.22

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

SIO
CCOFI
5705

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	10 Meters		50 Meters	
						Dir	Force			T	S	T	S
87.65-B	9	1740	32°50.0'	120°41.5'	2100	290°	2	partly cloudy	rough	15.52	33.19	14.11	33.19
87.70-B	9	2048	32°39.5'	121°02.0'	2300	230°	2	partly cloudy	rough	15.49	33.17	13.80	33.19
87.75-B	9	2347	32°29.5'	121°22.5'	2200	240°	3	cloudy	rough	15.53	33.37	13.80	33.35
87.80-B	10	0317	32°18.0'	121°45.5'	2200	270°	3	cloudy	rough	15.37	33.31	13.58	33.33
87.85-B	10	0500	32°10.0'	122°03.5'	2250	260°	3	cloudy	moderate	15.71	33.35	14.28	33.37
87.90-B	10	0810	31°59.0'	122°24.0'	2300	270°	3	cloudy	moderate	16.26	33.57	13.97	33.41
90.28-H	11	1745	33°28.0'	117°46.5'	160	150°	3	cloudy	moderate	14.93	33.50	10.24	33.58
90.30-H	11	1930	33°24.5'	117°55.0'	300	190°	4	cloudy	moderate	16.15	33.59	11.18	33.55
90.37-H	12	1820	33°11.0'	118°24.5'	600	290°	4	partly cloudy	moderate	16.98	33.59	11.18	33.55
90.45-H	12	2115	32°55.0'	118°56.0'	850	280°	4	partly cloudy	moderate	16.82	33.62	10.77	33.58
90.50-H	13	0000	32°45.0'	119°16.5'	110	290°	4	partly cloudy	moderate	15.38	33.60	11.93	33.58
90.55-H	13	0230	32°35.0'	119°37.0'	520	300°	3	partly cloudy	moderate	15.56	33.54	10.97	33.51
90.60-H	13	0504	32°23.0'	119°58.0'	480	290°	4	partly cloudy	moderate	15.48	33.50	11.26	33.43
90.65-H	13	0730	32°12.5'	120°20.0'	2000	290°	4	partly cloudy	moderate	15.52	33.12	13.94	33.33
90.70-H	13	1000	32°02.0'	120°43.0'	2000	270°	3	partly cloudy	moderate	15.70	33.15	14.06	33.15
90.75-H	13	1223	31°51.0'	121°03.5'	1000	270°	4	partly cloudy	moderate	15.60	33.20	13.73	33.31
90.80-H	13	1500	31°41.0'	121°22.0'	2000	290°	3	partly cloudy	moderate	16.70	33.58	15.20	33.53
90.85-H	13	1645	31°35.0'	121°38.5'	2100	110°	3	partly cloudy	rough	16.76	33.64	14.58	33.46
90.90-H	13	1900	31°26.0'	121°58.0'	2100	210°	3	partly cloudy	rough	16.32	33.55	13.12	33.40

