

# OCEANOGRAPHICAL STATION LIST

VOLUME 67

INVESTIGATIONS BY F.R.V. *INVESTIGATOR* ON THE  
SOUTH AUSTRALIAN TUNA GROUNDS IN 1964

DIVISION OF FISHERIES AND OCEANOGRAPHY  
COMMONWEALTH SCIENTIFIC AND INDUSTRIAL  
RESEARCH ORGANIZATION, AUSTRALIA 1968

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When citing this station list, abbreviate as follows:  
CSIRO Aust. Oceanogr. Stn List 67.

# OCEANOGRAPHICAL STATION LIST

## VOLUME 67

Investigations by F.R.V. Investigator  
on the South Australian Tuna Grounds in 1964

### I. INTRODUCTION

This report records the data collected during the 1964 cruises of F.R.V. Investigator (In1/64-In5/64).

These cruises were planned to investigate hydrological conditions on the tuna grounds. Track charts and station positions are shown in Figures 1-5.

A full description of F.R.V. Investigator appears in CSIRO Aust. 1968.

### II. WORK ACCOMPLISHED

Table 1 gives details of cruise dates, scientific personnel, and number of stations worked.

TABLE 1  
DETAILS OF CRUISES AND WORK DONE

| Cruise | Dates         | Scientific Personnel      | Number of Stations Occupied | BT | Hydrology |    |
|--------|---------------|---------------------------|-----------------------------|----|-----------|----|
|        |               |                           |                             |    | 1         | 2  |
| In1/64 | Feb.12-14     | R. Bradley<br>L. Olsen    | 14                          | 14 | 14        | 12 |
| In2/64 | Apr.15-20     | R. Bradley                | 31                          | 31 | 31        | 12 |
| In3/64 | Apr.22-30     | R. Bradley                | 24                          | 24 | 24        | 8  |
| In4/64 | May 4-8       | R. Bradley                | 34                          | 34 | 34        | 34 |
| In5/64 | Aug.16-Sept.9 | R. Bradley<br>H. Johnston | 67                          | 64 | 67        | 37 |

BT Bathythermographs

Hydrology 1 Number of stations at which surface samples were collected  
2 Number of stations at which subsurface samples were collected

### III. METHOD OF COLLECTION AND ANALYSIS OF SAMPLES

#### 1. Physics

Temperature.—Water temperatures were taken with deep-sea reversing thermometers. Up to six Nansen water-bottles were used on each cast, each bottle being fitted with two protected thermometers. In addition, four of the water-bottles were fitted with an unprotected thermometer. The temperatures obtained are considered accurate to  $\pm 0.03$  degC.

Bathythermographs.—A 450-ft or a 900-ft bathythermograph was used, depending on the depth of water. Slides were digitized by the U.S. National Oceanographic Data Center according to their own method (U.S.N.O.D.C. 1964), and from their punched cards computer listings were produced. The listings are held at Cronulla.

Thermometric Depth.—Depth calculations were made by the second method described by La Fond (1951), plotting thermometric depth against the difference between thermometric and wire depths. Depths are considered accurate to about 3%.

Sigma-t.—Sigma-t values were computed from temperature and salinity values, using the equations of Knudsen (La Fond 1951).

#### 2. Chemistry

Samples were analysed for salinity and dissolved oxygen at Port Lincoln, South Australia.

Salinity.—A chlorinity-temperature meter of the conductivity type (Hamon 1956) was used to estimate chlorinity, which was subsequently converted to salinity by the relation -

$$\text{Salinity} = 0.03 + 1.805 \times \text{Chlorinity}$$

Salinities are considered accurate to about  $\pm 0.05\%$ .

Dissolved Oxygen.—A version of the standard Winkler method was used to determine the amount of dissolved oxygen in the seawater samples. The version used is a modification of that described by Thompson and Robinson (1939) and differs in some respects from the revision by Jacobsen, Robinson, and Thompson (1950). Potassium iodate was used as the iodometric standard, and the reagents necessary to fix the oxygen in solution were used at different concentrations (Rochford 1963). Duplicate titrations

were made on approximately every tenth sample. Saturation values, given as ml/l, were computed, using the simpler of the equations given by Richards and Corwin (1956) -

$$O_2(\% \text{ Satn.}) = \frac{O_2(\text{ml/l}) \times (33.5 + T^\circ\text{C}) \times 100}{332.4 - (1.854 \times S\text{‰})}$$

