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

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CCOFI Cruise 6103
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Sponsored by

Marine Research Committee

SIO Reference 62-15
28 December 1961

Approved for distribution:

Roger Revelle

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 ±0.004‰ salinity at the 95 percent probability level, and a probable accuracy of ±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

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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.

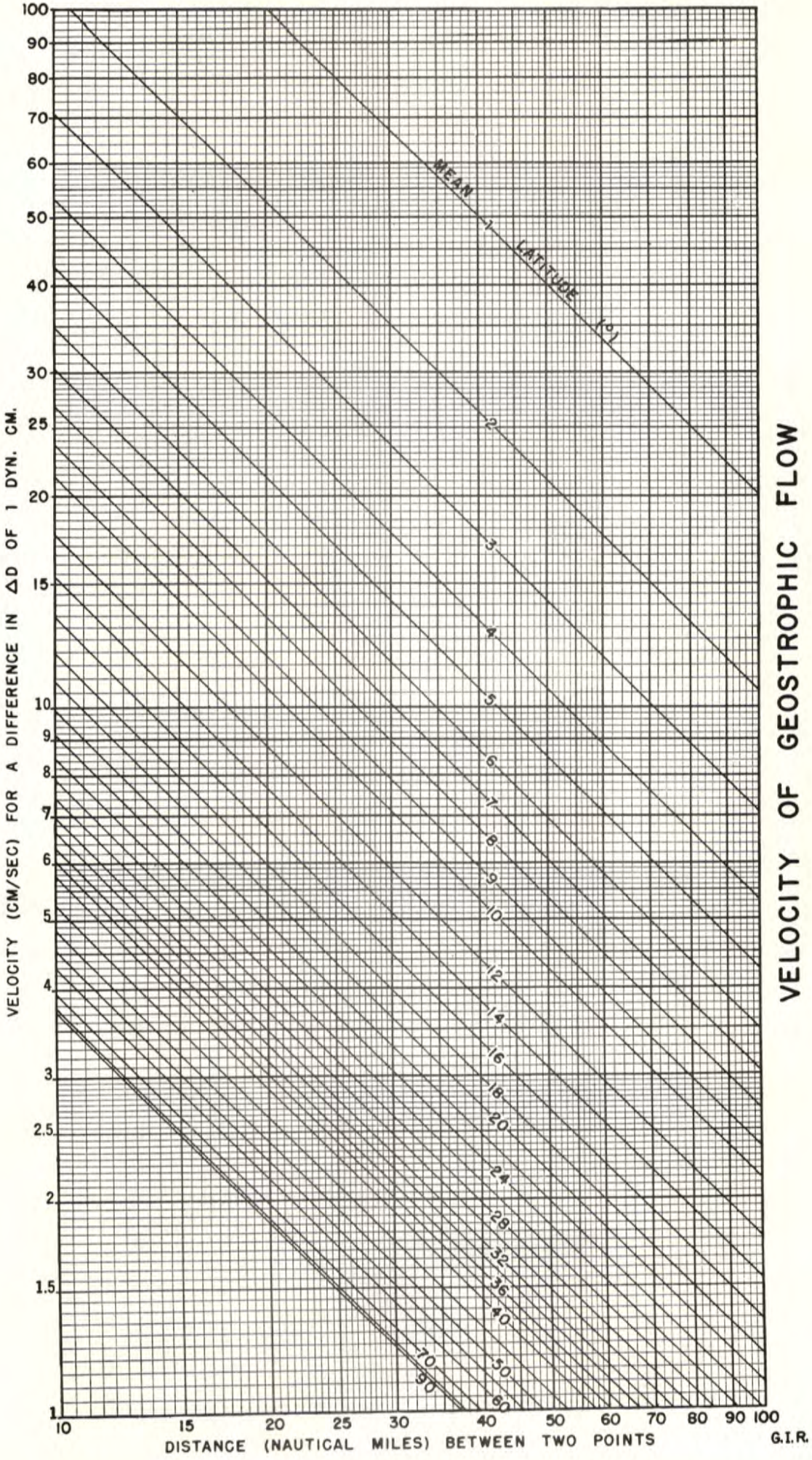
Values which are not drawn through because they seem to be in error without apparent reason are indicated by one of the following notations.

