UNIVERSITY OF CALIFORNIA SCRIPPS INSTITUTION OF OCEANOGRAPHY

data report

Physical and Chemical Data

CalCOFI Cruise 6601
12 January - 7 February

CalCOFI Cruise 6602
15 February - 6 March

CalCOFI Cruise 6604
26 March - 3 May

CalCOFI Cruise 6605
5-29 May

Special Cruise 6605
11-14 May

and

CalCOFI Cruise 6606
12 June - 1 July

SIO Reference 68-3

UNIVERSITY OF CALIFORNIA

SCRIPPS INSTITUTION OF OCEANOGRAPHY

PHYSICAL AND CHEMICAL DATA

CalCOFI Cruise 6601
12 January - 7 February

CalCOFI Cruise 6602
15 February - 6 March

CalCOFI Cruise 6604
26 March - 3 May

CalCOFI Cruise 6605
5-29 May

Special Cruise 6605
11-14 May

and

CalCOFI Cruise 6606
12 June - 1 July

Sponsored by

Marine Research Committee

SIO Reference 68-3

Approved for distribution:

W. A. Nierenberg

W. A. Nierenberg, Director

CONTENTS

INTRODUCTION

The data in this report were collected on Cruises 6601, 6602, 6604, 6605 and 6606 of the California Cooperative Fisheries Investigations (CalCOFI) program by the RV David Starr Jordan of the Bureau of Commercial Fisheries, the RV Alaska of the California Fish and Game Department and the RV Alexander Agassiz of the Scripps Institution of Oceanography. The RV Alexander Agassiz participated in Cruises 6601, 6602, 6604 and Special Cruise 6605; RV David Starr Jordan, in 6601, 6605 and 6606; and the RV Alaska, in 6604 only. The first two figures in this cruise-numbering system represent the year of the cruise; the last two figures, the month. The cruises preceding this one in the series are 6504 and 6505 (El Golfo II), both of which appear in Scripps Institution report, SIO Ref. 67-16; and 6507 and 6509, which appear in SIO Ref. 67-17.

These data were collected in part by personnel of and processed completely by the Data Collection and Processing Group (DCPG, MLR), Scripps Institution of Oceanography.

TABULATED DATA

On Cruises 6601 and 6604 the Nansen-bottle-cast data are tabulated at observed depths; the values at standard depths are computer interpolations according to a modified Rattray technique[1/], except that some property values at standard depths have been determined from consideration of other information such as bathythermograph traces and adjacent stations. These property values were entered in the "observed" columns to prevent instabilities or to indicate features not covered by the hydrographic cast. The values are indicated by notations (see FOOTNOTES).

On Cruises 6602, 6605 and 6606 only 10-meter temperature and salinity values were collected.

For the few Nansen-bottle casts made by the Agassiz on Special Cruise 6605, the property values at standard depths were read from property curves before the computations were made.

The Salinity-Temperature-Depth Recorder was not used on any of the cruises in this report.

[1/] Rattray, Maurice (1962). Interpolation errors and oceanographic sampling. Deep-Sea Res. 9: 25-37.

The data tabulated are of the same type as have previously appeared in these reports; the column headings from the computer are explained as follows:

Z	Depth in meters	
T	Temperature	°C
S	Salinity	‰
OXY	Oxygen	ml/L
PHO	Phosphate	μg at/L
SIL	Silicate	μg at/L
NIT	Nitrite	μg at/L
D*T	δ_T	cl/ton
SIG*T	σ_t	g/L
DD	ΔD	dyn. m

STANDARD PROCEDURES

The observed data have been plotted and then evaluated using the method described by Klein.[2] This involves consideration of their variation as functions of density or depth and their relation to each other and comparison with concurrent bathythermograph observations and with previous or adjacent observations. 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 values recorded "have a reproducibility of ±0.004‰ salinity at the 95 per cent probability level, and a probable accuracy of ±0.01‰ salinity or better at the same level of probability."[3] The values are recorded to two decimal places when only one determination 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.

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[2] Klein, Hans T. A new technique for processing physical oceanographic data. MS.

[3] Quotation from Department of Oceanography, University of Washington, Tech. Rep. No. 66, UW Ref. 60-18, October 1960.

A hyphen is used to indicate a missing observed value. The time is the time of messenger release. When more than one bottle cast was made on station, messenger times and wire angles are given in order of increasing depth, and a significant change in position during a multiple cast is listed similarly. Multiple casts are indicated by a letter following all observed depths of each cast except the cast originating at the surface. Footnotes corresponding to each letter explain the type of cast.

On stations where more than one cast was lowered, slight discrepancies in the property values may be noted. These may be caused by changes in geographical position, real changes with time, slight errors in measurement or a combination of these factors. Values at standard depths in the area of these discrepancies may be determined from reconciliation of the plotted observed values and entered in the "observed" columns with notations.