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
93.27-H	15	0645	32°56.0'	117°19.5'	100	270°	5	partly cloudy	rough	16.10	33.52	10.26	33.64
93.30-H	15	0440	32°47.5'	117°31.0'	370	290°	5	partly cloudy	rough	16.30	33.52	10.27	33.62
93.35-H	15	0200	32°39.5'	117°52.5'	320	270°	5	partly cloudy	rough	16.44	33.57	12.62	33.45
93.40-H	15	0000	32°28.0'	118°12.0'	700	290°	5	partly cloudy	rough	16.67	33.53	12.66	33.40
93.45-H	14	2150	32°20.5'	118°26.5'	700	290°	5	cloudy	rough	16.12	33.47	12.17	33.40
93.50-H	14	1935	32°08.0'	118°52.5'	800	290°	5	partly cloudy	rough	16.63	33.59	11.12	33.50
93.55-H	14	1600	31°58.5'	119°13.0'	1000	290°	4	partly cloudy	rough	15.79	33.44	12.54	33.41
93.60-H	14	1300	31°43.0'	119°38.5'	1900	300°	4	partly cloudy	rough	15.83	33.42	12.63	33.28
93.65-H	14	1038	31°35.5'	119°56.0'	1900	290°	4	partly cloudy	moderate	16.25	33.39	13.51	33.57
93.70-H	14	0828	31°26.0'	120°16.0'	1980	290°	4	cloudy	moderate	15.61	33.31	12.62	33.33
93.75-H	14	0545	31°19.0'	120°34.0'	2000	290°	2	partly cloudy	moderate	17.04	33.55	15.21	33.54
93.80-H	14	0345	31°13.5'	120°53.0'	2000	290°	3	partly cloudy	moderate	17.22	33.64	14.06	33.49
93.85-H	14	0130	31°03.0'	121°15.0'	2000	290°	3	partly cloudy	moderate	17.02	33.64	14.78	33.48
93.90-H	13	2310	30°53.0'	121°37.0'	2170	290°	2	partly cloudy	moderate	16.64	33.53	13.01	33.48
97.30-H	15	1230	32°15.5'	117°08.5'	50	290°	3	partly cloudy	rough	15.56	33.53	9.96	33.68
97.32-H	15	1345	32°11.5'	117°16.5'	700	290°	3	partly cloudy	very rough	16.74	33.60	12.09	33.46
97.40-H	15	1730	31°55.0'	117°50.0'	600	290°	4	partly cloudy	very rough	16.48	33.61	14.66	33.52
97.45-H	15	1950	31°44.0'	118°11.5'	850	290°	4	partly cloudy	high	16.50	33.61	14.91	33.52
97.50-H	15	2200	31°37.0'	118°30.0'	1300	310°	5	partly cloudy	rough	16.47	33.63	13.70	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
97.55-H	16	0120	31°27.0'	118°51.0'	800	310°	5	partly cloudy	very rough	15.82	33.54	13.68	33.44
97.60-H	16	0405	31°19.0'	119°11.0'	1800	310°	5	partly cloudy	high	16.56	33.54	14.84	33.48
97.65-H	16	0640	31°06.0'	119°32.0'	1850	310°	4	partly cloudy	high	16.88	33.65	15.74	33.60
97.70-H	16	0900	30°57.5'	119°52.5'	2000	310°	6	partly cloudy	very rough	16.97	33.64	16.09	33.65
97.75-H	16	1200	30°47.5'	120°14.0'	2000	310°	5	partly cloudy	very rough	16.76	33.55	14.48	33.44
97.80-H	16	1430	30°38.5'	120°34.5'	2000	310°	5	partly cloudy	very rough	16.68	33.56	13.98	33.37
97.85-H	16	1655	30°25.5'	120°50.0'	2000	310°	5	partly cloudy	very rough	16.44	33.49	13.52	33.37
97.90-H	16	1930	30°14.0'	121°09.0'	2000	310°	5	partly cloudy	very rough	16.88	33.59	14.10	33.41
100.29-H	18	0930	31°42.0'	116°43.5'	90	calm		cloudy	slight	12.16	33.64	9.82	33.84
100.33-H	18	0730	31°34.0'	116°54.0'	650	260°	2	cloudy	slight	15.96	33.55	10.28	33.58
100.40-H	18	0315	31°19.5'	117°24.5'	1000	310°	3	cloudy	rough	16.07	33.62	10.62	33.73
100.45-H	17	2350	31°10.0'	117°46.0'	900	300°	3	cloudy	very rough	17.00	33.64	14.96	33.58
100.50-H	17	2130	31°00.0'	118°01.0'	800	300°	4	cloudy	rough	16.48	33.58	12.80	33.44
100.55-H	17	1820	30°48.0'	118°25.0'	1400	300°	4	cloudy	rough	16.66	33.62	14.19	33.51
100.60-H	17	1540	30°38.5'	118°46.0'	2000	320	4	cloudy	very rough	16.42	-	14.06	33.43
100.65-H	17	1310	30°29.0'	119°06.5'	1950	320°	4	cloudy	very rough	16.79	33.57	16.34	33.73
100.70-H	17	1015	30°19.0'	119°26.0'	2000	310°	5	cloudy	very rough	16.71	33.58	15.97	33.59
100.75-H	17	0745	30°10.0'	119°46.0'	1700	310°	5	cloudy	very rough	16.90	33.62	16.38	33.62
100.80-H	17	0440	30°00.0'	120°06.0'	2000	320°	5	partly cloudy	very rough	17.37	33.66	16.92	33.83