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.


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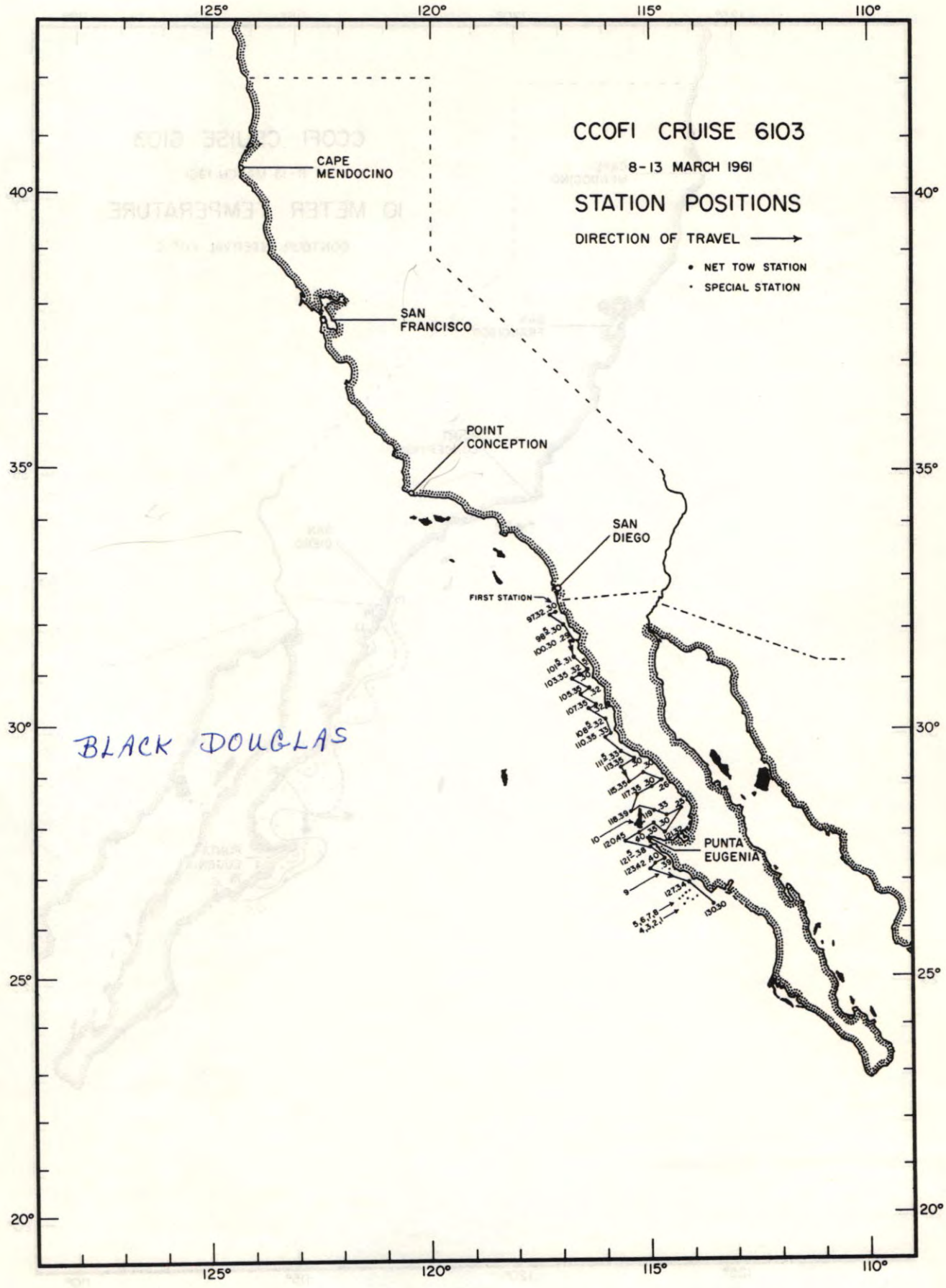
7
8
9
10
12
14
16
18
20
24
28
32
36
40
50
60
70
90
G.I.R.