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#### IV. TRACK CHARTS

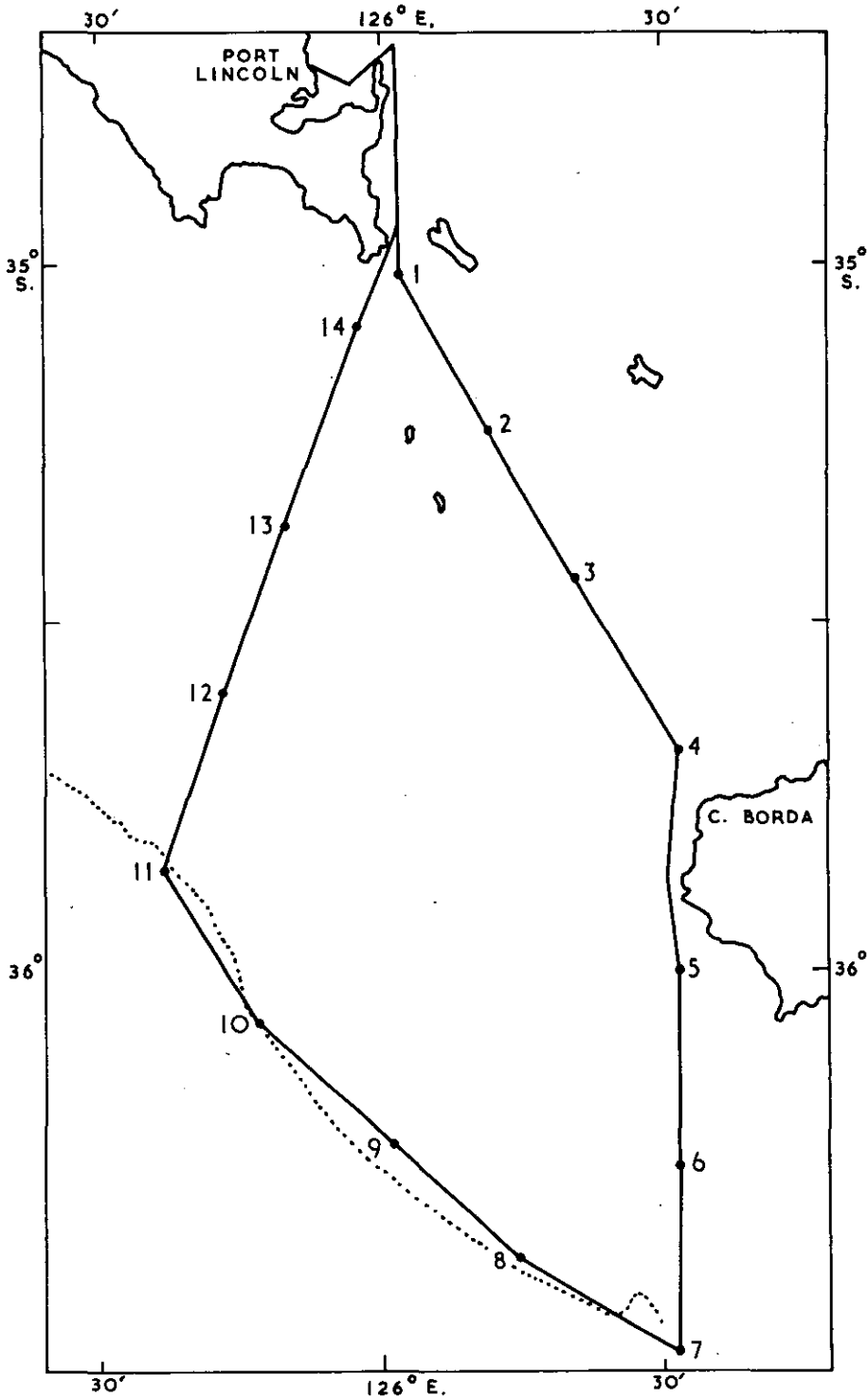


Fig. 1:-Track chart Cruise In 1/64



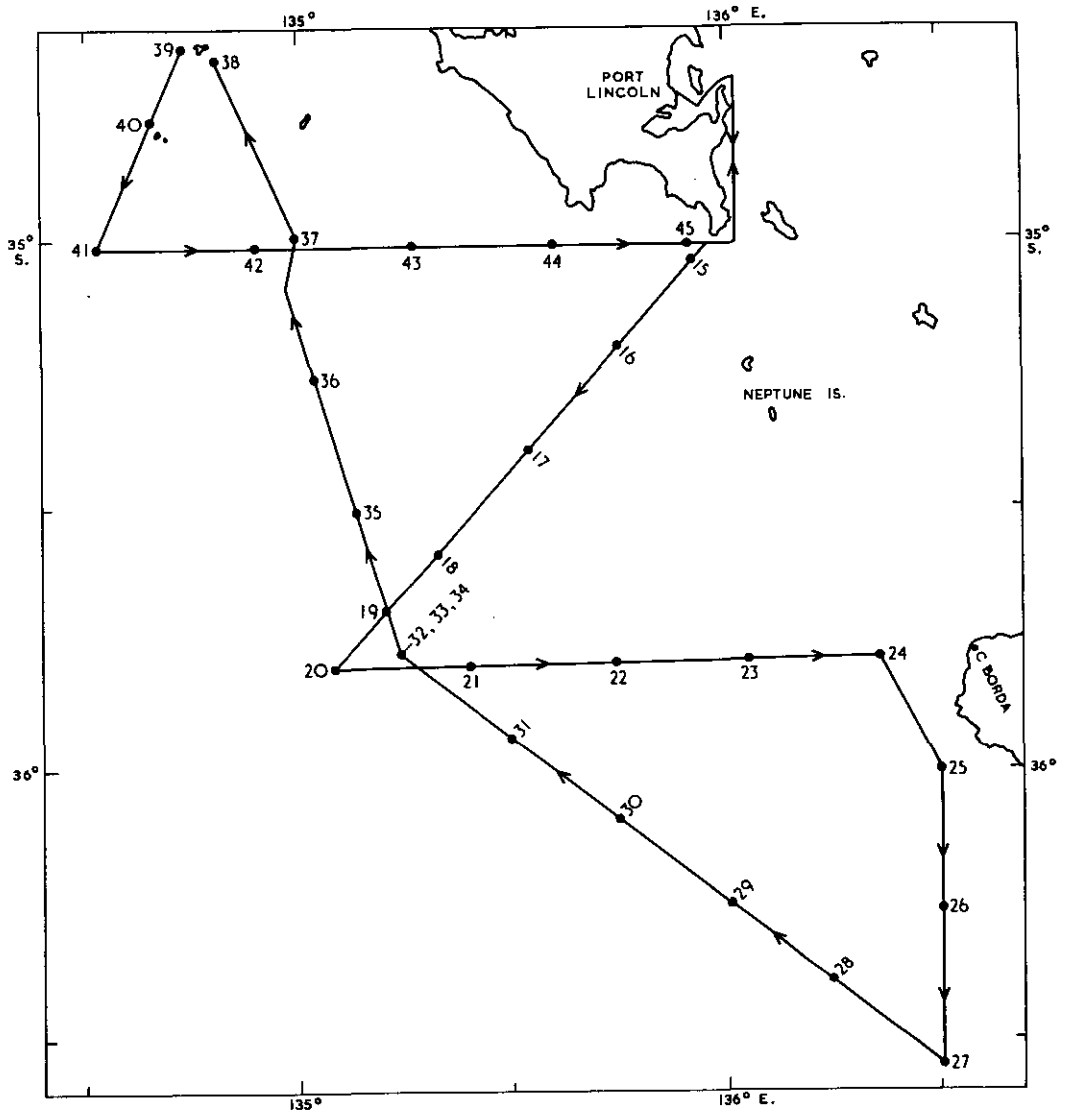


