CORRECTIONS MADE :
STATION POSITIONS ~~Y~~

UNIVERSITY OF CALIFORNIA SCRIPPS INSTITUTION OF OCEANOGRAPHY

data report

PHYSICAL AND CHEMICAL DATA

CCOFI Cruise 5601
5-18 January 1956

and

CCOFI Cruise 5602
3-21 February 1956

SIO Reference 60-5
27 August 1959

UNIVERSITY OF CALIFORNIA

SCRIPPS INSTITUTION OF OCEANOGRAPHY

PHYSICAL AND CHEMICAL DATA

CCOFI CRUISE 5601
5-18 January 1956

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CCOFI CRUISE 5602
3-21 February 1956

Sponsored by

Marine Research Committee

SIO Reference 60-5
10 November 1959

Approved for distribution:

Roger Revelle

Roger Revelle, Director

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INTRODUCTION

The data presented in this report were collected on the eightieth and eighty-first consecutive cruises of the California Cooperative Oceanic Fisheries Investigations program. The R/V Horizon and the R/V Stranger of the Scripps Institution participated in the eightieth cruise, and the R/V Black Douglas of the U. S. Fish and Wildlife Service and the R/V Spencer F. Baird and the R/V Stranger of the Scripps Institution participated in the eighty-first cruise.

The data are tabulated at observed depths, and the interpolated and computed values are tabulated at standard depths. They 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 Cruise 5602 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 standard footnotes, three special notations are used without footnotes because their meaning is always the same.

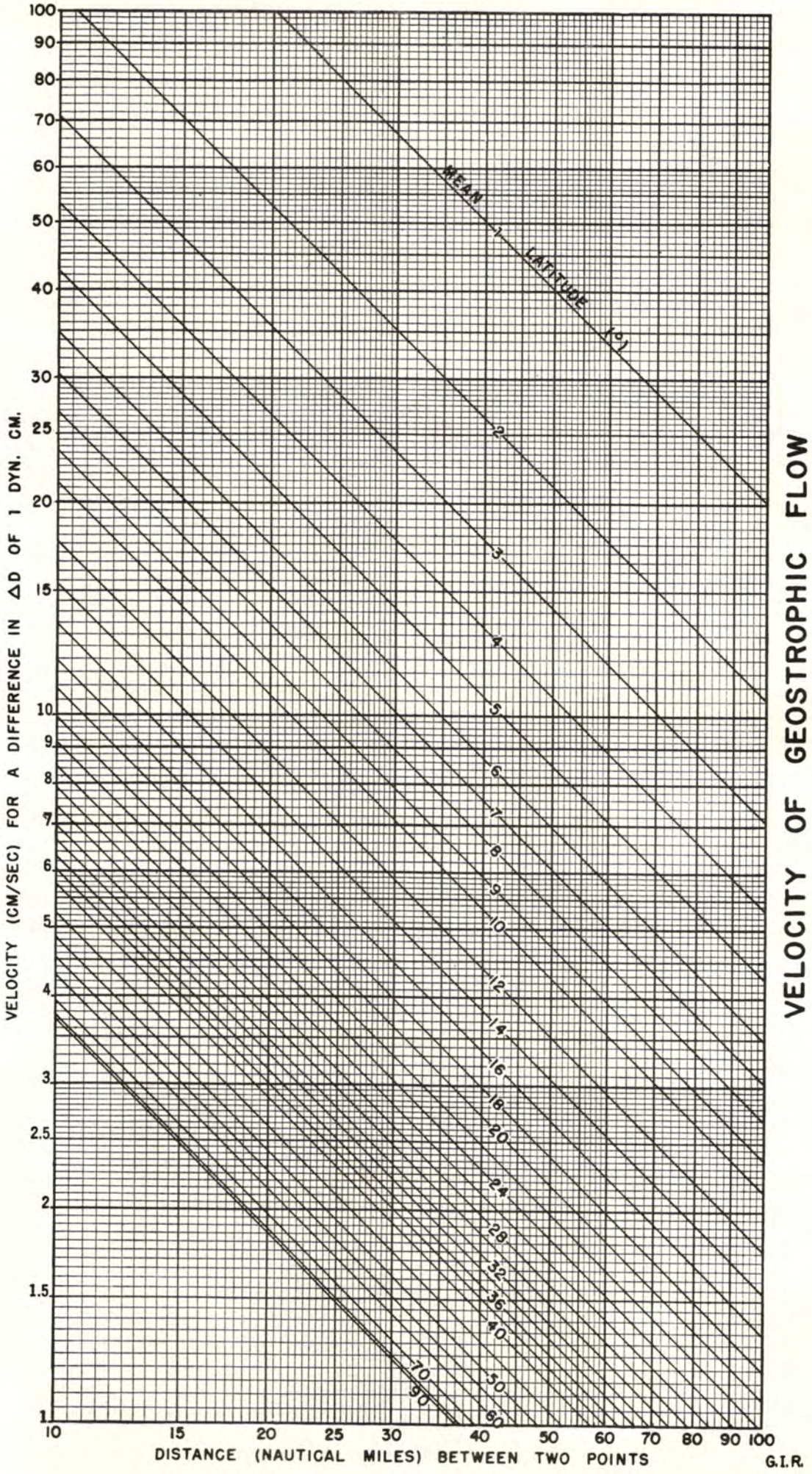
To indicate a premature or a delayed reversal of the water-sampling device which results in certain depth and property errors, the following notation is used.

