

UNIVERSITY OF CALIFORNIA    SCRIPPS INSTITUTION OF OCEANOGRAPHY

# data report

PHYSICAL AND CHEMICAL DATA

CCOFI Cruise 5905

6-27 May 1959

SIO Reference 60-38

26 April 1960

*Hebden*

*Errata*

*28 Oct 63 -  
p. 206*

UNIVERSITY OF CALIFORNIA  
SCRIPPS INSTITUTION OF OCEANOGRAPHY

PHYSICAL AND CHEMICAL DATA

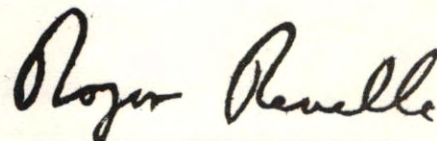
CCOFI CRUISE 5905

6-27 May 1959

Sponsored by  
Marine Research Committee

SIO Reference 60-38  
26 April 1960

Approved for distribution:

A handwritten signature in dark ink, appearing to read "Roger Revelle", is written over a horizontal line.

Roger Revelle, Director

## CONTENTS

|                                                        |     |
|--------------------------------------------------------|-----|
| List of Figures . . . . .                              | ii  |
| Introduction . . . . .                                 | iii |
| Personnel . . . . .                                    | v   |
| Tabulated Data . . . . .                               | 184 |
| Hydrographic Data . . . . .                            | 184 |
| Observations at 10 Meters (Net-Tow Stations) . . . . . | 200 |
| Distribution List . . . . .                            | 213 |

## FIGURES

1. CCOFI Cruise 5905, station positions
2. Horizontal distribution of dynamic height anomaly (0 over 500 d-bar)
3. Horizontal distribution of temperature at 10 meters
4. Horizontal distribution of salinity at 10 meters
5. Horizontal distribution of temperature at 200 meters
6. Horizontal distribution of salinity at 200 meters

## INTRODUCTION

The data presented in this report were collected on the one hundred and twentieth consecutive cruise of the California Cooperative Oceanic Fisheries Investigations program. The R/V Black Douglas, of the U. S. Bureau of Commercial Fisheries, the R/V Orca and the R/V Paolina-T of the Scripps Institution participated in this cruise.

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.<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 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.

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<sup>1/</sup> Klein, Hans T. A new technique for processing physical oceanographic data. MS.

## FOOTNOTES

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.

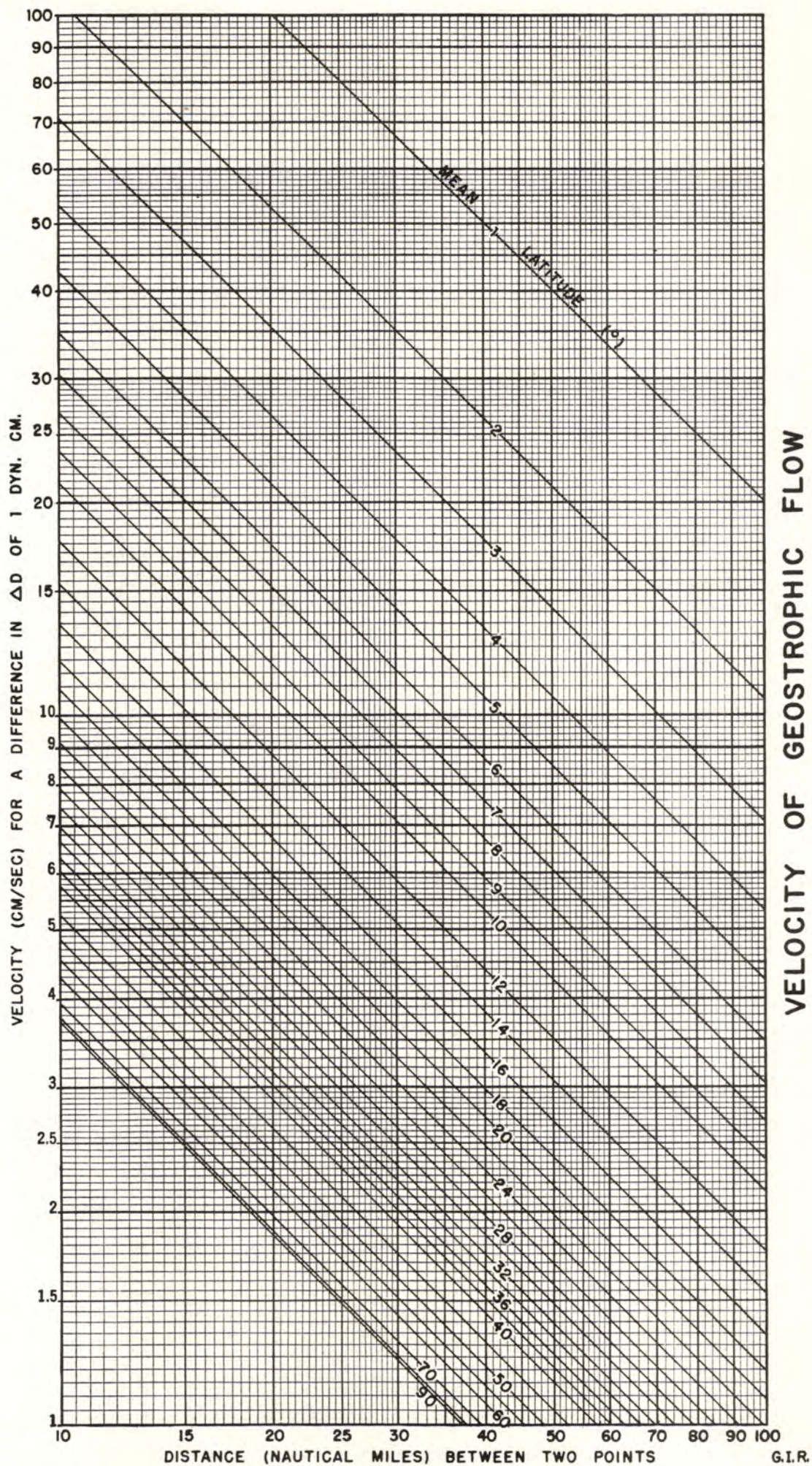
Values which are not drawn through because they seem to be in error without apparent reason are indicated by one of the following notations.

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 1959 volume, the first page of the Cruise 5905 data is numbered 184.



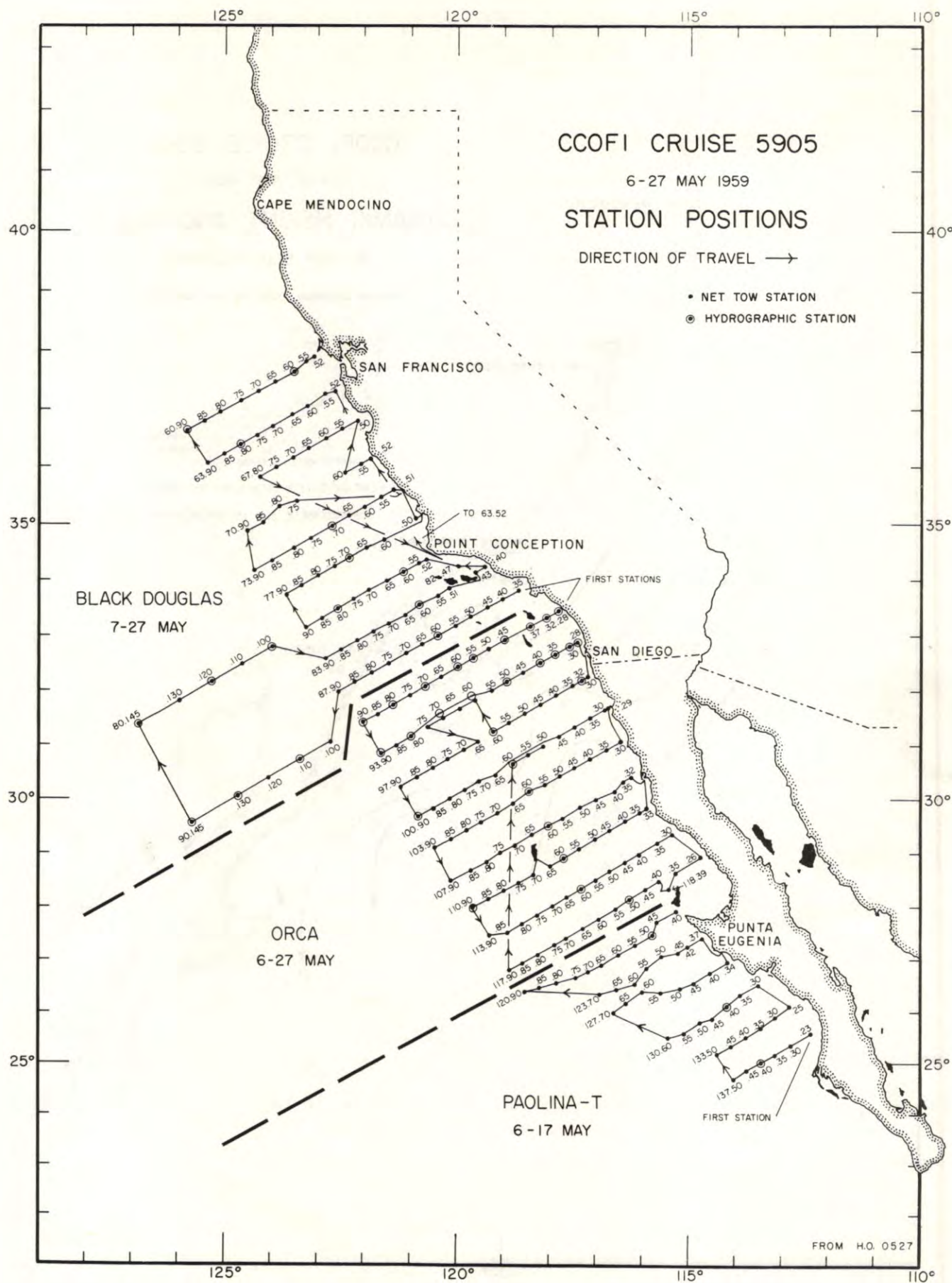


FIGURE 1

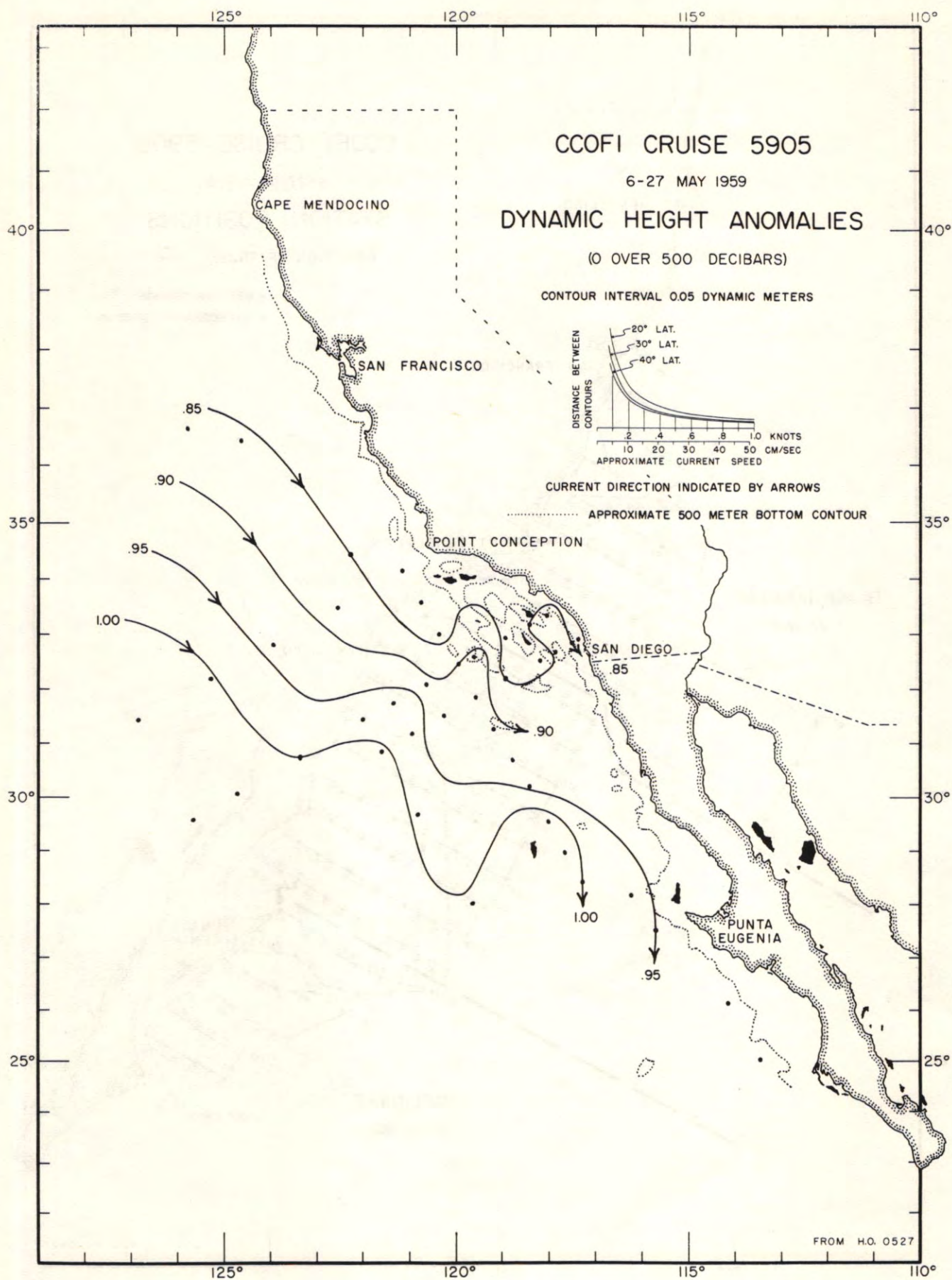


FIGURE 2

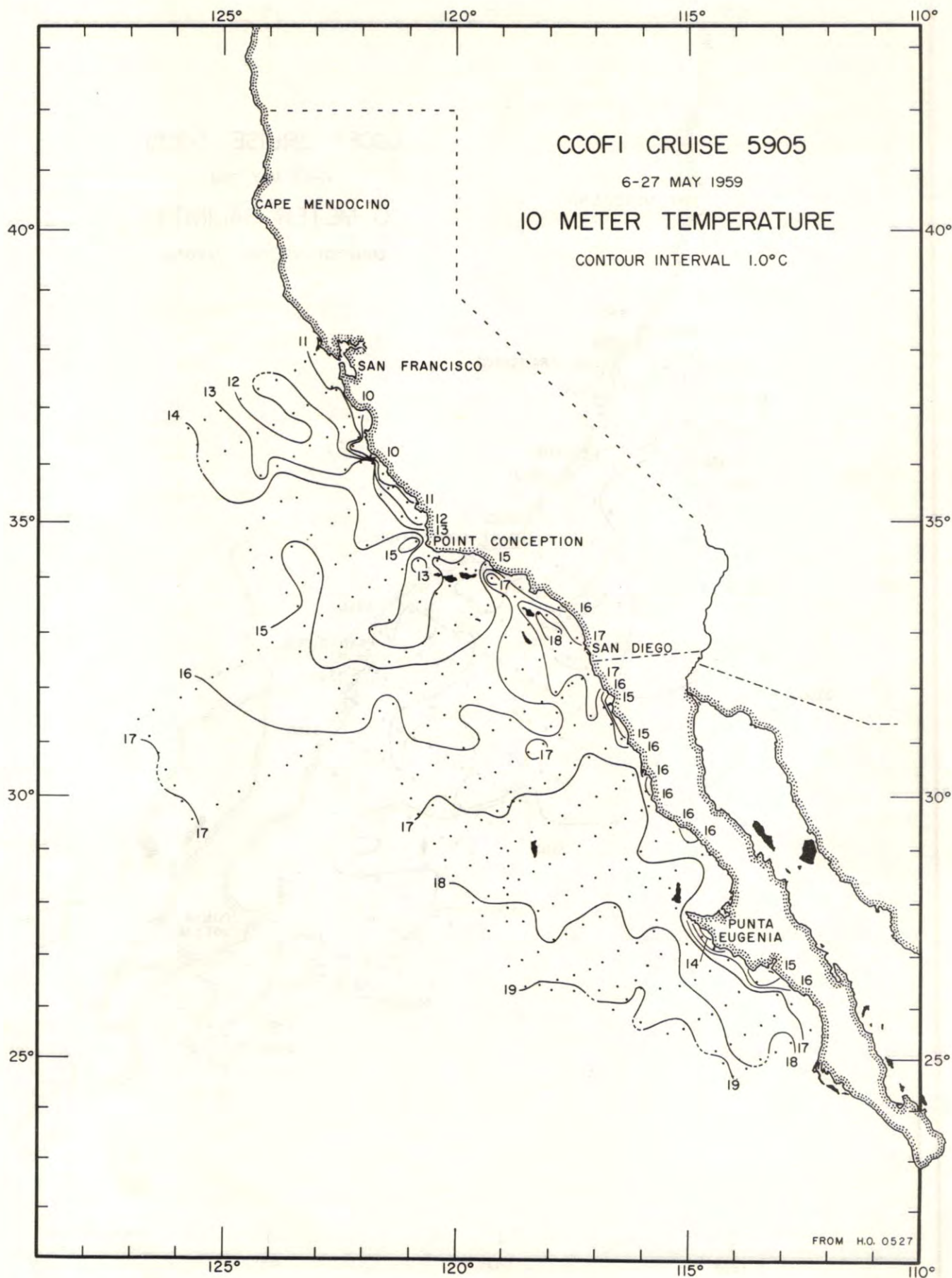


FIGURE 3

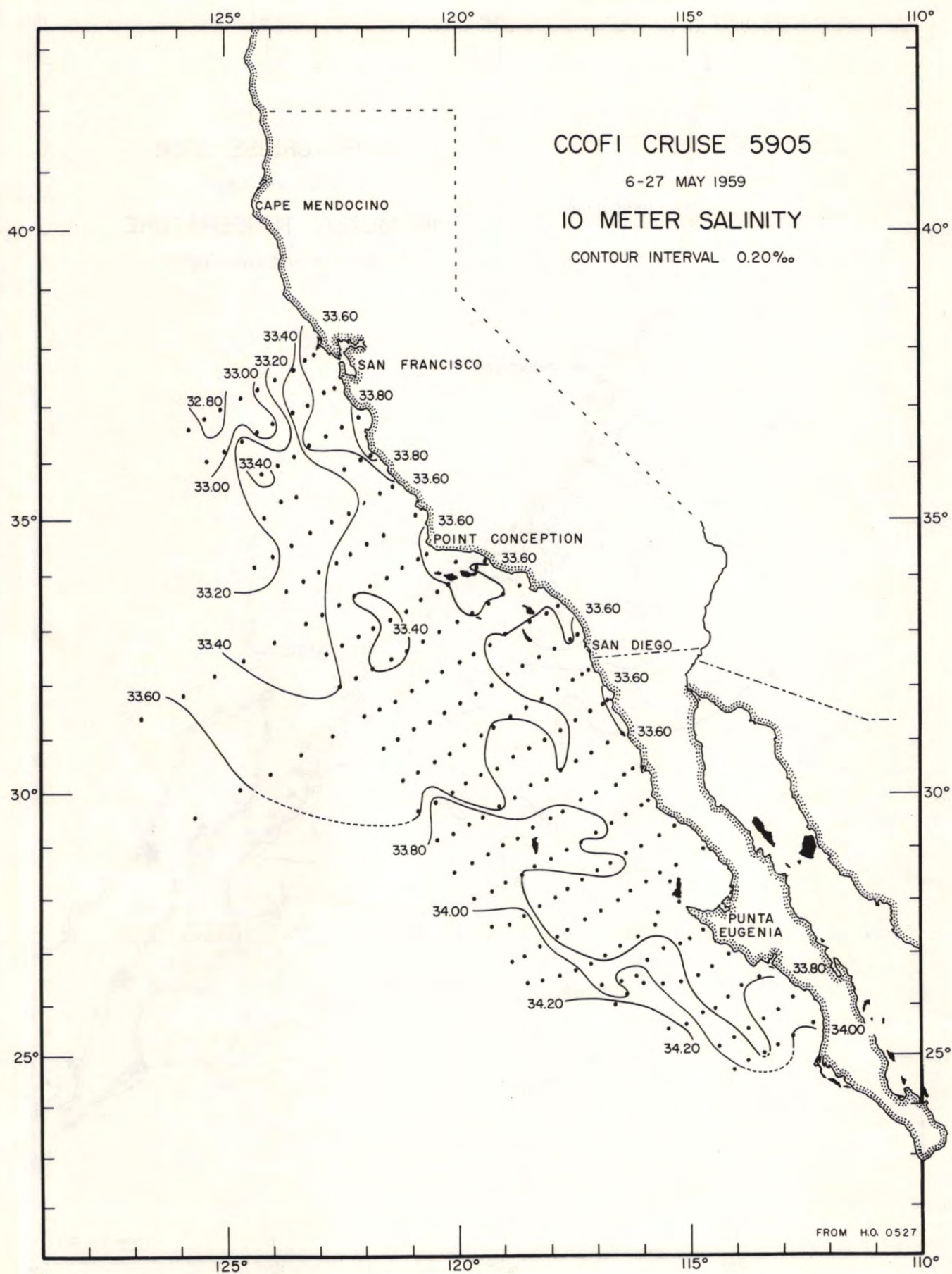


FIGURE 4

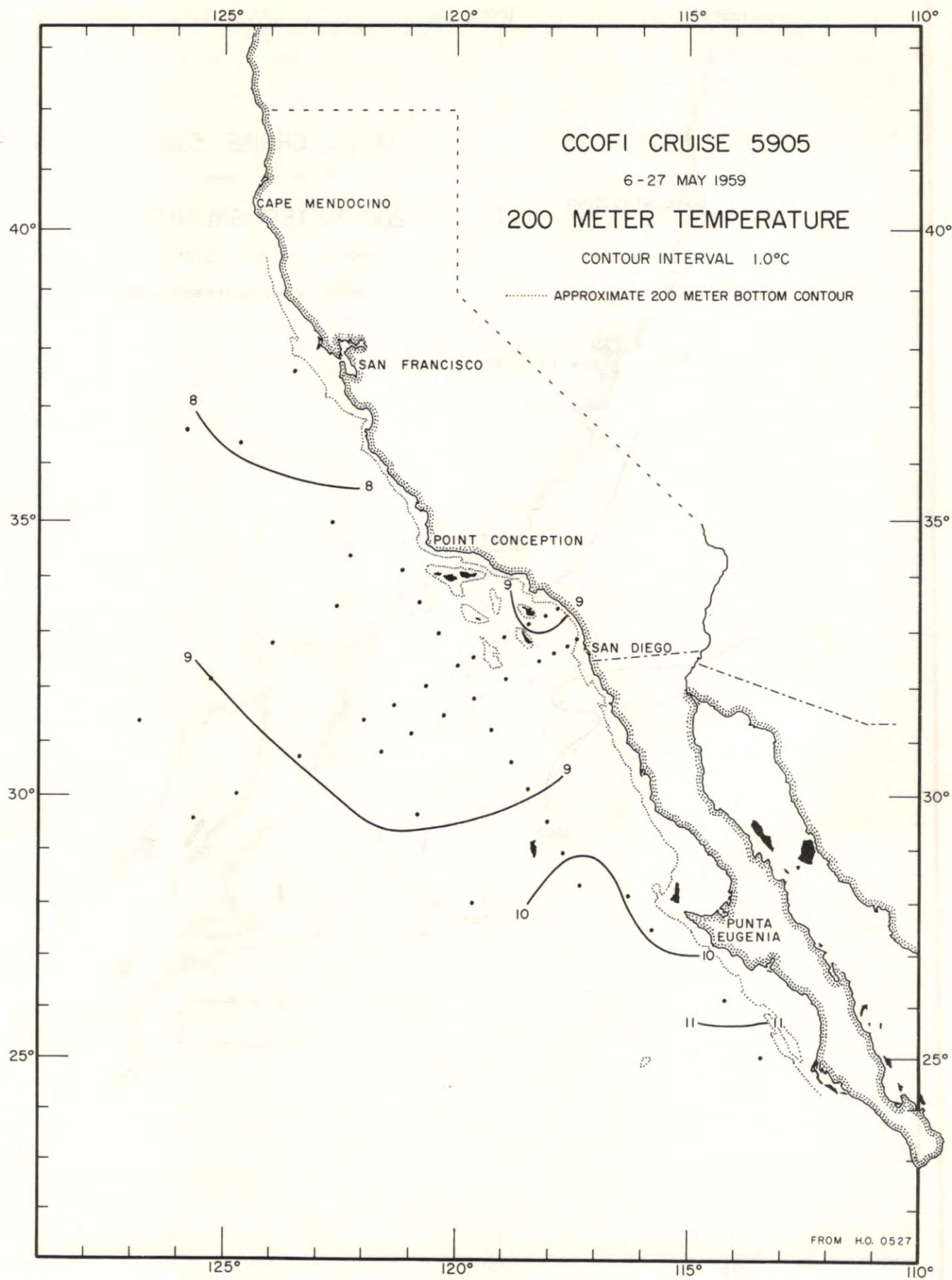


FIGURE 5

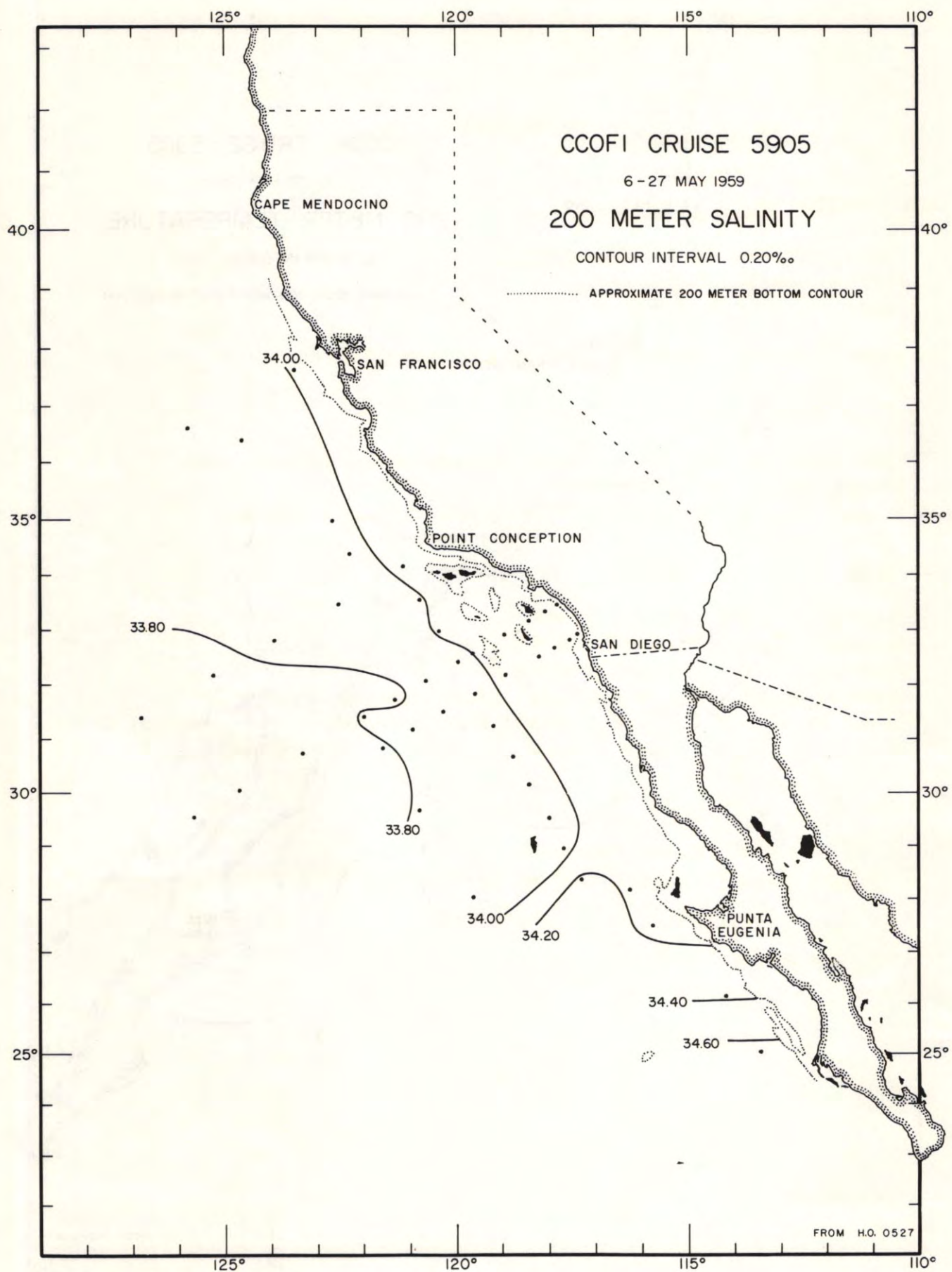


FIGURE 6

## PERSONNEL

### SHIPS' CAPTAINS

Forster, Charles W., R/V Black Douglas  
Phinney, Alan W., R/V Orca  
Miller, Frank, R/V Paolina-T

### PERSONNEL PARTICIPATING IN THE COLLECTION OF DATA

#### R/V Black Douglas

Reid, Charles F., Fishery Research Biologist, Bureau of Commercial Fisheries  
Lawson, Jan B., Marine Technician  
Metoyer, Jack D., Fishery Aid, Bureau of Commercial Fisheries

#### R/V Orca

Brennen, Robert E., Marine Technician  
\*Bingman, Allen R., Marine Technician  
\*Hester, Arthur W., Marine Technician  
Joyal, Norman F., Marine Technician (transferred from Paolina-T)  
Leong, Roderick J. H., Fishery Research Biologist, Bureau of Commercial Fisheries

#### R/V Paolina-T

Joyal, Norman F., Marine Technician  
Blackburn, Gene T., Fishery Aid, Bureau of Commercial Fisheries

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\*Participated in part of cruise.