FIGURES



BLACK DOUGLAS

FIGURE 1

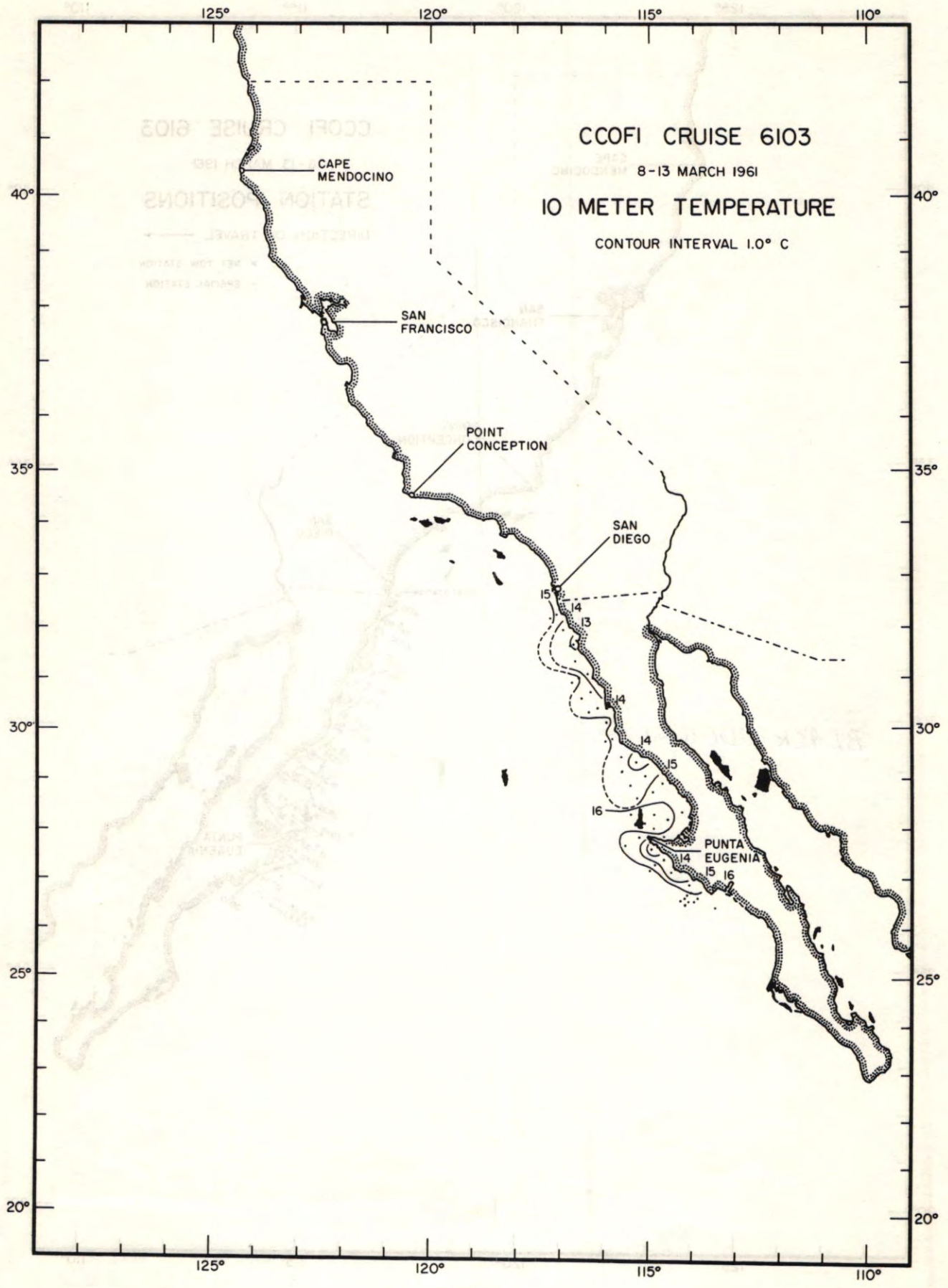

CCOFI CRUISE 6103
8-13 MARCH 1961
10 METER TEMPERATURE
CONTOUR INTERVAL 1.0° C
CAPE MENDOCINO
SAN FRANCISCO
POINT CONCEPTION
SAN DIEGO
PUNTA EUGENIA
125°
120°
115°
110°
40°
35°
30°
25°
20°
15
14
13
14
14
15
16
14
15
16