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).


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.

FIGURES

1. CCOFI Cruise 5601, 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

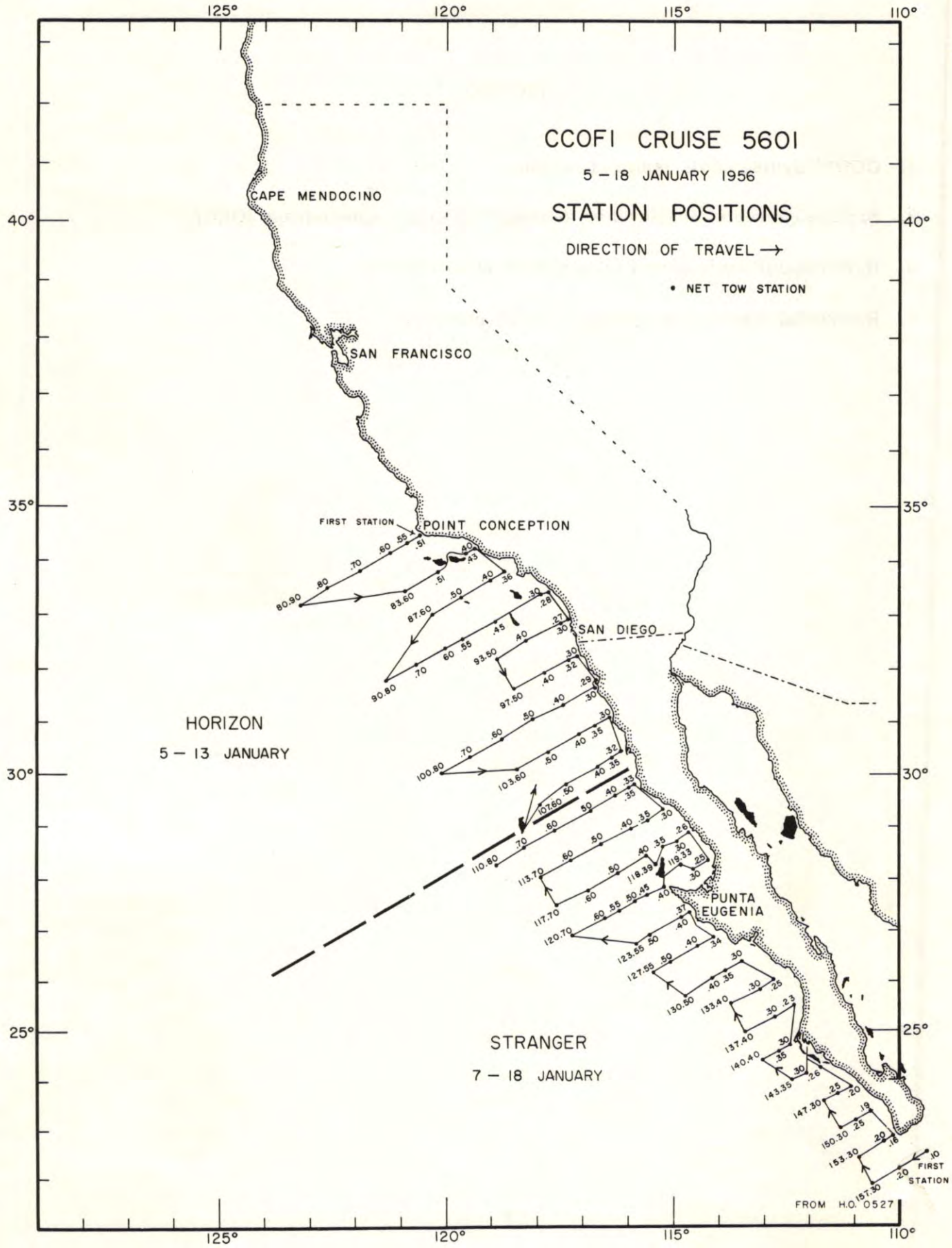

CCOFI CRUISE 5601
5 – 18 JANUARY 1956
STATION POSITIONS
DIRECTION OF TRAVEL →
• NET TOW STATION
CAPE MENDOCINO
SAN FRANCISCO
POINT CONCEPTION
SAN DIEGO
PUNTA EUGENIA
FIRST STATION
HORIZON
5 – 13 JANUARY
STRANGER
7 – 18 JANUARY
FROM H.O. 0527
125°
120°
115°
110°
40°
35°
30°
25°