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| OBSERVED |    |   |                |                       | INTERPOLATED |    |   |                | COMPUTED   |                       |            |  |
|----------|----|---|----------------|-----------------------|--------------|----|---|----------------|------------|-----------------------|------------|--|
| Z        | T  | S | O <sub>2</sub> | $\delta T_3$          | Z            | T  | S | O <sub>2</sub> | $\sigma_t$ | $\delta T_3$          | $\Delta D$ |  |
| m        | °C | ‰ | ml/L           | 10 <sup>-5</sup> cm/g | m            | °C | ‰ | ml/L           | g/L        | 10 <sup>-5</sup> cm/g | dyn. m     |  |

60.60

BLACK DOUGLAS; May 25, 1959; 0828 GCT; 37°38.5'N, 123°29'W; sounding, 1580 fm; wind, 270°, force 3; weather, overcast; sea, moderate; wire angle, 29°.

|     |       |       |      |     |     |         |         |        |         |       |        |  |
|-----|-------|-------|------|-----|-----|---------|---------|--------|---------|-------|--------|--|
| 1   | 11.36 | 33.40 | 5.94 | 250 | 0   | (11.36) | (33.40) | (5.94) | (25.49) | (250) | (0.00) |  |
| 9   | 11.34 | 33.40 | 6.04 | 250 | 10  | 11.34   | 33.40   | 6.04   | 25.49   | 250   | 0.02   |  |
| 24  | 10.30 | 33.42 | 5.16 | 231 | 20  | 10.72   | 33.41   | 5.56   | 25.61   | 239   | 0.05   |  |
| 31  | 9.90  | 33.46 | 4.93 | 223 | 30  | 9.92    | 33.45   | 4.95   | 25.78   | 223   | 0.07   |  |
| 41  | 9.85  | 33.56 | 5.31 | 214 | 50  | 9.75    | 33.61   | 5.26   | 25.93   | 208   | 0.12   |  |
| 52  | 9.72  | 33.62 | 5.19 | 207 | 75  | 9.46    | 33.70   | 4.42   | 26.04   | 198   | 0.17   |  |
| 68  | 9.46  | 33.68 | 4.34 | 199 | 100 | 9.35    | 33.81   | 4.21   | 26.15   | 187   | 0.22   |  |
| 82  | 9.46  | 33.71 | 4.68 | 196 | 150 | 8.28    | 33.97   | 2.13   | 26.44   | 160   | 0.30   |  |
| 94  | 9.48  | 33.77 | 4.72 | 192 | 200 | 7.61    | 34.04   | 1.63   | 26.60   | 144   | 0.38   |  |
| 107 | 8.97  | 33.82 | 3.33 | 180 | 250 | 7.15    | 34.09   | 1.37   | 26.70   | 135   | 0.45   |  |
| 125 | 8.55  | 33.89 | 2.31 | 169 | 300 | 6.89    | 34.10   | 1.09   | 26.75   | 131   | 0.52   |  |
| 142 | 8.37  | 33.95 | 2.21 | 162 |     |         |         |        |         |       |        |  |
| 158 | 8.20  | 33.98 | 2.02 | 157 |     |         |         |        |         |       |        |  |
| 181 | 7.78  | 34.02 | 1.81 | 148 |     |         |         |        |         |       |        |  |
| 208 | 7.54  | 34.05 | 1.55 | 143 |     |         |         |        |         |       |        |  |
| 255 | 7.11  | 34.09 | 1.36 | 134 |     |         |         |        |         |       |        |  |
| 310 | 6.83  | 34.10 | 1.05 | 130 |     |         |         |        |         |       |        |  |
| 369 | 6.50  | 34.14 | 0.82 | 120 |     |         |         |        |         |       |        |  |

60.90

BLACK DOUGLAS; May 24, 1959; 1742 GCT; 36°37'N, 125°47'W; sounding, 2340 fm; wind, 320°, force 2; weather, overcast; sea, moderate; wire angle, 00°.

|     |       |       |      |     |     |         |         |        |         |       |        |  |
|-----|-------|-------|------|-----|-----|---------|---------|--------|---------|-------|--------|--|
| 1   | 14.06 | 32.95 | 6.15 | 334 | 0   | (14.06) | (32.95) | (6.15) | (24.61) | (334) | (0.00) |  |
| 10  | 14.06 | 32.99 | 6.14 | 331 | 10  | 14.06   | 32.99   | 6.14   | 24.64   | 331   | 0.03   |  |
| 28  | 13.82 | 33.04 | 6.13 | 322 | 20  | 13.98   | 33.02   | 6.14   | 24.68   | 327   | 0.07   |  |
| 37  | 11.96 | 32.98 | 6.17 | 292 | 30  | 12.70   | 33.00   | 6.17   | 24.93   | 304   | 0.10   |  |
| 46  | 11.50 | 33.04 | 5.91 | 279 | 50  | 11.35   | 33.04   | 5.86   | 25.21   | 277   | 0.16   |  |
| 59  | 11.02 | 33.04 | 5.78 | 271 | 75  | 9.87    | 33.23   | 4.92   | 25.62   | 238   | 0.22   |  |
| 72  | 9.89  | 33.19 | 4.99 | 242 | 100 | 9.39    | 33.50   | 4.41   | 25.91   | 210   | 0.28   |  |
| 90  | 9.64  | 33.42 | 4.56 | 221 | 150 | 8.60    | 33.82   | 3.06   | 26.28   | 175   | 0.37   |  |
| 112 | 9.12  | 33.60 | 4.20 | 199 | 200 | 8.10    | 33.95   | 3.25   | 26.46   | 158   | 0.46   |  |
| 131 | 8.88  | 33.75 | 3.54 | 184 | 250 | 7.30    | 33.98   | 2.63   | 26.60   | 145   | 0.54   |  |
| 158 | 8.59  | 33.86 | 2.98 | 172 | 300 | 6.62    | 34.00   | 2.12   | 26.70   | 135   | 0.61   |  |
| 185 | 8.26  | 33.91 | 2.93 | 164 | 400 | 5.34    | 34.02   | 1.44   | 26.89   | 118   | 0.74   |  |
| 212 | 7.85  | 33.95 | 3.36 | 155 | 500 | 4.87    | 34.11   | 0.75   | 27.01   | 106   | 0.86   |  |
| 247 | 7.34  | 33.98 | 2.67 | 146 |     |         |         |        |         |       |        |  |
| 301 | 6.60  | 34.00 | 2.11 | 134 |     |         |         |        |         |       |        |  |
| 368 | 5.56  | 34.00 | 1.74 | 122 |     |         |         |        |         |       |        |  |
| 436 | 5.16  | 34.05 | 1.08 | 114 |     |         |         |        |         |       |        |  |
| 509 | 4.82  | 34.12 | 0.69 | 105 |     |         |         |        |         |       |        |  |

63.80

BLACK DOUGLAS; May 24, 1959; 0835 GCT; 36°23'N, 124°38'W; sounding, 2200 fm; wind, 250°, force 2; weather, cloudy; sea, moderate; wire angle, 06°.

|     |       |         |      |     |     |       |       |      |       |     |      |  |
|-----|-------|---------|------|-----|-----|-------|-------|------|-------|-----|------|--|
| 0   | 14.18 | 33.21   | 6.24 | 317 | 0   | 14.18 | 33.21 | 6.24 | 24.79 | 317 | 0.00 |  |
| 9   | 13.53 | 33.21   | 6.32 | 304 | 10  | 13.52 | 33.21 | 6.33 | 24.93 | 304 | 0.03 |  |
| 27  | 13.32 | 33.22   | 6.35 | 299 | 20  | 13.40 | 33.22 | 6.35 | 24.96 | 301 | 0.06 |  |
| 54  | 12.70 | 33.19   | 6.25 | 290 | 30  | 13.25 | 33.21 | 6.35 | 24.98 | 298 | 0.09 |  |
| 63  | 11.40 | 33.30   | 5.91 | 258 | 50  | 12.82 | 33.19 | 6.28 | 25.05 | 292 | 0.15 |  |
| 76  | 11.19 | 33.42   | 5.17 | 246 | 75  | 11.20 | 33.42 | 5.18 | 25.53 | 246 | 0.22 |  |
| 90  | 10.18 | 33.42   | 5.04 | 229 | 100 | 9.83  | 33.46 | 4.74 | 25.80 | 220 | 0.28 |  |
| 103 | 9.74  | 33.48   | 4.64 | 217 | 150 | 8.45  | 33.76 | 3.93 | 26.26 | 177 | 0.38 |  |
| 126 | 9.16  | 33.64   | 4.04 | 197 | 200 | 7.86  | 33.95 | 4.02 | 26.49 | 155 | 0.47 |  |
| 143 | 8.54  | 33.71a) | 3.98 | 182 | 250 | 7.18  | 33.98 | 2.90 | 26.62 | 144 | 0.54 |  |
| 170 | 8.28  | 33.91a) | 3.82 | 164 | 300 | 6.98  | 34.10 | 1.82 | 26.74 | 132 | 0.61 |  |
| 197 | 7.93  | 33.95   | 4.04 | 156 | 400 | 6.23  | 34.16 | 0.89 | 26.88 | 118 | 0.74 |  |
| 224 | 7.48  | 33.96   | 3.39 | 149 | 500 | 5.54  | 34.21 | 0.47 | 27.02 | 105 | 0.86 |  |
| 268 | 7.03  | 34.00   | 2.61 | 140 |     |       |       |      |       |     |      |  |
| 318 | 6.93  | 34.14   | 1.41 | 128 |     |       |       |      |       |     |      |  |
| 394 | 6.28  | 34.16   | 0.91 | 119 |     |       |       |      |       |     |      |  |
| 470 | 5.74  | 34.20   | 0.54 | 109 |     |       |       |      |       |     |      |  |
| 546 | 5.23  | 34.23   | 0.38 | 101 |     |       |       |      |       |     |      |  |

184

a) Salinity samples at 143 and 170 meters appear to have been reversed; they are assumed to be in the order listed.

| OBSERVED |    |   |                |                       | INTERPOLATED |    |   |                | COMPUTED   |                       |            |
|----------|----|---|----------------|-----------------------|--------------|----|---|----------------|------------|-----------------------|------------|
| Z        | T  | S | O <sub>2</sub> | $\delta T_3$          | Z            | T  | S | O <sub>2</sub> | $\sigma_t$ | $\delta T_3$          | $\Delta D$ |
| m        | °C | ‰ | ml/L           | 10 <sup>-5</sup> cm/g | m            | °C | ‰ | ml/L           | g/L        | 10 <sup>-5</sup> cm/g | dyn. m     |

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BLACK DOUGLAS; May 18, 1959; 0410 GCT; 34°58'N, 122°40'W; sounding, 2200 fm; wind, 340°, force 5; weather, partly cloudy; sea, very rough; wire angle, 14°.

73.70

|       |         |       |      |     |     |         |         |        |         |       |        |
|-------|---------|-------|------|-----|-----|---------|---------|--------|---------|-------|--------|
| 2     | 14.35   | 33.23 | 5.73 | 318 | 0   | (14.35) | (33.23) | (5.73) | (24.77) | (318) | (0.00) |
| 10    | 14.34   | 33.25 | 5.63 | 317 | 10  | 14.34   | 33.25   | 5.63   | 24.79   | 317   | 0.03   |
| 33    | 14.20   | 33.29 | 5.52 | 311 | 20  | 14.32   | 33.27   | 5.56   | 24.82   | 314   | 0.06   |
| 59    | 13.82   | 33.27 | 5.48 | 305 | 30  | 14.23   | 33.29   | 5.54   | 24.84   | 312   | 0.09   |
| 67    | 13.58a) | 33.30 | 5.43 | 298 | 50  | 13.98   | 33.28   | 5.48   | 24.88   | 308   | 0.16   |
| 85    | 12.86   | 33.31 | 5.29 | 284 | 75  | 13.14   | 33.30   | 5.35   | 25.08   | 290   | 0.23   |
| 98    | 12.18   | 33.33 | 5.16 | 270 | 100 | 12.14   | 33.34   | 5.12   | 25.31   | 268   | 0.30   |
| 110   | 11.21   | 33.35 | 4.86 | 252 | 150 | 9.16    | 33.64   | 3.90   | 26.05   | 197   | 0.42   |
| 137   | 9.54    | 33.53 | 4.19 | 211 | 200 | 8.52    | 33.92   | 3.00   | 26.37   | 167   | 0.51   |
| 154   | 9.07    | 33.68 | 3.84 | 193 |     |         |         |        |         |       |        |
| 181   | 8.72    | 33.84 | 3.72 | 175 |     |         |         |        |         |       |        |
| 211   | 8.40    | 33.95 | 2.73 | 163 |     |         |         |        |         |       |        |
| 236   | 8.06    | 34.02 | 2.53 | 153 |     |         |         |        |         |       |        |
| 419b) | 6.47    | 34.25 | 0.76 | 114 |     |         |         |        |         |       |        |
| 499b) | 5.86    | 34.22 | 0.48 | 109 |     |         |         |        |         |       |        |
| 567b) | 5.41    | 34.23 | 0.35 | 103 |     |         |         |        |         |       |        |

BLACK DOUGLAS; May 14, 1959; 1623 GCT; 34°24'N, 122°16'W; sounding, 2100 fm; wind, 320°, force 4; weather, drizzle; sea, moderate; wire angle, 09°.

77.70

|     |       |       |      |     |     |         |         |        |         |       |        |
|-----|-------|-------|------|-----|-----|---------|---------|--------|---------|-------|--------|
| 2   | 14.52 | 33.49 | 5.69 | 303 | 0   | (14.52) | (33.49) | (5.69) | (24.93) | (303) | (0.00) |
| 11  | 14.52 | 33.49 | 5.69 | 303 | 10  | 14.52   | 33.49   | 5.69   | 24.93   | 303   | 0.03   |
| 33  | 13.81 | 33.49 | 5.67 | 289 | 20  | 14.40   | 33.49   | 5.69   | 24.96   | 300   | 0.06   |
| 42  | 13.30 | 33.49 | 5.47 | 279 | 30  | 14.00   | 33.49   | 5.69   | 25.04   | 293   | 0.09   |
| 56  | 12.28 | 33.48 | 5.16 | 261 | 50  | 12.70   | 33.48   | 5.29   | 25.30   | 268   | 0.15   |
| 69  | 11.86 | 33.49 | 4.86 | 252 | 75  | 11.42   | 33.50   | 4.60   | 25.55   | 244   | 0.21   |
| 91  | 10.10 | 33.51 | 3.86 | 221 | 100 | 9.99    | 33.60   | 3.58   | 25.88   | 213   | 0.27   |
| 109 | 9.89  | 33.68 | 3.32 | 205 | 150 | 8.96    | 33.82   | 2.88   | 26.22   | 180   | 0.37   |
| 127 | 9.53  | 33.75 | 3.04 | 194 | 200 | 8.40    | 33.96   | 2.28   | 26.42   | 162   | 0.45   |
| 154 | 8.88  | 33.83 | 2.83 | 179 | 250 | 7.95    | 34.10   | 1.58   | 26.60   | 144   | 0.53   |
| 181 | 8.67  | 33.91 | 2.47 | 170 | 300 | 7.14    | 34.10   | 1.45   | 26.71   | 134   | 0.60   |
| 217 | 8.18  | 34.01 | 2.07 | 155 | 400 | 6.50    | 34.19   | 0.70   | 26.87   | 119   | 0.74   |
| 244 | 8.02  | 34.10 | 1.59 | 146 | 500 | 5.89    | 34.28   | 0.43   | 27.02   | 105   | 0.85   |
| 288 | 7.24  | 34.09 | 1.56 | 136 | 600 | (5.24)  | (34.32) |        | (27.13) | (94)  | (0.96) |
| 346 | 6.88  | 34.14 | 1.02 | 128 |     |         |         |        |         |       |        |
| 435 | 6.28  | 34.22 | 0.55 | 114 |     |         |         |        |         |       |        |
| 515 | 5.80  | 34.29 | -    | 103 |     |         |         |        |         |       |        |
| 583 | 5.35  | 34.31 | 0.34 | 96  |     |         |         |        |         |       |        |

BLACK DOUGLAS; May 13, 1959; 1101 GCT; 34°09'N, 121°09'W; sounding, 1200 fm; wind, 150°, force 2; weather, overcast; sea, slight; wire angle, 02°.

80.60

|     |       |       |      |     |     |         |         |        |         |       |        |
|-----|-------|-------|------|-----|-----|---------|---------|--------|---------|-------|--------|
| 1   | 14.63 | 33.66 | 5.64 | 293 | 0   | (14.63) | (33.66) | (5.64) | (25.04) | (293) | (0.00) |
| 10  | 14.61 | 33.55 | 5.56 | 301 | 10  | 14.61   | 33.55   | 5.56   | 24.96   | 301   | 0.03   |
| 28  | 14.24 | 33.53 | 5.40 | 294 | 20  | 14.49   | 33.54   | 5.47   | 24.98   | 298   | 0.06   |
| 37  | 12.96 | 33.55 | 4.77 | 268 | 30  | 14.13   | 33.53   | 5.36   | 25.04   | 292   | 0.09   |
| 51  | 11.39 | 33.57 | 3.96 | 238 | 50  | 11.39   | 33.57   | 3.97   | 25.61   | 239   | 0.14   |
| 64  | 10.55 | 33.67 | 3.46 | 216 | 75  | 9.92    | 33.71   | 3.22   | 25.98   | 203   | 0.20   |
| 86  | 9.41  | 33.74 | 3.03 | 193 | 100 | 9.26    | 33.78   | 2.89   | 26.14   | 188   | 0.25   |
| 104 | 9.20  | 33.79 | 2.83 | 186 | 150 | 9.05    | 33.97   | 2.34   | 26.31   | 171   | 0.34   |
| 122 | 9.00  | 33.82 | 2.77 | 181 | 200 | 8.65    | 34.14   | 1.44   | 26.52   | 152   | 0.42   |
| 139 | 8.94  | 33.91 | 2.52 | 173 | 250 | 8.16    | 34.22   | 1.12   | 26.66   | 139   | 0.49   |
| 167 | 9.04  | 34.05 | 1.80 | 165 | 300 | 7.64    | 34.28   | 0.94   | 26.78   | 128   | 0.56   |
| 198 | 8.67  | 34.14 | 1.45 | 152 | 400 | 6.66    | 34.21   | 0.64   | 26.87   | 119   | 0.69   |
| 225 | 8.39  | 34.20 | 1.28 | 144 | 500 | 5.89    | 34.28   | 0.40   | 27.02   | 105   | 0.81   |
| 270 | 7.98  | 34.24 | 0.99 | 135 |     |         |         |        |         |       |        |
| 319 | 7.43  | 34.29 | 0.89 | 124 |     |         |         |        |         |       |        |
| 395 | 6.70  | 34.21 | 0.68 | 120 |     |         |         |        |         |       |        |
| 472 | 6.04  | 34.26 | 0.45 | 108 |     |         |         |        |         |       |        |
| 549 | 5.70  | 34.31 | 0.35 | 100 |     |         |         |        |         |       |        |

a) Mean value of 13.52 and 13.64°C.

b) Pretrip; depths too uncertain for interpolation.

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| OBSERVED |    |   |                |                   | INTERPOLATED |    |   |                | COMPUTED   |                   |            |
|----------|----|---|----------------|-------------------|--------------|----|---|----------------|------------|-------------------|------------|
| Z        | T  | S | O <sub>2</sub> | $\delta T_{-5}^3$ | Z            | T  | S | O <sub>2</sub> | $\sigma_t$ | $\delta T_{-5}^3$ | $\Delta D$ |
| m        | °C | ‰ | ml/L           | 10 cm/g           | m            | °C | ‰ | ml/L           | g/L        | 10 cm/g           | dyn. m     |

80.80

BLACK DOUGLAS; May 13, 1959; 2055 GCT; 33°29'N, 122°32'W; sounding, 2400 fm; wind, 280°, force 3;  
weather, clear; sea, moderate; wire angle, 00°.

|     |       |        |      |     |     |         |         |        |         |       |        |
|-----|-------|--------|------|-----|-----|---------|---------|--------|---------|-------|--------|
| 1   | 14.66 | 33.48  | 5.73 | 307 | 0   | (14.66) | (33.48) | (5.73) | (24.89) | (307) | (0.00) |
| 10  | 14.19 | 33.46  | 5.73 | 298 | 10  | 14.19   | 33.46   | 5.73   | 24.98   | 298   | 0.03   |
| 28  | 13.49 | 33.49  | 5.79 | 282 | 20  | 13.64   | 33.49   | 5.76   | 25.12   | 286   | 0.06   |
| 55  | 13.35 | 33.48  | 5.66 | 281 | 30  | 13.47   | 33.49   | 5.77   | 25.15   | 282   | 0.09   |
| 64  | 13.31 | 33.64u | 5.56 | -   | 50  | 13.37   | 33.48   | 5.68   | 25.16   | 281   | 0.14   |
| 77  | 12.88 | 33.49  | 5.38 | 271 | 75  | 12.96   | 33.49   | 5.42   | 25.25   | 273   | 0.21   |
| 91  | 11.69 | 33.49  | 4.49 | 250 | 100 | 11.05   | 33.56   | 4.13   | 25.67   | 233   | 0.28   |
| 104 | 10.72 | 33.58  | 3.99 | 226 | 150 | 8.90    | 33.77   | 3.34   | 26.19   | 183   | 0.38   |
| 126 | 9.46  | 33.60  | 3.63 | 205 | 200 | 8.44    | 33.95   | 2.48   | 26.41   | 163   | 0.47   |
| 143 | 8.99  | 33.75  | 3.35 | 186 | 250 | 7.76    | 34.05   | 1.90   | 26.58   | 146   | 0.55   |
| 171 | 8.70  | 33.84  | 3.31 | 175 | 300 | 7.17    | 34.09   | 1.45   | 26.70   | 135   | 0.62   |
| 198 | 8.46  | 33.94  | 2.52 | 164 | 400 | 6.45    | 34.17   | 0.72   | 26.87   | 119   | 0.75   |
| 224 | 8.10  | 34.04  | 2.08 | 152 | 500 | 5.82    | 34.25   | 0.44   | 27.00   | 106   | 0.87   |
| 270 | 7.50  | 34.05  | 1.78 | 143 |     |         |         |        |         |       |        |
| 319 | 6.99  | 34.11  | 1.27 | 131 |     |         |         |        |         |       |        |
| 395 | 6.48  | 34.17  | 0.72 | 120 |     |         |         |        |         |       |        |
| 473 | 5.97  | 34.23  | 0.48 | 109 |     |         |         |        |         |       |        |
| 550 | 5.54  | 34.29  | 0.35 | 100 |     |         |         |        |         |       |        |

80.100

BLACK DOUGLAS; May 11, 1959; 1431 GCT; 32°49'N, 123°54'W; sounding, 2200 fm; wind, 320°, force 4;  
weather, partly cloudy; sea, very rough; wire angle, 06°.

|     |       |        |      |     |     |         |         |        |         |       |        |
|-----|-------|--------|------|-----|-----|---------|---------|--------|---------|-------|--------|
| 1   | 15.18 | 33.36  | 5.69 | 326 | 0   | (15.18) | (33.36) | (5.69) | (24.69) | (326) | (0.00) |
| 10  | 15.16 | 33.37  | 5.53 | 325 | 10  | 15.16   | 33.37   | 5.53   | 24.70   | 325   | 0.03   |
| 28  | 15.18 | 33.33  | 5.56 | 328 | 20  | 15.17   | 33.35   | 5.54   | 24.69   | 326   | 0.06   |
| 55  | 15.16 | 33.35  | 5.54 | 326 | 30  | 15.18   | 33.33   | 5.56   | 24.67   | 328   | 0.10   |
| 64  | 14.92 | 33.34  | 5.56 | 322 | 50  | 15.18   | 33.34   | 5.55   | 24.68   | 327   | 0.16   |
| 78  | 13.90 | 33.28  | 5.74 | 306 | 75  | 14.15   | 33.28   | 5.71   | 24.85   | 311   | 0.24   |
| 91  | 12.78 | 33.32  | 5.51 | 282 | 100 | 11.80   | 33.38   | 5.11   | 25.38   | 260   | 0.32   |
| 104 | 11.40 | 33.40  | 4.90 | 251 | 150 | 9.15    | 33.69   | 4.08   | 26.09   | 193   | 0.43   |
| 127 | 9.96  | 33.52  | 3.95 | 218 | 200 | 8.55    | 33.92   | 3.60   | 26.36   | 167   | 0.52   |
| 144 | 9.28  | 33.65  | 4.12 | 198 | 250 | 7.76    | 33.99   | 2.44   | 26.54   | 150   | 0.60   |
| 171 | 8.84  | 33.80  | 3.94 | 180 | 300 | 6.96    | 34.00   | 2.15   | 26.66   | 139   | 0.68   |
| 198 | 8.58  | 33.91  | 3.62 | 168 | 400 | 6.12    | 34.10   | 1.08   | 26.85   | 121   | 0.81   |
| 225 | 8.22  | 34.34r | 2.51 | -   | 500 | 5.40    | 34.16   | 0.60   | 26.99   | 108   | 0.93   |
| 269 | 7.39  | 34.28r | 2.42 | -   |     |         |         |        |         |       |        |
| 318 | 6.75  | 34.02  | 1.94 | 135 |     |         |         |        |         |       |        |
| 395 | 6.15  | 34.09  | 1.11 | 121 |     |         |         |        |         |       |        |
| 471 | 5.51  | 34.14  | 0.68 | 110 |     |         |         |        |         |       |        |
| 548 | 5.22  | 34.20  | 0.49 | 103 |     |         |         |        |         |       |        |