Fig. 2:- Track chart Cruise In 2/64

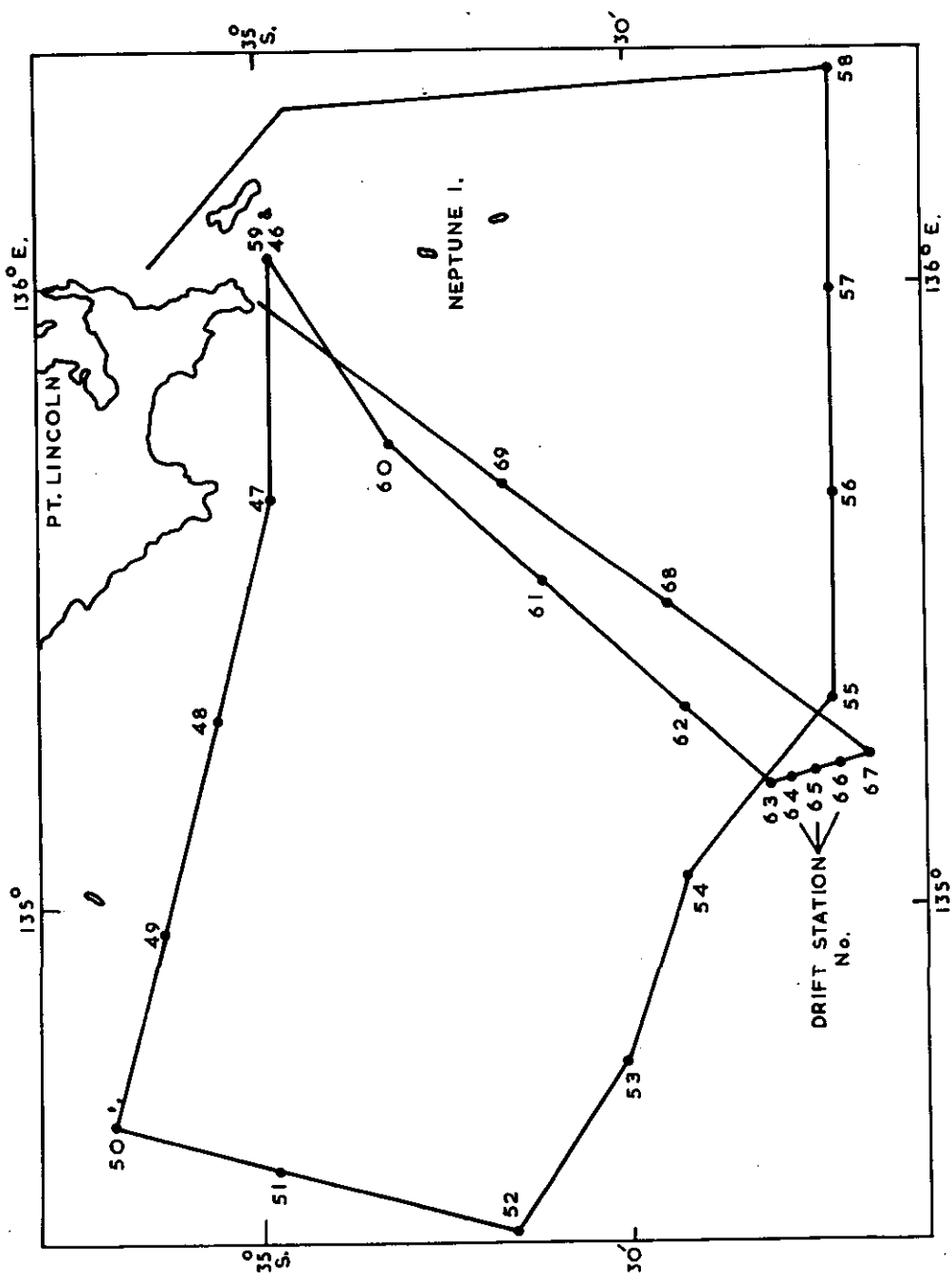


Fig. 3:- Track chart Cruise In 3/64

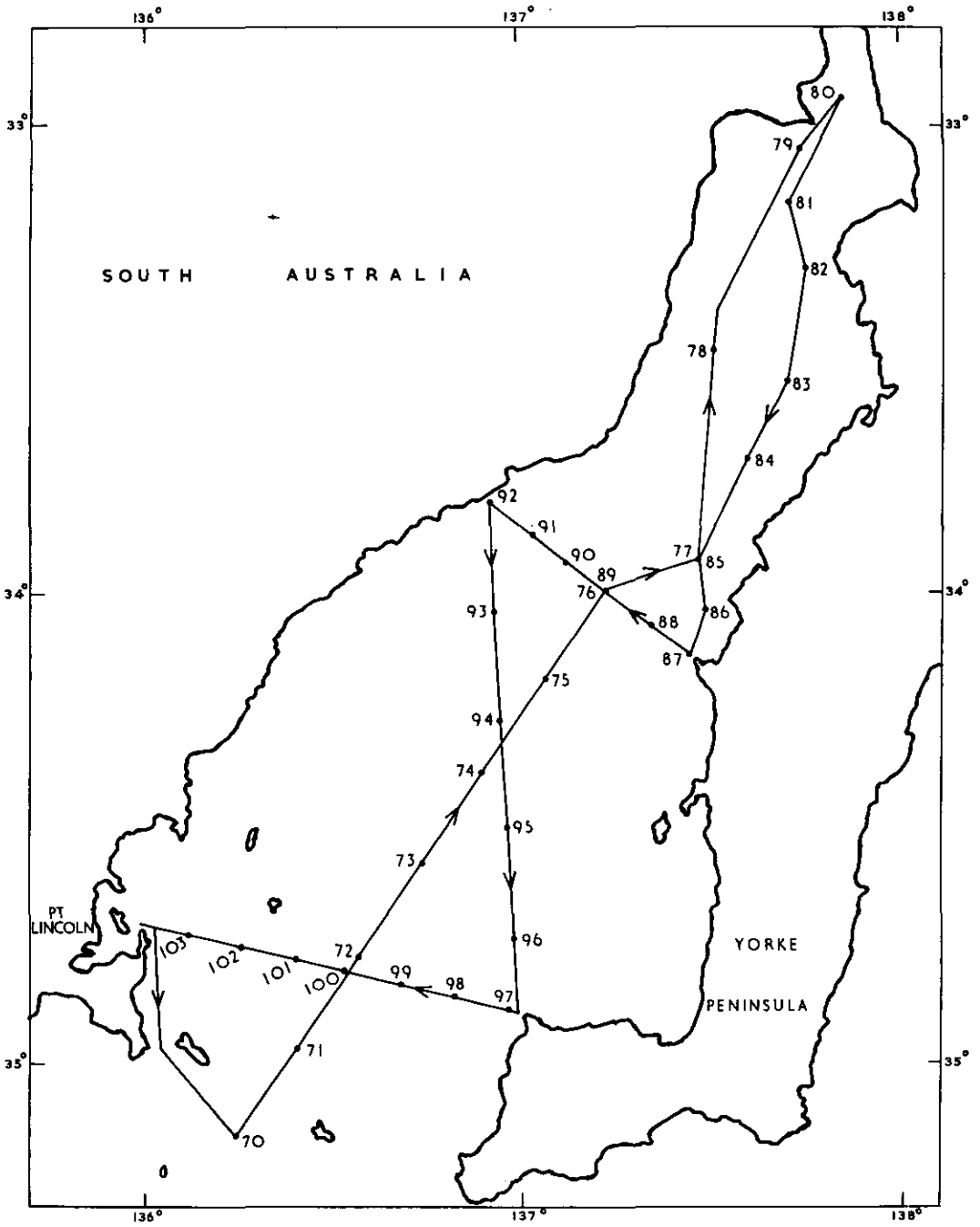


Fig. 4:- Track chart Cruise In 4/64