FIGURE 1

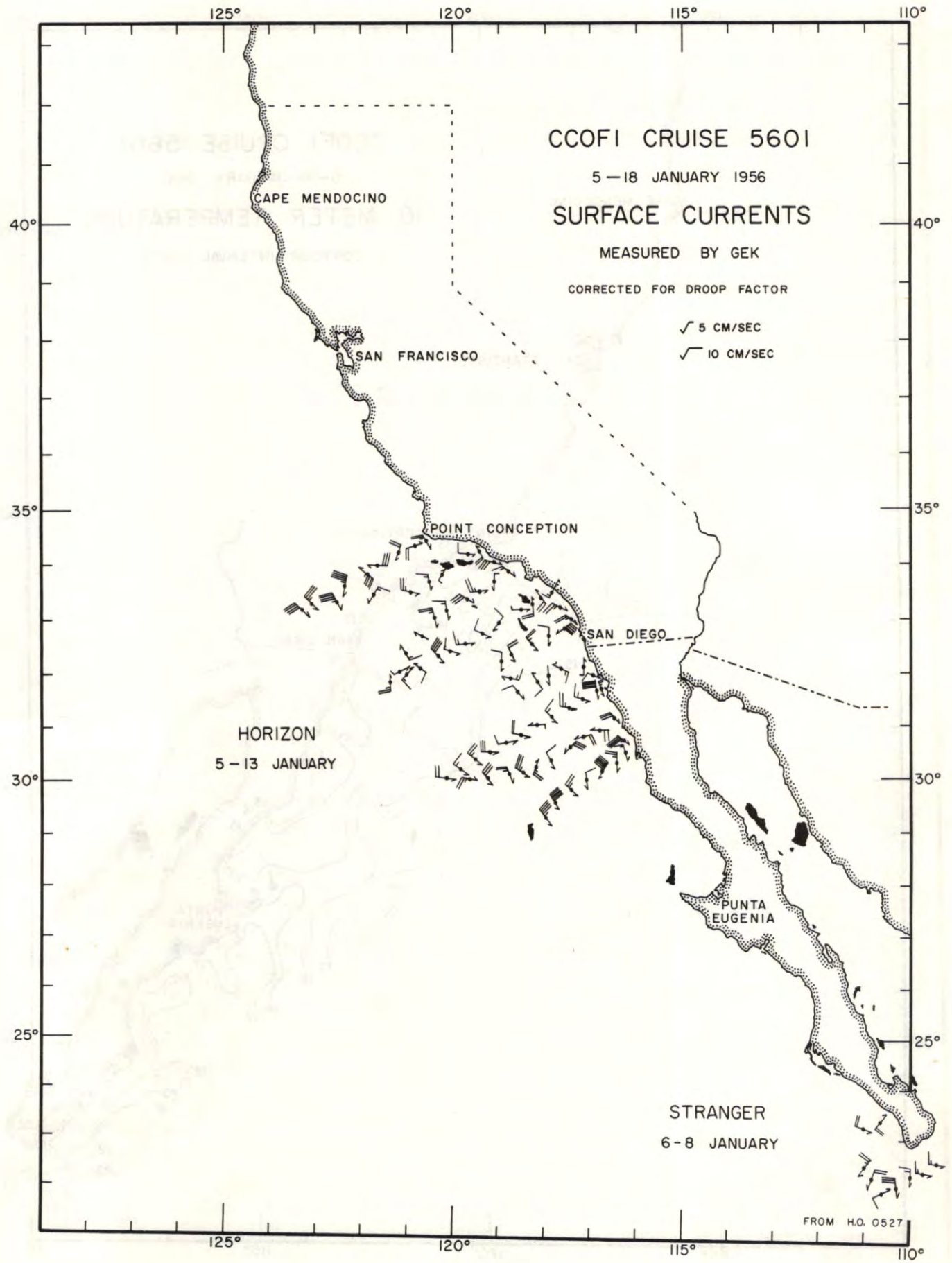

CCOFI CRUISE 5601
5 — 18 JANUARY 1956
SURFACE CURRENTS
MEASURED BY GEK
CORRECTED FOR DROOP FACTOR
5 CM/SEC
10 CM/SEC
CAPE MENDOCINO
SAN FRANCISCO
POINT CONCEPTION
SAN DIEGO
PUNTA EUGENIA
HORIZON
5 — 13 JANUARY
STRANGER
6-8 JANUARY
FROM H.O. 0527
125°
120°
115°
110°
40°
35°
30°
25°