80.120

BLACK DOUGLAS; May 11, 1959; 0431 GCT; 32°10.5'N, 125°14'W; sounding, 2400 fm; wind, 360°, force 5;  
weather, cloudy; sea, very rough; wire angle, 22°.

|     |       |       |      |     |     |         |         |        |         |       |        |
|-----|-------|-------|------|-----|-----|---------|---------|--------|---------|-------|--------|
| 3   | 15.88 | 33.53 | 5.51 | 329 | 0   | (15.88) | (33.53) | (5.51) | (24.66) | (329) | (0.00) |
| 11  | 15.88 | 33.54 | 5.40 | 328 | 10  | 15.88   | 33.54   | 5.41   | 24.67   | 328   | 0.03   |
| 32  | 15.90 | 33.51 | 5.38 | 330 | 20  | 15.89   | 33.53   | 5.40   | 24.67   | 328   | 0.06   |
| 55  | 15.87 | 33.53 | 5.39 | 329 | 30  | 15.90   | 33.51   | 5.38   | 24.65   | 330   | 0.10   |
| 64  | 15.68 | 33.53 | 5.45 | 324 | 50  | 15.89   | 33.52   | 5.39   | 24.66   | 330   | 0.16   |
| 80  | 15.18 | 33.52 | 5.54 | 314 | 75  | 15.31   | 33.52   | 5.53   | 24.79   | 317   | 0.24   |
| 93  | 14.97 | 33.57 | 5.48 | 306 | 100 | 14.87   | 33.62   | 5.48   | 24.95   | 301   | 0.32   |
| 105 | 14.76 | 33.66 | 5.48 | 295 | 150 | 11.54   | 33.60   | 4.79   | 25.60   | 239   | 0.46   |
| 130 | 12.66 | 33.55 | 5.15 | 262 | 200 | 9.00    | 33.71   | 3.87   | 26.12   | 190   | 0.57   |
| 147 | 11.62 | 33.56 | 4.87 | 243 | 250 | 8.32    | 33.95   | 3.58   | 26.43   | 161   | 0.66   |
| 200 | 9.00  | 33.71 | 3.87 | 190 | 300 | 7.40    | 33.96   | 3.01   | 26.57   | 148   | 0.74   |
| 225 | 8.68  | 33.91 | 3.74 | 170 | 400 | 6.04    | 34.00   | 2.03   | 26.78   | 128   | 0.88   |
| 267 | 8.04  | 33.96 | 3.47 | 157 | 500 | 5.40    | 34.12   | 0.83   | 26.96   | 110   | 1.01   |
| 324 | 6.96  | 33.97 | 2.68 | 141 |     |         |         |        |         |       |        |
| 410 | 5.93  | 34.00 | 1.91 | 126 |     |         |         |        |         |       |        |
| 489 | 5.42  | 34.11 | 0.93 | 112 |     |         |         |        |         |       |        |
| 556 | 5.31  | 34.18 | 0.49 | 106 |     |         |         |        |         |       |        |

| OBSERVED |    |   |                |                        | INTERPOLATED |    |   |                | COMPUTED   |                        |            |
|----------|----|---|----------------|------------------------|--------------|----|---|----------------|------------|------------------------|------------|
| Z        | T  | S | O <sub>2</sub> | $\delta T_3$           | Z            | T  | S | O <sub>2</sub> | $\sigma_t$ | $\delta T_3$           | $\Delta D$ |
| m        | °C | ‰ | ml/L           | $\frac{10^{-5}}{cm/g}$ | m            | °C | ‰ | ml/L           | g/L        | $\frac{10^{-5}}{cm/g}$ | dyn. m     |

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BLACK DOUGLAS; May 10, 1959; 1559 GCT; 31°25.5'N, 126°50'W; sounding, 2000+ fm; wind, 340°, force 5; weather, rain; sea, very rough; wire angle, 12°.

80.145

|     |       |       |      |     |     |         |         |        |         |       |        |
|-----|-------|-------|------|-----|-----|---------|---------|--------|---------|-------|--------|
| 3   | 16.58 | 33.69 | 5.29 | 332 | 0   | (16.58) | (33.69) | (5.29) | (24.63) | (332) | (0.00) |
| 11  | 16.56 | 33.71 | 5.38 | 330 | 10  | 16.56   | 33.71   | 5.37   | 24.65   | 330   | 0.03   |
| 34  | 16.57 | 33.69 | 5.29 | 332 | 20  | 16.56   | 33.70   | 5.34   | 24.64   | 331   | 0.07   |
| 60  | 16.58 | 33.70 | 5.35 | 331 | 30  | 16.56   | 33.69   | 5.30   | 24.64   | 331   | 0.10   |
| 69  | 17.00 | 33.93 | 5.29 | 324 | 50  | 16.57   | 33.69   | 5.29   | 24.63   | 332   | 0.16   |
| 87  | 17.08 | 34.04 | 5.44 | 318 | 75  | 17.03   | 33.98   | 5.39   | 24.74   | 321   | 0.25   |
| 100 | 17.10 | 34.10 | 5.38 | 314 | 100 | 17.10   | 34.10   | 5.38   | 24.82   | 314   | 0.33   |
| 113 | 15.76 | 33.94 | 5.31 | 296 | 150 | 13.53   | 33.78   | 5.03   | 25.37   | 262   | 0.47   |
| 140 | 14.02 | 33.79 | 5.11 | 271 | 200 | 9.80    | 33.69   | 4.03   | 25.98   | 203   | 0.59   |
| 157 | 13.17 | 33.78 | 4.95 | 255 | 250 | 8.63    | 33.89   | 3.39   | 26.33   | 170   | 0.69   |
| 183 | 10.68 | 33.63 | 4.20 | 222 | 300 | 7.90    | 33.99   |        | 26.52   | 152   | 0.77   |
| 214 | 9.34  | 33.73 | 3.91 | 193 | 400 | 6.49    | 34.07   |        | 26.78   | 128   | 0.92   |
| 241 | 8.78  | 33.86 | 3.49 | 175 | 500 | 5.69    | 34.15   | 0.68   | 26.95   | 112   | 1.04   |
| 285 | 8.10  | 33.96 | 3.06 | 157 |     |         |         |        |         |       |        |
| 432 | 6.08  | 34.11 | 1.03 | 120 |     |         |         |        |         |       |        |
| 511 | 5.62  | 34.16 | 0.63 | 110 |     |         |         |        |         |       |        |
| 578 | 5.31  | 34.22 | 0.47 | 102 |     |         |         |        |         |       |        |

BLACK DOUGLAS; May 12, 1959; 1228 GCT; 33°34'N, 120°45'W; sounding, 800 fm; wind, 100°, force 1; weather, overcast; sea, moderate; wire angle, 04°.

83.60

|     |       |       |      |     |     |         |         |        |         |       |        |
|-----|-------|-------|------|-----|-----|---------|---------|--------|---------|-------|--------|
| 1   | 14.08 | 33.48 | 5.52 | 295 | 0   | (14.08) | (33.48) | (5.52) | (25.02) | (295) | (0.00) |
| 9   | 13.43 | 33.50 | 5.29 | 281 | 10  | 13.42   | 33.50   | 5.29   | 25.17   | 280   | 0.03   |
| 27  | 13.09 | 33.60 | 5.36 | 267 | 20  | 13.19   | 33.58   | 5.35   | 25.27   | 271   | 0.06   |
| 54  | 12.50 | 33.60 | 5.08 | 256 | 30  | 13.04   | 33.60   | 5.33   | 25.32   | 266   | 0.08   |
| 63  | 12.26 | 33.64 | 4.95 | 249 | 50  | 12.60   | 33.60   | 5.12   | 25.41   | 258   | 0.14   |
| 77  | 11.98 | 33.66 | 4.80 | 242 | 75  | 12.02   | 33.66   | 4.84   | 25.56   | 243   | 0.20   |
| 90  | 11.14 | 33.60 | 4.13 | 232 | 100 | 9.93    | 33.64   | 3.45   | 25.92   | 209   | 0.26   |
| 105 | 9.81  | 33.68 | 3.29 | 204 | 150 | 9.09    | 33.84   | 2.80   | 26.22   | 181   | 0.35   |
| 125 | 9.48  | 33.78 | 2.80 | 192 | 200 | 8.37    | 33.98   | 2.24   | 26.44   | 160   | 0.44   |
| 143 | 9.20  | 33.84 | 2.82 | 183 | 250 | 7.72    | 34.12   | 1.72   | 26.65   | 140   | 0.52   |
| 171 | 8.76  | 33.84 | 2.63 | 176 | 300 | 7.20    | 34.14   | 1.32   | 26.73   | 132   | 0.59   |
| 197 | 8.40  | 33.96 | 2.30 | 162 | 400 | 6.42    | 34.23   | 0.68   | 26.92   | 114   | 0.71   |
| 224 | 8.07  | 34.08 | 1.97 | 148 | 500 | 5.94    | 34.27   | 0.43   | 27.01   | 106   | 0.83   |
| 269 | 7.44  | 34.13 | 1.56 | 136 |     |         |         |        |         |       |        |
| 318 | 7.06  | 34.14 | 1.24 | 130 |     |         |         |        |         |       |        |
| 395 | 6.44  | 34.23 | 0.71 | 115 |     |         |         |        |         |       |        |
| 472 | 6.07  | 34.25 | 0.48 | 109 |     |         |         |        |         |       |        |
| 549 | 5.72  | 34.31 | 0.34 | 100 |     |         |         |        |         |       |        |

BLACK DOUGLAS; May 8, 1959; 0204, 0232 GCT; 33°00'N, 120°21.5'W; sounding, 400 fm; wind, 320°, force 4; weather, clear; sea, rough; wire angle, 26°, 28°.

87.60

|     |       |        |      |     |     |         |         |        |         |       |        |
|-----|-------|--------|------|-----|-----|---------|---------|--------|---------|-------|--------|
| 2   | 14.60 | 33.63  | 5.74 | 295 | 0   | (14.60) | (33.63) | (5.74) | (25.02) | (295) | (0.00) |
| 10  | 14.53 | 33.58  | 5.67 | 296 | 10  | 14.53   | 33.58   | 5.67   | 25.00   | 296   | 0.03   |
| 26  | 14.13 | 33.62  | 5.52 | 286 | 20  | 14.30   | 33.60   | 5.58   | 25.07   | 290   | 0.06   |
| 50  | 14.07 | 33.65  | 5.39 | 282 | 30  | 14.12   | 33.63   | 5.48   | 25.13   | 284   | 0.09   |
| 58  | 13.54 | 33.78r | 5.12 | -   | 50  | 14.07   | 33.65   | 5.39   | 25.16   | 282   | 0.14   |
| 70  | 12.49 | 33.57  | 4.68 | 258 | 75  | 11.93   | 33.56   | 4.39   | 25.51   | 248   | 0.21   |
| 82  | 11.08 | 33.57  | 4.01 | 233 | 100 | 9.87    | 33.67   | 3.56   | 25.96   | 206   | 0.27   |
| 94  | 10.12 | 33.64  | 3.70 | 212 | 150 | 8.73    | 33.89   | 2.66   | 26.32   | 171   | 0.36   |
| 114 | 9.42  | 33.75  | 3.21 | 193 | 200 | 8.19    | 34.02   | 2.10   | 26.50   | 154   | 0.45   |
| 130 | 9.16  | 33.79  | 3.04 | 186 | 250 | 7.58    | 34.06   | 1.79   | 26.62   | 142   | 0.52   |
| 154 | 8.64  | 33.91  | 2.60 | 169 | 300 | 7.20    | 34.15   | 1.38   | 26.74   | 131   | 0.59   |
| 177 | 8.43  | 34.15r | 2.34 | -   | 400 | 6.51    | 34.26   | 0.61   | 26.92   | 114   | 0.72   |
| 201 | 8.18  | 34.02  | 2.09 | 154 | 500 | 6.07    | 34.31   | 0.42   | 27.02   | 105   | 0.83   |
| 240 | 7.66  | 34.05  | 1.86 | 145 |     |         |         |        |         |       |        |
| 285 | 7.32  | 34.13  | 1.51 | 134 |     |         |         |        |         |       |        |
| 354 | 6.76  | 34.20  | 0.85 | 121 |     |         |         |        |         |       |        |
| 432 | 6.35  | 34.29  | 0.47 | 109 |     |         |         |        |         |       |        |
| 508 | 6.02  | 34.31  | 0.39 | 104 |     |         |         |        |         |       |        |

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| OBSERVED |    |   |                |                                 | INTERPOLATED |    |   |                | COMPUTED   |                                 |            |
|----------|----|---|----------------|---------------------------------|--------------|----|---|----------------|------------|---------------------------------|------------|
| Z        | T  | S | O <sub>2</sub> | $\delta T_3$                    | Z            | T  | S | O <sub>2</sub> | $\sigma_t$ | $\delta T_3$                    | $\Delta D$ |
| m        | °C | ‰ | ml/L           | $10^{-5} \text{ cm}^3/\text{g}$ | m            | °C | ‰ | ml/L           | g/L        | $10^{-5} \text{ cm}^3/\text{g}$ | dyn. m     |

90.28 ORCA; May 7, 1959; 0525 GCT; 33°28.5'N, 117°47'W; sounding, 250 fm; wind, 120°, force 1; weather, clear; sea, slight; wire angle, 00°.

|     |       |       |      |     |     |         |         |        |         |       |        |
|-----|-------|-------|------|-----|-----|---------|---------|--------|---------|-------|--------|
| 1   | 18.65 | 33.60 | 6.17 | 386 | 0   | (18.65) | (33.60) | (6.17) | (24.06) | (386) | (0.00) |
| 11  | 15.82 | 33.53 | 5.74 | 327 | 10  | 16.20   | 33.53   | 5.85   | 24.60   | 335   | 0.04   |
| 31  | 12.14 | 33.56 | 3.43 | 252 | 20  | 15.45   | 33.53   | 5.57   | 24.76   | 320   | 0.07   |
| 51  | 11.12 | 33.66 | 3.09 | 227 | 30  | 12.30   | 33.56   | 3.53   | 25.43   | 256   | 0.10   |
| 76  | 10.42 | 33.69 | 3.17 | 213 | 50  | 11.15   | 33.66   | 3.09   | 25.73   | 227   | 0.15   |
| 101 | 9.94  | 33.80 | 2.64 | 197 | 75  | 10.43   | 33.69   | 3.17   | 25.88   | 213   | 0.20   |
| 126 | 9.62  | 33.89 | 2.45 | 186 | 100 | 9.95    | 33.80   | 2.65   | 26.05   | 197   | 0.25   |
| 166 | 9.32  | 34.05 | 1.92 | 169 | 150 | 9.42    | 33.99   | 2.17   | 26.28   | 175   | 0.35   |
| 206 | 9.06  | 34.19 | 1.51 | 155 | 200 | 9.10    | 34.18   | 1.55   | 26.48   | 156   | 0.43   |
| 256 | 8.57  | 34.22 | 1.37 | 145 | 250 | 8.62    | 34.22   | 1.40   | 26.59   | 146   | 0.51   |
| 306 | 8.20  | 34.24 | 0.94 | 138 | 300 | 8.23    | 34.24   | 1.00   | 26.66   | 139   | 0.58   |

90.32 ORCA; May 7, 1959; 0834 GCT; 33°20.5'N, 118°03'W; sounding, 410 fm; wind, 190°, force 1; weather, clear; sea, slight; wire angle, 02°.

|     |       |       |      |     |     |       |       |      |       |     |      |
|-----|-------|-------|------|-----|-----|-------|-------|------|-------|-----|------|
| 0   | 17.42 | 33.61 | 5.46 | 357 | 0   | 17.42 | 33.61 | 5.46 | 24.37 | 357 | 0.00 |
| 10  | 17.02 | 33.64 | 5.46 | 346 | 10  | 17.02 | 33.64 | 5.46 | 24.48 | 346 | 0.04 |
| 30  | 15.34 | 33.56 | 5.80 | 315 | 20  | 16.75 | 33.63 | 5.50 | 24.54 | 340 | 0.07 |
| 41  | 13.57 | 33.54 | 5.56 | 280 | 30  | 15.34 | 33.56 | 5.80 | 24.81 | 315 | 0.10 |
| 50  | 13.18 | 33.55 | 4.68 | 272 | 50  | 13.18 | 33.55 | 4.68 | 25.26 | 272 | 0.16 |
| 65  | 12.32 | 33.58 | 4.28 | 254 | 75  | 11.92 | 33.64 | 4.14 | 25.58 | 242 | 0.22 |
| 81  | 11.58 | 33.68 | 4.07 | 234 | 100 | 10.71 | 33.69 | 3.87 | 25.82 | 218 | 0.28 |
| 101 | 10.70 | 33.69 | 3.87 | 218 | 150 | 9.69  | 34.04 | 2.50 | 26.28 | 176 | 0.38 |
| 126 | 10.08 | 33.89 | 3.54 | 193 | 200 | 9.19  | 34.14 | 1.82 | 26.44 | 160 | 0.47 |
| 146 | 9.74  | 34.02 | 2.55 | 178 | 250 | 8.27  | 34.07 | 1.80 | 26.53 | 152 | 0.55 |
| 176 | 9.54  | 34.14 | 2.23 | 166 | 300 | 8.02  | 34.18 | 1.06 | 26.65 | 140 | 0.62 |
| 206 | 9.09  | 34.14 | 1.77 | 159 | 400 | 7.09  | 34.25 | 0.74 | 26.84 | 122 | 0.76 |
| 236 | 8.42  | 34.05 | 1.93 | 155 | 500 | 6.29  | 34.27 | 0.53 | 26.96 | 110 | 0.88 |
| 276 | 8.12  | 34.14 | 1.31 | 144 |     |       |       |      |       |     |      |
| 336 | 7.88  | 34.24 | 0.83 | 134 |     |       |       |      |       |     |      |
| 411 | 6.96  | 34.25 | 0.72 | 120 |     |       |       |      |       |     |      |
| 486 | 6.35  | 34.27 | 0.53 | 111 |     |       |       |      |       |     |      |
| 566 | 6.04  | 34.27 | 0.41 | 107 |     |       |       |      |       |     |      |

90.37 ORCA; May 7, 1959; 1218 GCT; 33°11'N, 118°24'W; sounding, 640 fm; wind, 190°, force 1; weather, clear; sea, slight; wire angle, 03°.

|     |       |       |        |     |     |         |         |        |         |       |        |
|-----|-------|-------|--------|-----|-----|---------|---------|--------|---------|-------|--------|
| 1   | 16.76 | 33.60 | 5.35   | 343 | 0   | (16.76) | (33.60) | (5.35) | (24.52) | (343) | (0.00) |
| 11  | 16.26 | 33.60 | 5.66   | 332 | 10  | 16.28   | 33.60   | 5.65   | 24.62   | 332   | 0.03   |
| 31  | 13.14 | 33.55 | 4.85   | 272 | 20  | 16.10   | 33.60   | 5.65   | 24.67   | 328   | 0.07   |
| 41  | 12.65 | 33.53 | 4.35   | 264 | 30  | 13.26   | 33.56   | 4.90   | 25.24   | 273   | 0.10   |
| 51  | 12.10 | 33.55 | 4.08   | 252 | 50  | 12.12   | 33.55   | 4.08   | 25.46   | 252   | 0.15   |
| 66  | 11.45 | 33.58 | 3.79   | 239 | 75  | 11.11   | 33.60   | 3.68   | 25.69   | 231   | 0.21   |
| 81  | 10.90 | 33.62 | 3.62   | 226 | 100 | 10.08   | 33.68   | 3.30   | 25.92   | 209   | 0.27   |
| 101 | 10.06 | 33.68 | 3.29   | 208 | 150 | 9.37    | 33.91   | 2.36   | 26.23   | 180   | 0.36   |
| 126 | 9.60  | 33.86 | 2.58   | 188 | 200 | 9.07    | 34.12   | 1.71   | 26.44   | 160   | 0.45   |
| 146 | 9.42  | 33.89 | 2.41a) | 182 | 250 | 8.51    | 34.16   | 1.29   | 26.56   | 148   | 0.53   |
| 176 | 9.04  | 34.04 | 1.89   | 166 | 300 | 7.71    | 34.17   | 1.06   | 26.69   | 136   | 0.60   |
| 207 | 9.08  | 34.14 | 1.67   | 159 | 400 | 6.82    | 34.23   | 0.67   | 26.86   | 120   | 0.73   |
| 237 | 8.73  | 34.16 | 1.38   | 152 | 500 | 6.24    | 34.28   | 0.42   | 26.98   | 109   | 0.85   |
| 277 | 8.01  | 34.16 | 1.12   | 141 |     |         |         |        |         |       |        |
| 337 | 7.28  | 34.20 | 0.95   | 128 |     |         |         |        |         |       |        |
| 412 | 6.76  | 34.24 | 0.61   | 118 |     |         |         |        |         |       |        |
| 487 | 6.31  | 34.27 | 0.43   | 110 |     |         |         |        |         |       |        |
| 568 | 5.86  | 34.33 | 0.32   | 101 |     |         |         |        |         |       |        |

a) Alternate value, 2.58 ml/L, not used in interpolation.

| OBSERVED |    |   |                |                       | INTERPOLATED |    |   |                | COMPUTED   |                       |            |
|----------|----|---|----------------|-----------------------|--------------|----|---|----------------|------------|-----------------------|------------|
| Z        | T  | S | O <sub>2</sub> | $\delta T_3$          | Z            | T  | S | O <sub>2</sub> | $\sigma_t$ | $\delta T_3$          | $\Delta D$ |
| m        | °C | ‰ | ml/L           | 10 <sup>-5</sup> cm/g | m            | °C | ‰ | ml/L           | g/L        | 10 <sup>-5</sup> cm/g | dyn. m     |

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5905

ORCA; May 7, 1959; 1726 GCT; 32°56.5'N, 118°57'W; sounding, 975 fm; wind, 270°, force 1; weather, clear; sea, moderate; wire angle, 13°.

90.45

|     |       |       |      |     |     |        |         |        |         |      |        |
|-----|-------|-------|------|-----|-----|--------|---------|--------|---------|------|--------|
| 0   | 16.22 | 33.58 | 5.57 | 332 | 0   | 16.22  | 33.58   | 5.57   | 24.63   | 332  | 0.00   |
| 10  | 16.06 | 33.60 | 5.60 | 327 | 10  | 16.06  | 33.60   | 5.60   | 24.68   | 327  | 0.03   |
| 29  | 15.94 | 33.61 | 5.67 | 324 | 20  | 16.01  | 33.60   | 5.62   | 24.69   | 326  | 0.06   |
| 39  | 14.16 | 33.58 | 5.36 | 290 | 30  | 15.93  | 33.61   | 5.67   | 24.72   | 323  | 0.10   |
| 53  | 11.66 | 33.56 | 4.14 | 244 | 50  | 12.25  | 33.56   | 4.46   | 25.44   | 254  | 0.16   |
| 68  | 10.66 | 33.64 | 3.66 | 221 | 75  | 10.45  | 33.68   | 3.44   | 25.86   | 215  | 0.21   |
| 92  | 10.06 | 33.75 | 2.98 | 203 | 100 | 9.86   | 33.77   | 2.82   | 26.04   | 198  | 0.27   |
| 112 | 9.57  | 33.80 | 2.62 | 191 | 150 | 9.01   | 33.93   | 2.25   | 26.30   | 173  | 0.36   |
| 130 | 9.28  | 33.86 | 2.46 | 183 | 200 | 8.45   | 34.08   | 1.78   | 26.50   | 154  | 0.44   |
| 149 | 9.02  | 33.93 | 2.26 | 174 | 250 | 8.19   | 34.14   | 1.25   | 26.60   | 145  | 0.52   |
| 178 | 8.76  | 34.05 | 2.07 | 160 | 300 | 7.60   | 34.17   | 1.01   | 26.70   | 135  | 0.59   |
| 211 | 8.33  | 34.09 | 1.60 | 151 | 400 | 6.73   | 34.24   | 0.58   | 26.88   | 118  | 0.72   |
| 240 | 8.26  | 34.14 | 1.29 | 146 | 500 | 6.12   | 34.28   | 0.32   | 26.99   | 107  | 0.84   |
| 288 | 7.72  | 34.16 | 1.09 | 137 | 600 | (5.67) | (34.34) | (0.36) | (27.10) | (97) | (0.95) |
| 340 | 7.23  | 34.22 | 0.80 | 126 |     |        |         |        |         |      |        |
| 424 | 6.56  | 34.25 | 0.50 | 115 |     |        |         |        |         |      |        |
| 508 | 6.08  | 34.29 | 0.30 | 106 |     |        |         |        |         |      |        |
| 593 | 5.70  | 34.34 | 0.35 | 98  |     |        |         |        |         |      |        |

ORCA; May 8, 1959; 0028, 0115 GCT; 32°34.5'N, 119°37'W; sounding, 510 fm; wind, 310°, force 2; weather, clear; sea, rough; wire angle, 22°, 31°.