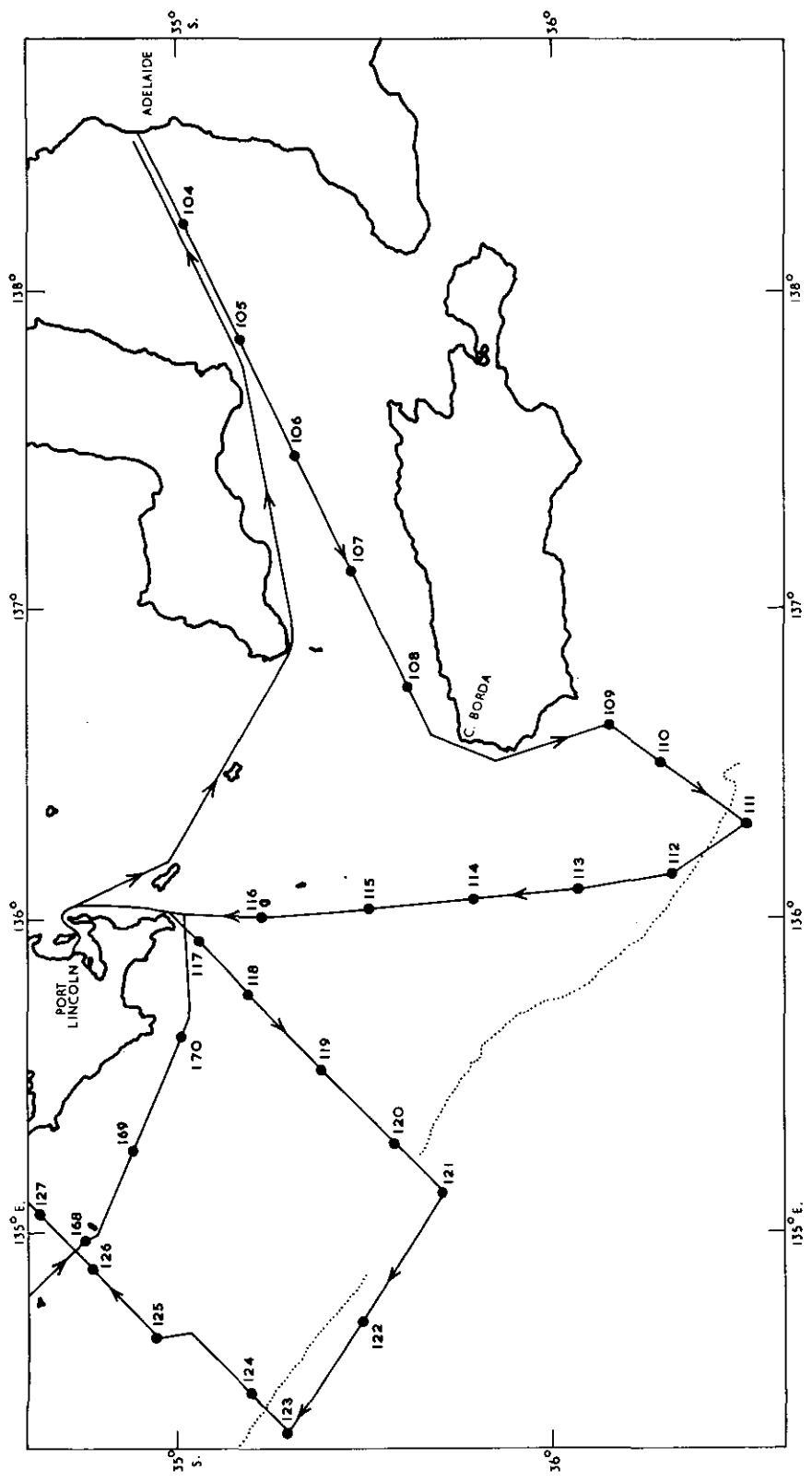


Fig. 5 (a):- Track chart Cruise In 5/64. Stns. 104 - 127 & 168 - 170

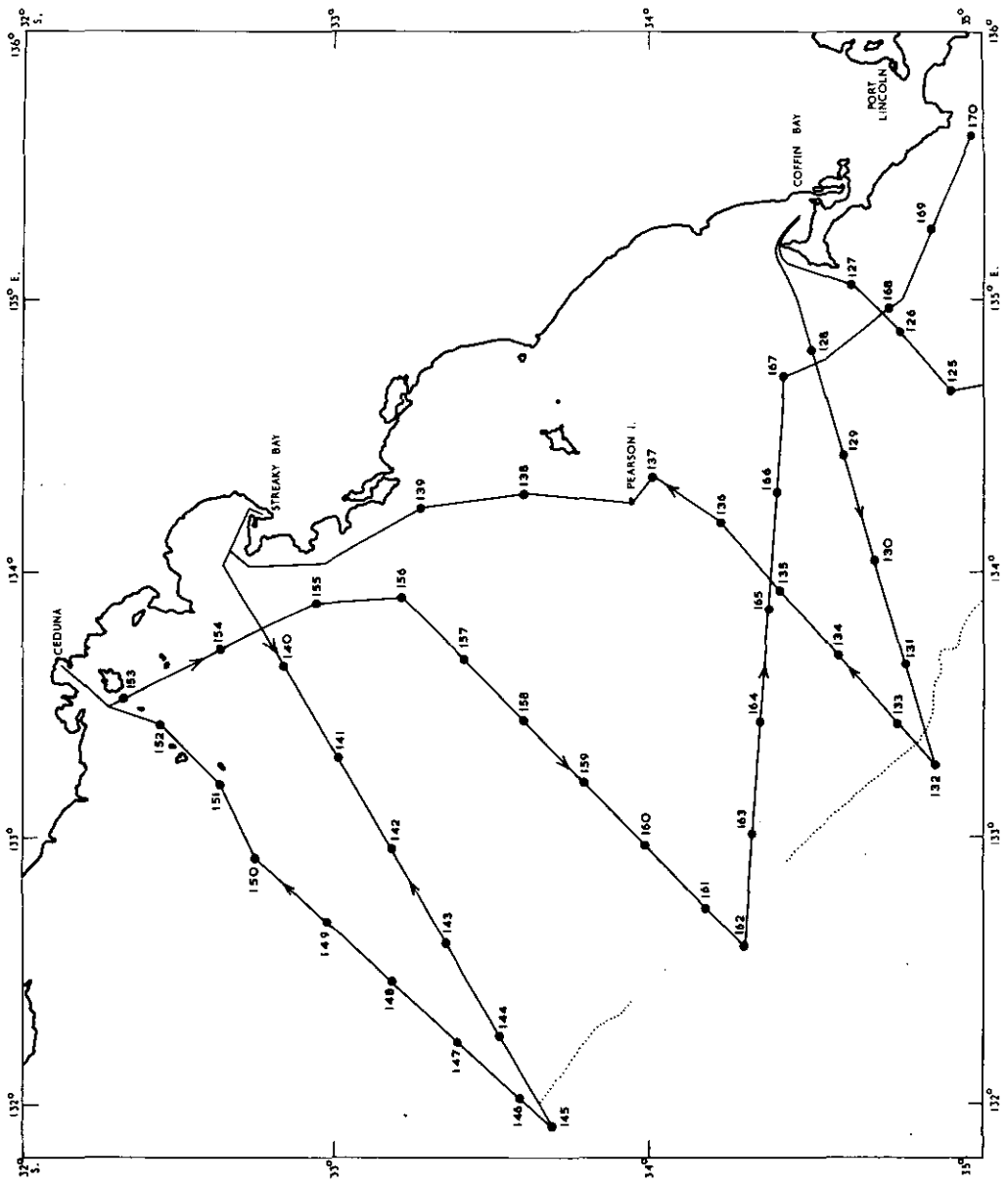


Fig. 5 (b): Track chart Cruise In 5/64. Stns. 125 - 170

## V. DATA SHEETS

The data were processed in a C.D.C. 3600 Computer. An explanation of the headings used is given at the beginning of the surface listing.