FIGURE 2

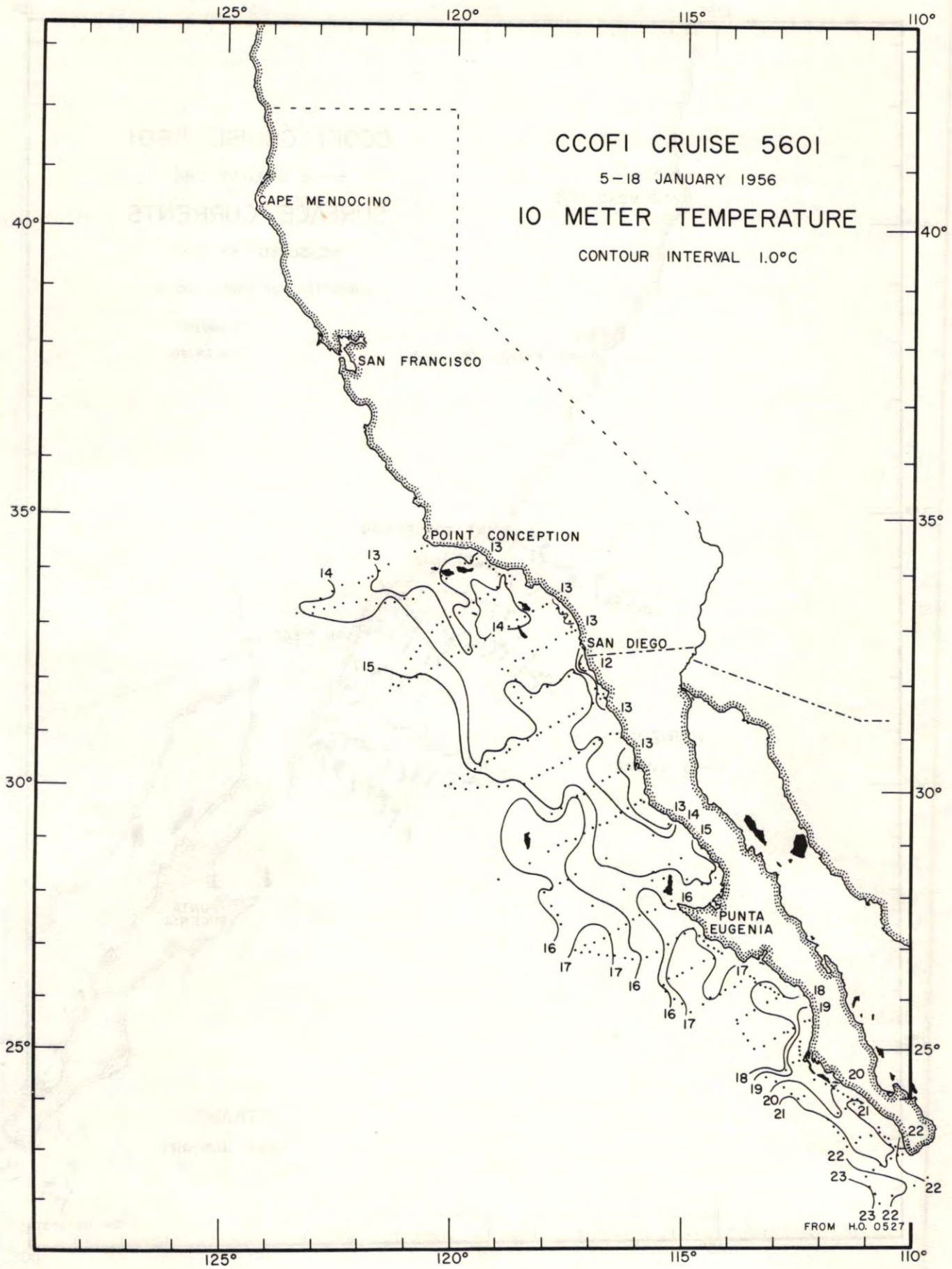

CCOFI CRUISE 5601
5 – 18 JANUARY 1956
10 METER TEMPERATURE
CONTOUR INTERVAL 1.0°C
CAPE MENDOCINO
SAN FRANCISCO
POINT CONCEPTION
SAN DIEGO
PUNTA EUGENIA
FROM H.O. 0527
125°
120°
115°
110°
40°
35°
30°
25°