FOOTNOTES

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

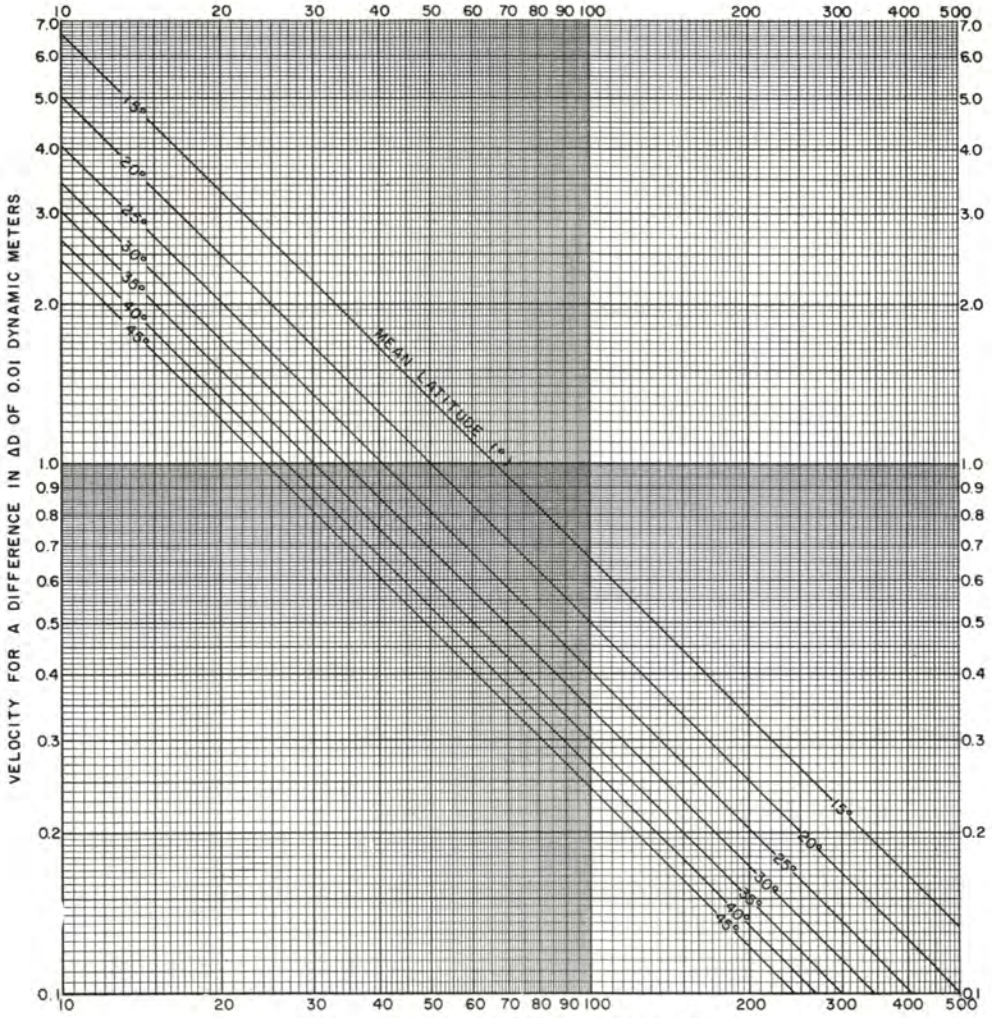
Values which are not used in interpolation because they seem to be in error without apparent reason are indicated by the following notation.

u: uncertain value

Values at standard levels of depth entered in the observed columns to limit machine interpolations may have either of the following notations.

k: a value determined from another measurement such as a bathythermogram or STD recording.

g: a value determined from considerations such as stability or previous or surrounding stations.



VELOCITY OF GEOSTROPHIC FLOW
(NAUTICAL MILES PER DAY)

cm/sec	0	1	2	3	4	5	6	7	8	9
0	KNOTS / NM/DAY	0.02 / 0.47	0.04 / 0.93	0.06 / 1.40	0.08 / 1.86	0.10 / 2.33	0.12 / 2.80	0.14 / 3.26	0.16 / 3.73	0.17 / 4.20
10	0.19 / 4.66	0.21 / 5.13	0.23 / 5.59	0.25 / 6.06	0.27 / 6.53	0.29 / 6.99	0.31 / 7.46	0.33 / 7.93	0.35 / 8.39	0.37 / 8.86
20	0.39 / 9.32	0.41 / 9.79	0.43 / 10.26	0.45 / 10.72	0.47 / 11.19	0.49 / 11.66	0.51 / 12.12	0.52 / 12.59	0.54 / 13.05	0.56 / 13.52
30	0.58 / 13.99	0.60 / 14.45	0.62 / 14.92	0.64 / 15.38	0.66 / 15.85	0.68 / 16.32	0.70 / 16.78	0.72 / 17.25	0.74 / 17.72	0.76 / 18.18
40	0.78 / 18.65	0.80 / 19.11	0.82 / 19.58	0.84 / 20.05	0.85 / 20.51	0.87 / 20.98	0.89 / 21.45	0.91 / 21.91	0.93 / 22.38	0.95 / 22.84
50	0.97 / 2331	0.99 / 23.78	1.01 / 24.24	1.03 / 24.71	1.05 / 25.17	1.07 / 25.64	1.09 / 26.11	1.11 / 26.57	1.13 / 27.04	1.15 / 27.51
60	1.17 / 27.98	1.18 / 28.44	1.20 / 28.90	1.22 / 29.37	1.24 / 29.84	1.26 / 30.30	1.28 / 30.77	1.30 / 31.24	1.32 / 31.70	1.34 / 32.17
70	1.36 / 32.63	1.38 / 33.10	1.40 / 33.57	1.42 / 34.03	1.44 / 34.50	1.46 / 34.96	1.48 / 35.43	1.50 / 35.90	1.52 / 36.36	1.53 / 36.83
80	1.55 / 37.30	1.57 / 37.76	1.59 / 38.23	1.61 / 38.69	1.63 / 39.16	1.65 / 39.63	1.67 / 40.09	1.69 / 40.56	1.71 / 41.03	1.73 / 41.49
90	1.75 / 41.96	1.77 / 42.42	1.79 / 42.89	1.81 / 43.36	1.83 / 43.82	1.85 / 44.29	1.86 / 44.76	1.88 / 45.22	1.90 / 45.69	1.92 / 46.15
100	1.94 / 46.62	1.96 / 47.09	1.98 / 47.55	2.00 / 48.02	2.02 / 48.48	2.04 / 48.95	2.06 / 49.42	2.08 / 49.88	2.10 / 50.35	2.12 / 50.82

CONVERSION TABLE
(CENTIMETERS / SECOND – KNOTS – NAUTICAL MILES / DAY)

1 cm/sec = 0.019 kts = 0.466 NAUTICAL MILES / DAY
1 kt = 24 NAUTICAL MILES / DAY = 51.48 cm/sec
1 NAUTICAL MILE / DAY = 0.042 kts = 2.14 cm/sec