DATA  
PART 1  
HYDROLOGY  
SURFACE SAMPLES

## EXPLANATION OF HEADINGS

Parts 1 and 2Hydrology

|                      |   |
|----------------------|---|
| STATION              | Gives the station identification. For example, In1/1/64 signifies the 1st station worked by <u>Investigator</u> in 1964 on her 1st cruise for that year |
| DATE                 | Given as day/month/year   |
| TIME                 | Given in Zone Time, and is the time at the beginning of the first cast. Zone Time in all cases was Central Australian Standard Time, GMT +9½ hr, Code J |
| LATITUDE LONGITUDE   | Given in degrees and minutes  |
| SONIC DEPTH          | Given in metres, measured at standard sound velocity of 800 fm (1463 m) per second  |
| AIR TEMP.<br>WET DRY | Air temperatures recorded from wet and dry bulb thermometers in °C  |
| WIND<br>DIR. SP.     | Wind direction and speed are coded using Tables 8 and 9 in U.S. Navy Hydrogr. Office (1955)   |
| CLOUD<br>TYPE AMT.   | Cloud type and amount are coded using Tables 2 and 3 in U.S. Navy Hydrogr. Office (1955)  |
| VIS.                 | Visibility is coded using Table 4 in U.S. Navy Hydrogr. Office (1955)   |
| WEA.                 | Weather is coded using Table 1 in U.S. Navy Hydrogr. Office (1955)  |
| SEA<br>DIR. AMT.     | Sea direction and amount are coded using Tables 5 and 8 in U.S. Navy Hydrogr. Office (1955)   |
| SWELL<br>DIR. AMT.   | Sea swell direction and amount are coded using Tables 6 and 8 in U.S. Navy Hydrogr. Office (1955)   |



|                                     |  |
|-------------------------------------|--|
| BAROM. or<br>ATMOS. PRESSURE        | Atmospheric pressure given in millibars  |
| WIRE ANGLES<br>CAST 1 CAST 2 CAST 3 | Wire angles are measured at the surface and expressed in degrees for each cast |
| CAST                                | Gives the cast number  |
| DEPTH                               | Sampling depth given in metres   |
| SALINITY                            | Given in parts per thousand  |
| SIGMA-T                             | Sigma-t to 2 decimal places  |
| OXYGEN                              | Given in ml/l  |
| OXYGEN % SAT.                       | Oxygen percentage saturation   |