FIGURE 3

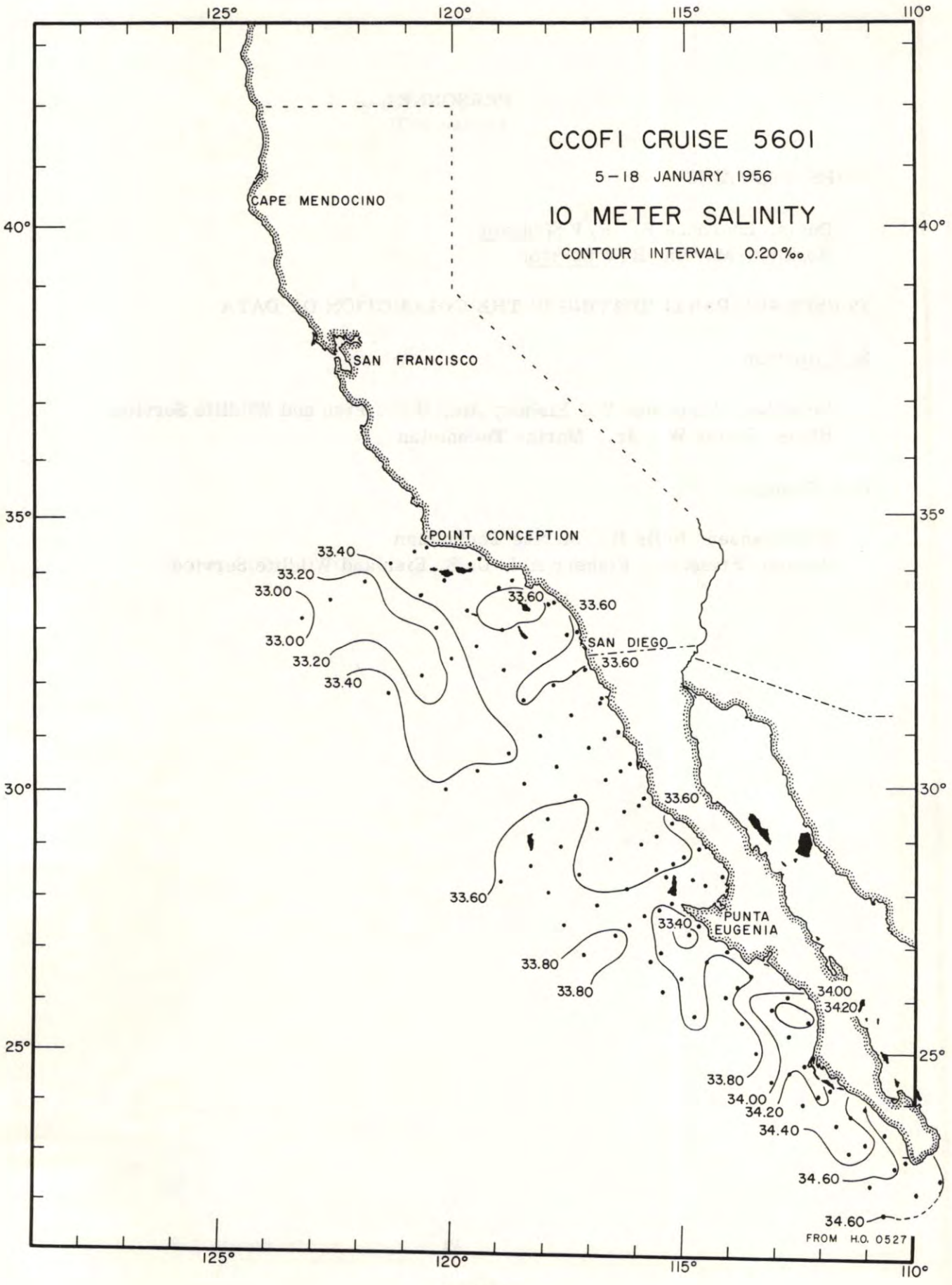

CCOFI CRUISE 5601
5-18 JANUARY 1956
10 METER SALINITY
CONTOUR INTERVAL 0.20‰
CAPE MENDOCINO
SAN FRANCISCO
POINT CONCEPTION
SAN DIEGO
PUNTA EUGENIA
125°
120°
115°
110°
40°
35°
30°
25°
33.40
33.20
33.00
33.00
33.20
33.40
33.60
33.60
33.60
33.60
33.40
33.80
33.80
34.00
34.20
33.80
34.00
34.20
34.40
34.60
34.60
FROM H.O. 0527

FIGURE 4

PERSONNEL
Cruise 5601

SHIPS' CAPTAINS

Davis, Laurence E., R/V Stranger
Hopkins, Marvin, R/V Horizon

PERSONNEL PARTICIPATING IN THE COLLECTION OF DATA

R/V Horizon

Vorobiov, Alexander V., Fishery Aid, U. S. Fish and Wildlife Service
Hinds, James W., Jr., Marine Technician

R/V Stranger

Christiansen, Neils B., Marine Technician
Watson, Frank H., Fishery Aid, U. S. Fish and Wildlife Service