90.55

|     |       |       |      |     |     |         |         |        |         |       |        |
|-----|-------|-------|------|-----|-----|---------|---------|--------|---------|-------|--------|
| 1   | 16.36 | 33.53 | 5.65 | 339 | 0   | (16.36) | (33.53) | (5.65) | (24.56) | (339) | (0.00) |
| 10  | 15.52 | 33.53 | 5.70 | 321 | 10  | 15.52   | 33.53   | 5.70   | 24.75   | 321   | 0.03   |
| 29  | 15.44 | 33.53 | 5.75 | 319 | 20  | 15.47   | 33.53   | 5.72   | 24.76   | 320   | 0.06   |
| 57  | 15.01 | 33.53 | 5.65 | 310 | 30  | 15.43   | 33.53   | 5.75   | 24.77   | 319   | 0.10   |
| 66  | 14.52 | 33.50 | 5.55 | 302 | 50  | 15.25   | 33.53   | 5.71   | 24.81   | 315   | 0.16   |
| 78  | 12.50 | 33.42 | 4.93 | 269 | 75  | 13.50   | 33.46   | 5.30   | 25.12   | 285   | 0.24   |
| 93  | 11.04 | 33.37 | 4.23 | 247 | 100 | 10.78   | 33.47   | 4.00   | 25.64   | 236   | 0.30   |
| 106 | 10.64 | 33.55 | 3.88 | 227 | 150 | 9.41    | 33.79   | 3.24   | 26.12   | 190   | 0.41   |
| 129 | 9.92  | 33.71 | 3.49 | 203 | 200 | 8.65    | 34.00   | 2.33   | 26.42   | 163   | 0.50   |
| 147 | 9.44  | 33.78 | 3.29 | 191 | 250 | 8.07    | 34.11   | 1.72   | 26.58   | 146   | 0.58   |
| 174 | 9.26  | 33.86 | 2.93 | 182 | 300 | 7.61    | 34.16   | 1.37   | 26.70   | 136   | 0.65   |
| 201 | 8.62  | 34.00 | 2.32 | 162 | 400 | 6.85    | 34.21   | 0.76   | 26.84   | 122   | 0.78   |
|     |       |       |      |     | 500 | 6.21    | 34.28   | 0.42   | 26.98   | 108   | 0.91   |
| 224 | 8.23  | 34.06 | 1.89 | 152 |     |         |         |        |         |       |        |
| 269 | 7.92  | 34.14 | 1.59 | 141 |     |         |         |        |         |       |        |
| 319 | 7.39  | 34.18 | 1.17 | 131 |     |         |         |        |         |       |        |
| 399 | 6.86  | 34.21 | 0.77 | 122 |     |         |         |        |         |       |        |
| 482 | 6.32  | 34.27 | 0.42 | 110 |     |         |         |        |         |       |        |
| 566 | 5.82  | 34.31 | 0.35 | 102 |     |         |         |        |         |       |        |

ORCA; May 8, 1959; 0520 GCT; 32°24.5'N, 119°57.5'W; sounding, 500 fm; wind, 310°, force 2; weather, partly cloudy; sea, rough; wire angle, 04°.

90.60

|     |       |       |      |     |     |         |         |        |         |       |        |
|-----|-------|-------|------|-----|-----|---------|---------|--------|---------|-------|--------|
| 1   | 15.84 | 33.55 | 5.67 | 326 | 0   | (15.84) | (33.55) | (5.67) | (24.69) | (326) | (0.00) |
| 11  | 15.74 | 33.55 | 5.61 | 324 | 10  | 15.75   | 33.55   | 5.62   | 24.72   | 324   | 0.03   |
| 30  | 15.56 | 33.57 | 5.59 | 319 | 20  | 15.60   | 33.57   | 5.58   | 24.76   | 320   | 0.06   |
| 60  | 13.73 | 33.33 | 5.67 | 299 | 30  | 15.56   | 33.57   | 5.59   | 24.77   | 319   | 0.10   |
| 71  | 13.06 | 33.30 | 5.37 | 289 | 50  | 15.30   | 33.54   | 5.60   | 24.81   | 315   | 0.16   |
| 85  | 11.50 | 33.39 | 4.74 | 254 | 75  | 12.33   | 33.33   | 5.08   | 25.25   | 273   | 0.23   |
| 101 | 10.85 | 33.49 | 4.36 | 235 | 100 | 10.88   | 33.48   | 4.38   | 25.64   | 236   | 0.30   |
| 115 | 10.10 | 33.56 | 4.07 | 218 | 150 | 9.24    | 33.73   | 3.48   | 26.10   | 192   | 0.41   |
| 140 | 9.44  | 33.68 | 3.67 | 198 | 200 | 8.39    | 33.92   | 2.56   | 26.40   | 164   | 0.50   |
| 160 | 9.03  | 33.77 | 3.28 | 185 | 250 | 7.81    | 34.02   | 1.91   | 26.56   | 149   | 0.58   |
| 190 | 8.56  | 33.89 | 2.75 | 169 | 300 | 7.50    | 34.13   | 1.29   | 26.69   | 137   | 0.65   |
| 220 | 8.06  | 33.99 | 2.15 | 155 | 400 | 6.56    | 34.18   | 0.77   | 26.86   | 120   | 0.78   |
| 250 | 7.81  | 34.02 | 1.91 | 149 | 500 | 6.08    | 34.23   | 0.43   | 26.96   | 110   | 0.90   |
| 299 | 7.51  | 34.13 | 1.30 | 137 | 600 | 5.48    | 34.32   | 0.27   | 27.10   | 97    | 1.01   |
| 355 | 6.86  | 34.16 | 0.93 | 126 |     |         |         |        |         |       |        |
| 440 | 6.36  | 34.20 | 0.61 | 116 |     |         |         |        |         |       |        |
| 526 | 5.96  | 34.25 | 0.37 | 108 |     |         |         |        |         |       |        |
| 613 | 5.37  | 34.33 | 0.26 | 94  |     |         |         |        |         |       |        |

S10

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| OBSERVED |    |   |                |                       | INTERPOLATED |    |   |                | COMPUTED   |                       |            |
|----------|----|---|----------------|-----------------------|--------------|----|---|----------------|------------|-----------------------|------------|
| Z        | T  | S | O <sub>2</sub> | $\delta T_3$          | Z            | T  | S | O <sub>2</sub> | $\sigma_t$ | $\delta T_3$          | $\Delta D$ |
| m        | °C | ‰ | ml/L           | 10 <sup>-5</sup> cm/g | m            | °C | ‰ | ml/L           | g/L        | 10 <sup>-5</sup> cm/g | dyn. m     |

90.70

ORCA; May 8, 1959; 1141 GCT; 32°04'N, 120°38.5'W; sounding, 2000+ fm; wind, 300°, force 2; weather, overcast; sea, moderate; wire angle, 10°.

|     |       |       |        |     |     |         |         |        |         |       |        |
|-----|-------|-------|--------|-----|-----|---------|---------|--------|---------|-------|--------|
| 2   | 15.17 | 33.46 | 5.62   | 318 | 0   | (15.17) | (33.46) | (5.62) | (24.78) | (318) | (0.00) |
| 12  | 15.17 | 33.48 | 6.13u  | 317 | 10  | 15.17   | 33.48   |        | 24.79   | 317   | 0.03   |
| 32  | 14.98 | 33.48 | 5.62   | 314 | 20  | 15.09   | 33.48   |        | 24.81   | 315   | 0.06   |
| 61  | 14.96 | 33.46 | 5.48   | 314 | 30  | 14.99   | 33.48   | (5.62) | 24.82   | 314   | 0.09   |
| 71  | 14.77 | 33.59 | 5.57   | 300 | 50  | 14.97   | 33.47   | 5.55   | 24.82   | 314   | 0.16   |
| 86  | 13.28 | 33.42 | 5.16   | 284 | 75  | 14.60   | 33.57   | 5.56   | 24.98   | 299   | 0.23   |
| 102 | 11.71 | 33.38 | 4.69   | 258 | 100 | 11.90   | 33.38   | 4.72   | 25.38   | 261   | 0.30   |
| 117 | 10.14 | 33.46 | 4.34   | 226 | 150 | 9.34    | 33.80   | 3.00   | 26.15   | 188   | 0.42   |
| 141 | 9.58  | 33.73 | 3.17   | 196 | 200 | 8.59    | 33.98   | 2.35   | 26.41   | 163   | 0.51   |
| 160 | 9.09  | 33.86 | 2.89   | 180 | 250 | 7.84    | 34.05   | 1.72   | 26.58   | 147   | 0.59   |
| 190 | 8.76  | 33.95 | 2.50   | 167 | 300 | 7.32    | 34.10   | 1.28   | 26.70   | 136   | 0.66   |
| 220 | 8.07  | 34.05 | 1.84   | 151 | 400 | 6.52    | 34.19   | 0.75   | 26.88   | 119   | 0.79   |
| 249 | 7.84  | 34.05 | 1.72a) | 147 | 500 | 5.94    | 34.26   | 0.39   | 27.00   | 106   | 0.91   |
| 299 | 7.33  | 34.10 | 1.29   | 136 | 600 | 5.46    | 34.32   | 0.35   | 27.10   | 97    | 1.02   |
| 353 | 6.91  | 34.16 | 1.04   | 126 |     |         |         |        |         |       |        |
| 438 | 6.23  | 34.22 | 0.54   | 114 |     |         |         |        |         |       |        |
| 524 | 5.82  | 34.28 | 0.38   | 104 |     |         |         |        |         |       |        |
| 610 | 5.40  | 34.32 | 0.35   | 96  |     |         |         |        |         |       |        |

90.80

ORCA; May 8, 1959; 1816 GCT; 31°43'N, 121°19'W; sounding, 2000 fm; wind, 260°, force 3; weather, overcast; sea, moderate; wire angle, 10°.

|     |       |       |      |     |     |         |         |        |         |       |        |
|-----|-------|-------|------|-----|-----|---------|---------|--------|---------|-------|--------|
| 1   | 16.18 | 33.55 | 5.48 | 333 | 0   | (16.18) | (33.55) | (5.48) | (24.62) | (333) | (0.00) |
| 11  | 16.16 | 33.53 | 5.50 | 334 | 10  | 16.16   | 33.53   | 5.50   | 24.60   | 334   | 0.03   |
| 31  | 16.16 | 33.53 | 5.57 | 334 | 20  | 16.16   | 33.53   | 5.52   | 24.60   | 334   | 0.07   |
| 60  | 16.02 | 33.53 | 5.54 | 332 | 30  | 16.16   | 33.53   | 5.56   | 24.60   | 334   | 0.10   |
| 70  | 15.18 | 33.40 | 5.59 | 324 | 50  | 16.05   | 33.53   | 5.55   | 24.63   | 332   | 0.17   |
| 86  | 14.38 | 33.30 | 5.65 | 314 | 75  | 15.10   | 33.39   | 5.60   | 24.74   | 322   | 0.25   |
| 100 | 13.50 | 33.32 | 5.95 | 296 | 100 | 13.50   | 33.32   | 5.95   | 25.02   | 296   | 0.33   |
| 116 | 12.24 | 33.37 | 5.18 | 268 | 150 | 10.12   | 33.56   | 4.40   | 25.83   | 218   | 0.46   |
| 140 | 10.62 | 33.52 | 4.58 | 229 | 200 | 8.91    | 33.77   | 3.80   | 26.19   | 184   | 0.56   |
| 160 | 9.70  | 33.60 | 4.27 | 208 | 250 | 8.19    | 33.92   | 2.79   | 26.42   | 162   | 0.65   |
| 190 | 9.08  | 33.73 | 4.03 | 189 | 300 | 7.41    | 34.04   | 2.00   | 26.63   | 142   | 0.73   |
| 219 | 8.62  | 33.84 | 3.32 | 174 | 400 | 6.37    | 34.16   | 0.98   | 26.86   | 120   | 0.86   |
| 249 | 8.20  | 33.92 | 2.81 | 162 | 500 | 5.78    | 34.22   | 0.65   | 26.99   | 108   | 0.98   |
| 298 | 7.44  | 34.04 | 2.03 | 143 | 600 | 5.22    | 34.30   | 0.50   | 27.12   | 96    | 1.09   |
| 354 | 6.74  | 34.12 | 1.31 | 127 |     |         |         |        |         |       |        |
| 438 | 6.12  | 34.18 | 0.76 | 115 |     |         |         |        |         |       |        |
| 523 | 5.64  | 34.24 | 0.61 | 105 |     |         |         |        |         |       |        |
| 608 | 5.19  | 34.31 | 0.48 | 94  |     |         |         |        |         |       |        |

90.90

ORCA; May 9, 1959; 0018 GCT; 31°25'N, 121°59'W; sounding, 2000+ fm; wind, 310°, force 4; weather, overcast; sea, rough; wire angle, 17°.

|     |       |       |      |     |     |         |         |        |         |       |        |
|-----|-------|-------|------|-----|-----|---------|---------|--------|---------|-------|--------|
| 1   | 15.80 | 33.49 | 5.71 | 330 | 0   | (15.80) | (33.49) | (5.71) | (24.65) | (330) | (0.00) |
| 11  | 15.78 | 33.51 | 5.67 | 328 | 10  | 15.78   | 33.51   | 5.67   | 24.68   | 328   | 0.03   |
| 30  | 15.68 | 33.51 | 5.67 | 326 | 20  | 15.72   | 33.51   | 5.67   | 24.69   | 326   | 0.06   |
| 58  | 15.66 | 33.48 | 5.67 | 328 | 30  | 15.68   | 33.51   | 5.67   | 24.70   | 326   | 0.10   |
| 68  | 15.55 | 33.48 | 5.74 | 325 | 50  | 15.67   | 33.50   | 5.67   | 24.69   | 326   | 0.16   |
| 82  | 14.96 | 33.40 | 5.73 | 319 | 75  | 15.25   | 33.44   | 5.74   | 24.74   | 322   | 0.24   |
| 96  | 14.49 | 33.37 | 5.80 | 311 | 100 | 14.28   | 33.36   | 5.80   | 24.89   | 307   | 0.32   |
| 111 | 12.89 | 33.35 | 5.62 | 282 | 150 | 9.98    | 33.56   | 4.62   | 25.86   | 216   | 0.46   |
| 139 | 10.72 | 33.45 | 4.76 | 236 | 200 | 8.53    | 33.85   | 3.43   | 26.32   | 172   | 0.56   |
| 154 | 9.68  | 33.60 | 4.56 | 208 | 250 | 8.09    | 33.99   | 2.52   | 26.50   | 155   | 0.64   |
| 182 | 8.75  | 33.72 | 3.88 | 184 | 300 | 7.40    | 34.03   | 1.92   | 26.62   | 142   | 0.72   |
| 211 | 8.44  | 33.91 | 3.20 | 166 | 400 | 6.39    | 34.16   | 1.10   | 26.87   | 119   | 0.85   |
| 240 | 8.22  | 33.98 | 2.67 | 158 | 500 | 5.78    | 34.20   | 0.70   | 26.98   | 109   | 0.97   |
| 287 | 7.53  | 34.02 | 2.00 | 145 | 600 | (5.26)  | (34.30) | (0.34) | (27.12) | (96)  | (1.08) |
| 342 | 7.00  | 34.07 | 1.66 | 134 |     |         |         |        |         |       |        |
| 423 | 6.20  | 34.18 | 0.96 | 116 |     |         |         |        |         |       |        |
| 508 | 5.73  | 34.20 | 0.67 | 109 |     |         |         |        |         |       |        |
| 592 | 5.30  | 34.29 | 0.36 | 97  |     |         |         |        |         |       |        |

190

a) Alternate value, 1.94 ml/L, not used in interpolation.

| OBSERVED |    |   |                |                       | INTERPOLATED |    |   |                | COMPUTED   |                       |            |
|----------|----|---|----------------|-----------------------|--------------|----|---|----------------|------------|-----------------------|------------|
| Z        | T  | S | O <sub>2</sub> | $\delta T_3$          | Z            | T  | S | O <sub>2</sub> | $\sigma_t$ | $\delta T_3$          | $\Delta D$ |
| m        | °C | ‰ | ml/L           | 10 <sup>-5</sup> cm/g | m            | °C | ‰ | ml/L           | g/L        | 10 <sup>-5</sup> cm/g | dyn. m     |

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5905

BLACK DOUGLAS; May 9, 1959; 0430 GCT; 30°44.5'N, 123°20'W; sounding, 2000+ fm; wind, 340°, force 4; weather, overcast; sea, moderate; wire angle, 11°.

90.110

|     |       |       |      |     |     |         |         |        |         |       |        |
|-----|-------|-------|------|-----|-----|---------|---------|--------|---------|-------|--------|
| 1   | 16.31 | 33.52 | 5.35 | 338 | 0   | (16.31) | (33.52) | (5.35) | (24.56) | (338) | (0.00) |
| 10  | 16.29 | 33.53 | 5.27 | 337 | 10  | 16.29   | 33.53   | 5.27   | 24.58   | 337   | 0.03   |
| 27  | 16.30 | 33.54 | 5.23 | 337 | 20  | 16.30   | 33.53   | 5.27   | 24.58   | 337   | 0.07   |
| 54  | 16.16 | 33.60 | 5.30 | 329 | 30  | 16.30   | 33.55   | 5.23   | 24.59   | 336   | 0.10   |
| 63  | 15.94 | 33.59 | 5.28 | 325 | 50  | 16.23   | 33.59   | 5.27   | 24.64   | 332   | 0.17   |
| 76  | 15.60 | 33.48 | 5.31 | 326 | 75  | 15.61   | 33.48   | 5.30   | 24.69   | 326   | 0.25   |
| 89  | 15.62 | 33.55 | 5.35 | 321 | 100 | 16.20   | 33.77   | 5.34   | 24.78   | 318   | 0.33   |
| 103 | 15.69 | 33.70 | 5.32 | 312 | 150 | 10.92   | 33.58   | 4.65   | 25.71   | 229   | 0.47   |
| 125 | 13.17 | 33.49 | 5.21 | 276 | 200 | 8.98    | 33.72   | 3.80   | 26.14   | 188   | 0.58   |
| 142 | 11.52 | 33.58 | 4.79 | 240 | 250 | 8.09    | 33.95   | 2.56   | 26.46   | 158   | 0.67   |
| 168 | 9.54  | 33.57 | 4.31 | 208 | 300 | 7.42    | 34.02   | 1.94   | 26.62   | 144   | 0.75   |
| 195 | 9.05  | 33.69 | 3.91 | 192 | 400 | 6.44    | 34.15   | 0.87   | 26.85   | 121   | 0.88   |
| 221 | 8.57  | 33.88 | 3.05 | 170 | 500 | 5.66    | 34.26   | 0.50   | 27.04   | 103   | 1.00   |
| 264 | 7.89  | 33.98 | 2.38 | 153 |     |         |         |        |         |       |        |
| 314 | 7.25  | 34.04 | 1.76 | 140 |     |         |         |        |         |       |        |
| 389 | 6.52  | 34.14 | 0.93 | 123 |     |         |         |        |         |       |        |
| 464 | 5.88  | 34.23 | 0.60 | 109 |     |         |         |        |         |       |        |
| 541 | 5.54  | 34.31 | 0.40 | 98  |     |         |         |        |         |       |        |

BLACK DOUGLAS; May 9, 1959; 1710 GCT; 30°04.5'N, 124°40'W; sounding, 2400 fm; wind, 360°, force 4; weather, cloudy; sea, rough; wire angle, 14°.

90.130

|     |       |       |      |     |     |         |         |        |         |       |        |
|-----|-------|-------|------|-----|-----|---------|---------|--------|---------|-------|--------|
| 1   | 16.51 | 33.57 | 5.42 | 339 | 0   | (16.51) | (33.57) | (5.42) | (24.56) | (339) | (0.00) |
| 9   | 16.51 | 33.63 | 5.40 | 335 | 10  | 16.51   | 33.63   | 5.40   | 24.60   | 335   | 0.03   |
| 27  | 16.52 | 33.62 | 5.42 | 336 | 20  | 16.52   | 33.62   | 5.41   | 24.60   | 335   | 0.07   |
| 53  | 15.96 | 33.57 | 5.45 | 327 | 30  | 16.52   | 33.62   | 5.43   | 24.59   | 336   | 0.10   |
| 61  | 15.96 | 33.60 | 5.41 | 325 | 50  | 16.00   | 33.56   | 5.45   | 24.66   | 328   | 0.17   |
| 74  | 16.96 | 33.96 | 5.38 | 321 | 75  | 16.96   | 33.96   | 5.38   | 24.75   | 321   | 0.25   |
| 87  | 16.97 | 33.99 | 5.39 | 319 | 100 | 16.70   | 33.99   | 5.40   | 24.83   | 313   | 0.33   |
| 101 | 16.40 | 33.95 | 5.40 | 309 | 150 | 11.57   | 33.54   | 4.71   | 25.56   | 244   | 0.47   |
| 122 | 13.68 | 33.56 | 5.29 | 282 | 200 | 9.55    | 33.74   | 4.22   | 26.07   | 195   | 0.58   |
| 139 | 12.24 | 33.55 | 4.87 | 255 | 250 | 8.48    | 33.91   | 3.19   | 26.38   | 166   | 0.67   |
| 166 | 10.73 | 33.55 | 4.53 | 228 | 300 | 7.59    | 33.99   | 2.54   | 26.56   | 148   | 0.76   |
| 192 | 9.76  | 33.71 | 4.36 | 201 | 400 | 6.59    | 34.11   | 1.03   | 26.80   | 126   | 0.90   |
| 219 | 9.12  | 33.80 | 3.86 | 184 | 500 | 5.74    | 34.20   | 0.53   | 26.98   | 109   | 1.02   |
| 262 | 8.22  | 33.95 | 2.97 | 160 |     |         |         |        |         |       |        |
| 310 | 7.43  | 34.00 | 2.44 | 145 |     |         |         |        |         |       |        |
| 385 | 6.74  | 34.10 | 1.16 | 129 |     |         |         |        |         |       |        |
| 460 | 5.96  | 34.16 | 0.66 | 114 |     |         |         |        |         |       |        |
| 538 | 5.63  | 34.25 | 0.41 | 104 |     |         |         |        |         |       |        |

BLACK DOUGLAS; May 10, 1959; 0030 GCT; 29°34.5'N, 125°40'W; sounding, 2400 fm; wind, 360°, force 5; weather, cloudy; sea, rough; wire angle, 15°.

90.145

|     |       |       |      |     |     |         |         |        |         |       |        |
|-----|-------|-------|------|-----|-----|---------|---------|--------|---------|-------|--------|
| 2   | 17.14 | 33.76 | 5.34 | 339 | 0   | (17.14) | (33.76) | (5.34) | (24.55) | (339) | (0.00) |
| 11  | 17.12 | 33.74 | 5.37 | 340 | 10  | 17.12   | 33.74   | 5.36   | 24.54   | 340   | 0.03   |
| 33  | 17.10 | 33.78 | 5.33 | 337 | 20  | 17.12   | 33.74   | 5.37   | 24.54   | 340   | 0.07   |
| 60  | 16.76 | 34.00 | 5.32 | 314 | 30  | 17.11   | 33.76   | 5.35   | 24.56   | 338   | 0.10   |
| 69  | 16.94 | 34.14 | 5.26 | 307 | 50  | 17.04   | 33.92   | 5.33   | 24.70   | 326   | 0.17   |
| 87  | 16.34 | 34.13 | 5.38 | 294 | 75  | 17.00   | 34.21   | 5.29   | 24.93   | 304   | 0.25   |
| 100 | 15.12 | 33.95 | 5.29 | 282 | 100 | 15.12   | 33.95   | 5.29   | 25.16   | 282   | 0.32   |
| 113 | 13.77 | 33.75 | 5.11 | 269 | 150 | 11.89   | 33.72   | 4.73   | 25.64   | 236   | 0.45   |
| 139 | 11.97 | 33.63 | 4.73 | 244 | 200 | 9.89    | 33.76   | 4.43   | 26.02   | 200   | 0.56   |
| 157 | 11.82 | 33.77 | 4.73 | 231 | 250 | 8.68    | 33.85   | 3.72   | 26.29   | 174   | 0.66   |
| 183 | 10.63 | 33.76 | 4.65 | 212 | 300 | 7.75    | 33.97   | 3.33   | 26.52   | 152   | 0.74   |
| 213 | 9.40  | 33.77 | 4.23 | 191 | 400 | 6.67    | 34.10   | 1.64   | 26.78   | 128   | 0.89   |
| 240 | 8.88  | 33.82 | 3.85 | 179 | 500 | 5.68    | 34.16   | 0.76   | 26.96   | 111   | 1.01   |
| 283 | 8.08  | 33.95 | 3.35 | 158 |     |         |         |        |         |       |        |
| 340 | 7.06  | 34.00 | 3.30 | 140 |     |         |         |        |         |       |        |
| 427 | 6.49  | 34.13 | 1.05 | 123 |     |         |         |        |         |       |        |
| 507 | 5.62  | 34.17 | 0.74 | 110 |     |         |         |        |         |       |        |
| 574 | 5.32  | 34.23 | 0.50 | 102 |     |         |         |        |         |       |        |

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| OBSERVED |    |   |                |                                                       | INTERPOLATED |    |   |                | COMPUTED   |                                                       |            |
|----------|----|---|----------------|-------------------------------------------------------|--------------|----|---|----------------|------------|-------------------------------------------------------|------------|
| Z        | T  | S | O <sub>2</sub> | $\delta T$                                            | Z            | T  | S | O <sub>2</sub> | $\sigma_t$ | $\delta T$                                            | $\Delta D$ |
| m        | °C | ‰ | ml/L           | $\frac{10^{-5} \text{ } ^\circ\text{C}}{\text{cm/g}}$ | m            | °C | ‰ | ml/L           | g/L        | $\frac{10^{-5} \text{ } ^\circ\text{C}}{\text{cm/g}}$ | dyn. m     |

93.28

BLACK DOUGLAS; May 7, 1959; 0427 GCT; <sup>a)</sup> 32°55'N, 117°22'W; sounding, 324 fm; wind, 270°, force 2; weather, partly cloudy; sea, moderate; wire angle, 03°.

|       |      |       |      |     |
|-------|------|-------|------|-----|
| 204   | 9.13 | 34.26 | 1.02 | 150 |
| 213   | 9.12 | 34.29 | 0.92 | 148 |
| 221   | 8.88 | 34.31 | 0.91 | 143 |
| 230   | 8.78 | 34.30 | 0.89 | 142 |
| 239   | 8.72 | 34.26 | 0.81 | 144 |
| 248   | 8.63 | 34.30 | 0.80 | 140 |
| 257   | 8.60 | 34.29 | 0.76 | 140 |
| 266   | 8.62 | 34.29 | 0.74 | 140 |
| 275   | 8.54 | 34.30 | 0.77 | 138 |
| 284   | 8.36 | 34.32 | 0.80 | 134 |
| 292b) | 8.45 | 34.32 | 0.68 | 136 |

93.28

ORCA; May 11, 1959; 0147 GCT; 32°54.5'N, 117°22'W; sounding, 324 fm; wind, 200°, force 1; weather, partly cloudy; sea, slight; wire angle, 00°.

|     |       |       |      |     |     |       |       |      |       |     |      |
|-----|-------|-------|------|-----|-----|-------|-------|------|-------|-----|------|
| 0   | 18.07 | 33.63 | 5.76 | 370 | 0   | 18.07 | 33.63 | 5.76 | 24.23 | 370 | 0.00 |
| 10  | 16.70 | 33.61 | 6.14 | 341 | 10  | 16.70 | 33.61 | 6.14 | 24.54 | 341 | 0.04 |
| 30  | 12.33 | 33.58 | 4.24 | 254 | 20  | 15.00 | 33.59 | 5.51 | 24.90 | 306 | 0.07 |
| 40  | 11.58 | 33.64 | 3.61 | 237 | 30  | 12.33 | 33.58 | 4.24 | 25.44 | 254 | 0.10 |
| 50  | 11.06 | 33.68 | 3.14 | 225 | 50  | 11.06 | 33.68 | 3.61 | 25.76 | 225 | 0.14 |
| 60  | 10.70 | 33.73 | 3.17 | 215 | 75  | 10.26 | 33.76 | 3.01 | 25.97 | 205 | 0.20 |
| 71  | 10.34 | 33.78 | 3.01 | 206 | 100 | 9.76  | 33.83 | 2.82 | 26.10 | 192 | 0.25 |
| 86  | 10.08 | 33.76 | 2.94 | 201 | 150 | 9.48  | 34.04 | 2.00 | 26.32 | 172 | 0.34 |
| 101 | 9.74  | 33.84 | 2.77 | 191 | 200 | 8.94  | 34.14 | 1.62 | 26.48 | 156 | 0.42 |
| 116 | 9.66  | 33.87 | 2.22 | 188 | 250 | 8.78  | 34.22 | 1.22 | 26.57 | 148 | 0.50 |
| 141 | 9.52  | 34.03 | 2.03 | 174 | 300 | 8.44  | 34.27 | 0.96 | 26.66 | 140 | 0.58 |
| 171 | 9.36  | 34.06 | 1.93 | 169 | 400 | 7.29  | 34.25 | 0.72 | 26.81 | 125 | 0.71 |
| 206 | 8.90  | 34.16 | 1.57 | 154 | 500 | 6.45  | 34.30 | 0.47 | 26.97 | 110 | 0.83 |
| 257 | 8.74  | 34.23 | 1.13 | 146 |     |       |       |      |       |     |      |
| 306 | 8.38  | 34.27 | 0.93 | 138 |     |       |       |      |       |     |      |
| 412 | 7.17  | 34.25 | 0.69 | 123 |     |       |       |      |       |     |      |
| 512 | 6.35  | 34.31 | 0.42 | 108 |     |       |       |      |       |     |      |