\*, \*\*\*, or a blank indicates no data available

| VESSEL | CRUISE | STATION | YR. | MTH. | DAY | TIME | LAITUDE | LONGITUDE | TEMP.     | SALINITY | WIND     | SEA      | SWELL    | MEA. | VIS. | BAROM. | SAMPLING |        |        |   |
|--------|--------|---------|-----|------|-----|------|---------|-----------|-----------|----------|----------|----------|----------|------|------|--------|----------|--------|--------|---|
|        |        | NUMBER  |     |      |     |      |         |           |           |          | DN, AMT, | DN, AMT, | DN, AMT, |      |      |        | METHOD   |        |        |   |
| /6     | 1      | 1       | 64  | 2    | 12  | 1319 | J       | 35        | 01 S 136  | 36.26    | 18       | 2        | 18       | 2    | 7    | 1010.0 | 1        |        |        |   |
| /6     | 1      | 2       | 64  | 2    | 12  | 1610 | J       | 35        | 14 S 136  | 36.02    | 17       | 1        | 17       | 1    | 7    | 1008.0 | 1        |        |        |   |
| /6     | 1      | 3       | 64  | 2    | 12  | 1856 | J       | 35        | 27 S 136  | 35.84    | 16       | 1        | 16       | 1    | 6    | 1004.0 | 1        |        |        |   |
| /6     | 1      | 4       | 64  | 2    | 12  | 2212 | J       | 35        | 41 S 136  | 35.82    | 12       | 1        | 99       | 1    | 9    | 1009.0 | 1        |        |        |   |
| /6     | 1      | 5       | 64  | 2    | 13  | 0134 | J       | 36        | 00 S 136  | 35.84    | 14       | 2        | 14       | 3    | 9    | 1008.0 | 1        |        |        |   |
| /6     | 1      | 6       | 64  | 2    | 13  | 0437 | J       | 36        | 16 S 136  | 36.04    | 06       | 1        | 99       | 2    | 01   | 1008.0 | 1        |        |        |   |
| /6     | 1      | 7       | 64  | 2    | 13  | 0722 | J       | 36        | 32 S 136  | 35.64    | 02       | 3        | 99       | 2    | 02   | 1008.0 | 1        |        |        |   |
| /6     | 1      | 8       | 64  | 2    | 13  | 1030 | J       | 36        | 24 S 136  | 35.73    | 36       | 1        | 99       | 1    | 8    | 1006.0 | 1        |        |        |   |
| /6     | 1      | 9       | 64  | 2    | 13  | 1333 | J       | 36        | 14 S 136  | 35.68    | 36       | 1        | 99       | 2    | 02   | 1006.0 | 1        |        |        |   |
| /6     | 1      | 10      | 64  | 2    | 13  | 1633 | J       | 36        | 04 S 135  | 35.73    | 33       | 1        | 99       | 2    | 03   | 1006.0 | 1        |        |        |   |
| /6     | 1      | 11      | 64  | 2    | 13  | 1830 | J       | 35        | 51 S 135  | 35.73    | 33       | 1        | 99       | 2    | 03   | 1004.0 | 1        |        |        |   |
| /6     | 1      | 12      | 64  | 2    | 13  | 2134 | J       | 35        | 36 S 135  | 35.73    | 26       | 4        | 26       | 1    | 44   | 1005.0 | 1        |        |        |   |
| /6     | 1      | 13      | 64  | 2    | 14  | 0026 | J       | 35        | 22 S 135  | 35.91    | 27       | 2        | 99       | 2    | 01   | 1008.0 | 1        |        |        |   |
| /6     | 1      | 14      | 64  | 2    | 14  | 0240 | J       | 35        | 05 S 135  | 36.02    | 27       | 3        | 27       | 2    | 99   | 1      | 02       | 1007.0 | 1      |   |
| /6     | 2      | 15      | 64  | 4    | 15  | 2127 | J       | 35        | 03 S 135  | 36.20    | 27       | 3        | 27       | 2    | 99   | 1      | 02       | 1009.0 | 1      |   |
| /6     | 2      | 16      | 64  | 4    | 15  | 2347 | J       | 35        | 11 S 135  | 35.82    | 00       | 0        | 99       | 2    | 22   | 4      | 00       | 1023.0 | 1      |   |
| /6     | 2      | 17      | 64  | 4    | 16  | 0244 | J       | 35        | 22 S 135  | 35.82    | 00       | 0        | 99       | 3    | 22   | 4      | 00       | 1022.0 | 1      |   |
| /6     | 2      | 18      | 64  | 4    | 16  | 0543 | J       | 35        | 33 S 135  | 36.13*   | 04       | 1        | 99       | 3    | 22   | 4      | 00       | 1021.0 | 1      |   |
| /6     | 2      | 19      | 64  | 4    | 16  | 0731 | J       | 35        | 38 S 135  | 36.00*   | 01       | 4        | 01       | 3    | 22   | 4      | 01       | 1020.0 | 1      |   |
| /6     | 2      | 20      | 64  | 4    | 16  | 0921 | J       | 35        | 45 S 135  | 35.86    | 01       | 3        | 35       | 3    | 22   | 4      | 01       | 1021.0 | 1      |   |
| /6     | 2      | 21      | 64  | 4    | 16  | 1240 | J       | 35        | 45 S 135  | 35.81    | 31       | 4        | 34       | 3    | 22   | 4      | 01       | 1021.0 | 1      |   |
| /6     | 2      | 22      | 64  | 4    | 16  | 1530 | J       | 35        | 45 S 135  | 36.00    | 31       | 4        | 34       | 3    | 22   | 4      | 01       | 1020.0 | 1      |   |
| /6     | 2      | 23      | 64  | 4    | 16  | 1826 | J       | 35        | 46 S 136  | 35.90    | 33       | 1        | 99       | 3    | 22   | 3      | 01       | 1018.0 | 1      |   |
| /6     | 2      | 24      | 64  | 4    | 16  | 2057 | J       | 35        | 46 S 136  | 35.93    | 36       | 1        | 99       | 2    | 22   | 3      | 01       | 1018.0 | 1      |   |
| /6     | 2      | 25      | 64  | 4    | 16  | 2350 | J       | 36        | 00 S 136  | 35.84    | 00       | 0        | 99       | 2    | 20   | 1      | 00       | 1019.0 | 1      |   |
| /6     | 2      | 26      | 64  | 4    | 17  | 0230 | J       | 36        | 16 S 136  | 35.86    | 02       | 2        | 99       | 2    | 20   | 1      | 00       | 1019.0 | 1      |   |
| /6     | 2      | 27      | 64  | 4    | 17  | 0549 | J       | 36        | 32 S 136  | 35.88    | 01       | 2        | 99       | 2    | 21   | 1      | 00       | 1018.0 | 1      |   |
| /6     | 2      | 28      | 64  | 4    | 17  | 0925 | J       | 36        | 22 S 136  | 35.81    | 03       | 2        | 35       | 2    | 21   | 2      | 01       | 1018.0 | 1      |   |
| /6     | 2      | 29      | 64  | 4    | 17  | 1230 | J       | 36        | 12 S 136  | 35.93    | 35       | 2        | 35       | 2    | 22   | 4      | 02       | 7      | 1018.0 | 1 |
| /6     | 2      | 30      | 64  | 4    | 17  | 1525 | J       | 36        | 01 S 136  | 35.93    | 35       | 1        | 35       | 2    | 22   | 4      | 02       | 7      | 1017.0 | 1 |
| /6     | 2      | 31      | 64  | 4    | 17  | 1857 | J       | 36        | 01 S 135  | 35.95    | 35       | 1        | 35       | 2    | 22   | 4      | 02       | 6      | 1017.0 | 1 |
| /6     | 2      | 32      | 64  | 4    | 17  | 2121 | J       | 35        | 50 S 135  | 35.73    | 00       | 0        | 99       | 1    | 22   | 4      | 02       | 6      | 1017.0 | 1 |
| /6     | 2      | 33      | 64  | 4    | 18  | 0327 | J       | 35        | 41 S 135  | 35.90    | 13       | 0        | 99       | 1    | 22   | 4      | 02       | 6      | 1017.0 | 1 |
| /6     | 2      | 34      | 64  | 4    | 18  | 0629 | J       | 35        | 41 S 135  | 35.97    | 13       | 3        | 13       | 1    | 22   | 4      | 02       | 3      | 1018.0 | 1 |
| /6     | 2      | 35      | 64  | 4    | 18  | 0958 | J       | 35        | 25 S 135  | 35.93    | 17       | 4        | 16       | 3    | 22   | 4      | 02       | 5      | 1018.0 | 1 |
| /6     | 2      | 36      | 64  | 4    | 18  | 1241 | J       | 35        | 09 S 135  | 35.91    | 17       | 4        | 17       | 3    | 22   | 4      | 02       | 7      | 1020.0 | 1 |
| /6     | 2      | 37      | 64  | 4    | 18  | 1534 | J       | 34        | 54 S 134  | 36.04    | 16       | 4        | 17       | 3    | 22   | 3      | 02       | 7      | 1020.0 | 1 |
| /6     | 2      | 38      | 64  | 4    | 18  | 1745 | J       | 34        | 40 S 134  | 35.90    | 16       | 5        | 16       | 4    | 22   | 4      | 03       | 7      | 1018.0 | 1 |
| /6     | 2      | 39      | 64  | 4    | 19  | 2039 | J       | 34        | 40 S 134  | 35.97    | 16       | 5        | 16       | 4    | 22   | 4      | 03       | 5      | 1018.0 | 1 |
| /6     | 2      | 40      | 64  | 4    | 19  | 2212 | J       | 34        | 47 S 134  | 35.90    | 35       | 1        | 99       | 3    | 22   | 4      | 03       | 3      | 1014.0 | 1 |
| /6     | 2      | 41      | 64  | 4    | 19  |      |         |           | 42 E 17.6 | 36.04    | 32       | 2        | 99       | 3    | 22   | 4      | 02       | 4      | 1014.0 | 1 |