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
100.85-H	17	0215	29°50.0'	120°26.5'	2100	320°	5	cloudy	very rough	17.40	33.66	15.48	33.48
100.90-H	16	2330	29°40.5'	120°47.5'	2000	320°	5	cloudy	very rough	16.86	33.53	15.53	33.42
103.30-O	20	0545	31°05.0'	116°25.5'	41	320°	3	clear	moderate	16.03	33.55	10.11	33.67
103.35-O	20	0820	30°57.0'	116°45.0'	1000	320°	5	partly cloudy	moderate	16.81	33.63	13.55	33.46
103.40-O	20	1045	30°48.0'	117°02.0'	1040	320°	4	partly cloudy	moderate	16.90	33.62	15.46	33.53
103.45-O	20	1300	30°38.0'	117°21.0'	1200	300°	4	partly cloudy	rough	16.64	33.58	14.69	33.48
103.50-O	20	1630	30°26.5'	117°45.0'	1400	300°	4	partly cloudy	rough	16.81	33.57	13.44	33.44
103.55-O	20	1945	30°16.5'	118°05.0'	1800	260°	3	partly cloudy	rough	16.64	33.60	15.00	33.51
103.60-O	20	2300	30°08.0'	118°22.0'	1500	300°	4	partly cloudy	rough	16.82	33.61	15.05	-
103.65-O	21	0130	29°57.0'	118°45.0'	1800	290°	4	partly cloudy	very rough	17.12	33.63	15.58	33.55
103.70-O	21	0415	29°46.0'	119°05.0'	1900	290°	4	partly cloudy	very rough	17.48	33.74	16.40	33.68
103.75-O	21	0700	29°36.0'	119°24.0'	1900	290°	4	partly cloudy	very rough	17.29	33.74	15.94 ^{a)}	33.68
103.80-O	21	0930	29°27.0'	119°44.0'	1620	300°	5	partly cloudy	moderate	17.31	33.69	16.16	33.66
103.85-O	21	1200	29°17.0'	120°04.0'	2000	300°	4	cloudy	rough	17.49	33.68	16.58	33.71
103.90-O	21	1430	29°07.0'	120°23.0'	2000	310°	5	cloudy	rough	17.98	33.84	16.86	33.76
107.32-O	23	0415	30°28.0'	116°12.0'	300	330°	5	cloudy	rough	14.06	33.64	10.44	33.84
107.35-O	23	0220	30°20.0'	116°23.0'	900	310°	5	cloudy	rough	16.84	33.62	12.94	33.51

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

a) Alternate value of 16.88° possible.

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	10 Meters		50 Meters	
						Dir	Force			T	S	T	S
107.40-O	22	2330	30°13.0'	116°43.0'	1200	300°	5	cloudy	rough	17.08	33.66	14.95	33.54
107.45-O	22	2040	30°04.0'	117°04.0'	1250	320°	5	cloudy	rough	-	33.65	15.13	33.57
107.50-O	22	1735	29°51.0'	117°22.0'	1400	310°	4	cloudy	very rough	-	33.62	14.92	33.51
107.55-O	22	1440	29°42.0'	117°42.0'	1800	320°	6	cloudy	very rough	16.88	33.61	15.99	33.57
107.60-O	22	1200	29°33.0'	118°02.0'	1800	320°	6	cloudy	very rough	16.73	33.60	15.85	33.55
107.65-O	22	0845	29°22.0'	118°22.0'	2000	320°	6	cloudy	very rough	17.12	33.64	15.94	33.60
107.70-O	22	0550	29°12.0'	118°41.0'	2000	310°	5	cloudy	very rough	17.45	33.68	15.98	33.64
107.75-O	22	0245	29°02.0'	119°00.0'	2000	310°	5	cloudy	very rough	17.34	33.68	17.22	33.82
107.80-O	22	0000	28°52.0'	119°20.0'	2000	330°	6	partly cloudy	very rough	-	33.75	16.90	33.83
107.85-O	21	2130	28°42.0'	119°40.0'	2000	330°	6	partly cloudy	very rough	17.77	33.78	16.62	33.74
107.90-O	21	1845	28°35.0'	119°58.0'	2000	310°	4	partly cloudy	rough	17.82	33.84	17.08	33.80
110.33-S	22	1420	29°50.5'	115°52.0'	45	310°	3	partly cloudy	rough	14.49	33.58	9.94	33.66
110.35-S	22	1300	29°46.5'	115°59.5'	1000	320°	3	cloudy	rough	16.38	33.62	11.24	33.50
110.40-S	22	0945	29°32.5'	116°20.0'	1200	310°	3	partly cloudy	very rough	16.10	33.58	12.34	33.52
110.45-S	22	0650	29°24.0'	116°37.5'	1550	310°	4	partly cloudy	very rough	16.25	33.58	11.42	33.48
110.50-S	22	0400	29°14.5'	116°59.0'	2000	320°	6	partly cloudy	high	16.90	33.62	15.80	33.55
110.55-S	22	0125	29°05.0'	117°20.0'	1940	320°	6	partly cloudy	high	17.14	33.64	16.38	33.64
110.60-S	21	2245	28°56.5'	117°38.5'	2000	340°	5	partly cloudy	very rough	17.66	33.69	16.60	33.62
110.65-S	21	2030	28°44.5'	117°56.0'	2000	310°	3	cloudy	rough	17.66	33.73	17.36	33.71