FIGURES
Cruise 6606

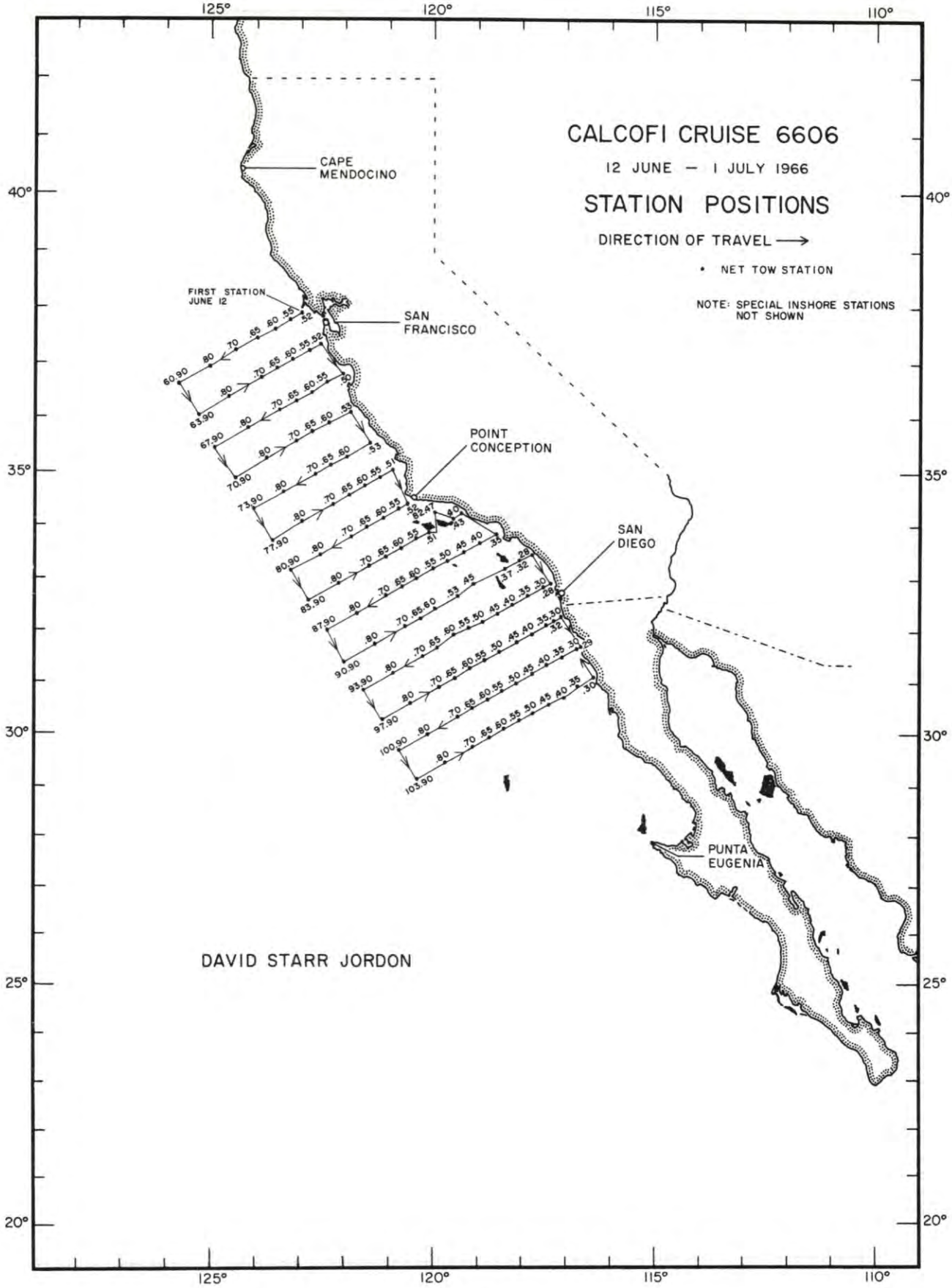

CALCOFI CRUISE 6606
12 JUNE — 1 JULY 1966
STATION POSITIONS
DIRECTION OF TRAVEL ⟶
• NET TOW STATION
NOTE: SPECIAL INSHORE STATIONS NOT SHOWN
CAPE MENDOCINO
FIRST STATION JUNE 12
SAN FRANCISCO
POINT CONCEPTION
SAN DIEGO
PUNTA EUGENIA
DAVID STARR JORDON
125°
120°
115°
110°
40°
35°
30°
25°
20°