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind Dir	Wind Force	Weather	Sea	10 Meters T	10 Meters S
80-51-H	I-5	2100	34°28.0'	120°32.0'	32	270°	4	cloudy	moderate	12.82	33.53
80.55-H	5	2250	34°19.5'	120°49.0'	400	280°	4	fog	rough	12.65a)	33.49
80.60-H	6	0130	34°09.0'	121°11.0'	520	010°	4	missing	rough	12.86	33.48
80.70-H	6	0605	33°49.0'	121°52.0'	1850	190°	2	partly cloudy	rough	13.08	33.17
80.80-H	6	1030	33°29.0'	122°35.0'	2300	240°	1	partly cloudy	moderate	14.12b)	33.15
80.90-H	6	1435	33°10.5'	123°12.0'	2300	260°	1	partly cloudy	slight	14.60	32.90
83.40-H	7	1420	34°15.0'	119°22.0'	10	290°	1	partly cloudy	moderate	12.58	33.51
83.43-H	7	1230	34°08.0'	119°35.0'	130	290°	2	partly cloudy	moderate	12.21c)	33.53
83.51-H	7	0730	33°51.0'	120°09.0'	190	290°	3	cloudy	moderate	13.14	33.54
83.60-H	7	0250	33°27.0'	120°51.0'	2300	-	-	cloudy	smooth	13.08	33.41
87.36-H	7	1900	33°49.5'	118°41.0'	600	290°	2	partly cloudy	moderate	13.24	33.59
87.40-H	7	2130	33°40.0'	119°01.0'	480	290°	2	cloudy	moderate	13.76	33.58
87.50-H	8	0140	33°20.5'	119°39.0'	40	290°	4	partly cloudy	rough	13.80	33.59
87.60-H	8	0600	33°00.0'	120°20.5'	430	290°	2	partly cloudy	rough	13.78	33.21
90.28-H	9	1550	33°28.0'	117°46.0'	340	180°	2	fog	moderate	12.43	33.53

a) Alternate value, 14.78°C.

b) Alternate value, 13.90°C.

c) Alternate value, 12.07°C.

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

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind Dir	Wind Force	Weather	Sea	10 Meters T	10 Meters S
90.30-H	I-9	1415	33°25.0'	117°55.0'	300	120°	3	fog	moderate	13.08	33.59
90.45-H	9	0720	32°55.5'	118°55.5'	870	310°	4	clear	rough	13.60	33.60
90.55-H	9	0225	32°33.0'	119°39.5'	550	310°	3	clear	rough	12.95	33.52
90.60-H	9	0000	32°24.0'	120°00.0'	590	310°	4	partly cloudy	moderate	13.72	33.25
90.70-H	8	1935	32°06.5'	120°39.0'	2000	310°	4	partly cloudy	moderate	16.03a)	33.08
90.80-H	8	1515	31°46.0'	121°19.5'	2300	220°	1	partly cloudy	rough	14.90	33.53
93.27-H	9	2000	32°56.0'	117°20.0'	200	180°	1	fog	moderate	13.24	33.60
93.30-H	9	2130	32°51.0'	117°30.0'	410	310°	1	partly cloudy	moderate	14.21b)	33.58
93.40-H	10	0210	32°31.5'	118°13.0'	820	310°	2	partly cloudy	moderate	13.65	33.55
93.50-H	10	0635	32°11.0'	118°53.0'	220	300°	1	partly cloudy	moderate	13.50	33.55
97.30-H	10	2020	32°16.5'	117°08.0'	30	320°	2	cloudy	rough	11.28	33.58
97.32-H	10	1845	32°11.0'	117°20.0'	750	300°	2	cloudy	rough	14.11	33.63
97.40-H	10	1530	31°56.5'	117°50.0'	1000	320°	3	cloudy	rough	13.63	33.58
97.50-H	10	1045	31°37.0'	118°30.0'	1300	300°	1	partly cloudy	rough	14.30	33.62
100.29-H	11	0100	31°42.0'	116°43.5'	50	310°	2	partly cloudy	moderate	12.16	33.51
100.30-H	11	0150	31°40.0'	116°47.0'	250	350°	4	cloudy	moderate	13.26	33.53

a) Alternate value, 16.31°C.

b) Alternate value, 14.40°C.