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
110.70-S	21	1745	28°34.0'	118°18.0'	2000	310°	3	cloudy	rough	17.44	33.70	16.34	33.64
110.75-S	21	1515	28°25.0'	118°37.0'	2100	310°	3	cloudy	rough	16.66	33.73	15.82	33.61
110.80-S	21	1240	28°14.0'	118°57.0'	2200	310°	4	cloudy	moderate	17.26	33.75	16.84	33.75
110.85-S	21	1020	28°04.0'	119°17.0'	2200	320°	5	cloudy	rough	17.64	33.82	16.73	33.78
110.90-S	21	0740	27°54.0'	119°38.0'	2200	320°	5	partly cloudy	very rough	17.78	33.84	16.77	33.80
113.30-S	20	0250	29°22.5'	115°18.0'	31	280°	4	cloudy	moderate	12.80	33.65	10.48	33.79
113.35-S	20	0515	29°11.5'	115°38.5'	600	290°	4	cloudy	moderate	16.98	33.66	15.97	33.60
113.40-S	20	0740	29°00.5'	115°58.5'	1100	310°	3	cloudy	rough	17.02	33.66	16.41	33.65
113.45-S	20	0950	28°49.5'	116°19.5'	1000	310°	3	cloudy	rough	17.20	-	16.41	33.66
113.50-S	20	1220	28°38.5'	116°39.0'	2000	310°	3	cloudy	rough	17.58	33.75	17.43	33.71
113.55-S	20	1425	28°31.0'	116°55.0'	1400	330°	4	partly cloudy	rough	17.50	33.77	17.14	33.69
113.60-S	20	1650	28°22.0'	117°15.5'	2000	340°	4	partly cloudy	rough	17.56	-	13.63	33.60
113.65-S	20	1920	28°12.0'	117°38.0'	2100	340°	4	partly cloudy	rough	17.56	33.75	14.54	33.57
113.70-S	20	2125	28°02.5'	117°56.0'	1700	320°	3	partly cloudy	very rough	18.10	33.75	16.14	33.73
113.75-S	20	2335	27°51.0'	118°15.5'	1900	320°	3	partly cloudy	very rough	18.30	33.76	15.16	33.62
113.80-S	21	0150	27°39.5'	118°33.5'	2000	320°	3	partly cloudy	very rough	17.70	33.71	16.50	33.66
117.26-S	19	2230	28°56.0'	114°41.0'	37	280°	4	partly cloudy	moderate	15.36	33.63	10.49	33.81
117.30-S	19	2035	28°47.5'	114°56.5'	50	310°	2	cloudy	moderate	14.53	33.66	10.49	33.83
117.35-S	19	1805	28°37.0'	115°16.5'	90	310°	2	cloudy	moderate	14.90	33.54	11.94	33.53