93.30

ORCA; May 10, 1959; 2341 GCT; 32°50'N, 117°31.5'W; sounding, 450 fm; wind, 310°, force 1; weather, partly cloudy; sea, slight; wire angle, 06°.

|     |       |       |      |     |     |         |         |        |         |       |        |
|-----|-------|-------|------|-----|-----|---------|---------|--------|---------|-------|--------|
| 1   | 18.27 | 33.62 | 5.54 | 376 | 0   | (18.27) | (33.62) | (5.54) | (24.17) | (376) | (0.00) |
| 11  | 17.40 | 33.58 | 5.73 | 358 | 10  | 17.47   | 33.58   | 5.72   | 24.34   | 360   | 0.04   |
| 31  | 15.02 | 33.58 | 5.93 | 307 | 20  | 16.20   | 33.58   | 5.88   | 24.64   | 332   | 0.07   |
| 41  | 13.27 | 33.52 | 5.00 | 276 | 30  | 15.15   | 33.58   | 5.93   | 24.87   | 309   | 0.10   |
| 51  | 11.93 | 33.58 | 3.90 | 247 | 50  | 12.10   | 33.57   | 4.04   | 25.48   | 251   | 0.16   |
| 67  | 11.08 | 33.71 | 3.21 | 223 | 75  | 10.70   | 33.76   | 3.10   | 25.88   | 213   | 0.22   |
| 81  | 10.40 | 33.77 | 3.04 | 207 | 100 | 10.00   | 33.78   | 2.96   | 26.02   | 200   | 0.27   |
| 101 | 9.94  | 33.78 | 2.96 | 198 | 150 | 9.59    | 34.14   | 1.68   | 26.38   | 166   | 0.36   |
| 126 | 9.53  | 33.95 | 2.39 | 180 | 200 | 8.74    | 34.14   | 1.63   | 26.51   | 154   | 0.44   |
| 146 | 9.62  | 34.14 | 1.68 | 167 | 250 | 8.44    | 34.23   | 1.20   | 26.62   | 142   | 0.52   |
| 175 | 9.06  | 34.14 | 1.70 | 158 | 300 | 8.19    | 34.26   | 0.96   | 26.69   | 136   | 0.59   |
| 205 | 8.69  | 34.14 | 1.60 | 152 | 400 | 7.39    | 34.28   | 0.78   | 26.83   | 123   | 0.72   |
| 235 | 8.49  | 34.22 | 1.33 | 144 | 500 | 6.53    | 34.31   | 0.44   | 26.96   | 110   | 0.85   |
| 275 | 8.40  | 34.25 | 1.05 | 140 |     |         |         |        |         |       |        |
| 335 | 7.84  | 34.27 | 0.88 | 131 |     |         |         |        |         |       |        |
| 411 | 7.30  | 34.29 | 0.74 | 122 |     |         |         |        |         |       |        |
| 484 | 6.64  | 34.31 | 0.48 | 112 |     |         |         |        |         |       |        |
| 567 | 6.08  | 34.31 | 0.35 | 105 |     |         |         |        |         |       |        |

a) Special cast.

b) The last seven bottles of this cast were omitted because of pretripping which may have started at this depth.

| OBSERVED |    |   |                |                        | INTERPOLATED |    |   |                | COMPUTED   |                        |            |
|----------|----|---|----------------|------------------------|--------------|----|---|----------------|------------|------------------------|------------|
| Z        | T  | S | O <sub>2</sub> | $\delta T_3$           | Z            | T  | S | O <sub>2</sub> | $\sigma_t$ | $\delta T_3$           | $\Delta D$ |
| m        | °C | ‰ | ml/L           | $10^{-5} \text{ cm/g}$ | m            | °C | ‰ | ml/L           | g/L        | $10^{-5} \text{ cm/g}$ | dyn. m     |

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ORCA; May 10, 1959; 2055 GCT; 32°40'N, 117°52'W; sounding, 350 fm; wind, 320°, force 1; weather, partly cloudy; sea, slight; wire angle, 05°.

93.35

|     |       |       |        |     |     |         |         |        |         |       |        |
|-----|-------|-------|--------|-----|-----|---------|---------|--------|---------|-------|--------|
| 1   | 17.94 | 33.60 | 5.36   | 370 | 0   | (17.94) | (33.60) | (5.36) | (24.24) | (370) | (0.00) |
| 11  | 17.68 | 33.61 | 5.78   | 363 | 10  | 17.72   | 33.61   | 5.75   | 24.30   | 364   | 0.04   |
| 31  | 14.86 | 33.55 | 5.80   | 306 | 20  | 16.90   | 33.59   | 5.80   | 24.48   | 346   | 0.07   |
| 41  | 13.22 | 33.52 | 4.84   | 276 | 30  | 15.25   | 33.56   | 5.80   | 24.83   | 313   | 0.10   |
| 55  | 11.62 | 33.58 | 3.72   | 242 | 50  | 12.05   | 33.56   | 4.00   | 25.48   | 251   | 0.16   |
| 70  | 10.94 | 33.66 | 3.49a) | 224 | 75  | 10.78   | 33.68   | 3.39   | 25.81   | 220   | 0.22   |
| 95  | 10.26 | 33.75 | 3.01   | 206 | 100 | 10.09   | 33.76   | 2.92   | 25.99   | 203   | 0.27   |
| 115 | 9.86  | 33.85 | 2.65   | 192 | 150 | 9.73    | 34.07   | 1.88   | 26.29   | 174   | 0.37   |
| 135 | 9.74  | 33.98 | 2.27   | 180 | 200 | 8.75    | 34.08   | 1.87   | 26.46   | 158   | 0.45   |
| 155 | 9.72  | 34.09 | 1.80   | 172 | 250 | 8.16    | 34.14   | 1.59   | 26.60   | 145   | 0.53   |
| 186 | 8.94  | 34.06 | 1.95   | 163 | 300 | 8.32    | 34.29   | 0.93   | 26.70   | 136   | 0.60   |
| 220 | 8.49  | 34.11 | 1.71   | 152 | 400 | 6.96    | 34.22   | 0.75   | 26.83   | 123   | 0.74   |
| 250 | 8.16  | 34.14 | 1.59   | 145 | 500 | 6.22    | 34.22   | 0.74   | 26.94   | 113   | 0.86   |
| 300 | 8.32  | 34.29 | 0.93   | 136 | 600 | 5.75    | 34.31   | 0.53   | 27.06   | 101   | 0.97   |
| 355 | 7.46  | 34.23 | 0.85   | 129 |     |         |         |        |         |       |        |
| 437 | 6.64  | 34.22 | 0.69b) | 118 |     |         |         |        |         |       |        |
| 526 | 6.07  | 34.23 | 0.74   | 111 |     |         |         |        |         |       |        |
| 611 | 5.71  | 34.33 | 0.47   | 99  |     |         |         |        |         |       |        |

ORCA; May 10, 1959; 1735, 1752 GCT; 32°30'N, 118°12.5'W; sounding, 950 fm; wind, 320°, force 2; weather, overcast; sea, moderate; wire angle, 13°, 22°.

93.40

|     |       |       |      |     |     |        |         |      |         |      |        |
|-----|-------|-------|------|-----|-----|--------|---------|------|---------|------|--------|
| 0   | 16.58 | 33.63 | 5.22 | 336 | 0   | 16.58  | 33.63   | 5.22 | 24.58   | 336  | 0.00   |
| 10  | 16.57 | 33.62 | 5.47 | 337 | 10  | 16.57  | 33.62   | 5.47 | 24.57   | 337  | 0.03   |
| 29  | 13.28 | 33.53 | 4.98 | 276 | 20  | 16.54  | 33.62   | 5.47 | 24.58   | 336  | 0.07   |
| 39  | 12.67 | 33.54 | 4.86 | 264 | 30  | 13.15  | 33.53   | 4.95 | 25.25   | 273  | 0.10   |
| 54  | 11.68 | 33.58 | 4.57 | 243 | 50  | 12.08  | 33.56   | 4.72 | 25.48   | 251  | 0.15   |
| 68  | 10.82 | 33.65 | 3.36 | 223 | 75  | 10.74  | 33.66   | 3.30 | 25.80   | 221  | 0.21   |
| 93  | 10.03 | 33.73 | 3.03 | 204 | 100 | 10.00  | 33.74   | 3.01 | 25.99   | 202  | 0.26   |
| 112 | 9.78  | 33.86 | 2.56 | 190 | 150 | 9.08   | 34.06   | 2.03 | 26.39   | 165  | 0.36   |
| 131 | 9.32  | 33.98 | 2.20 | 174 | 200 | 8.73   | 34.16   | 1.64 | 26.52   | 152  | 0.44   |
| 149 | 9.10  | 34.05 | 2.04 | 166 | 250 | 8.43   | 34.23   | 1.14 | 26.63   | 142  | 0.51   |
| 179 | 8.82  | 34.13 | 1.73 | 156 | 300 | 7.80   | 34.23   | 1.04 | 26.73   | 133  | 0.58   |
|     |       |       |      |     | 400 | 6.98   | 34.27   | 0.62 | 26.87   | 119  | 0.71   |
| 211 | 8.69  | 34.18 | 1.57 | 150 | 500 | 6.22   | 34.29   | 0.41 | 26.99   | 108  | 0.83   |
| 237 | 8.58  | 34.23 | 1.19 | 144 | 600 | (5.70) | (34.33) |      | (27.09) | (98) | (0.94) |
| 285 | 7.92  | 34.22 | 1.11 | 135 |     |        |         |      |         |      |        |
| 338 | 7.57  | 34.27 | 0.81 | 127 |     |        |         |      |         |      |        |
| 420 | 6.80  | 34.27 | 0.57 | 117 |     |        |         |      |         |      |        |
| 503 | 6.18  | 34.29 | 0.40 | 107 |     |        |         |      |         |      |        |
| 586 | 5.72  | 34.33 | 0.33 | 99  |     |        |         |      |         |      |        |

a) Alternate value, 3.74 ml/L, not used in interpolation.

b) Mean value of 0.61 and 0.77 ml/L.

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| OBSERVED |    |   |                |                      | INTERPOLATED |    |   |                | COMPUTED   |                      |            |
|----------|----|---|----------------|----------------------|--------------|----|---|----------------|------------|----------------------|------------|
| Z        | T  | S | O <sub>2</sub> | $\delta T_{-5}^{+3}$ | Z            | T  | S | O <sub>2</sub> | $\sigma_t$ | $\delta T_{-5}^{+3}$ | $\Delta D$ |
| m        | °C | ‰ | ml/L           | 10 cm/g              | m            | °C | ‰ | ml/L           | g/L        | 10 cm/g              | dyn. m     |

93.50

ORCA; May 10, 1959; 1101 GCT; 32°09.5'N, 118°54'W; sounding, 700 fm; wind, 250°, force 6; weather, cloudy; sea, very rough; wire angle, 20°.

|     |       |       |       |     |     |         |         |        |         |       |        |
|-----|-------|-------|-------|-----|-----|---------|---------|--------|---------|-------|--------|
| 1   | 16.44 | 33.65 | 5.57  | 332 | 0   | (16.44) | (33.65) | (5.57) | (24.63) | (332) | (0.00) |
| 10  | 16.46 | 33.64 | 5.72  | 333 | 10  | 16.46   | 33.64   | 5.72   | 24.62   | 333   | 0.03   |
| 34  | 16.18 | -     | 5.54  | -   | 20  | 16.46   | 33.64   | 5.72   | 24.62   | 333   | 0.07   |
| 44  | 14.42 | 33.57 | 5.45  | 295 | 30  | 16.46   | 33.64   | 5.72   | 24.62   | 333   | 0.10   |
| 58  | 12.68 | 33.58 | 4.65  | 261 | 50  | 13.70   | 33.58   | 5.17   | 25.17   | 280   | 0.16   |
| 71  | 11.26 | 33.55 | 4.19  | 238 | 75  | 11.08   | 33.56   | 4.05   | 25.67   | 233   | 0.22   |
| 93  | 10.42 | 33.67 | 3.49  | 214 | 100 | 10.04   | 33.70   |        | 25.95   | 206   | 0.28   |
| 111 | 9.50  | 33.75 | 3.56u | 194 | 150 | 9.03    | 33.93   | 2.33   | 26.30   | 174   | 0.38   |
| 130 | 9.15  | 33.87 | 2.66  | 180 | 200 | 8.34    | 34.08   | 1.69   | 26.52   | 152   | 0.46   |
| 158 | 8.98  | 33.96 | 2.23  | 170 | 250 | 7.93    | 34.14   | 1.32   | 26.63   | 142   | 0.53   |
| 185 | 8.50  | 34.06 | 1.82  | 156 | 300 | 7.51    | 34.18   | 1.05   | 26.73   | 132   | 0.60   |
| 221 | 8.16  | 34.11 | 1.51  | 147 | 400 | 6.73    | 34.27   | 0.72   | 26.90   | 116   | 0.73   |
| 249 | 7.94  | 34.14 | 1.33  | 142 | 500 | 6.22    | 34.31   | 0.51   | 27.00   | 107   | 0.85   |
| 295 | 7.55  | 34.18 | 1.06  | 133 | 600 | 5.69    | 34.31   | 0.31   | 27.07   | 100   | 0.96   |
| 357 | 7.04  | 34.23 | 0.74  | 123 |     |         |         |        |         |       |        |
| 451 | 6.42  | 34.30 | 0.70  | 110 |     |         |         |        |         |       |        |
| 539 | 6.06  | 34.31 | 0.35  | 105 |     |         |         |        |         |       |        |
| 612 | 5.60  | 34.31 | 0.31  | 99  |     |         |         |        |         |       |        |

93.60

ORCA; May 10, 1959; 0331 GCT; 31°50.5'N, 119°34'W; sounding, 2000+ fm; wind, 320°, force 7; weather, cloudy; sea, high; wire angle, 42°. a)

|     |       |       |      |     |     |         |         |        |         |       |        |
|-----|-------|-------|------|-----|-----|---------|---------|--------|---------|-------|--------|
| 3   | 15.70 | 33.55 | 5.66 | 323 | 0   | (15.70) | (33.55) | (5.66) | (24.72) | (323) | (0.00) |
| 10  | 15.71 | 33.55 | 5.72 | 323 | 10  | 15.71   | 33.55   | 5.72   | 24.72   | 323   | 0.03   |
| 31  | 15.70 | 33.54 | 5.68 | 324 | 20  | 15.71   | 33.55   | 5.72   | 24.72   | 323   | 0.06   |
| 54  | 15.62 | -     | -    | -   | 30  | 15.70   | 33.54   | 5.68   | 24.71   | 324   | 0.10   |
| 63  | 14.60 | 33.48 | 5.67 | 306 | 50  | 15.65   | 33.53   | 5.68   | 24.72   | 323   | 0.16   |
| 79  | 12.61 | 33.33 | 5.26 | 278 | 75  | 13.02   | 33.35   | 5.34   | 25.13   | 284   | 0.24   |
| 91  | 11.90 | 33.46 | 5.03 | 256 | 100 | 11.41   | 33.53   | 4.39   | 25.58   | 241   | 0.30   |
| 103 | 11.24 | 33.55 | 4.23 | 237 | 150 | 9.70    | 33.73   | 3.45   | 26.04   | 198   | 0.42   |
| 127 | 10.38 | 33.64 | 3.84 | 216 | 200 | 8.83    | 33.98   | 2.44   | 26.36   | 167   | 0.51   |
| 142 | 9.90  | 33.69 | 3.60 | 205 | 250 | 8.21    | 34.06   | 1.73   | 26.53   | 151   | 0.59   |
| 166 | 9.35  | 33.82 | 3.20 | 186 | 300 | 7.57    | 34.14   | 1.30   | 26.68   | 137   | 0.66   |
| 192 | 8.92  | 33.95 | 2.48 | 170 | 400 | 6.77    | 34.23   | 0.64   | 26.86   | 120   | 0.80   |
| 215 | 8.68  | 34.02 | 2.39 | 162 | 500 | 6.28    | 34.31   |        | 27.00   | 107   | 0.92   |
| 254 | 8.14  | 34.07 | 1.64 | 150 |     |         |         |        |         |       |        |
| 307 | 7.50  | 34.15 | 1.27 | 135 |     |         |         |        |         |       |        |
| 394 | 6.80  | 34.22 | 0.67 | 120 |     |         |         |        |         |       |        |
| 478 | 6.34  | 34.30 | 0.54 | 108 |     |         |         |        |         |       |        |
| 551 | 6.14  | 34.34 | -    | 103 |     |         |         |        |         |       |        |

93.70

ORCA; May 9, 1959; 2037 GCT; 31°31'N, 120°14'W; sounding, 2000 fm; wind, 320°, force 7; weather, cloudy; sea, high; wire angle, 42°. a)

|     |       |       |      |     |     |         |         |        |         |       |        |
|-----|-------|-------|------|-----|-----|---------|---------|--------|---------|-------|--------|
| 2   | 15.76 | 33.50 | 5.48 | 328 | 0   | (15.76) | (33.50) | (5.48) | (24.67) | (328) | (0.00) |
| 10  | 15.76 | 33.52 | 5.69 | 326 | 10  | 15.76   | 33.52   | 5.69   | 24.69   | 326   | 0.03   |
| 30  | 15.74 | 33.48 | 5.93 | 329 | 20  | 15.75   | 33.50   | 5.86   | 24.67   | 328   | 0.06   |
| 54  | 15.20 | 33.42 | 5.69 | 322 | 30  | 15.74   | 33.48   | 5.93   | 24.66   | 329   | 0.10   |
| 62  | 14.52 | 33.40 | 5.77 | 310 | 50  | 15.70   | 33.47   | 5.90   | 24.66   | 329   | 0.16   |
| 78  | 13.20 | 33.37 | 5.52 | 286 | 75  | 13.32   | 33.38   | 5.56   | 25.10   | 288   | 0.24   |
| 90  | 12.13 | 33.35 | -    | 268 | 100 | 11.58   | 33.35   | 5.01   | 25.41   | 258   | 0.31   |
| 101 | 11.44 | 33.35 | 4.97 | 256 | 150 | 9.22    | 33.67   | 3.75   | 26.06   | 196   | 0.42   |
| 126 | 9.74  | 33.48 | 4.57 | 218 | 200 | 8.52    | 33.92   | 3.10   | 26.38   | 166   | 0.52   |
| 143 | 9.37  | 33.63 | 3.94 | 201 | 250 | 7.75    | 34.08   | 2.42   | 26.61   | 144   | 0.60   |
| 165 | 8.91  | 33.78 | 3.30 | 183 | 300 | 7.30    | 34.20   | 1.71   | 26.76   | 129   | 0.67   |
| 192 | 8.64  | 33.89 | 3.29 | 171 | 400 | 6.57    | 34.18   | 0.76   | 26.86   | 120   | 0.80   |
| 217 | 8.22  | 33.96 | 2.79 | 159 | 500 | 5.93    | 34.24   | 0.54   | 26.99   | 108   | 0.92   |
| 254 | 7.70  | 34.09 | 2.35 | 142 |     |         |         |        |         |       |        |
| 305 | 7.26  | 34.20 | 1.70 | 128 |     |         |         |        |         |       |        |
| 389 | 6.64  | 34.18 | 0.84 | 122 |     |         |         |        |         |       |        |
| 472 | 6.09  | 34.22 | 0.55 | 112 |     |         |         |        |         |       |        |
| 545 | 5.70  | 34.29 | 0.54 | 102 |     |         |         |        |         |       |        |

194

a) Depth determination indicates wire angle to be lower than recorded.

| OBSERVED |    |   |                |                       | INTERPOLATED |    |   |                | COMPUTED   |                       |            |  |
|----------|----|---|----------------|-----------------------|--------------|----|---|----------------|------------|-----------------------|------------|--|
| Z        | T  | S | O <sub>2</sub> | $\delta T_3$          | Z            | T  | S | O <sub>2</sub> | $\sigma_t$ | $\delta T_3$          | $\Delta D$ |  |
| m        | °C | ‰ | ml/L           | 10 <sup>-5</sup> cm/g | m            | °C | ‰ | ml/L           | g/L        | 10 <sup>-5</sup> cm/g | dyn. m     |  |

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5905

ORCA; May 9, 1959; 1235 GCT; 31°10'N, 120°55'W; sounding, 2000 fm; wind, 320°, force 5; weather, cloudy; sea, rough; wire angle, 27°.

93.80

|     |       |       |      |     |     |         |         |        |         |       |        |
|-----|-------|-------|------|-----|-----|---------|---------|--------|---------|-------|--------|
| 2   | 15.65 | 33.44 | 5.64 | 330 | 0   | (15.65) | (33.44) | (5.64) | (24.65) | (330) | (0.00) |
| 12  | 15.66 | 33.42 | 5.43 | 332 | 10  | 15.66   | 33.42   | 5.44   | 24.63   | 332   | 0.03   |
| 29  | 15.53 | 33.42 | 5.53 | 329 | 20  | 15.60   | 33.42   | 5.47   | 24.64   | 331   | 0.07   |
| 56  | 15.40 | 33.40 | -    | 328 | 30  | 15.52   | 33.42   | 5.53   | 24.67   | 328   | 0.10   |
| 64  | 15.40 | 33.40 | 5.50 | 328 | 50  | 15.42   | 33.41   | 5.51   | 24.67   | 328   | 0.16   |
| 78  | 15.36 | 33.40 | 5.65 | 326 | 75  | 15.37   | 33.40   | 5.64   | 24.68   | 327   | 0.25   |
| 90  | 14.52 | 33.45 | 5.67 | 306 | 100 | 13.83   | 33.46   | 5.60   | 25.05   | 292   | 0.33   |
| 103 | 13.76 | 33.47 | 5.59 | 289 | 150 | 9.68    | 33.55   | 4.28   | 25.90   | 212   | 0.45   |
| 124 | 11.58 | 33.51 | 4.96 | 246 | 200 | 8.58    | 33.87   | 2.90   | 26.33   | 171   | 0.55   |
| 142 | 10.08 | 33.52 | 4.43 | 220 | 250 | 7.74    | 33.99   | 2.31   | 26.54   | 150   | 0.63   |
| 167 | 9.01  | 33.68 | 3.94 | 192 | 300 | 7.09    | 34.05   | 1.73   | 26.68   | 137   | 0.70   |
| 192 | 8.67  | 33.84 | 3.11 | 175 | 400 | 6.29    | 34.14   | 1.00   | 26.86   | 120   | 0.84   |
| 219 | 8.28  | 33.94 | 2.56 | 162 | 500 | 5.69    | 34.22   | 0.54   | 27.00   | 107   | 0.96   |
| 262 | 7.55  | 34.00 | 2.21 | 147 |     |         |         |        |         |       |        |
| 312 | 6.98  | 34.06 | 1.64 | 134 |     |         |         |        |         |       |        |
| 389 | 6.36  | 34.13 | 1.06 | 121 |     |         |         |        |         |       |        |
| 468 | 5.84  | 34.20 | 0.62 | 110 |     |         |         |        |         |       |        |
| 550 | 5.46  | 34.25 | 0.42 | 102 |     |         |         |        |         |       |        |

ORCA; May 9, 1959; 0551 GCT; 30°50'N, 121°35'W; sounding, 2000+ fm; wind, 310°, force 5; weather, overcast; sea, rough; wire angle, 15°.

93.90

|     |       |       |      |     |     |         |         |        |         |       |        |
|-----|-------|-------|------|-----|-----|---------|---------|--------|---------|-------|--------|
| 1   | 16.58 | 33.60 | 5.52 | 339 | 0   | (16.58) | (33.60) | (5.52) | (24.56) | (339) | (0.00) |
| 10  | 16.56 | 33.58 | 5.48 | 339 | 10  | 16.56   | 33.58   | 5.48   | 24.56   | 339   | 0.03   |
| 30  | 16.56 | 33.60 | 5.48 | 338 | 20  | 16.56   | 33.59   | 5.48   | 24.56   | 339   | 0.07   |
| 59  | 16.52 | 33.60 | 5.48 | 337 | 30  | 16.56   | 33.60   | 5.48   | 24.57   | 338   | 0.10   |
| 70  | 15.88 | 33.54 | 5.62 | 328 | 50  | 16.54   | 33.60   | 5.48   | 24.57   | 338   | 0.17   |
| 83  | 16.56 | 33.86 | 5.52 | 319 | 75  | 16.25   | 33.72   | 5.57   | 24.73   | 322   | 0.25   |
| 97  | 16.23 | 33.89 | 5.50 | 310 | 100 | 16.00   | 33.87   | 5.48   | 24.90   | 306   | 0.33   |
| 113 | 14.94 | 33.79 | 5.35 | 290 | 150 | 10.70   | 33.52   | 4.67   | 25.70   | 230   | 0.47   |
| 137 | 12.10 | 33.51 | 5.00 | 256 | 200 | 8.96    | 33.75   | 3.59   | 26.17   | 186   | 0.58   |
| 156 | 10.28 | 33.53 | 4.52 | 223 | 250 | 8.23    | 33.92   | 3.00   | 26.41   | 163   | 0.66   |
| 185 | 9.19  | 33.70 | 3.76 | 193 | 300 | 7.49    | 34.02   | 2.07   | 26.60   | 145   | 0.74   |
| 214 | 8.79  | 33.81 | 3.44 | 178 | 400 | 6.61    | 34.12   | 1.15   | 26.80   | 126   | 0.88   |
| 243 | 8.34  | 33.90 | 3.10 | 166 | 500 | 5.83    | 34.21   | 0.55   | 26.97   | 109   | 1.01   |
| 291 | 7.60  | 34.00 | 2.19 | 148 | 600 | (5.34)  | (34.26) | (0.35) | (27.08) | (99)  | (1.12) |
| 346 | 7.09  | 34.07 | 1.64 | 136 |     |         |         |        |         |       |        |
| 428 | 6.36  | 34.14 | 0.88 | 121 |     |         |         |        |         |       |        |
| 511 | 5.78  | 34.22 | 0.50 | 108 |     |         |         |        |         |       |        |
| 594 | 5.38  | 34.26 | 0.36 | 100 |     |         |         |        |         |       |        |

PAOLINA-T; May 7, 1959; 0005 GCT; <sup>a)</sup> 32°11'N, 117°16.5'W; sounding, 830 fm; wind, 300°, force 2; weather, cloudy; sea, rough; wire angle, 16°.