FIGURE 1

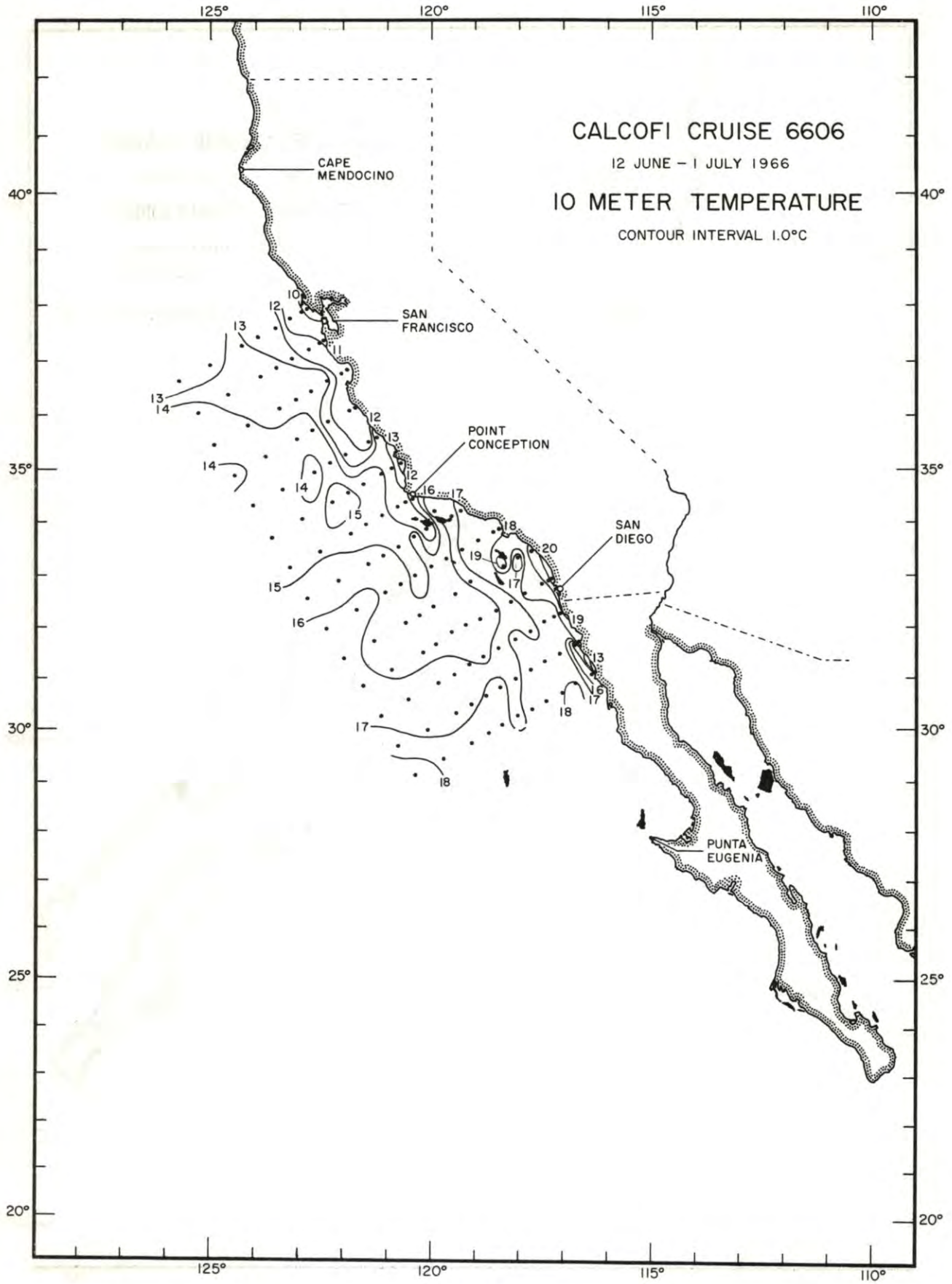

CALCOFI CRUISE 6606
12 JUNE – 1 JULY 1966
10 METER TEMPERATURE
CONTOUR INTERVAL 1.0°C
CAPE MENDOCINO
SAN FRANCISCO
POINT CONCEPTION
SAN DIEGO
PUNTA EUGENIA
125°
120°
115°
110°
40°
35°
30°
25°
20°

FIGURE 2

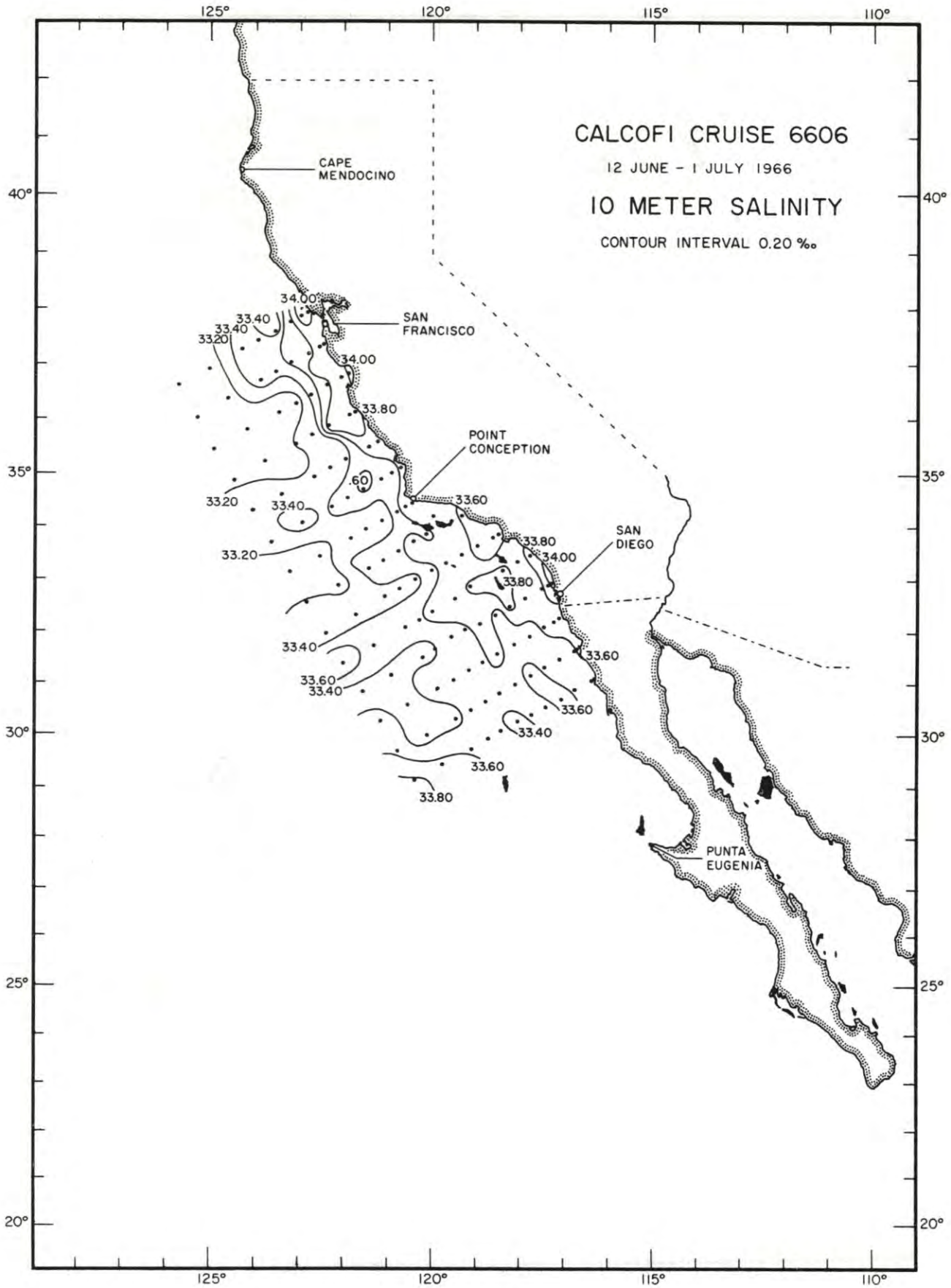

CALCOFI CRUISE 6606
12 JUNE - 1 JULY 1966
10 METER SALINITY
CONTOUR INTERVAL 0.20 ‰
CAPE MENDOCINO
SAN FRANCISCO
POINT CONCEPTION
SAN DIEGO
PUNTA EUGENIA
125°
120°
115°
110°
40°
35°
30°
25°
20°
34.00
33.40
33.40
33.20
34.00
33.80
.60
33.60
33.20
33.40
33.80
34.00
33.80
33.20
33.40
33.60
33.60
33.40
33.60
33.40
33.60
33.80