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

CCOFI
5705

S10

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind		Weather	Sea	10 Meters		50 Meters	
						Dir	Force			T	S	T	S
117.40-S	19	1340	28°27.5'	115°35.5'	550	310°	2	cloudy	rough	16.62	33.66	15.86	33.60
117.45-S	19	1010	28°13.0'	116°02.5'	2400	330°	3	cloudy	rough	16.47	33.62	16.10	33.60
117.50-S	19	0730	28°03.0'	116°21.5'	2250	330°	3	cloudy	rough	16.90	33.68	14.24	-
117.55-S	19	0450	27°56.5'	116°37.5'	1900	330°	5	cloudy	rough	16.46	33.69	11.80	33.75
117.60-S	19	0240	27°47.5'	116°55.0'	1800	320°	3	cloudy	rough	16.74	33.64	15.40	33.66
117.65-S	19	0020	27°39.0'	117°12.0'	2050	310°	2	cloudy	rough	17.64	33.75	13.02	33.60
117.70-S	18	2200	27°27.0'	117°34.5'	2100	310°	2	cloudy	rough	17.62	33.72	15.56	33.59
117.75-S	18	1930	27°16.0'	117°54.0'	2250	310°	3	cloudy	rough	17.48	33.71	16.14	33.68
117.80-S	18	1700	27°07.0'	118°12.5'	2310	300°	4	cloudy	moderate	17.27	33.69	16.69	33.77
118.39-S	19	1530	28°19.0'	115°23.0'	110	310°	2	cloudy	moderate	14.59	33.68	11.71	33.60
119.33-S	17	0110	28°18.5'	114°54.5'	50	320°	5	clear	very rough	16.18	33.64	11.32	33.66
120.25-S	16	2130	28°23.0'	114°14.5'	30	320°	3	cloudy	rough	16.88	33.68	12.12	33.62
120.30-S	16	1910	28°14.0'	114°33.0'	52	320°	3	cloudy	very rough	16.18	33.68	10.76	33.78
120.35-S	16	1640	28°02.5'	114°54.0'	44	310°	3	clear	rough	15.22	33.60	11.71	33.49
120.40-S	17	1720	27°56.5'	115°14.0'	20	320°	3	partly cloudy	rough	15.26	33.62	11.68 ^{a)}	33.99 ^{a)}
120.45-S	17	1935	27°43.0'	115°33.0'	1180	310°	4	cloudy	very rough	15.68	33.62	11.48	33.86
120.50-S	17	2155	27°32.5'	115°52.5'	2100	310°	4	cloudy	rough	15.58	33.66	12.38	-

a) Depth, 30 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
120.55-S	18	0020	27°23.0'	116°11.0'	2300	320°	3	cloudy	very rough	16.56	33.68	12.85	33.64
120.60-S	18	0240	27°12.0'	116°33.0'	2050	320°	3	cloudy	very rough	17.30	33.71	12.70	33.64
120.65-S	18	0515	27°01.5'	116°52.0'	2000	310°	3	cloudy	rough	16.96	33.67	15.99	33.62
120.70-S	18	0730	26°50.5'	117°12.0'	2100	310°	3	cloudy	rough	18.59	34.07	18.44	34.17
120.75-S	18	1000	26°39.0'	117°33.0'	2025	310°	2	cloudy	rough	18.31	34.00	17.34	33.80
120.80-S	18	1225	26°28.0'	117°53.5'	2025	310°	2	cloudy	rough	18.84	34.16	18.81	34.16
123.37-S	16	1100	27°24.0'	114°40.0'	39	330°	5	clear	very rough	13.20	33.81	11.16	34.04
123.42-S	16	0845	27°12.5'	115°00.0'	1000	320°	5	partly cloudy	very rough	16.94	33.75	11.93	33.57
127.34-S	15	2000	26°55.0'	114°06.0'	42	320°	4	clear	rough	14.94	33.72	11.03	33.89
127.40-S	15	2250	26°43.0'	114°43.0'	160	320°	6	clear	very rough	17.50	33.86	14.60	33.55
127.45-S	16	0125	26°33.0'	114°47.5'	1750	320°	7	clear	high	17.48	33.78	15.44	33.61
130.30-S	14	2135	26°28.5'	113°28.0'	41	290°	5	clear	rough	16.24	33.89	11.52	34.24
130.35-S	14	1850	26°16.0'	113°49.5'	500	320°	4	clear	rough	14.72	33.66	12.54	33.73
130.40-S	14	1615	26°05.0'	114°08.0'	1400	320°	6	partly cloudy	very rough	17.58	33.79	15.52	33.68
130.50-S	14	1110	25°42.0'	114°42.5'	1900	330°	6	cloudy	very rough	17.84	33.81	16.71	33.78
130.60-S	14	0650	25°23.0'	115°13.0'	2100	340°	6	partly cloudy	very rough	18.86	34.04	18.28	34.07
133.25-S	13	1320	25°57.5'	112°40.5'	44	330°	5	clear	rough	15.16	34.04	12.37	34.22
133.30-S	13	1530	25°47.5'	113°03.0'	120	330°	5	clear	rough	15.87	33.87	13.78	34.09
133.40-S	13	2015	25°29.0'	113°43.0'	2150	320°	5	clear	rough	18.16	33.89	13.04	33.78