97.32

|     |      |        |       |     |
|-----|------|--------|-------|-----|
| 416 | 7.20 | 34.46u | 0.66  | -   |
| 426 | 7.12 | 34.29  | 0.37  | 119 |
| 436 | 6.94 | 34.31  | 0.19  | 116 |
| 446 | 6.82 | 34.30  | 0.21  | 115 |
| 455 | 6.77 | 34.40u | 0.00u | -   |
| 465 | 6.70 | 34.27  | 0.00u | 116 |
| 475 | 6.73 | 34.31  | 0.00u | 113 |
| 485 | 6.59 | 34.32  | 0.23  | 110 |
| 495 | 6.52 | 34.32  | 0.14  | 109 |
| 505 | 6.50 | 34.31  | 0.20  | 110 |
| 514 | 6.38 | 34.33  | 0.25  | 107 |
| 524 | 6.33 | 34.34  | 0.50  | 105 |
| 534 | 6.24 | 34.33  | 0.40  | 105 |
| 544 | 6.18 | 34.32  | 0.38  | 105 |
| 554 | 6.14 | 34.34  | 0.40  | 103 |
| 564 | 6.06 | 34.34  | 0.40  | 102 |
| 574 | 6.00 | 34.34  | 0.48  | 102 |
| 583 | 5.96 | 34.34  | 0.48  | 101 |

a) Special cast.

S10

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5905

| OBSERVED |    |   |                |                       | INTERPOLATED |    |   |                | COMPUTED   |                       |            |
|----------|----|---|----------------|-----------------------|--------------|----|---|----------------|------------|-----------------------|------------|
| Z        | T  | S | O <sub>2</sub> | $\delta T_3$          | Z            | T  | S | O <sub>2</sub> | $\sigma_t$ | $\delta T_3$          | $\Delta D$ |
| m        | °C | ‰ | ml/L           | 10 <sup>-5</sup> cm/g | m            | °C | ‰ | ml/L           | g/L        | 10 <sup>-5</sup> cm/g | dyn. m     |

97.60

ORCA; May 12, 1959; 1647 GCT; 31°15'N, 119°11.5'W; sounding, 1950 fm; wind, 170°, force 1; weather, cloudy; sea, slight; wire angle, 04°.

|     |       |       |        |     |     |       |       |      |       |     |      |
|-----|-------|-------|--------|-----|-----|-------|-------|------|-------|-----|------|
| 0   | 16.45 | 33.60 | 5.65   | 336 | 0   | 16.45 | 33.60 | 5.65 | 24.59 | 336 | 0.00 |
| 10  | 16.35 | 33.60 | 5.39   | 334 | 10  | 16.35 | 33.60 | 5.39 | 24.61 | 334 | 0.03 |
| 30  | 16.16 | 33.58 | 5.51a) | 331 | 20  | 16.25 | 33.59 | 5.45 | 24.62 | 332 | 0.07 |
| 56  | 14.54 | 33.40 | 5.58   | 310 | 30  | 16.16 | 33.58 | 5.51 | 24.64 | 331 | 0.10 |
| 65  | 13.45 | 33.35 | 5.33   | 292 | 50  | 16.10 | 33.57 | 5.54 | 24.65 | 330 | 0.17 |
| 76  | 12.64 | 33.52 | 4.53   | 264 | 75  | 12.70 | 33.51 | 4.56 | 25.32 | 266 | 0.24 |
| 91  | 11.84 | 33.57 | 4.17   | 246 | 100 | 11.24 | 33.59 | 4.03 | 25.65 | 235 | 0.30 |
| 105 | 10.90 | 33.60 | 3.94   | 228 | 150 | 9.54  | 33.78 | 3.06 | 26.09 | 193 | 0.41 |
| 131 | 10.00 | 33.73 | 3.43   | 204 | 200 | 8.93  | 33.96 | 2.41 | 26.34 | 170 | 0.50 |
| 151 | 9.52  | 33.78 | 3.05   | 192 | 250 | 8.24  | 34.12 | 1.78 | 26.57 | 148 | 0.58 |
| 176 | 9.18  | 33.89 | 2.71   | 179 | 300 | 7.60  | 33.17 | 1.25 | 26.70 | 135 | 0.66 |
| 206 | 8.86  | 33.98 | 2.32   | 167 | 400 | 6.80  | 33.22 | 0.80 | 26.86 | 120 | 0.79 |
| 235 | 8.48  | 34.11 | 1.90   | 152 | 500 | 6.04  | 33.32 | 0.42 | 27.03 | 104 | 0.91 |
| 275 | 7.86  | 34.14 | 1.50   | 140 |     |       |       |      |       |     |      |
| 336 | 7.34  | 34.20 | 0.98   | 129 |     |       |       |      |       |     |      |
| 411 | 6.70  | 34.23 | 0.76   | 118 |     |       |       |      |       |     |      |
| 486 | 6.12  | 34.31 | 0.42   | 106 |     |       |       |      |       |     |      |
| 567 | 5.66  | 34.32 | 0.41   | 99  |     |       |       |      |       |     |      |

100.60

ORCA; May 26, 1959; 1000 GCT; 30°40.5'N, 118°47'W; sounding, 1550 fm; wind, 310°, force 3; weather, cloudy; sea, moderate; wire angle, 05°.

|     |       |       |      |     |     |         |         |        |         |       |        |
|-----|-------|-------|------|-----|-----|---------|---------|--------|---------|-------|--------|
| 1   | 16.68 | 33.62 | 5.44 | 340 | 0   | (16.68) | (33.62) | (5.44) | (24.54) | (340) | (0.00) |
| 11  | 16.69 | 33.62 | 5.44 | 340 | 10  | 16.69   | 33.62   | 5.44   | 24.54   | 340   | 0.03   |
| 30  | 16.69 | 33.61 | 5.44 | 340 | 20  | 16.69   | 33.62   | 5.44   | 24.54   | 340   | 0.07   |
| 60  | 14.54 | 33.40 | 5.58 | 310 | 30  | 16.69   | 33.61   | 5.44   | 24.54   | 340   | 0.10   |
| 70  | 13.46 | 33.31 | 5.53 | 296 | 50  | 16.00   | 33.54   | 5.51   | 24.65   | 330   | 0.17   |
| 84  | 12.32 | 33.35 | 5.01 | 271 | 75  | 13.09   | 33.31   | 5.44   | 25.09   | 288   | 0.25   |
| 99  | 11.86 | 33.40 | 4.60 | 260 | 100 | 11.85   | 33.40   | 4.59   | 25.40   | 259   | 0.32   |
| 115 | 11.40 | 33.53 | 4.16 | 242 | 150 | 10.03   | 33.68   | 3.38   | 25.93   | 208   | 0.43   |
| 140 | 10.38 | 33.64 | 3.55 | 216 | 200 | 8.57    | 33.95   | 2.48   | 26.39   | 165   | 0.53   |
| 160 | 9.70  | 33.75 | 3.14 | 197 | 250 | 8.03    | 34.09   | 1.72   | 26.58   | 147   | 0.61   |
| 189 | 8.72  | 33.91 | 2.62 | 170 | 300 | 7.61    | 34.13   | 1.32   | 26.67   | 138   | 0.68   |
| 219 | 8.35  | 34.00 | 2.21 | 158 | 400 | 6.80    | 34.20   | 0.74   | 26.84   | 122   | 0.82   |
| 248 | 8.06  | 34.09 | 1.73 | 147 | 500 | 6.04    | 34.26   | 0.46   | 26.98   | 108   | 0.94   |
| 298 | 7.62  | 34.13 | 1.33 | 138 | 600 | 5.52    | 34.29   | 0.30   | 27.07   | 100   | 1.05   |
| 353 | 7.20  | 34.18 | 1.00 | 129 |     |         |         |        |         |       |        |
| 438 | 6.45  | 34.21 | 0.54 | 117 |     |         |         |        |         |       |        |
| 523 | 5.92  | 34.27 | 0.41 | 106 |     |         |         |        |         |       |        |
| 608 | 5.48  | 34.29 | 0.29 | 99  |     |         |         |        |         |       |        |

100.90

ORCA; May 14, 1959; 0710 GCT; 29°40.5'N, 120°47.5'W; sounding, 2000+ fm; wind, 310°, force 2; weather, partly cloudy; sea, slight; wire angle, 15°.

|     |       |       |      |     |     |         |         |        |         |       |        |
|-----|-------|-------|------|-----|-----|---------|---------|--------|---------|-------|--------|
| 1   | 16.94 | 33.58 | 5.31 | 348 | 0   | (16.94) | (33.58) | (5.31) | (24.46) | (348) | (0.00) |
| 11  | 16.94 | 33.58 | 5.39 | 348 | 10  | 16.94   | 33.58   | 5.39   | 24.46   | 348   | 0.03   |
| 30  | 16.68 | 33.58 | 5.39 | 343 | 20  | 16.81   | 33.58   | 5.39   | 24.49   | 346   | 0.07   |
| 58  | 16.58 | 33.58 | 5.44 | 340 | 30  | 16.68   | 33.58   | 5.39   | 24.51   | 343   | 0.10   |
| 68  | 16.29 | 33.59 | 5.48 | 333 | 50  | 16.61   | 33.58   | 5.43   | 24.54   | 341   | 0.17   |
| 82  | 15.56 | 33.60 | 5.50 | 316 | 75  | 15.90   | 33.60   | 5.50   | 24.72   | 324   | 0.26   |
| 95  | 14.17 | 33.62 | 5.28 | 286 | 100 | 13.60   | 33.59   | 5.18   | 25.20   | 278   | 0.33   |
| 110 | 12.69 | 33.53 | 4.97 | 264 | 150 | 10.04   | 33.58   | 4.15   | 25.86   | 216   | 0.46   |
| 133 | 10.92 | 33.51 | 4.53 | 235 | 200 | 8.84    | 33.81   | 3.03   | 26.23   | 180   | 0.56   |
| 153 | 9.92  | 33.60 | 4.05 | 212 | 250 | 8.09    | 34.00   | 2.31   | 26.50   | 154   | 0.64   |
| 182 | 9.18  | 33.73 | 3.47 | 190 | 300 | 7.38    | 34.06   | 1.94   | 26.66   | 140   | 0.72   |
| 210 | 8.64  | 33.88 | 2.65 | 172 | 400 | 6.42    | 34.12   | 0.96   | 26.83   | 123   | 0.86   |
| 239 | 8.24  | 33.98 | 2.38 | 158 | 500 | 5.81    | 34.23   | 0.50   | 27.00   | 107   | 0.98   |
| 286 | 7.53  | 34.05 | 2.05 | 143 | 600 | (5.38)  | (34.32) | (0.40) | (27.11) | (96)  | (1.08) |
| 339 | 7.04  | 34.10 | 1.52 | 133 |     |         |         |        |         |       |        |
| 422 | 6.22  | 34.14 | 0.81 | 119 |     |         |         |        |         |       |        |
| 505 | 5.78  | 34.24 | 0.49 | 106 |     |         |         |        |         |       |        |
| 590 | 5.41  | 34.31 | 0.40 | 97  |     |         |         |        |         |       |        |

196

a) Alternate value, 5.70 ml/L, not used in interpolation.

| OBSERVED |    |   |                |                                 | INTERPOLATED |    |   |                | COMPUTED   |                                 |            |
|----------|----|---|----------------|---------------------------------|--------------|----|---|----------------|------------|---------------------------------|------------|
| Z        | T  | S | O <sub>2</sub> | $\delta T_3$                    | Z            | T  | S | O <sub>2</sub> | $\sigma_t$ | $\delta T_3$                    | $\Delta D$ |
| m        | °C | ‰ | ml/L           | $10^{-5} \text{ cm}^3/\text{g}$ | m            | °C | ‰ | ml/L           | g/L        | $10^{-5} \text{ cm}^3/\text{g}$ | dyn. m     |

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ORCA; May 16, 1959; 1950, 2035 GCT; 30°10'N, 118°25'W; sounding, 1800 fm; wind, 300°, force 2; weather, overcast; sea, rough; wire angle, 18°, 21°.

103.60

|     |       |       |      |     |     |         |         |        |         |       |        |
|-----|-------|-------|------|-----|-----|---------|---------|--------|---------|-------|--------|
| 1   | 16.81 | 33.66 | 5.43 | 340 | 0   | (16.81) | (33.66) | (5.43) | (24.55) | (340) | (0.00) |
| 10  | 16.74 | 33.66 | 5.36 | 338 | 10  | 16.74   | 33.66   | 5.36   | 24.57   | 338   | 0.03   |
| 29  | 16.72 | 33.64 | 5.42 | 339 | 20  | 16.73   | 33.65   | 5.39   | 24.56   | 338   | 0.07   |
| 57  | 15.98 | 33.56 | 5.46 | 328 | 30  | 16.72   | 33.64   | 5.42   | 24.57   | 339   | 0.10   |
| 67  | 14.78 | 33.48 | 5.51 | 310 | 50  | 16.70   | 33.63   | 5.43   | 24.56   | 338   | 0.17   |
| 81  | 13.44 | 33.40 | 5.31 | 288 | 75  | 14.03   | 33.43   | 5.43   | 24.99   | 298   | 0.25   |
| 95  | 12.24 | 33.47 | 4.99 | 260 | 100 | 11.84   | 33.50   | 4.91   | 25.48   | 252   | 0.32   |
| 110 | 11.28 | 33.53 | 4.79 | 240 | 150 | 9.68    | 33.65   | 3.98   | 25.98   | 204   | 0.44   |
| 133 | 10.32 | 33.57 | 4.31 | 220 | 200 | 8.62    | 33.87   | 3.03   | 26.32   | 172   | 0.53   |
| 152 | 9.60  | 33.66 | 3.93 | 202 | 250 | 7.89    | 34.01   | 2.20   | 26.54   | 150   | 0.61   |
| 180 | 8.84  | 33.81 | 3.23 | 180 | 300 | 7.33    | 34.09   | 1.79   | 26.68   | 138   | 0.69   |
| 208 | 8.52  | 33.90 | 2.93 | 168 | 400 | 6.48    | 34.18   | 1.00   | 26.86   | 120   | 0.82   |
| 237 | 8.04  | 33.98 | 2.38 | 155 | 500 | 6.03    | 34.32   | 0.52   | 27.03   | 104   | 0.94   |
| 284 | 7.50  | 34.07 | 1.91 | 141 | 600 | (5.40)  | (34.35) |        | (27.14) | (94)  | (1.04) |
| 336 | 7.00  | 34.12 | 1.50 | 130 |     |         |         |        |         |       |        |
| 419 | 6.34  | 34.20 | 0.84 | 116 |     |         |         |        |         |       |        |
| 501 | 6.02  | 34.32 | 0.52 | 104 |     |         |         |        |         |       |        |
| 585 | 5.50  | 34.35 | 0.36 | 95  |     |         |         |        |         |       |        |

ORCA; May 18, 1959; 1459 GCT; 29°31.5'N, 118°00.5'W; sounding, 1800 fm; wind, 320°, force 4; weather, cloudy; sea, very rough; wire angle, 19°.

107.60

|     |       |       |      |     |     |         |         |        |         |       |        |
|-----|-------|-------|------|-----|-----|---------|---------|--------|---------|-------|--------|
| 1   | 17.51 | 33.88 | 5.41 | 339 | 0   | (17.51) | (33.88) | (5.41) | (24.56) | (339) | (0.00) |
| 10  | 17.50 | 33.87 | 5.29 | 340 | 10  | 17.50   | 33.87   | 5.29   | 24.55   | 340   | 0.03   |
| 30  | 17.53 | 33.87 | 5.30 | 340 | 20  | 17.50   | 33.87   | 5.30   | 24.55   | 340   | 0.07   |
| 58  | 17.52 | 33.91 | 5.36 | 337 | 30  | 17.53   | 33.87   | 5.30   | 24.55   | 340   | 0.10   |
| 69  | 17.52 | 33.88 | 5.27 | 339 | 50  | 17.52   | 33.90   | 5.34   | 24.57   | 338   | 0.17   |
| 83  | 17.10 | 33.83 | 5.32 | 334 | 75  | 17.52   | 33.87   | 5.28   | 24.57   | 338   | 0.25   |
| 97  | 16.07 | 33.77 | 5.18 | 315 | 100 | 15.25   | 33.70   | 4.99   | 24.94   | 302   | 0.34   |
| 111 | 14.78 | 33.67 | 4.88 | 295 | 150 | 11.57   | 33.64   | 4.19   | 25.63   | 236   | 0.47   |
| 136 | 12.44 | 33.64 | 4.38 | 252 | 200 | 9.79    | 33.86   | 2.92   | 26.12   | 190   | 0.58   |
| 154 | 11.34 | 33.64 | 4.11 | 232 | 250 | 8.72    | 34.04   | 2.36   | 26.43   | 161   | 0.67   |
| 183 | 9.89  | 33.71 | 3.48 | 203 | 300 | 8.20    | 34.14   | 1.67   | 26.59   | 146   | 0.75   |
| 212 | 9.69  | 33.96 | 2.53 | 182 | 400 | 6.80    | 34.16   | 1.08   | 26.80   | 125   | 0.89   |
| 242 | 8.84  | 34.02 | 2.44 | 164 | 500 | 6.02    | 34.23   | 0.52   | 26.96   | 110   | 1.02   |
| 291 | 8.31  | 34.13 | 1.76 | 148 | 600 | (5.40)  | (34.29) | (0.38) | (27.09) | (98)  | (1.13) |
| 345 | 7.55  | 34.14 | 1.34 | 137 |     |         |         |        |         |       |        |
| 428 | 6.50  | 34.17 | 0.95 | 120 |     |         |         |        |         |       |        |
| 513 | 5.96  | 34.24 | 0.44 | 108 |     |         |         |        |         |       |        |
| 598 | 5.41  | 34.29 | 0.38 | 99  |     |         |         |        |         |       |        |

ORCA; May 20, 1959; 1556 GCT; 28°55.5'N, 117°39'W; sounding, 2000 fm; wind, 310°, force 2; weather, cloudy; sea, very rough; wire angle, 18°.

110.60

|     |       |       |      |     |     |         |         |        |         |       |        |
|-----|-------|-------|------|-----|-----|---------|---------|--------|---------|-------|--------|
| 2   | 17.51 | 33.81 | 5.42 | 344 | 0   | (17.51) | (33.81) | (5.42) | (24.50) | (344) | (0.00) |
| 11  | 17.50 | 33.82 | 5.34 | 343 | 10  | 17.50   | 33.82   | 5.35   | 24.51   | 343   | 0.03   |
| 31  | 17.53 | 33.81 | 5.32 | 345 | 20  | 17.52   | 33.82   | 5.33   | 24.50   | 344   | 0.07   |
| 60  | 17.48 | 33.83 | 5.36 | 342 | 30  | 17.53   | 33.81   | 5.32   | 24.49   | 345   | 0.10   |
| 69  | 17.48 | 33.83 | 5.32 | 342 | 50  | 17.49   | 33.82   | 5.35   | 24.50   | 344   | 0.17   |
| 83  | 17.00 | 33.78 | 5.41 | 335 | 75  | 17.20   | 33.80   | 5.38   | 24.57   | 338   | 0.26   |
| 98  | 16.46 | 33.75 | 5.38 | 325 | 100 | 16.28   | 33.74   | 5.37   | 24.74   | 322   | 0.34   |
| 112 | 14.83 | 33.59 | 5.17 | 302 | 150 | 11.58   | 33.64   | 3.78   | 25.64   | 236   | 0.48   |
| 136 | 12.60 | 33.61 | 4.26 | 257 | 200 | 9.80    | 33.92   | 2.76   | 26.17   | 186   | 0.59   |
| 155 | 11.22 | 33.66 | 3.61 | 229 | 250 | 9.47    | 34.20   | 1.69   | 26.44   | 160   | 0.68   |
| 185 | 10.21 | 33.86 | 2.96 | 198 | 300 | 8.05    | 34.12   | 1.80   | 26.60   | 145   | 0.76   |
| 214 | 9.48  | 33.98 | 2.54 | 177 | 400 | 7.34    | 34.25   | 0.77   | 26.80   | 126   | 0.90   |
| 243 | 9.55  | 34.18 | 1.68 | 163 | 500 | 6.68    | 34.31   | 0.56   | 26.94   | 112   | 1.02   |
| 291 | 8.14  | 34.11 | 1.86 | 147 | 600 | (5.99)  | (34.32) | (0.39) | (27.04) | (103) | (1.14) |
| 344 | 7.74  | 34.19 | 1.28 | 135 |     |         |         |        |         |       |        |
| 428 | 7.12  | 34.27 | 0.62 | 121 |     |         |         |        |         |       |        |
| 512 | 6.60  | 34.31 | 0.53 | 111 |     |         |         |        |         |       |        |
| 596 | 6.01  | 34.32 | 0.40 | 104 |     |         |         |        |         |       |        |

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5905

| OBSERVED |    |   |                |                       | INTERPOLATED |    |   |                | COMPUTED   |                       |            |  |
|----------|----|---|----------------|-----------------------|--------------|----|---|----------------|------------|-----------------------|------------|--|
| Z        | T  | S | O <sub>2</sub> | $\delta T_3$          | Z            | T  | S | O <sub>2</sub> | $\sigma_t$ | $\delta T_3$          | $\Delta D$ |  |
| m        | °C | ‰ | ml/L           | 10 <sup>-5</sup> cm/g | m            | °C | ‰ | ml/L           | g/L        | 10 <sup>-5</sup> cm/g | dyn. m     |  |

110.90

ORCA; May 21, 1959; 1425 GCT; 28°00'N, 119°38'W; sounding, 2000+ fm; wind, 330°, force 3; weather, partly cloudy; sea, very rough; wire angle, 10°.

|     |       |       |        |     |     |         |         |        |         |       |        |
|-----|-------|-------|--------|-----|-----|---------|---------|--------|---------|-------|--------|
| 1   | 18.05 | 33.95 | 5.29   | 347 | 0   | (18.05) | (33.95) | (5.29) | (24.48) | (347) | (0.00) |
| 11  | 18.08 | 33.93 | 5.27   | 349 | 10  | 18.08   | 33.93   | 5.27   | 24.45   | 349   | 0.03   |
| 31  | 18.07 | 33.93 | 5.27a) | 349 | 20  | 18.08   | 33.93   | 5.27   | 24.45   | 349   | 0.07   |
| 61  | 18.07 | 33.94 | 5.24   | 348 | 30  | 18.07   | 33.93   | 5.27   | 24.45   | 349   | 0.10   |
| 70  | 17.96 | 34.02 | 5.36   | 340 | 50  | 18.07   | 33.94   | 5.25   | 24.46   | 348   | 0.17   |
| 85  | 17.00 | 33.90 | 5.41   | 326 | 75  | 17.60   | 33.98   | 5.40   | 24.60   | 334   | 0.26   |
| 101 | 15.34 | 33.73 | 4.94   | 302 | 100 | 15.45   | 33.74   | 4.99   | 24.92   | 304   | 0.34   |
| 115 | 14.12 | 33.79 | 4.81   | 273 | 150 | 11.40   | 33.67   | 4.07   | 25.69   | 231   | 0.47   |
| 140 | 11.88 | 33.64 | 4.07   | 242 | 200 | 9.64    | 33.86   | 3.17   | 26.15   | 188   | 0.58   |
| 160 | 10.96 | 33.71 | 4.07   | 220 | 250 | 9.08    | 34.13   | 2.11   | 26.45   | 159   | 0.67   |
| 190 | 9.75  | 33.78 | 3.55   | 196 | 300 | 8.62    | 34.26   | 1.47   | 26.62   | 143   | 0.75   |
| 219 | 9.47  | 34.02 | 2.46   | 174 | 400 | 7.42    | 34.31   | 0.72   | 26.84   | 122   | 0.89   |
| 249 | 9.09  | 34.13 | 2.12   | 160 | 500 | 6.64    | 34.34   | 0.42   | 26.95   | 110   | 1.01   |
| 300 | 8.62  | 34.26 | 1.47   | 143 | 600 | 5.87    | 34.37   | 0.30   | 27.09   | 98    | 1.12   |
| 355 | 7.88  | 34.26 | 1.08   | 132 |     |         |         |        |         |       |        |
| 439 | 7.16  | 34.34 | 0.52   | 116 |     |         |         |        |         |       |        |
| 524 | 6.42  | 34.34 | 0.38   | 107 |     |         |         |        |         |       |        |
| 609 | 5.82  | 34.37 | 0.29   | 97  |     |         |         |        |         |       |        |

113.60

ORCA; May 22, 1959; 1331 GCT; 28°20'N, 117°17.5'W; sounding, 1900 fm; wind, 310°, force 2; weather, cloudy; sea, rough; wire angle, 05°.

|     |       |       |      |     |     |         |         |        |         |       |        |
|-----|-------|-------|------|-----|-----|---------|---------|--------|---------|-------|--------|
| 1   | 17.50 | 33.80 | 5.34 | 345 | 0   | (17.50) | (33.80) | (5.34) | (24.50) | (345) | (0.00) |
| 11  | 17.52 | 33.77 | 5.36 | 347 | 10  | 17.51   | 33.77   | 5.36   | 24.47   | 347   | 0.03   |
| 30  | 17.53 | 33.77 | 5.29 | 347 | 20  | 17.52   | 33.77   | 5.33   | 24.47   | 347   | 0.07   |
| 60  | 17.36 | 33.78 | 5.33 | 343 | 30  | 17.53   | 33.77   | 5.29   | 24.47   | 347   | 0.10   |
| 71  | 17.25 | 33.77 | 5.53 | 341 | 50  | 17.44   | 33.77   | 5.30   | 24.49   | 345   | 0.17   |
| 86  | 16.22 | 33.73 | 5.49 | 321 | 75  | 16.65   | 33.75   | 5.52   | 24.66   | 330   | 0.26   |
| 100 | 14.56 | 33.62 | 5.29 | 294 | 100 | 14.56   | 33.62   | 5.29   | 25.02   | 294   | 0.34   |
| 115 | 12.76 | 33.61 | 4.86 | 260 | 150 | 10.49   | 33.71   | 3.99   | 25.88   | 213   | 0.46   |
| 140 | 10.88 | 33.65 | 4.42 | 224 | 200 | 10.59   | 34.21   | 1.70   | 26.26   | 177   | 0.56   |
| 160 | 10.32 | 33.78 | 3.56 | 205 | 250 | 10.00   | 34.33   | 1.20   | 26.45   | 159   | 0.65   |
| 190 | 10.50 | 34.14 | 2.04 | 181 | 300 | 9.67    | 34.43   | 0.79   | 26.58   | 146   | 0.73   |
| 220 | 10.64 | 34.31 | 1.21 | 171 | 400 | 8.20    | 34.37   | 0.60   | 26.77   | 128   | 0.87   |
| 250 | 10.00 | 34.33 | 1.20 | 159 | 500 | 7.37    | 34.41   | 0.40   | 26.93   | 113   | 1.00   |
| 301 | 9.66  | 34.43 | 0.79 | 146 | 600 | 6.10    | 34.35   | 0.34   | 27.05   | 102   | 1.11   |
| 356 | 8.53  | 34.33 | 0.82 | 136 |     |         |         |        |         |       |        |
| 441 | 7.92  | 34.41 | 0.40 | 121 |     |         |         |        |         |       |        |
| 526 | 7.06  | 34.41 | 0.40 | 110 |     |         |         |        |         |       |        |
| 611 | 5.96  | 34.34 | 0.33 | 101 |     |         |         |        |         |       |        |