FIGURE 3

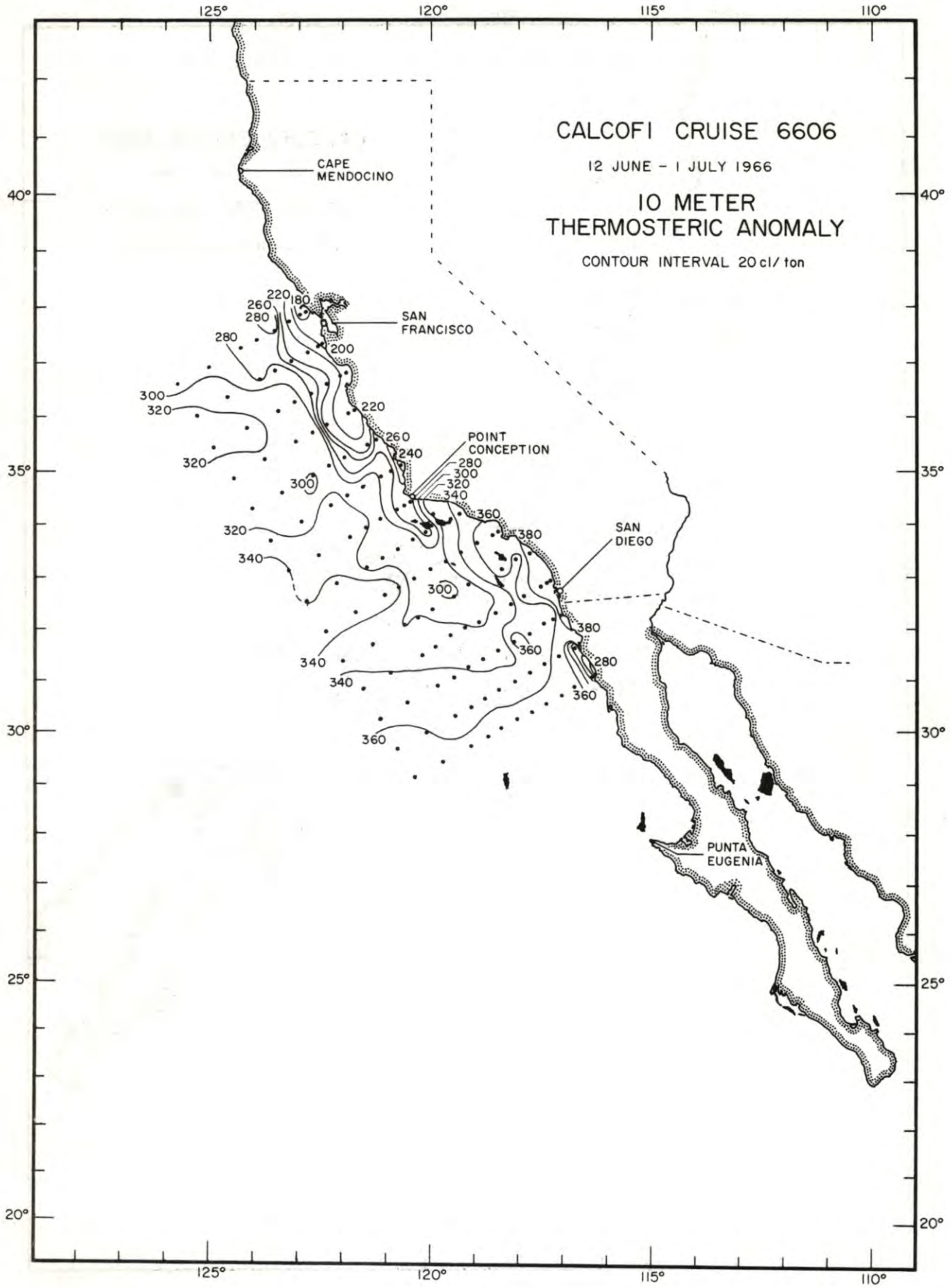

CALCOFI CRUISE 6606
12 JUNE - 1 JULY 1966
10 METER
THERMOSTERIC ANOMALY
CONTOUR INTERVAL 20 cl/ ton
CAPE MENDOCINO
SAN FRANCISCO
POINT CONCEPTION
SAN DIEGO
PUNTA EUGENIA
125°
120°
115°
110°
40°
35°
30°
25°
20°
180
200
220
240
260
280
300
320
340
360
380

FIGURE 4

PERSONNEL
Cruise 6606

SHIP'S CAPTAIN

Forster, Charles W., RV David Starr Jordan

PERSONNEL PARTICIPATING IN THE COLLECTION OF DATA

RV David Starr Jordan

*Counts, Robert C., Fishery Research Biologist (in charge), Bureau of Commercial Fisheries
**Charles, R., Student Volunteer
***Kirk, Patricia, Physical Science Technician, Bureau of Commercial Fisheries
**Kirk, Tom, Student Volunteer
****Leong, Roderick, Fishery Biologist, Bureau of Commercial Fisheries
*Wagner, Vaughn M., Fisheries Technician, Bureau of Commercial Fisheries
****Wilkins, Leroy, Student Summer Employee

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*Lines 60-103.
**Lines 97-103.
***Lines 80-103.
****Lines 80-93.