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
133.50-S	14	0050	25°13.0'	114°23.0'	2200	340°	5	partly cloudy	very rough	18.25	33.92	15.00	33.72
137.23-S	13	0850	25°33.5'	112°18.0'	39	320°	4	clear	rough	16.46	-	12.67	34.24
137.30-S	13	0535	25°20.5'	112°45.0'	200	340°	4	clear	rough	16.60	33.95	13.38	34.17
137.40-S	13	0115	25°01.0'	113°23.0'	1750	360°	4	partly cloudy	rough	18.16	33.86	17.14	33.91
137.50-S	12	2100	24°40.0'	114°02.0'	2000	320°	4	partly cloudy	moderate	19.73	34.34	19.30	34.31

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

DISTRIBUTION LIST

Dr. E. H. Ahlstrom
U. S. Fish and Wildlife Service
c/o Scripps Institution of Oceanography
La Jolla, California

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

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

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

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

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

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, T. H.

Mr. William Anderson
U. S. Fish and Wildlife Service
Brunswick, Georgia

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

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

Herrn Professor Dr. A. Defant
Sternwartestrasse 38
Innsbruck
AUSTRIA

Mr. Seth Gordon, Director
California Department of Fish and Game
926 J Street
Sacramento 14, California

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

Director
Hopkins Marine Station
Pacific Grove, California

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

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

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

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

Director
Norwegian Polar Institute
Observatoriegat 1
Oslo, NORWAY

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

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

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

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

Mr. J. C. Marr
U. S. Fish and Wildlife Service
c/o Scripps Institution of Oceanography
La Jolla, California

Dr. H. 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

Dr. A. W. H. Needler, Director
Pacific Biological Station
Nanaimo, B. C.
CANADA

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

Librarian
Pacific Oceanic Fishery Investigations
P. O. Box 3830
Honolulu, T. H.

Mr. Don Powell
U. S. Fish and Wildlife Service
2725 Montlake Boulevard
Seattle 2, Washington

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

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

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

Mr. O. E. Sette, Chief
Ocean Research
U. S. Fish and Wildlife Service
450-B Jordan Hall
Stanford, California

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

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

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

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

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

President Clark Kerr
University of California
Berkeley 4, California

Miss Margaret Storey, Librarian
Natural History Museum
Stanford, California

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

Dr. John P. Tully
Pacific Oceanographic Group
P. O. Drawer 6
Nanaimo, B. C.
CANADA

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

University of California (2)
General Library
Berkeley 4, California
Attn: Gifts and Exchange Department

Librarian
University of Washington
Oceanographic Laboratories
Friday Harbor, Washington

Director
University of Washington
School of Fisheries
Seattle 4, Washington

Dr. Lionel A. Walford, Chief
Atlantic Fishery Oceanographic
Research Center
U. S. Fish and Wildlife Service
734 Jackson Place, N. W.
Washington 25, D. C.

Director
Woods Hole Oceanographic Institution
Woods Hole, Massachusetts

U. S. Hydrographic Office
Navy Department
Washington 25, D. C.
Attn: Mr. John Lyman

University of California
Department of Zoology
Berkeley 4, California

Director
University of Miami
Marine Laboratory
Coral Gables, Florida

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

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

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