117.50

ORCA; May 24, 1959; 0839 GCT; 28°08'N, 116°15'W; sounding, 2500 fm; wind, 300°, force 2; weather, cloudy; sea, moderate; wire angle, 08°.

|     |       |       |      |     |     |       |       |      |       |     |      |
|-----|-------|-------|------|-----|-----|-------|-------|------|-------|-----|------|
| 0   | 17.68 | 33.76 | 5.22 | 352 | 0   | 17.68 | 33.76 | 5.22 | 24.42 | 352 | 0.00 |
| 10  | 17.68 | 33.75 | 5.29 | 352 | 10  | 17.68 | 33.75 | 5.29 | 24.42 | 352 | 0.04 |
| 30  | 17.50 | 33.73 | 5.35 | 350 | 20  | 17.61 | 33.74 | 5.33 | 24.42 | 352 | 0.07 |
| 59  | 16.56 | 33.77 | 5.38 | 326 | 30  | 17.50 | 33.73 | 5.35 | 24.44 | 350 | 0.10 |
| 69  | 16.08 | 33.75 | 5.36 | 317 | 50  | 17.25 | 33.74 | 5.37 | 24.51 | 344 | 0.17 |
| 84  | 15.06 | 33.66 | 5.27 | 302 | 75  | 15.75 | 33.72 | 5.34 | 24.84 | 312 | 0.26 |
| 99  | 13.63 | 33.70 | 4.82 | 270 | 100 | 13.55 | 33.70 | 4.80 | 25.30 | 269 | 0.33 |
| 114 | 12.14 | 33.62 | 4.40 | 248 | 150 | 10.70 | 33.90 | 2.70 | 26.00 | 202 | 0.45 |
| 140 | 10.60 | 33.67 | 3.96 | 218 | 200 | 9.99  | 34.16 | 1.72 | 26.32 | 171 | 0.54 |
| 160 | 10.83 | 34.05 | 2.12 | 194 | 250 | 9.44  | 34.28 | 1.29 | 26.50 | 154 | 0.63 |
| 190 | 10.06 | 34.14 | 1.79 | 175 | 300 | 8.39  | 34.23 | 1.21 | 26.63 | 142 | 0.70 |
| 220 | 9.93  | 34.23 | 1.56 | 165 | 400 | 8.10  | 34.40 | 0.45 | 26.82 | 124 | 0.84 |
| 249 | 9.46  | 34.28 | 1.29 | 154 | 500 | 6.75  | 34.35 | 0.30 | 26.96 | 111 | 0.96 |
| 299 | 8.39  | 34.23 | 1.21 | 142 | 600 | 6.00  | 34.34 | 0.27 | 27.06 | 102 | 1.08 |
| 354 | 8.54  | 34.42 | 0.53 | 130 |     |       |       |      |       |     |      |
| 438 | 7.60  | 34.38 | 0.39 | 120 |     |       |       |      |       |     |      |
| 523 | 6.51  | 34.34 | 0.29 | 108 |     |       |       |      |       |     |      |
| 609 | 5.96  | 34.34 | 0.26 | 101 |     |       |       |      |       |     |      |

| OBSERVED |    |   |                |                                            | INTERPOLATED |    |   |                | COMPUTED   |                                            |            |
|----------|----|---|----------------|--------------------------------------------|--------------|----|---|----------------|------------|--------------------------------------------|------------|
| Z        | T  | S | O <sub>2</sub> | $\delta T$                                 | Z            | T  | S | O <sub>2</sub> | $\sigma_t$ | $\delta T$                                 | $\Delta D$ |
| m        | °C | ‰ | ml/L           | $\frac{10^{-5} \times 3}{10 \text{ cm/g}}$ | m            | °C | ‰ | ml/L           | g/L        | $\frac{10^{-5} \times 3}{10 \text{ cm/g}}$ | dyn. m     |

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PAOLINA-T; May 17, 1959; 0700 GCT; 27°29'N, 115°44'W; sounding, 2450 fm; wind, 320°, force 4; weather, cloudy; sea, rough; wire angle, 10°.

120.50

|     |       |       |      |     |     |         |         |        |         |       |        |
|-----|-------|-------|------|-----|-----|---------|---------|--------|---------|-------|--------|
| 2   | 18.11 | 33.71 | 5.47 | 365 | 0   | (18.11) | (33.71) | (5.47) | (24.28) | (365) | (0.00) |
| 12  | 18.11 | 33.71 | 5.26 | 365 | 10  | 18.11   | 33.71   | 5.26   | 24.28   | 365   | 0.04   |
| 31  | 17.99 | 33.76 | 5.25 | 359 | 20  | 18.07   | 33.73   | 5.25   | 24.31   | 362   | 0.07   |
| 41  | 17.02 | 33.70 | 5.37 | 342 | 30  | 18.00   | 33.76   | 5.25   | 24.34   | 359   | 0.11   |
| 56  | 16.51 | 33.70 | 5.34 | 330 | 50  | 16.72   | 33.70   | 5.34   | 24.61   | 334   | 0.18   |
| 71  | 15.02 | 33.58 | 5.62 | 307 | 75  | 14.68   | 33.58   | 5.58   | 24.97   | 300   | 0.26   |
| 96  | 12.80 | 33.60 | 4.82 | 262 | 100 | 12.65   | 33.61   | 4.70   | 25.40   | 258   | 0.33   |
| 115 | 11.76 | 33.69 | 3.56 | 236 | 150 | 9.98    | 33.73   | 3.41   | 25.99   | 202   | 0.44   |
| 135 | 10.72 | 33.69 | 3.61 | 218 | 200 | 9.81    | 34.15   | 1.61   | 26.34   | 170   | 0.54   |
| 155 | 9.84  | 33.77 | 3.29 | 198 | 250 | 9.09    | 34.22   | 1.44   | 26.52   | 153   | 0.62   |
| 184 | 9.84  | 34.04 | 2.00 | 178 | 300 | 8.22    | 34.20   | 1.36   | 26.64   | 142   | 0.70   |
| 219 | 9.66  | 34.22 | 1.45 | 162 | 400 | 7.01    | 34.24   | 0.72   | 26.84   | 122   | 0.84   |
| 248 | 9.12  | 34.22 | 1.44 | 153 | 500 | 6.21    | 34.32   | 0.45   | 27.01   | 106   | 0.95   |
| 298 | 8.24  | 34.20 | 1.37 | 142 | 600 | 5.69    | 34.43   | 0.35   | 27.16   | 91    | 1.06   |
| 353 | 7.36  | 34.21 | 0.99 | 128 |     |         |         |        |         |       |        |
| 437 | 6.76  | 34.27 | 0.56 | 116 |     |         |         |        |         |       |        |
| 521 | 6.06  | 34.34 | 0.42 | 102 |     |         |         |        |         |       |        |
| 606 | 5.66  | 34.43 | 0.34 | 91  |     |         |         |        |         |       |        |

PAOLINA-T; May 11, 1959; 1530 GCT; 26°05'N, 114°08.5'W; sounding, 1200 fm; wind, 320°, force 2; weather, overcast; sea, moderate; wire angle, 09°.

130.40

|     |       |       |      |     |     |         |         |        |         |       |        |
|-----|-------|-------|------|-----|-----|---------|---------|--------|---------|-------|--------|
| 2   | 17.38 | 33.72 | 5.42 | 347 | 0   | (17.38) | (33.72) | (5.42) | (24.47) | (347) | (0.00) |
| 12  | 17.30 | 33.73 | 5.08 | 345 | 10  | 17.32   | 33.73   | 5.15   | 24.48   | 346   | 0.03   |
| 31  | 16.92 | 33.72 | 5.18 | 338 | 20  | 17.10   | 33.73   | 5.12   | 24.54   | 341   | 0.07   |
| 56  | 16.69 | 33.72 | 5.22 | 332 | 30  | 16.94   | 33.72   | 5.16   | 24.57   | 338   | 0.10   |
| 66  | 16.48 | 33.73 | 5.14 | 327 | 50  | 16.81   | 33.72   | 5.20   | 24.60   | 335   | 0.17   |
| 76  | 16.06 | 33.74 | 5.14 | 317 | 75  | 16.09   | 33.74   | 5.14   | 24.78   | 318   | 0.25   |
| 91  | 13.90 | 33.73 | 4.30 | 273 | 100 | 12.80   | 33.71   | 3.97   | 25.45   | 254   | 0.32   |
| 106 | 12.30 | 33.70 | 3.80 | 245 | 150 | 11.08   | 34.09   | 1.99   | 26.07   | 195   | 0.43   |
| 131 | 11.25 | 34.00 | 2.44 | 204 | 200 | 10.72   | 34.38   | 0.90   | 26.36   | 167   | 0.52   |
| 150 | 11.08 | 34.09 | 1.99 | 195 | 250 | 10.04   | 34.48   | 0.65   | 26.56   | 149   | 0.61   |
| 175 | 11.04 | 34.29 | 1.22 | 180 | 300 | 9.47    | 34.48   | 0.52   | 26.66   | 139   | 0.68   |
| 205 | 10.62 | 34.40 | 0.84 | 164 | 400 | 8.37    | 34.49   | 0.39   | 26.84   | 122   | 0.82   |
| 234 | 10.25 | 34.48 | 0.67 | 152 | 500 | 7.23    | 34.42   | 0.33   | 26.95   | 112   | 0.94   |
| 274 | 9.72  | 34.47 | 0.64 | 144 |     |         |         |        |         |       |        |
| 333 | 9.17  | 34.50 | 0.34 | 133 |     |         |         |        |         |       |        |
| 408 | 8.27  | 34.48 | 0.39 | 122 |     |         |         |        |         |       |        |
| 482 | 7.42  | 34.42 | -    | 114 |     |         |         |        |         |       |        |
| 561 | 6.60  | 34.42 | 0.28 | 103 |     |         |         |        |         |       |        |

PAOLINA-T; May 9, 1959; 2055 GCT; 25°00'N, 113°23.5'W; sounding, 1300 fm; wind, 280°, force 5; weather, cloudy; sea, very rough; wire angle, 17°.

137.40

|     |       |       |      |     |     |         |         |        |         |       |        |
|-----|-------|-------|------|-----|-----|---------|---------|--------|---------|-------|--------|
| 2   | 17.84 | 33.78 | 5.19 | 354 | 0   | (17.84) | (33.78) | (5.19) | (24.40) | (354) | (0.00) |
| 11  | 17.74 | 33.77 | 4.99 | 352 | 10  | 17.75   | 33.77   | 4.99   | 24.41   | 353   | 0.04   |
| 30  | 17.42 | 33.76 | 5.07 | 346 | 20  | 17.47   | 33.76   | 5.07   | 24.47   | 347   | 0.07   |
| 59  | 15.25 | 33.68 | 4.64 | 304 | 30  | 17.42   | 33.76   | 5.07   | 24.48   | 346   | 0.10   |
| 68  | 14.03 | 33.68 | 4.03 | 280 | 50  | 17.33   | 33.76   | 5.07   | 24.50   | 344   | 0.17   |
| 83  | 13.30 | 33.73 | 3.58 | 261 | 75  | 13.71   | 33.69   | 3.84   | 25.26   | 272   | 0.25   |
| 97  | 12.83 | 33.91 | 2.56 | 240 | 100 | 12.72   | 33.92   | 2.51   | 25.63   | 236   | 0.32   |
| 111 | 12.02 | 33.93 | 2.43 | 224 | 150 | 12.19   | 34.54   | 0.52   | 26.22   | 180   | 0.42   |
| 135 | 11.88 | 34.33 | 1.12 | 191 | 200 | 11.29   | 34.65   | 0.20   | 26.47   | 157   | 0.51   |
| 155 | 12.26 | 34.61 | 0.36 | 178 | 250 | 10.13   | 34.55   | 0.43   | 26.60   | 145   | 0.58   |
| 182 | 11.56 | 34.63 | 0.28 | 163 | 300 | 9.69    | 34.56   | 0.19   | 26.68   | 137   | 0.66   |
| 212 | 11.11 | 34.65 | 0.18 | 154 | 400 | 8.07    | 34.45   | 0.24   | 26.85   | 121   | 0.79   |
| 240 | 10.26 | 34.55 | 0.47 | 147 | 500 | 7.09    | 34.46   | 0.22   | 27.00   | 107   | 0.91   |
| 287 | 9.84  | 34.57 | 0.19 | 139 | 600 | (6.11)  | (34.44) |        | (27.12) | (96)  | (1.02) |
| 340 | 9.15  | 34.52 | 0.26 | 131 |     |         |         |        |         |       |        |
| 421 | 7.78  | 34.43 | 0.24 | 118 |     |         |         |        |         |       |        |
| 503 | 7.06  | 34.46 | 0.22 | 106 |     |         |         |        |         |       |        |
| 587 | 6.26  | 34.44 | 0.20 | 97  |     |         |         |        |         |       |        |

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

| Station | Date | Time<br>GCT | Latitude<br>North | Longitude<br>West | Sounding<br>(fm) | Wind |       | Weather       | Sea        | 10 Meters |       |
|---------|------|-------------|-------------------|-------------------|------------------|------|-------|---------------|------------|-----------|-------|
|         |      |             |                   |                   |                  | Dir  | Force |               |            | T         | S     |
| 60.52-B | V-25 | 1225        | 37°53.5'          | 123°02.0'         | 44               | 340° | 4     | overcast      | rough      | 10.75     | 33.76 |
| 60.55-B | 25   | 1040        | 37°47.5'          | 123°15.0'         | 60               | 300° | 4     | overcast      | rough      | 11.20     | 33.63 |
| 60.65-B | 25   | 0515        | 37°28.0'          | 123°54.5'         | 1960             | 320° | 4     | overcast      | moderate   | 12.51     | 33.35 |
| 60.70-B | 25   | 0305        | 37°19.0'          | 124°16.0'         | 2150             | 320° | 4     | overcast      | moderate   | 12.27     | 33.09 |
| 60.75-B | 25   | 0100        | 37°09.0'          | 124°39.0'         | 2150             | 320° | 4     | overcast      | slight     | 11.99     | 32.90 |
| 60.80-B | 24   | 2240        | 36°57.5'          | 125°04.0'         | 2200             | 330° | 1     | overcast      | moderate   | 13.08     | 32.75 |
| 60.85-B | 24   | 2000        | 36°47.0'          | 125°25.0'         | 2200             | 310° | 1     | cloudy        | moderate   | 12.47     | 32.66 |
| 63.52-B | 23   | 1815        | 37°19.0'          | 122°36.0'         | 48               | 090° | 4     | cloudy        | slight     | 11.34     | 33.69 |
| 63.55-B | 23   | 2008        | 37°14.0'          | 122°49.5'         | 150              | 090° | 3     | cloudy        | rough      | 11.56     | 33.78 |
| 63.60-B | 23   | 2315        | 37°02.5'          | 123°11.5'         | 1350             | 140° | 2     | cloudy        | rough      | 12.14     | 33.44 |
| 63.65-B | 24   | 0150        | 36°53.0'          | 123°32.0'         | 1900             | 150° | 1     | clear         | rough      | 12.64     | 33.44 |
| 63.70-B | 24   | 0400        | 36°43.0'          | 123°55.5'         | 2100             | 180° | 1     | cloudy        | rough      | 12.26     | 32.94 |
| 63.75-B | 24   | 0610        | 36°33.0'          | 124°17.0'         | 2150             | 180° | 1     | cloudy        | slight     | 12.92     | 32.94 |
| 63.85-B | 24   | 1100        | 36°13.0'          | 124°59.0'         | 2400             | 250° | 2     | overcast      | moderate   | 13.44     | 32.99 |
| 63.90-B | 24   | 1315        | 36°03.0'          | 125°21.0'         | 2400             | 290° | 2     | drizzle       | rough      | 13.80     | 32.85 |
| 67.50-B | 21   | 0930        | 36°49.0'          | 122°04.5'         | 57               | 310° | 3     | partly cloudy | rough      | 10.09     | 33.85 |
| 67.55-B | 21   | 1140        | 36°39.0'          | 122°26.0'         | 1100             | 300° | 4     | clear         | very rough | 11.84     | 33.62 |
| 67.60-B | 21   | 1430        | 36°29.0'          | 122°47.5'         | 1600             | 330° | 5     | cloudy        | very rough | 12.48     | 33.64 |
| 67.65-B | 21   | 1700        | 36°19.0'          | 123°09.0'         | 1750             | 320° | 6     | cloudy        | high       | 12.49     | 33.66 |

| Station | Date | Time<br>GCT | Latitude<br>North | Longitude<br>West | Sounding<br>(fm) | Wind |       | Weather       | Sea        | 10 Meters |       |
|---------|------|-------------|-------------------|-------------------|------------------|------|-------|---------------|------------|-----------|-------|
|         |      |             |                   |                   |                  | Dir  | Force |               |            | T         | S     |
| 67.70-B | V-21 | 1920        | 36°08.0'          | 123°30.0'         | 1750             | 320° | 6     | partly cloudy | very high  | 12.72     | 33.28 |
| 67.75-B | 21   | 2220        | 35°58.0'          | 123°51.0'         | 2100             | 340° | 7     | partly cloudy | very high  | 13.82     | 33.30 |
| 67.80-B | 22   | 0215        | 35°48.0'          | 124°13.0'         | 2200             | 340° | 8     | cloudy        | very high  | 12.88     | 33.46 |
| 70.52-B | 20   | 2030        | 36°08.5'          | 121°50.0'         | 350              | 320° | 7     | partly cloudy | high       | 9.48      | 33.89 |
| 70.55-B | 20   | 2225        | 36°03.0'          | 122°02.0'         | 700              | 310° | 6     | clear         | high       | 13.03     | 33.59 |
| 70.60-B | 21   | 0030        | 35°53.0'          | 122°23.0'         | 1650             | 320° | 7     | partly cloudy | high       | 12.96     | 33.53 |
| 70.75-B | 19   | 0600        | 35°24.0'          | 123°27.5'         | 2100             | 330° | 7     | partly cloudy | very rough | 14.54     | 33.28 |
| 70.80-B | 19   | 0325        | 35°19.0'          | 123°48.0'         | 2200             | 350° | 7     | partly cloudy | very rough | 14.32     | 33.22 |
| 70.85-B | 19   | 0020        | 35°03.0'          | 124°09.0'         | 2300             | 350° | 6     | partly cloudy | rough      | 14.43     | 33.22 |
| 73.51-B | 17   | 1745        | 35°35.5'          | 121°20.0'         | 160              | 300° | 3     | partly cloudy | rough      | 11.16     | 33.58 |
| 73.55-B | 17   | 1940        | 35°27.5'          | 121°37.5'         | 550              | 300° | 4     | cloudy        | rough      | 12.80     | 33.46 |
| 73.60-B | 17   | 2225        | 35°18.0'          | 121°58.5'         | 1300             | 320° | 5     | overcast      | rough      | 13.94     | 33.42 |
| 73.65-B | 18   | 0055        | 35°08.5'          | 122°18.5'         | 2100             | 320° | 6     | partly cloudy | very rough | 14.08     | 33.30 |
| 73.75-B | 18   | 0730        | 34°45.5'          | 123°07.0'         | 2250             | 340° | 6     | partly cloudy | very rough | 14.68     | 33.30 |
| 73.80-B | 18   | 1020        | 34°33.5'          | 123°27.5'         | 2100             | 320° | 6     | partly cloudy | very rough | 15.04     | 33.33 |
| 73.85-B | 18   | 1300        | 34°21.0'          | 123°59.0'         | 2250             | 330° | 5     | partly cloudy | rough      | 14.24     | 33.06 |
| 73.90-B | 18   | 1520        | 34°10.5'          | 124°21.0'         | 2300             | 340° | 6     | partly cloudy | rough      | 14.08     | 33.04 |
| 77.50-B | 16   | 1715        | 35°04.5'          | 120°52.0'         | 70               | 320° | 6     | clear         | high       | 11.45     | 33.58 |
| 77.60-B | 14   | 2255        | 34°44.0'          | 121°34.0'         | 480              | 330° | 7     | clear         | very rough | 13.68     | 33.45 |

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

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

| Station  | Date | Time<br>GCT | Latitude<br>North | Longitude<br>West | Sounding<br>(fm) | Wind |       | Weather       | Sea        | 10 Meters |       |
|----------|------|-------------|-------------------|-------------------|------------------|------|-------|---------------|------------|-----------|-------|
|          |      |             |                   |                   |                  | Dir  | Force |               |            | T         | S     |
| 77.65-B  | V-14 | 1915        | 34°34.0'          | 121°55.0'         | 2000             | 360° | 7     | partly cloudy | rough      | 13.85     | 33.42 |
| 77.75-B  | 14   | 1245        | 34°14.0'          | 122°36.0'         | 2100             | 320° | 3     | overcast      | moderate   | 14.47     | 33.42 |
| 77.80-B  | 14   | 1020        | 34°04.0'          | 122°57.0'         | 2200             | 320° | 5     | overcast      | moderate   | 15.07     | 33.24 |
| 77.85-B  | 14   | 0803        | 33°54.0'          | 123°18.0'         | 2300             | 270° | 5     | cloudy        | rough      | 15.19     | 33.33 |
| 77.90-B  | 14   | 0545        | 33°44.0'          | 123°39.0'         | 2000+            | 270° | 3     | cloudy        | moderate   | 14.81     | 33.33 |
| 80.52-B  | 13   | 0625        | 34°24.5'          | 120°36.0'         | 117              | 140° | 3     | overcast      | slight     | 13.62     | 33.68 |
| 80.55-B  | 13   | 0810        | 34°19.0'          | 120°48.0'         | 400              | 140° | 2     | overcast      | slight     | 12.85     | 33.57 |
| 80.65-B  | 13   | 1345        | 33°59.0'          | 121°30.0'         | 1850             | calm |       | overcast      | slight     | 14.56     | 33.46 |
| 80.70-B  | 13   | 1438        | 33°50.0'          | 121°52.0'         | 2100             | 180° | 1     | overcast      | slight     | 14.38     | 33.55 |
| 80.75-B  | 13   | 1810        | 33°40.0'          | 122°12.0'         | 2100             | 220° | 2     | partly cloudy | moderate   | 14.64     | 33.40 |
| 80.85-B  | 13   | 2315        | 33°19.0'          | 122°53.0'         | 2400             | 270° | 3     | clear         | moderate   | 14.72     | 33.37 |
| 80.90-B  | 14   | 0130        | 33°09.0'          | 123°13.0'         | 2400             | 270° | 3     | clear         | moderate   | 15.56     | 33.32 |
| 80.110-B | 11   | 0930        | 32°29.0'          | 124°34.5'         | 2400             | 330° | 4     | partly cloudy | very rough | 15.39     | 33.37 |
| 80.130-B | 10   | 2250        | 31°49.0'          | 125°56.0'         | 2400             | 330° | 5     | cloudy        | rough      | 16.18     | 33.56 |
| 82.47-B  | 13   | 0245        | 34°15.0'          | 119°58.0'         | 305              | calm |       | overcast      | slight     | 14.10     | 33.66 |
| 83.40-B  | 12   | 2330        | 34°14.0'          | 119°22.0'         | 12               | calm |       | overcast      | smooth     | 15.24     | 33.61 |
| 83.43-B  | 12   | 2155        | 34°08.0'          | 119°34.0'         | 135              | 120° | 1     | overcast      | slight     | 14.05     | 33.59 |
| 83.51-B  | 12   | 1650        | 33°52.0'          | 120°08.5'         | 50               | 100° | 3     | overcast      | slight     | 14.28     | 33.60 |
| 83.55-B  | 12   | 1515        | 33°44.0'          | 120°24.5'         | 530              | 100° | 2     | overcast      | moderate   | 14.04     | 33.51 |

| Station | Date | Time<br>GCT | Latitude<br>North | Longitude<br>West | Sounding<br>(fm) | Wind |       | Weather       | Sea      | 10 Meters |       |
|---------|------|-------------|-------------------|-------------------|------------------|------|-------|---------------|----------|-----------|-------|
|         |      |             |                   |                   |                  | Dir  | Force |               |          | T         | S     |
| 83.65-B | V-12 | 0910        | 33°22.0'          | 121°04.5'         | 2000             | 160° | 3     | overcast      | moderate | 14.87     | 33.44 |
| 83.70-B | 12   | 0640        | 33°14.0'          | 121°26.5'         | 2100             | 090° | 3     | overcast      | moderate | 14.72     | 33.37 |
| 83.75-B | 12   | 0430        | 33°04.0'          | 121°46.5'         | 2200             | 090° | 3     | overcast      | rough    | 13.98     | 33.43 |
| 83.80-B | 12   | 0210        | 32°54.0'          | 122°07.0'         | 2200             | 320° | 2     | cloudy        | rough    | 14.84     | 33.46 |
| 83.85-B | 11   | 2355        | 32°44.0'          | 122°27.5'         | 2200             | 320° | 1     | cloudy        | rough    | 14.58     | 33.46 |
| 83.90-B | 11   | 2140        | 32°34.0'          | 122°47.5'         | 2100             | 340° | 1     | cloudy        | rough    | 14.76     | 33.39 |
| 87.35-B | 7    | 1320        | 33°50.0'          | 118°37.5'         | 350              | 270° | 1     | partly cloudy | slight   | 15.45     | 33.57 |
| 87.40-B | 7    | 1545        | 33°40.0'          | 118°58.5'         | 470              | 270° | 1     | partly cloudy | moderate | 15.97     | 33.60 |
| 87.45-B | 7    | 1820        | 33°30.0'          | 119°19.0'         | 900              | 240° | 1     | clear         | moderate | 14.63     | 33.60 |
| 87.50-B | 7    | 2034        | 33°20.0'          | 119°39.5'         | 40               | 270° | 1     | clear         | moderate | 14.18     | 33.64 |
| 87.55-B | 7    | 2310        | 33°10.0'          | 120°00.5'         | 680              | 310° | 3     | clear         | rough    | 14.38     | 33.58 |
| 87.65-B | 8    | 0510        | 32°50.0'          | 120°41.5'         | 2000             | 270° | 3     | clear         | rough    | 14.00     | 33.53 |
| 87.70-B | 8    | 0755        | 32°39.5'          | 121°03.0'         | 2000             | 270° | 3     | overcast      | rough    | 14.94     | 33.39 |
| 87.75-B | 8    | 1040        | 32°29.0'          | 121°25.5'         | 2000+            | 320° | 3     | overcast      | rough    | 14.88     | 33.39 |
| 87.80-B | 8    | 1315        | 32°19.0'          | 121°47.5'         | 2200             | 320° | 4     | overcast      | rough    | 15.04     | 33.40 |
| 87.85-B | 8    | 1550        | 32°09.0'          | 122°09.5'         | 2150             | 320° | 3     | overcast      | rough    | 15.40     | 33.42 |
| 87.90-B | 8    | 1815        | 31°59.0'          | 122°32.0'         | 2200             | 320° | 3     | overcast      | rough    | 15.36     | 33.40 |
| 90.50-O | 7    | 2130        | 32°44.5'          | 119°16.5'         | 58               | 320° | 1     | clear         | moderate | 15.42     | 33.63 |
| 90.65-O | 8    | 0830        | 32°14.5'          | 120°17.5'         | 2050             | 300° | 2     | cloudy        | rough    | 15.24     | 33.46 |