DATA AT NET TOW STATIONS										10 METERS		
Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind Dir	Force	Weather	Sea	T °C	S ‰	δ_T cl/ton
60.50-J	VI-12	2210	37°57.5'	122°53.0'	25	330°	6	clear	very rough	9.74	34.084	173
60.52-J	12	2325	37°54.0'	123°01.5'	43	330°	6	clear	very rough	10.06	34.106	177
60.55-J	13	0110	37°47.0'	123°15.0'	60	320°	6	clear	very rough	10.54	33.722	213
60.60-J	13	0405	37°37.0'	123°37.0'	1850	020°	7	partly cloudy	high	12.90	33.359	281
60.65-J	13	0625	37°27.0'	123°58.5'	1950	030°	6	missing	high	12.64	33.424	272
60.70-J	13	0900	37°17.0'	124°21.0'	2200	360°	6	missing	high	13.07	33.442	278
60.80-J	13	1320	36°56.0'	125°04.0'	2350	360°	5	clear	high	12.63	33.047	299
60.90-J	13	1730	36°38.0'	125°47.0'	2200	350°	5	partly cloudy	high	12.26	33.127	287
63.50-J	14	1705	37°23.5'	122°28.0'	16	350°	1	partly cloudy	moderate	10.66	33.944	198
63.52-J	14	1530	37°19.0'	122°36.0'	46	350°	2	partly cloudy	moderate	11.01	33.956	204
63.55-J	14	1400	37°13.0'	122°50.0'	150	340°	2	clear	moderate	11.42	33.705	229
63.60-J	14	1135	37°03.5'	123°12.0'	1300	310°	3	missing	rough	12.18	33.633	248
63.65-J	14	0900	36°53.0'	123°33.0'	1925	340°	4	missing	rough	13.48	33.434	287
63.70-J	14	0640	36°42.5'	123°54.5'	2100	010°	5	missing	rough	13.41	33.523	279
63.80-J	14	0215	36°23.0'	124°38.5'	2200	340°	5	partly cloudy	rough	13.56	33.116	312
63.90-J	13	2150	36°03.0'	125°20.0'	2450	360°	5	partly cloudy	very rough	14.37	33.137	326
67.48-J	14	2110	36°53.0'	121°56.0'	19	270°	2	clear	moderate	11.22	34.017	202
67.50-J	14	2225	36°48.0'	122°05.0'	58	270°	3	clear	moderate	11.50	33.843	220
67.55-J	15	0045	36°39.0'	122°26.0'	1200	270°	3	cloudy	moderate	13.08	33.754	256

DATA AT NET TOW STATIONS										10 METERS		
Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind Dir	Wind Force	Weather	Sea	T °C	S ‰	δ_T cl/ton
67.60-J	VI-15	0300	36°28.0'	122°47.0'	1600	020°	3	partly cloudy	moderate	13.28	33.472	280
67.65-J	15	0530	36°18.0'	123°08.5'	1800	040°	4	missing	moderate	13.70	33.117	314
67.70-J	15	0800	36°08.0'	123°29.5'	1600	320°	3	light fog	moderate	13.80	33.105	317
67.80-J	15	1215	35°48.0'	124°12.0'	2200	290°	4	missing	rough	14.02	33.093	322
67.90-J	15	1545	35°26.5'	124°57.0'	2400	020°	3	partly cloudy	moderate	14.04	33.075	324
70.51-J	16	1355	36°11.5'	121°44.0'	125	calm		drizzle	slight	11.02	33.868	210
70.53-J	16	1220	36°06.5'	121°54.0'	580	120°	3	drizzle	slight	11.27	33.943	209
70.60-J	16	0925	35°53.0'	122°22.5'	1700	120°	2	drizzle	slight	12.38	33.918	231
70.65-J	16	0630	35°43.0'	122°45.0'	1100	360°	3	overcast	slight	14.28	33.231	317
70.70-J	16	0345	35°33.0'	123°06.0'	2050	020°	3	overcast	moderate	14.14	33.206	316
70.80-J	15	2340	35°13.5'	123°47.5'	2200	330°	4	overcast	moderate	14.16	33.178	319
70.90-J	15	2000	34°53.0'	124°30.0'	2200	060°	2	partly cloudy	moderate	13.96	33.179	315
73.50-J	16	1745	35°37.0'	121°17.0'	55	120°	2	light fog	slight	13.12	33.656	263
73.53-J	16	1915	35°31.5'	121°28.5'	390	120°	2	light fog	slight	11.63	33.755	228
73.60-J	16	2210	35°17.5'	121°58.0'	1300	330°	2	overcast	moderate	12.38	33.399	269
73.65-J	17	0030	35°08.0'	122°19.0'	2100	320°	3	overcast	moderate	14.47	33.255	319
73.70-J	17	0245	34°58.0'	122°40.0'	2100	090°	4	overcast	rough	13.51	33.267	300
73.80-J	17	0630	34°38.0'	123°22.0'	2100	020°	5	overcast	rough	14.54	33.274	319
73.90-J	17	1100	34°18.5'	124°04.0'	1700	340°	5	overcast	rough	14.48	33.314	315