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind Dir	Wind Force	Weather	Sea	10 Meters T	10 Meters S
100.40-H	I-11	0625	31°20.0'	117°28.0'	1090	300°	3	cloudy	moderate	14.50	33.55
100.50-H	11	1045	31°01.0'	118°07.0'	360	300°	3	cloudy	rough	13.92	33.58
100.60-H	11	1520	30°40.0'	118°48.0'	1600	320°	3	partly cloudy	rough	13.56	33.31
100.70-H	11	1930	30°21.5'	119°28.0'	2200	300°	2	cloudy	moderate	14.44	33.46
100.80-H	12	0010	30°01.0'	120°07.0'	2170	330°	4	cloudy	moderate	15.63	33.42a)
103.30-H	12	2235	31°07.0'	116°25.0'	40	320°	2	haze	moderate	12.93	33.51
103.35-H	12	2030	30°56.5'	116°47.0'	1030	310°	3	haze	moderate	14.55b)	33.54
103.40-H	12	1800	30°47.0'	117°06.0'	930	360°	3	partly cloudy	moderate	13.78	33.55
103.50-H	12	1320	30°25.5'	117°45.5'	1500	300°	4	partly cloudy	moderate	14.53	33.58
103.60-H	12	0840	30°07.0'	118°24.0'	2000	300°	3	partly cloudy	moderate	15.68	33.49
107.32-H	13	0310	30°26.0'	116°11.0'	400	320°	2	clear	moderate	12.55	33.53
107.35-H	13	0440	30°20.0'	116°22.5'	970	280°	2	partly cloudy	moderate	13.26	33.54
107.40-H	13	0730	30°10.0'	116°42.5'	1400	310°	2	fog	moderate	14.08	33.57
107.50-H	13	1145	29°50.0'	117°22.0'	1650	320°	4	cloudy	rough	15.78	33.58
107.60-H	13	1535	29°27.0'	117°58.0'	1900	320°	5	cloudy	rough	16.32	33.74

a) Possible evaporation.

b) Alternate value, 14.68°C.

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

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind Dir	Wind Force	Weather	Sea	10 Meters T	10 Meters S
110.33-S	I-17	1910	29 51.0'	115°53.0'	47	330°	2	clear	very rough	12.46	33.53
110.35-S	17	2028	29°46.5'	116°00.0'	700	290°	2	clear	very rough	12.66	33.52
110.40-S	17	2238	29°37.0'	116°19.5'	1200	320°	5	clear	high	14.54	33.57
110.50-S	18	0205	29°18.0'	116°52.5'	2000	320°	4	clear	high	15.18	33.57
110.60-S	18	0625	28°57.0'	117°38.5'	2000	340°	5	clear	very rough	15.88	33.66
110.70-S	18	1042	28°37.0'	118°17.0'	2000	360°	3	clear	very rough	15.90	33.66
110.80-S	18	1452	28°17.0'	118°55.0'	2000	320°	3	clear	very rough	15.70	33.61
113.30-S	17	1430	29°22.5'	115°17.5'	33	320°	3	clear	very rough	12.79	33.61
113.35-S	17	1210	29°09.5'	115°37.0'	550	320°	6	clear	very rough	14.50	33.55
113.40-S	17	0900	28°59.5'	115°58.0'	1000	320°	6	clear	very rough	15.11	33.58
113.50-S	17	0425	28°41.0'	116°37.5'	2000	330°	7	clear	very rough	14.52	33.57
113.60-S	16	2340	28°22.5'	117°15.5'	2000	330°	6	partly cloudy	very rough	15.10	33.58
113.70-S	16	1930	28°02.0'	117°55.0'	2000	340°	6	cloudy	rough	15.94	33.67
117.26-S	15	1645	28°56.0'	114°41.0'	40	310°	3	cloudy	rough	14.84	33.62
117.30-S	15	1859	28°45.0'	114°59.5'	55	320°	6	cloudy	rough	14.60	33.53
117.35-S	15	2115	28°38.0'	115°16.0'	105	320°	5	cloudy	moderate	14.68	33.55
117.40-S	16	0312	28°28.0'	115°35.5'	600	320°	6	clear	rough	14.72	33.58
117.50-S	16	0707	28°08.0'	116°15.0'	2500	310°	5	clear	rough	15.46	33.60

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

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind Dir	Wind Force	Weather	Sea	10 Meters T	10 Meters S
117.60-S	I-16	1050	27°48.5'	116°53.0'	2000	320°	6	clear	very rough	15.99	33.68
117.70-S	16	1508	27°28.0'	117°33.0'	2000	320°	6	cloudy	rough	15.88	33.67
118.39-S	16	0018	28°18.5'	115°24.0'	145	340°	4	cloudy	rough	15.28	33.66
119.33-S	16	0825	28°19.0'	114°53.0'	58	330°	5	missing	moderate	15.58	33.67
120.25-S	15	1240	28°23.0'	114°15.0'	32	320°	4	clear	moderate	14.94	33.64
120.30-S	15	1025	28°13.0'	114°34.0'	50	330°	5	missing	moderate	15.46	33.67
120.40-S	14	1606	27°53.0'	115°13.5'	20	340°	4	cloudy	moderate	15.28	33.75
120.45-S	14	1358	27°43.0'	115°33.0'	1200	360°	5	clear	moderate	16.50	33.87
120.50-S	14	1102	27°34.5'	115°53.5'	2100	330°	4	clear	moderate	15.06	33.65
120.55-S	14	0859	27°24.0'	116°12.0'	1800	300°	4	clear	moderate	16.36	33.69
120.60-S	14	0650	27°14.0'	116°30.5'	2000	020°	4	clear	moderate	16.84	33.82
120.70-S	14	0232	26°55.5'	117°13.0'	2200	360°	2	clear	moderate	17.28	33.85
123.37-S	13	1134	27°24.0'	114°40.0'	39	220°	2	clear	slight	16.82	33.91
123.40-S	13	1305	27°18.0'	114°51.5'	200	calm		clear	slight	16.61	34.14
123.50-S	13	1635	26°57.0'	115°30.0'	2000	var.	-	cloudy	slight	15.45	33.82
123.55-S	13	1825	26°46.5'	115°49.0'	2000	320°	2	cloudy	slight	16.30	33.65
127.34-S	13	0755	26°55.5'	114°06.0'	42	040°	4	clear	moderate	16.16	33.90
127.40-S	13	0535	26°43.5'	114°29.5'	1700	330°	3	clear	moderate	17.12	33.80
127.50-S	13	0123	26°25.0'	115°05.5'	1800	020°	3	clear	moderate	17.28	33.81