FIGURE 2

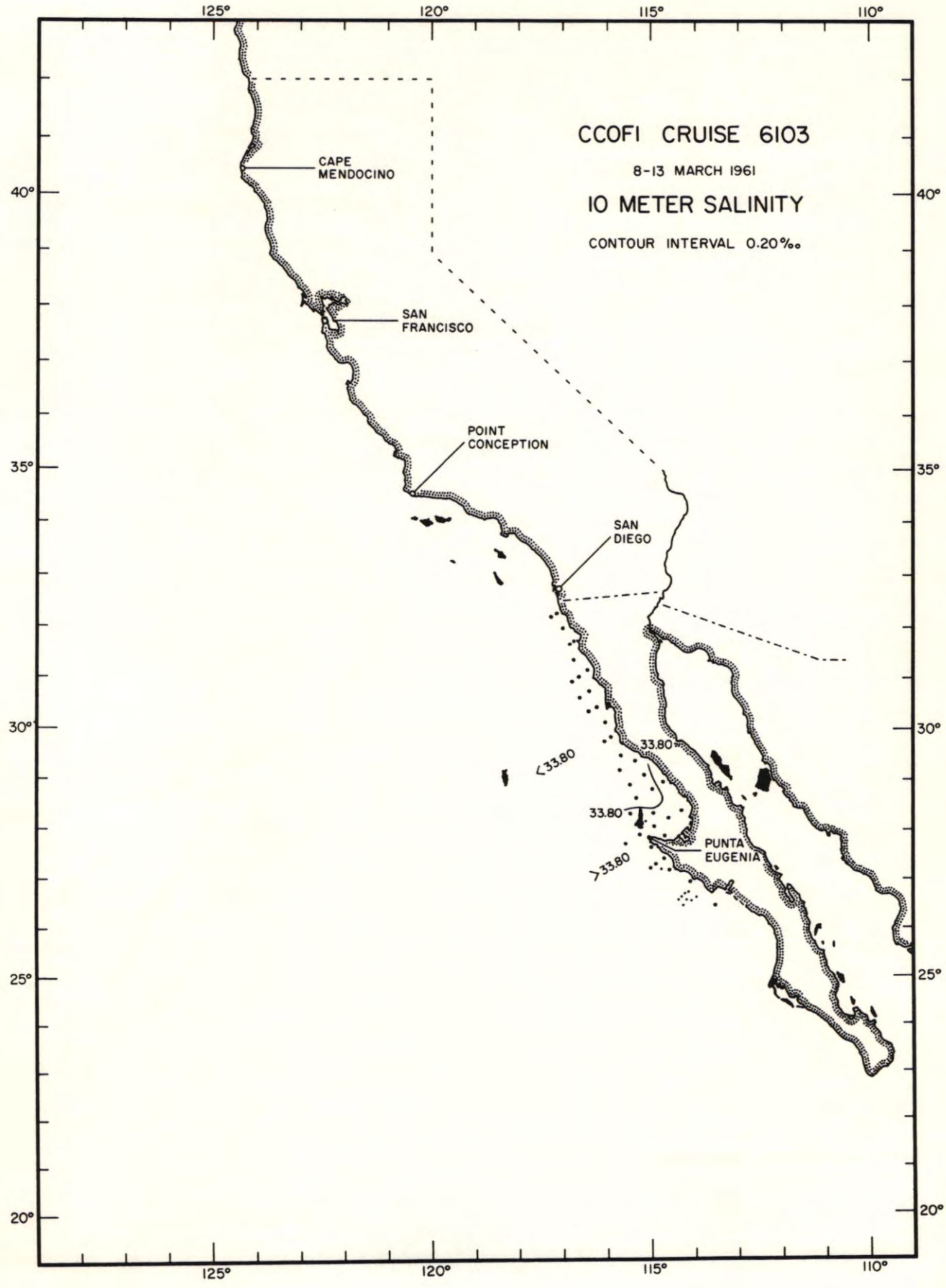

CCOFI CRUISE 6103
8-13 MARCH 1961
10 METER SALINITY
CONTOUR INTERVAL 0.20‰
CAPE MENDOCINO
SAN FRANCISCO
POINT CONCEPTION
SAN DIEGO
PUNTA EUGENIA
33.80
<33.80
33.80
>33.80
125°
120°
115°
110°
40°
35°
30°
25°
20°

FIGURE 3

PERSONNEL
Cruise 6103

SHIP'S CAPTAIN

Forster, Charles W., RV Black Douglas

PERSONNEL PARTICIPATING IN THE COLLECTION OF DATA

RV Black Douglas

Counts, Robert C., Fishery Research Biologist, Bureau of Commercial Fisheries
Metoyer, Jack D., Fishery Aid, Bureau of Commercial Fisheries
Perkins, Herbert C., Fishery Aid, Bureau of Commercial Fisheries

TEMPERATURE AND SALINITY AT 0 AND 10 METERS (NET-TOW STATIONS)

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind Dir	Wind Force	Weather	Sea	0 Meters T	0 Meters S	10 Meters T	10 Meters S
97.30-B	III-8	0305	32°16.0'	117°07.0'	33	320°	4	missing	rough	14.49		14.48	33.64
97.32-B	8	0425	32°12.0'	117°15.0'	700	320°	5	missing	rough	15.23		15.26	33.63
98.30-B	8	0720	31°58.5'	116°57.0'	300	320°	1	missing	slight	13.96		13.88	33.64
100.29-B	8	1015	31°42.0'	116°43.5'	85	300°	2	clear	slight	13.51		12.94	33.64
100.30-B	8	1105	31°40.5'	116°46.5'	200	350°	2	clear	moderate	14.26		13.96	33.62