DATA AT NET TOW STATIONS										10 METERS		
Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind Dir	Force	Weather	Sea	T °C	S ‰	δ_T cl/ton
77.48-J	VI-18	1045	35°08.5'	120°43.5'	15	-	1	missing	slight	11.86	33.662	240
77.51-J	18	0905	35°02.0'	120°56.5'	149	320°	4	missing	rough	13.54	33.482	284
77.55-J	18	0630	34°54.5'	121°13.0'	250	020°	4	missing	moderate	14.22	33.444	300
77.60-J	18	0415	34°44.0'	121°34.0'	490	020°	4	overcast	moderate	14.91	33.626a)	301
77.65-J	18	0200	34°34.0'	121°55.0'	2050	340°	4	overcast	rough	15.09	33.460	317
77.70-J	17	2320	34°24.0'	122°16.0'	2220	340°	5	overcast	rough	15.11	33.410	321
77.80-J	17	1900	34°04.5'	122°56.5'	2150	340°	4	overcast	rough	14.30	33.428	303
77.90-J	17	1500	33°43.0'	123°39.0'	2400	020°	5	overcast	rough	14.82	33.331	321
80.51-J	18	2225	34°26.0'	120°32.5'	53	300°	4	overcast	moderate	14.14	33.735	278
80.52-J	18	2325	34°24.5'	120°36.5'	160	300°	3	overcast	rough	13.48	33.739	264
80.55-J	19	0115	34°19.0'	120°48.0'	420	320°	3	overcast	rough	-	33.574	-
80.60-J	19	0400	34°09.0'	121°09.0'	1200	340°	3	overcast	rough	14.08	33.298	308
80.65-J	19	0600	33°59.0'	121°30.0'	1800	340°	4	missing	rough	14.62	33.235	324
80.70-J	19	0815	33°48.5'	121°51.0'	2100	340°	4	missing	rough	14.80	33.277	324
80.80-J	19	1235	33°28.5'	122°32.0'	2175	330°	4	missing	rough	14.93	33.128	338
80.90-J	19	1730	33°09.0'	123°13.0'	2400	340°	6	cloudy	very rough	14.65	33.020	340
82.47-J	20	1920	34°15.0'	119°59.0'	320	340°	2	cloudy	moderate	16.13	33.624	326

a) Bottle number not entered on salinity determination sheet.

DATA AT NET TOW STATIONS										10 METERS		
Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind Dir	Wind Force	Weather	Sea	T °C	S ‰	δ_T cl/ton
83.40-J	VI-20	2310	34°14.0'	119°22.0'	12	260°	3	clear	moderate	17.08	33.595	350
83.43-J	20	2150	34°08.0'	119°34.0'	135	270°	3	partly cloudy	slight	16.64	33.719	332
83.51-J	20	1600	33°52.0'	120°08.0'	100	290°	2	cloudy	moderate	13.30	33.581	272
83.55-J	20	1350	33°44.0'	120°24.5'	600	320°	4	cloudy	rough	15.02	33.617	304
83.60-J	20	1110	33°34.0'	120°45.0'	1200	320°	6	missing	rough	14.88	33.518	308
83.65-J	20	0830	33°24.0'	121°06.0'	1925	320°	5	missing	very rough	15.26	33.523	316
83.70-J	20	0600	33°14.0'	121°26.0'	1950	340°	5	missing	very rough	15.12	33.534	312
83.80-J	20	0145	32°54.0'	122°08.0'	2350	330°	5	partly cloudy	very rough	15.04	33.114	342
83.90-J	19	2120	32°34.5'	122°50.0'	2350	340°	5	overcast	very rough	15.24	33.205	339
87.33-J	21	0400	33°54.0'	118°29.5'	28	220°	2	cloudy	slight	17.80	33.579	368
87.35-J	21	0500	33°50.0'	118°37.5'	270	210°	3	missing	slight	17.50	33.570	361
87.40-J	21	0710	33°40.0'	118°58.0'	480	210°	3	missing	slight	17.46	33.563	361
87.45-J	21	0935	33°30.0'	119°19.0'	950	290°	4	missing	rough	17.12	33.631	348
87.50-J	21	1210	33°20.0'	119°39.5'	40	320°	6	clear	very rough	15.84	33.636	320
87.55-J	21	1500	33°10.0'	120°00.0'	650	310°	5	missing	high	15.09	33.591	308
87.60-J	21	1715	33°00.0'	120°21.5'	280	310°	5	missing	high	14.50	33.390	310
87.65-J	21	2000	32°49.5'	120°41.5'	2150	320°	6	missing	high	15.64	33.308	340
87.70-J	21	2255	32°39.5'	121°02.0'	2000	320°	6	clear	high	15.98	33.309	346
87.80-J	22	0330	32°19.5'	121°43.0'	2200	340°	6	missing	high	16.07	33.326	347

DATA AT NET TOW STATIONS										10 METERS		
Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind Dir	Force	Weather	Sea	T °C	S ‰	δ_T cl/ton
87.90-J	VI-22	0745	31°59.0'	122°24.0'	2200	320°	5	missing	high	16.14	33.353	347
90.28-J	23	1930	33°28.5'	117°46.5'	300	140°	2	partly cloudy	slight	19.74	33.808	396
90.32-J	23	1750	33°21.0'	118°01.5'	400	140°	2	partly cloudy	slight	16.72	33.736	332
90.37-J	23	1430	33°11.0'	118°22.5'	650	300°	2	partly cloudy	rough	19.27	33.861	382
90.45-J	23	1020	32°54.5'	118°55.5'	950	310°	6	missing	high	16.41	33.805	320
90.53-J	23	0615	32°39.0'	119°28.5'	700	310°	5	cloudy	high	15.18	33.721	300
90.60-J	23	0300	32°25.0'	119°57.5'	600	300°	5	clear	high	15.35	33.649	308
90.65-J	23	0000	32°14.5'	120°18.0'	2100	320°	6	clear	high	15.44	33.514	321
90.70-J	22	2110	32°05.0'	120°38.0'	2000	320°	6	clear	high	15.42	33.510	320
90.80-J	22	1630	31°45.0'	121°19.5'	2200	320°	5	clear	high	15.92	33.558	327
90.90-J	22	1205	31°24.0'	122°01.0'	2000	330°	5	missing	high	16.46	33.707	328
93.27-J	26	0330	32°56.0'	117°19.0'	120	220°	1	cloudy	slight	20.70	34.170	396
93.28-J	26	0430	32°54.5'	117°22.0'	250	220°	1	cloudy	slight	19.82	33.813	399
93.30-J	26	0600	32°50.5'	117°31.0'	390	220°	1	cloudy	slight	18.88	33.701	384
93.35-J	26	0755	32°40.5'	117°51.5'	360	240°	1	cloudy	slight	18.78	33.765	377
93.40-J	26	1035	32°30.0'	118°11.5'	950	330°	1	missing	moderate	16.89	33.817	330
93.45-J	26	1245	32°20.0'	118°32.0'	550	330°	1	overcast	moderate	15.99	33.541	330
93.50-J	26	1500	32°10.0'	118°53.0'	700	280°	1	overcast	moderate	15.62	33.621	316
93.55-J	26	1700	32°03.5'	119°12.0'	600	280°	2	overcast	moderate	15.74	33.594	321