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

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5905

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

| Station  | Date | Time<br>GCT | Latitude<br>North | Longitude<br>West | Sounding<br>(fm) | Wind |       | Weather       | Sea        | 10 Meters |       |
|----------|------|-------------|-------------------|-------------------|------------------|------|-------|---------------|------------|-----------|-------|
|          |      |             |                   |                   |                  | Dir  | Force |               |            | T         | S     |
| 90.75-O  | V-8  | 1450        | 31°54.0'          | 120°58.5'         | 2240             | 320° | 3     | overcast      | moderate   | 15.80     | 33.48 |
| 90.85-O  | 8    | 2105        | 31°34.5'          | 121°39.0'         | 2200             | 310° | 3     | overcast      | moderate   | 16.38     | 33.58 |
| 90.100-B | 8    | 2340        | 31°04.5'          | 122°40.0'         | 2500             | 340° | 4     | overcast      | moderate   | 16.02     | 33.48 |
| 90.120-B | 9    | 1236        | 30°24.5'          | 124°00.5'         | 2000+            | 320° | 4     | partly cloudy | moderate   | 16.56     | 33.55 |
| 93.45-O  | 10   | 1425        | 32°20.0'          | 118°33.0'         | 600              | 320° | 3     | cloudy        | very rough | 16.74     | 33.68 |
| 93.55-O  | 10   | 0715        | 32°00.0'          | 119°14.0'         | 850              | 320° | 6     | partly cloudy | high       | 14.98     | 33.56 |
| 93.60-O  | 12   | 2140        | 31°50.5'          | 119°34.0'         | 1220             | 260° | 1     | cloudy        | slight     | 15.78     | 33.57 |
| 93.65-O  | 13   | 0030        | 31°40.0'          | 119°54.5'         | 2000             | 260° | 1     | cloudy        | slight     | 15.97     | 33.58 |
| 93.70-O  | 13   | 0300        | 31°31.0'          | 120°14.0'         | 2000+            | 270° | 1     | cloudy        | moderate   | 15.60     | 33.46 |
| 93.75-O  | 9    | 1630        | 31°20.0'          | 120°35.0'         | 2000             | 320° | 5     | cloudy        | very rough | 15.44     | 33.46 |
| 93.75-O  | 13   | 0600        | 31°20.0'          | 120°35.0'         | 2000+            | 240° | 1     | rain          | slight     | 15.60     | 33.44 |
| 93.85-O  | 9    | 0910        | 31°00.0'          | 121°15.0'         | 2000+            | 310° | 5     | overcast      | very rough | 16.04     | 33.53 |
| 97.30-O  | 11   | 2300        | 32°15.0'          | 117°08.5'         | 36               | 250° | 1     | cloudy        | slight     | 17.86     | 33.64 |
| 97.32-O  | 12   | 0030        | 32°11.5'          | 117°16.5'         | 700              | 250° | 1     | cloudy        | slight     | 16.94     | 33.61 |
| 97.35-O  | 12   | 0210        | 32°05.5'          | 117°28.5'         | 670              | 250° | 1     | cloudy        | slight     | 16.76     | 33.66 |
| 97.40-O  | 12   | 0500        | 31°55.0'          | 117°50.0'         | 300              | -    | -     | clear         | slight     | 17.02     | 33.64 |
| 97.45-O  | 12   | 0805        | 31°45.0'          | 118°10.0'         | 800              | -    | -     | clear         | slight     | 16.85     | 33.67 |
| 97.50-O  | 12   | 1050        | 31°35.0'          | 118°30.5'         | 1300             | 110° | 1     | cloudy        | slight     | 15.64     | 33.48 |
| 97.55-O  | 12   | 1340        | 31°25.0'          | 118°50.0'         | 245              | 200° | 1     | cloudy        | slight     | 16.04     | 33.59 |

| Station  | Date | Time<br>GCT | Latitude<br>North | Longitude<br>West | Sounding<br>(fm) | Wind |       | Weather       | Sea      | 10 Meters |       |
|----------|------|-------------|-------------------|-------------------|------------------|------|-------|---------------|----------|-----------|-------|
|          |      |             |                   |                   |                  | Dir  | Force |               |          | T         | S     |
| 97.65-O  | V-13 | 1245        | 31°04.0'          | 119°29.0'         | 1800             | 270° | 1     | cloudy        | slight   | 16.00     | 33.51 |
| 97.70-O  | 13   | 1530        | 30°54.0'          | 119°50.0'         | 2000+            | 280° | 1     | cloudy        | slight   | 15.96     | 33.49 |
| 97.75-O  | 13   | 1830        | 30°44.0'          | 120°10.0'         | 2000+            | 280° | 1     | partly cloudy | slight   | 16.28     | 33.55 |
| 97.80-O  | 13   | 2115        | 30°35.0'          | 120°29.0'         | 2000+            | 280° | 1     | partly cloudy | slight   | 16.12     | 33.51 |
| 97.85-O  | 13   | 2330        | 30°24.5'          | 120°50.5'         | 2000+            | 300° | 2     | partly cloudy | slight   | 16.14     | 33.52 |
| 97.90-O  | 14   | 0215        | 30°14.0'          | 121°09.0'         | 2000+            | 300° | 2     | partly cloudy | slight   | 16.40     | 33.51 |
| 100.29-O | 15   | 2215        | 31°42.0'          | 116°43.5'         | 87               | 270° | 2     | partly cloudy | rough    | 14.03     | 33.59 |
| 100.30-O | 15   | 2115        | 31°40.5'          | 116°46.5'         | 250              | 320° | 2     | partly cloudy | rough    | 16.22     | 33.62 |
| 100.35-O | 15   | 1900        | 31°31.5'          | 117°06.0'         | 600              | 320° | 2     | overcast      | rough    | 17.10     | 33.64 |
| 100.40-O | 15   | 1555        | 31°21.5'          | 117°25.5'         | 850              | 310° | 4     | overcast      | rough    | 16.26     | 33.62 |
| 100.45-O | 15   | 1250        | 31°10.5'          | 117°46.0'         | 1100             | 330° | 6     | overcast      | rough    | 16.02     | 33.58 |
| 100.50-O | 26   | 1615        | 31°00.0'          | 118°07.0'         | 1250             | 320° | 5     | overcast      | rough    | 17.01     | 33.65 |
| 100.55-O | 26   | 1320        | 30°50.0'          | 118°27.0'         | 1400             | 320° | 4     | overcast      | rough    | 17.02     | 33.62 |
| 100.65-O | 14   | 2230        | 30°28.0'          | 119°07.0'         | 2000+            | 330° | 6     | partly cloudy | rough    | 16.78     | 33.65 |
| 100.70-O | 14   | 1945        | 30°21.0'          | 119°29.0'         | 2000             | 320° | 3     | cloudy        | rough    | 16.48     | 33.58 |
| 100.75-O | 14   | 1630        | 30°11.0'          | 119°48.0'         | 2000             | 320° | 3     | cloudy        | moderate | 16.36     | 33.50 |
| 100.80-O | 14   | 1330        | 30°01.0'          | 120°07.5'         | 2000             | 320° | 2     | cloudy        | moderate | 16.74     | 33.56 |
| 100.85-O | 14   | 1030        | 29°50.0'          | 120°28.0'         | 2000+            | 320° | 5     | partly cloudy | moderate | 17.63     | 33.82 |
| 103.30-O | 16   | 0300        | 31°05.0'          | 116°25.0'         | 39               | calm |       | cloudy        | rough    | 15.03     | 33.60 |

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

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5905

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

| Station  | Date | Time<br>GCT | Latitude<br>North | Longitude<br>West | Sounding<br>(fm) | Wind<br>Dir | Force | Weather       | Sea        | 10 Meters<br>T S |       |
|----------|------|-------------|-------------------|-------------------|------------------|-------------|-------|---------------|------------|------------------|-------|
| 103.35-O | V-16 | 0530        | 30°55.0'          | 116°45.0'         | 1000             | 310°        | 1     | cloudy        | rough      | 16.08            | 33.61 |
| 103.40-O | 16   | 0805        | 30°45.0'          | 117°05.5'         | 1040             | 320°        | 1     | overcast      | rough      | 17.12            | 33.62 |
| 103.45-O | 16   | 1100        | 30°35.5'          | 117°25.0'         | 1200             | 320°        | 1     | overcast      | rough      | 16.95            | 33.64 |
| 103.50-O | 16   | 1345        | 30°26.0'          | 117°45.0'         | 1250             | 320°        | 1     | cloudy        | rough      | 16.86            | 33.60 |
| 103.55-O | 16   | 1630        | 30°16.0'          | 118°05.0'         | 1200             | 300°        | 1     | overcast      | rough      | 16.81            | 33.67 |
| 103.65-O | 17   | 0020        | 29°56.0'          | 118°45.0'         | 1700             | 300°        | 5     | overcast      | very rough | 17.00            | 33.68 |
| 103.70-O | 17   | 0320        | 29°43.5'          | 119°05.5'         | 1800             | 300°        | 4     | cloudy        | very rough | 16.54            | 33.53 |
| 103.75-O | 17   | 0605        | 29°34.0'          | 119°26.0'         | 1800             | 290°        | 4     | cloudy        | very rough | 17.47            | 33.84 |
| 103.80-O | 17   | 0900        | 29°25.0'          | 119°46.0'         | 1860             | 300°        | 2     | cloudy        | very rough | 17.50            | 33.84 |
| 103.85-O | 17   | 1200        | 29°15.0'          | 120°06.0'         | 2000+            | 350°        | 2     | cloudy        | very rough | 17.57            | 33.86 |
| 103.90-O | 17   | 1445        | 29°05.5'          | 120°26.0'         | 2000+            | 350°        | 3     | cloudy        | very rough | 17.73            | 33.87 |
| 107.32-O | 19   | 0745        | 30°26.0'          | 116°11.0'         | 350              | 320°        | 3     | cloudy        | rough      | 17.76            | 33.71 |
| 107.35-O | 19   | 0600        | 30°20.0'          | 116°23.0'         | 1000             | 320°        | 3     | cloudy        | very rough | 17.72            | 33.70 |
| 107.40-O | 19   | 0345        | 30°10.5'          | 116°32.5'         | 500              | 320°        | 3     | partly cloudy | very rough | 17.60            | 33.71 |
| 107.45-O | 19   | 0045        | 30°01.0'          | 116°58.0'         | 1250             | 320°        | 5     | partly cloudy | very rough | 17.21            | 33.66 |
| 107.50-O | 18   | 2145        | 29°51.5'          | 117°20.0'         | 1800             | 330°        | 5     | partly cloudy | very rough | 17.13            | 33.68 |
| 107.55-O | 18   | 1820        | 29°39.0'          | 117°42.5'         | 1800             | 340°        | 5     | partly cloudy | very rough | 17.65            | 33.87 |
| 107.65-O | 18   | 1115        | 29°21.0'          | 118°22.0'         | 2000+            | 330°        | 4     | cloudy        | very rough | 17.75            | 33.88 |
| 107.70-O | 18   | 0805        | 29°10.0'          | 118°43.0'         | 2000+            | 340°        | 4     | cloudy        | very rough | 17.72            | 33.86 |

| Station  | Date | Time<br>GCT | Latitude<br>North | Longitude<br>West | Sounding<br>(fm) | Wind |       | Weather       | Sea        | 10 Meters |       |
|----------|------|-------------|-------------------|-------------------|------------------|------|-------|---------------|------------|-----------|-------|
|          |      |             |                   |                   |                  | Dir  | Force |               |            | T         | S     |
| 107.75-O | V-18 | 0500        | 29°01.5'          | 119°01.0'         | 2000+            | 340° | 4     | cloudy        | very rough | 17.30     | 33.91 |
| 107.80-O | 18   | 0215        | 28°51.5'          | 119°20.0'         | 2000+            | 340° | 5     | cloudy        | very rough | 17.80     | 33.86 |
| 107.85-O | 17   | 2310        | 28°42.0'          | 119°39.5'         | 2000+            | 340° | 5     | overcast      | very rough | 17.90     | 33.89 |
| 107.90-O | 17   | 1945        | 28°30.0'          | 120°03.0'         | 2000+            | 350° | 4     | partly cloudy | very rough | 17.86     | 33.85 |
| 110.33-O | 20   | 0015        | 29°50.0'          | 115°52.0'         | 48               | 280° | 2     | overcast      | rough      | 16.69     | 33.64 |
| 110.35-O | 20   | 0130        | 29°46.0'          | 116°00.0'         | 700              | 290° | 2     | overcast      | rough      | 17.64     | 33.68 |
| 110.40-O | 20   | 0435        | 29°36.0'          | 116°19.5'         | 1000             | 290° | 2     | cloudy        | rough      | 17.06     | 33.61 |
| 110.45-O | 20   | 0730        | 29°26.0'          | 116°40.0'         | 550              | 300° | 2     | cloudy        | rough      | 17.36     | 33.72 |
| 110.50-O | 20   | 1000        | 29°16.0'          | 116°59.0'         | 1950             | 300° | 2     | cloudy        | rough      | 17.60     | 33.86 |
| 110.55-O | 20   | 1300        | 29°05.5'          | 117°19.0'         | 1100             | 210° | 2     | cloudy        | very rough | 17.49     | 33.80 |
| 110.65-O | 20   | 1910        | 28°45.0'          | 117°58.5'         | 2000             | 300° | 3     | partly cloudy | very rough | 17.85     | 33.86 |
| 110.70-O | 21   | 0240        | 28°36.0'          | 118°19.0'         | 1750             | 320° | 5     | cloudy        | high       | 17.66     | 33.82 |
| 110.75-O | 21   | 0525        | 28°27.0'          | 118°37.5'         | 2000             | 320° | 5     | cloudy        | high       | 17.65     | 33.80 |
| 110.80-O | 21   | 0820        | 28°18.0'          | 118°58.0'         | 2050             | 320° | 5     | overcast      | high       | 17.76     | 33.83 |
| 110.85-O | 21   | 1110        | 28°08.0'          | 119°17.0'         | 2000+            | 320° | 4     | cloudy        | high       | 17.65     | 33.86 |
| 113.30-O | 23   | 0830        | 29°22.5'          | 115°17.5'         | 36               | 320° | 2     | cloudy        | moderate   | 16.22     | 33.61 |
| 113.35-O | 23   | 0500        | 29°12.0'          | 115°39.0'         | 600              | 320° | 2     | cloudy        | moderate   | 16.82     | 33.65 |
| 113.40-O | 23   | 0135        | 28°58.5'          | 116°02.0'         | 1040             | 320° | 2     | cloudy        | moderate   | 16.92     | 33.64 |
| 113.45-O | 22   | 2250        | 28°50.0'          | 116°20.0'         | 1000             | 320° | 2     | cloudy        | moderate   | 17.20     | 33.65 |

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

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

| Station  | Date | Time<br>GCT | Latitude<br>North | Longitude<br>West | Sounding<br>(fm) | Wind |       | Weather       | Sea        | 10 Meters |       |
|----------|------|-------------|-------------------|-------------------|------------------|------|-------|---------------|------------|-----------|-------|
|          |      |             |                   |                   |                  | Dir  | Force |               |            | T         | S     |
| 113.50-O | V-22 | 1930        | 28°39.5'          | 116°40.5'         | 2000             | 330° | 1     | overcast      | rough      | 17.72     | 33.86 |
| 113.55-O | 22   | 1640        | 28°30.0'          | 116°59.0'         | 1900             | 310° | 2     | cloudy        | rough      | 17.71     | 33.82 |
| 113.65-O | 22   | 0940        | 28°10.0'          | 117°36.0'         | 1000             | 310° | 2     | cloudy        | rough      | 17.80     | 33.78 |
| 113.70-O | 22   | 0650        | 28°00.0'          | 117°54.0'         | 1850             | 300° | 2     | cloudy        | rough      | 17.88     | 33.74 |
| 113.75-O | 22   | 0400        | 27°49.5'          | 118°13.0'         | 2000+            | 320° | 2     | cloudy        | very rough | 17.90     | 33.77 |
| 113.80-O | 22   | 0130        | 27°40.5'          | 118°33.0'         | 2000+            | 310° | 2     | cloudy        | very rough | 18.66     | 34.05 |
| 113.85-O | 21   | 2230        | 27°31.0'          | 118°52.5'         | 2000+            | 320° | 2     | partly cloudy | very rough | 18.70     | 34.05 |
| 113.90-O | 21   | 1925        | 27°28.5'          | 119°17.0'         | 2000+            | 310° | 3     | partly cloudy | very rough | 18.56     | 34.05 |
| 117.26-O | 23   | 1330        | 28°56.0'          | 114°41.0'         | 41               | 310° | 2     | cloudy        | moderate   | 16.88     | 33.69 |
| 117.35-O | 23   | 1740        | 28°38.0'          | 115°16.0'         | 120              | 310° | 2     | cloudy        | moderate   | 17.22     | 33.69 |
| 117.40-O | 24   | 0115        | 28°28.0'          | 115°35.5'         | 300              | 300° | 2     | partly cloudy | slight     | 17.58     | 33.71 |
| 117.45-O | 24   | 0415        | 28°18.0'          | 115°55.0'         | 1700             | 300° | 3     | partly cloudy | moderate   | 17.88     | 33.69 |
| 117.55-O | 24   | 1145        | 27°57.0'          | 116°33.0'         | 2400             | 300° | 3     | overcast      | moderate   | 18.01     | 33.68 |
| 117.60-O | 24   | 1430        | 27°46.5'          | 116°53.5'         | 2100             | 300° | 3     | overcast      | moderate   | 18.15     | 33.69 |
| 117.65-O | 24   | 1715        | 27°36.0'          | 117°15.0'         | 1800             | 310° | 3     | overcast      | moderate   | 18.14     | 33.71 |
| 117.70-O | 24   | 2015        | 27°25.0'          | 117°37.0'         | 2100             | 320° | 2     | cloudy        | moderate   | 18.18     | 33.71 |
| 117.75-O | 24   | 2155        | 27°17.0'          | 117°52.0'         | 2000+            | 310° | 2     | overcast      | moderate   | 17.96     | 33.75 |
| 117.80-O | 25   | 0030        | 27°06.0'          | 118°13.0'         | 2000+            | 310° | 2     | partly cloudy | moderate   | 18.70     | 34.04 |
| 117.85-O | 25   | 0315        | 26°55.0'          | 118°34.5'         | 2100             | 310° | 2     | partly cloudy | moderate   | 18.82     | 34.04 |

| Station  | Date | Time<br>GCT | Latitude<br>North | Longitude<br>West | Sounding<br>(fm) | Wind<br>Dir | Force | Weather       | Sea        | 10 Meters<br>T S |         |
|----------|------|-------------|-------------------|-------------------|------------------|-------------|-------|---------------|------------|------------------|---------|
| 117.90-O | V-25 | 0515        | 26°47.5'          | 118°49.5'         | 2300             | 310°        | 3     | partly cloudy | moderate   | 18.78            | 34.04   |
| 118.39-O | 23   | 2050        | 28°18.5'          | 115°23.0'         | 114              | -           | 1     | partly cloudy | slight     | 17.56            | 33.69   |
| 120.40-P | 17   | 1235        | 27°56.5'          | 115°14.0'         | 40               | -           | 1     | cloudy        | slight     | 17.76            | 33.77   |
| 120.45-P | 17   | 0830        | 27°42.0'          | 115°40.5'         | 700              | 340°        | 5     | cloudy        | moderate   | 17.24            | 33.64   |
| 120.55-P | 17   | 0130        | 27°17.0'          | 116°06.0'         | 2200             | 320°        | 4     | cloudy        | high       | 18.08            | 33.67   |
| 120.60-P | 16   | 2228        | 27°06.5'          | 116°28.0'         | 2250             | 320°        | 4     | cloudy        | very rough | 18.03            | 33.70   |
| 120.65-P | 16   | 1905        | 26°54.0'          | 116°50.0'         | 2250             | -           | 1     | cloudy        | very rough | 18.17            | 33.75   |
| 120.70-P | 16   | 1635        | 26°46.5'          | 117°07.0'         | 2300             | 320°        | 3     | cloudy        | very rough | 18.74            | 33.99   |
| 120.75-P | 16   | 1340        | 26°39.5'          | 117°26.0'         | 2250             | 340°        | 6     | cloudy        | very rough | 18.77            | 34.02   |
| 120.80-P | 16   | 1045        | 26°32.0'          | 117°48.5'         | 2380             | 340°        | 6     | cloudy        | very rough | 18.90            | 34.16   |
| 120.85-P | 16   | 0733        | 26°27.0'          | 118°11.0'         | 2400             | 340°        | 5     | cloudy        | very rough | 19.06            | 34.13   |
| 120.90-P | 16   | 0500        | 26°24.0'          | 118°28.0'         | 2400             | 300°        | 4     | cloudy        | rough      | 18.94            | 34.09   |
| 123.37-P | 14   | 1810        | 27°24.0'          | 114°39.5'         | 42               | 240°        | 5     | missing       | rough      | 14.00            | 33.75   |
| 123.42-P | 14   | 2135        | 27°15.0'          | 114°59.5'         | 870              | 320°        | 6     | partly cloudy | high       | 17.62a)          | 33.68a) |
| 123.45-P | 15   | 0025        | 27°07.5'          | 115°11.0'         | 2350             | 320°        | 7     | cloudy        | high       | 18.14            | 33.69   |
| 123.50-P | 15   | 0530        | 27°04.5'          | 115°34.5'         | 2300             | 320°        | 6     | overcast      | high       | 18.53            | 33.97   |
| 123.55-P | 15   | 0840        | 26°49.5'          | 115°51.5'         | 2300+            | 320°        | 6     | cloudy        | very rough | 18.60            | 33.97   |

a) Depth, 11 meters.

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

| Station  | Date | Time<br>GCT | Latitude<br>North | Longitude<br>West | Sounding<br>(fm) | Wind |       | Weather       | Sea        | 10 Meters |       |
|----------|------|-------------|-------------------|-------------------|------------------|------|-------|---------------|------------|-----------|-------|
|          |      |             |                   |                   |                  | Dir  | Force |               |            | T         | S     |
| 123.60-P | V-15 | 1205        | 26°32.5'          | 116°07.0'         | 2280             | 320° | 6     | cloudy        | very rough | 18.88     | 34.05 |
| 123.65-P | 15   | 1535        | 26°26.5'          | 116°30.0'         | 2200             | 320° | 5     | cloudy        | very rough | 18.62     | 34.02 |
| 123.70-P | 15   | 1810        | 26°20.0'          | 116°53.0'         | 2350             | 320° | 4     | cloudy        | very rough | 18.58     | 33.93 |
| 127.34-P | 13   | 1105        | 26°55.5'          | 114°06.0'         | 40               | 360° | 2     | partly cloudy | moderate   | 16.76     | 33.75 |
| 127.40-P | 13   | 0735        | 26°43.0'          | 114°29.5'         | 1750             | 360° | 4     | partly cloudy | moderate   | 17.28a)   | 33.75 |
| 127.45-P | 13   | 0435        | 26°33.0'          | 114°49.0'         | 2000             | 320° | 4     | partly cloudy | moderate   | 16.14     | 33.74 |
| 127.50-P | 13   | 0124        | 26°26.5'          | 115°09.0'         | 2350             | 320° | 2     | cloudy        | moderate   | 18.34     | 33.82 |
| 127.55-P | 12   | 2218        | 26°22.0'          | 115°34.5'         | 2250             | 360° | 2     | cloudy        | moderate   | 18.45     | 33.88 |
| 127.60-P | 12   | 1911        | 26°23.5'          | 115°58.0'         | 2100             | 360° | 2     | cloudy        | moderate   | 19.00     | 34.10 |
| 127.65-P | 12   | 1600        | 26°10.0'          | 116°18.5'         | 2250             | 280° | 3     | cloudy        | slight     | 18.84     | 34.00 |
| 127.70-P | 12   | 1300        | 25°58.0'          | 116°35.5'         | 2350             | 270° | 3     | rain          | moderate   | 19.27     | 34.25 |
| 130.30-P | 11   | 0910        | 26°30.0'          | 113°29.5'         | 42               | 270° | 3     | missing       | moderate   | 14.59     | 33.79 |
| 130.35-P | 11   | 1235        | 26°19.0'          | 113°52.0'         | 450              | 320° | 3     | missing       | slight     | 17.29     | 33.78 |
| 130.45-P | 11   | 1910        | 25°53.0'          | 114°56.5'         | 2110             | 280° | 1     | overcast      | moderate   | 18.07     | 33.78 |
| 130.50-P | 11   | 2150        | 25°47.0'          | 114°43.0'         | 2200             | 300° | 2     | cloudy        | rough      | 18.27     | 33.84 |
| 130.55-P | 12   | 0105        | 25°35.0'          | 115°04.0'         | 2250             | 320° | 4     | cloudy        | rough      | 19.40     | 34.18 |
| 130.60-P | 12   | 0413        | 25°30.0'          | 115°24.0'         | 2200             | 320° | 4     | partly cloudy | rough      | 19.48     | 34.23 |

a) Alternate value, 17.41°C.

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

| Station  | Date | Time<br>GCT | Latitude<br>North | Longitude<br>West | Sounding<br>(fm) | Wind |       | Weather | Sea        | 10 Meters |       |
|----------|------|-------------|-------------------|-------------------|------------------|------|-------|---------|------------|-----------|-------|
|          |      |             |                   |                   |                  | Dir  | Force |         |            | T         | S     |
| 133.25-P | V-11 | 0218        | 26°04.5'          | 112°44.5'         | 45               | 270° | 4     | missing | rough      | 16.16     | 33.92 |
| 133.30-P | 10   | 2318        | 25°52.0'          | 113°06.5'         | 110              | 320° | 5     | missing | very rough | 17.62     | 33.85 |
| 133.35-P | 10   | 2025        | 25°40.0'          | 113°23.5'         | 350              | 320° | 5     | missing | very rough | 17.90     | 33.84 |
| 133.40-P | 10   | 1735        | 25°28.5'          | 113°44.0'         | 1910             | 320° | 6     | cloudy  | high       | 17.80     | 33.78 |
| 133.45-P | 10   | 1435        | 25°18.5'          | 114°04.0'         | 1900             | 320° | 6     | cloudy  | high       | 17.92     | 33.86 |
| 133.50-P | 10   | 1154        | 25°09.0'          | 114°22.5'         | 2000+            | 320° | 5     | cloudy  | high       | 18.47     | 33.93 |
| 137.23-P | 9    | 1035        | 25°34.0'          | 112°19.0'         | 40               | -    | -     | missing | moderate   | 16.16     | 33.98 |
| 137.30-P | 9    | 1425        | 25°19.5'          | 112°44.0'         | 130              | 280° | 4     | cloudy  | rough      | 18.06     | 34.00 |
| 137.35-P | 9    | 1743        | 25°07.5'          | 113°05.0'         | 650              | 280° | 5     | cloudy  | very rough | 18.95     | 33.89 |
| 137.45-P | 10   | 0014        | 24°50.0'          | 113°42.5'         | 1900+            | 280° | 5     | missing | very rough | 18.03     | 33.85 |
| 137.50-P | 10   | 0315        | 24°41.0'          | 114°00.0'         | 2050             | 320° | 5     | missing | high       | 19.00     | 34.04 |

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