101.31-B	8	1355	31°20.5'	116°40.5'	60	300°	2	clear	rough	13.63		13.60	33.64
103.30-B	8	1615	31°06.0'	116°24.5'	33	320°	2	partly cloudy	rough	13.80		13.80	33.62
103.32-B	8	1735	31°01.0'	116°35.0'	380	320°	3	partly cloudy	moderate	15.10		15.00	33.61
103.35-B	8	1910	30°56.0'	116°45.0'	890	320°	3	partly cloudy	moderate	15.88		15.70	33.62
105.32-B	8	2345	30°45.0'	116°21.5'	50	300°	3	cloudy	moderate	14.60		14.04	33.65
105.35-B	8	2150	30°39.0'	116°33.0'	600	300°	3	partly cloudy	moderate	15.58		14.94	33.68
107.32-B	9	0210	30°26.0'	116°11.0'	150	280°	3	cloudy	rough	14.52		14.12	33.71
107.35-B	9	0350	30°21.5'	116°22.5'	850	320°	3	partly cloudy	rough	15.07		14.86	33.66
108.32-B	9	0625	30°07.5'	115°59.5'	52	320°	3	missing	moderate	15.42		15.44	33.68
110.33-B	9	0855	29°48.0'	115°52.0'	60	320°	4	partly cloudy	moderate	14.72		14.74	33.67
110.35-B	9	1005	29°46.0'	116°00.0'	650	320°	4	cloudy	moderate	15.37		15.38	33.64
111.33-B	9	1255	29°28.5'	115°39.5'	66	320°	5	partly cloudy	rough	14.48		14.47	33.66
113.30-B	9	1525	29°22.0'	115°18.0'	35	300°	4	partly cloudy	rough	13.69		13.70	33.78
113.35-B	9	1800	29°11.5'	115°38.0'	580	320°	5	partly cloudy	rough	14.90		14.87	33.68