DATA AT NET TOW STATIONS										10 METERS		
Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind Dir	Wind Force	Weather	Sea	T °C	S ‰	δ_T cl/ton
93.60-J	VI-26	1900	31°55.5'	119°31.0'	1100	280°	2	overcast	rough	15.48	33.447	326
93.65-J	26	2210	31°40.0'	119°53.5'	2100	330°	2	overcast	moderate	15.44	33.400	329
93.70-J	27	0050	31°30.0'	120°14.0'	2200	330°	3	overcast	rough	15.48	33.383	331
93.80-J	27	0630	31°10.5'	120°54.0'	2100	280°	5	overcast	rough	15.72	33.326	340
93.90-J	27	1045	30°50.0'	121°34.5'	2200	360°	5	missing	very rough	16.56	33.362	356
97.29-J	28	2105	32°17.5'	117°04.5'	25	260°	3	overcast	moderate	19.18	33.668	394
97.30-J	28	2025	32°16.0'	117°07.0'	30	260°	3	overcast	moderate	18.50	33.636	380
97.32-J	28	1925	32°12.0'	117°15.0'	750	250°	3	overcast	slight	17.44	33.617	357
97.35-J	28	1730	32°07.5'	117°28.5'	600	-	1	overcast	moderate	-	-	-
97.40-J	28	1530	31°56.0'	117°48.0'	600	290°	1	overcast	moderate	16.77	33.558	346
97.45-J	28	1320	31°46.0'	118°08.5'	900	340°	1	overcast	moderate	17.80	33.587	367
97.50-J	28	1040	31°36.0'	118°30.5'	1400	360°	1	missing	moderate	16.42	33.635	333
97.55-J	28	0745	31°25.5'	118°49.5'	650	280°	2	missing	moderate	15.96	33.521	330
97.60-J	28	0550	31°15.5'	119°10.0'	1800	250°	3	overcast	moderate	16.03	33.447	338
97.65-J	28	0330	31°05.0'	119°30.5'	1930	280°	3	overcast	moderate	16.40	33.469	344
97.70-J	28	0025	30°55.0'	119°50.5'	2050	310°	3	overcast	rough	16.64	33.492	348
97.80-J	27	1950	30°35.0'	120°31.0'	2150	290°	3	overcast	very rough	16.36	33.332	354
97.90-J	27	1440	30°15.5'	121°10.5'	2150	310°	4	overcast	very rough	16.90	33.425	358
100.29-J	29	0110	31°42.0'	116°44.0'	107	340°	1	overcast	moderate	18.14	33.629	372

DATA AT NET TOW STATIONS										10 METERS		
Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind Dir	Force	Weather	Sea	T °C	S ‰	δ_T cl/ton
100.30-J	VI-29	0135	31°40.5'	116°46.5'	240	340°	1	overcast	moderate	14.72	33.507	306
100.35-J	29	0415	31°30.5'	117°07.0'	750	280°	2	overcast	slight	17.63	33.564	365
100.40-J	29	0615	31°21.0'	117°27.0'	1150	270°	2	overcast	slight	17.14	33.549	355
100.45-J	29	0835	31°10.5'	117°46.5'	750	320°	3	missing	moderate	17.08	33.704	342
100.50-J	29	1055	31°00.5'	118°08.0'	900	320°	3	missing	moderate	16.84	33.497	352
100.55-J	29	1315	30°50.5'	118°27.5'	1450	300°	3	overcast	moderate	17.18	33.566	354
100.60-J	29	1545	30°40.5'	118°47.5'	1500	340°	2	overcast	moderate	17.08	33.530	357
100.65-J	29	1830	30°30.0'	119°08.0'	2000	300°	2	overcast	rough	16.83	33.493	352
100.70-J	29	2130	30°20.5'	119°28.0'	2150	320°	3	overcast	moderate	16.45	33.337	355
100.80-J	30	0215	30°00.0'	120°07.0'	1950	340°	4	overcast	rough	16.62	33.328	360
100.90-J	30	0705	29°40.5'	120°47.0'	2120	340°	4	overcast	rough	17.52	33.568	362
103.29-J	VII-1	1640	31°07.0'	116°21.0'	15	-	1	overcast	slight	12.80	33.524	267
103.30-J	1	1555	31°06.0'	116°24.5'	38	-	1	overcast	slight	15.42	33.571	316
103.35-J	1	1345	30°56.0'	116°45.0'	900	330°	3	overcast	moderate	18.00	33.527	376
103.40-J	1	1110	30°42.0'	117°02.5'	1000	320°	4	missing	moderate	17.98	33.617	369
103.45-J	1	0900	30°33.5'	117°24.0'	1300	330°	4	missing	rough	17.46	33.508	365
103.50-J	1	0630	30°24.0'	117°45.0'	700	320°	4	overcast	rough	17.32	33.494	363
103.55-J	1	0425	30°15.0'	118°05.0'	1350	300°	4	overcast	rough	16.84	33.361	362
103.60-J	1	0130	30°06.0'	118°25.0'	1900	330°	4	overcast	rough	17.27	33.440	366

DATA AT NET TOW STATIONS										10 METERS		
Station	Date	Time GCT	Latitude North	Longitude West	Sounding (fm)	Wind Dir	Wind Force	Weather	Sea	T °C	S ‰	δ_T cl/ton
103.65-J	VI-30	2250	29°56.5'	118°44.0'	1650	330°	3	overcast	rough	17.60	33.575	364
103.70-J	30	2005	29°44.5'	119°06.5'	1850	340°	3	overcast	rough	17.36	33.531	361
103.80-J	30	1525	29°26.5'	119°43.0'	2000	340°	4	overcast	rough	17.78	33.653	362
103.90-J	30	1110	29°06.0'	120°23.5'	2100	340°	4	missing	rough	18.44	33.821	365

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