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

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind Dir	Wind Force	Weather	Sea	10 Meters T	10 Meters S
127.55-S	I-12	2328	26°14.5'	115°26.5'	2000	330°	3	partly cloudy	moderate	15.30	33.62
130.30-S	12	1032	26°28.0'	113°30.0'	43	060°	2	clear	slight	17.40	33.80
130.35-S	12	1300	26°17.0'	113°50.0'	160	060°	4	clear	slight	17.20	33.79
130.40-S	12	1505	26°06.5'	114°09.0'	1100	300°	3	cloudy	moderate	16.80	33.78
130.50-S	12	1845	25°45.0'	114°47.0'	2000	220°	2	cloudy	moderate	17.00	33.89
133.25-S	12	0605	26°04.5'	112°48.0'	45	300°	2	clear	moderate	17.83	34.02
133.30-S	12	0405	25°54.5'	113°07.0'	106	300°	4	clear	moderate	18.25	34.14
133.40-S	12	0025	25°33.5'	113°47.5'	1200	310°	4	partly cloudy	rough	17.22	33.72
137.23-S	11	1406	25°34.0'	112°18.5'	40	280°	2	partly cloudy	moderate	18.92	34.21
137.30-S	11	1655	25°20.5'	112°45.0'	200	290°	1	partly cloudy	slight	17.58	34.13
137.40-S	11	2026	25°00.0'	113°26.0'	1200	300°	4	partly cloudy	moderate	17.21	33.76
140.30-S	11	0918	24°45.5'	112°24.0'	56	360°	4	clear	moderate	19.22	34.14
140.35-S	11	0709	24°36.5'	112°41.0'	900	300°	4	clear	moderate	18.00	34.20
140.40-S	11	0459	24°26.0'	113°02.5'	2000	330°	4	partly cloudy	rough	19.50	33.98
143.26-S	9	1334	24°19.0'	111°48.0'	38	320°	2	partly cloudy	slight	19.64	34.34
143.30-S	10	2215	24°10.5'	112°04.0'	120	320°	4	clear	rough	20.13	34.10
143.35-S	11	0030	24°02.0'	112°22.5'	1500	330°	4	clear	rough	20.42	34.36
147.20-S	9	0911	23°56.0'	111°03.5'	80	330°	4	clear	rough	21.68	34.60
147.25-S	9	0624	23°46.5'	111°22.0'	188	300°	5	clear	rough	20.40	34.40

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

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind Dir	Wind Force	Weather	Sea	10 Meters T	10 Meters S
147.30-S	I-9	0359	23°36.0'	111°41.5'	40	310°	3	clear	rough	20.92	-
150.19-S	8	1800	23°24.0'	110°39.0'	110	290°	4	partly cloudy	rough	21.23	34.65
150.25-S	8	2045	23°12.0'	111°01.5'	650	320°	4	partly cloudy	rough	20.45	34.33
150.30-S	8	2316	23°02.0'	111°19.5'	1500	320°	4	partly cloudy	rough	21.26	34.34
153.16-S	8	1330	22°55.0'	110°07.0'	185	020°	8	clear	moderate	22.74	34.69
153.20-S	8	1135	22°47.0'	110°22.5'	1000	320°	2	clear	slight	21.25	34.54
153.30-S	8	0635	22°27.0'	110°58.5'	1700	330°	3	clear	rough	22.36	34.63
157.10-S	7	1732	22°32.5'	109°23.0'	1000	330°	3	clear	slight	23.02	34.61
157.20-S	7	2205	22°13.0'	110°00.0'	1600	330°	3	clear	slight	22.05	34.65
157.30-S	8	0230	21°53.5'	110°38.0'	1700	320°	3	clear	rough	22.78	34.60

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