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind Dir	Wind Force	Weather	Sea	0 Meters T	0 Meters S	10 Meters T	10 Meters S
115.30-B	III-9	2250	29°05.0'	115°08.0'	52	320°	5	partly cloudy	rough	14.67		14.64	33.77
115.35-B	9	2030	28°54.5'	115°27.0'	450	320°	5	partly cloudy	rough	14.90		14.84	33.73
117.26-B	10	0140	28°56.0'	114°41.5'	40	280°	5	partly cloudy	rough	15.54		15.46	33.83
117.30-B	10	0350	28°48.0'	114°56.5'	55	300°	5	clear	rough	15.23		15.24	33.78
117.35-B	10	0655	28°38.0'	115°16.0'	110	300°	6	clear	rough	14.82		14.78	33.64
118.39-B	10	0935	28°18.5'	115°24.0'	100	320°	5	partly cloudy	rough	16.20		16.20	33.85
119.33-B	11	0225	28°19.0'	114°53.0'	61	280°	5	partly cloudy	rough	16.24		16.25	33.82
120.25-B	11	0725	28°22.5'	114°15.0'	31	320°	4	missing	moderate	15.40		15.39	33.82
120.30-B	11	0450	28°13.0'	114°34.0'	52	320°	4	missing	rough	16.27		16.26	33.88
120.35-B	11	1325	28°03.0'	114°54.0'	45	320°	4	partly cloudy	rough	16.03		16.08	33.83
120.40-B	11	1535	27°56.0'	115°14.0'	22	300°	6	partly cloudy	rough	15.92		15.88	33.86
120.45-B	11	1810	27°43.0'	115°33.0'	1180	320°	6	partly cloudy	very rough	15.97		15.93	33.89
121.32-B	11	1120	27°57.5'	114°37.5'	32	320°	4	partly cloudy	moderate	15.90		15.90	33.85
121.5.38-B	11	2150	27°38.0'	114°58.5'	54	320°	5	partly cloudy	rough	14.06		13.96	33.88
123.39-B	12	0025	27°24.0'	114°40.0'	40	300°	6	clear	rough	14.24		14.24	33.86
123.40-B	13	1000	27°18.0'	114°52.0'	200	320°	4	missing	moderate	15.37		15.38	33.97
123.42-B	13	1145	27°14.0'	114°59.0'	800	320°	4	missing	moderate	16.01		16.02	33.86
127.34-B	12	1040	26°55.0'	114°05.5'	43	360°	6	missing	moderate	15.11		15.08	33.84
130.30-B	12	1455	26°29.0'	113°29.0'	42	300°	2	partly cloudy	moderate	16.28		16.20	33.92

TEMPERATURE AND SALINITY AT 0 AND 10 METERS (NET-TOW STATIONS)

SIO
CCOFI
6103

TEMPERATURE AND SALINITY AT 0 AND 10 METERS (NET-TOW STATIONS)

Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind Dir	Wind Force	Weather	Sea	0 Meters T	0 Meters S	10 Meters T	10 Meters S
1-B	III-12	1735	26°37.0'	113°55.0'	130	320°	5	partly cloudy	moderate	16.94		16.89	33.91
2-B	12	1855	26°34.5'	114°00.0'	300	320°	2	partly cloudy	moderate	16.69		16.52	33.87
3-B	12	1955	26°35.0'	114°05.0'	1140	320°	3	partly cloudy	moderate	16.79		16.59	33.87
4-B	12	2055	26°29.5'	114°09.5'	1200	320°	3	partly cloudy	rough	17.04		16.64	33.87
5-B	12	2230	26°35.5'	114°18.5'	1100	320°	4	partly cloudy	rough	16.98		16.72	33.87
6-B	12	2335	26°38.0'	114°13.0'	1200	320°	5	partly cloudy	rough	16.97		16.82	33.87
7-B	13	0050	26°41.5'	114°08.5'	400	300°	5	partly cloudy	rough	16.90		16.90	33.93
8-B	13	0140	26°44.0'	114°03.5'	44	320°	5	partly cloudy	rough	15.98		15.98	33.86
9-B	13	0700	27°10.0'	114°31.0'	300	320°	5	missing	rough	14.58		14.62	33.84
10-B	13	1835	28°08.0'	115°07.0'	44	calm		partly cloudy	slight	16.96		16.08	-

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