\* PROPERTY DOUBTFUL  
\* PROPERTY INTERPOLATED

| VESSEL | CRUISE NUMBER | STATION NUMBER | YR. | MTH. | DAY | TIME | LONGITUDE          | TEMP. | SALINITY | WIND DN. | SEA DN. | SMELL DN. | WEA. | VIS. | BAROM. | SAMPLING METHOD |   |        |   |
|--------|---------------|----------------|-----|------|-----|------|--------------------|-------|----------|----------|---------|-----------|------|------|--------|-----------------|---|--------|---|
| /6     | 2             | 41             | 64  | 4    | 20  | 0051 | J 35 02 S 134 35 E | 17.8  | 36.13    | 33       | 4       | 99        | 3    | 22   | 4      | 03              | 2 | 1012.0 | 1 |
| /6     | 2             | 42             | 64  | 4    | 20  | 0339 | J 35 02 S 134 56 E | 17.8  | 36.09    | 35       | 4       | 36        | 3    | 22   | 4      | 03              | 2 | 1013.0 | 1 |
| /6     | 2             | 43             | 64  | 4    | 20  | 0625 | J 35 02 S 135 15 E | 17.8  | 36.04    | 02       | 4       | 36        | 4    | 22   | 4      | 01              | 7 | 1014.0 | 1 |
| /6     | 2             | 44             | 64  | 4    | 20  | 0905 | J 35 02 S 135 34 E | 17.3  | 35.93    | 01       | 3       | 36        | 3    | 22   | 2      | 01              | 7 | 1015.0 | 1 |
| /6     | 2             | 45             | 64  | 4    | 20  | 1031 | J 35 01 S 135 54 E | 17.2  | 35.93    | 34       | 3       | 99        | 2    | 22   | 2      | 01              | 7 | 1015.0 | 1 |
| /6     | 3             | 46             | 64  | 4    | 22  | 1605 | J 35 01 S 136 02 E | 18.0  | 35.97    | 13       | 1       | 99        | 2    | 20   | 1      | 01              | 7 | 1017.0 | 1 |
| /6     | 3             | 47             | 64  | 4    | 22  | 1914 | J 35 02 S 135 38 E | 18.0  | 36.04    | 17       | 1       | 99        | 2    | 00   | 0      | 02              | 5 | 1018.0 | 1 |
| /6     | 3             | 48             | 64  | 4    | 22  | 2223 | J 34 57 S 135 13 E | 17.7  | 36.02    | 17       | 1       | 99        | 2    | 22   | 1      | 02              | 5 | 1018.0 | 1 |
| /6     | 3             | 49             | 64  | 4    | 23  | 0118 | J 34 52 S 134 50 E | 17.9  | 36.02    | 07       | 3       | 07        | 2    | 22   | 1      | 02              | 5 | 1017.0 | 1 |
| /6     | 3             | 50             | 64  | 4    | 23  | 0245 | J 34 49 S 134 39 E | 18.2  | 36.02    | 05       | 1       | 07        | 2    | 22   | 1      | 01              | 5 | 1016.0 | 1 |
| /6     | 3             | 51             | 64  | 4    | 23  | 0525 | J 35 04 S 134 34 E | 18.6  | 36.02    | 07       | 2       | 99        | 2    | 22   | 1      | 01              | 5 | 1016.0 | 1 |
| /6     | 3             | 52             | 64  | 4    | 23  | 0800 | J 35 22 S 134 29 E | 18.4  | 35.95    | 04       | 2       | 99        | 2    | 22   | 1      | 03              | 7 | 1016.0 | 1 |
| /6     | 3             | 53             | 64  | 4    | 23  | 1102 | J 35 31 S 134 45 E | 18.3  | 35.99    | 35       | 2       | 99        | 2    | 22   | 1      | 03              | 7 | 1016.0 | 1 |
| /6     | 3             | 54             | 64  | 4    | 23  | 1325 | J 35 46 S 135 20 E | 18.5  | 35.99    | 04       | 3       | 04        | 2    | 22   | 1      | 01              | 7 | 1015.0 | 1 |
| /6     | 3             | 55             | 64  | 4    | 23  | 1724 | J 35 46 S 135 40 E | 18.0  | 35.99    | 04       | 3       | 04        | 2    | 22   | 1      | 03              | 5 | 1012.0 | 1 |
| /6     | 3             | 56             | 64  | 4    | 23  | 2005 | J 35 46 S 135 20 E | 18.3  | 36.06    | 04       | 4       | 04        | 3    | 22   | 1      | 03              | 4 | 1013.0 | 1 |
| /6     | 3             | 57             | 64  | 4    | 23  | 2304 | J 35 46 S 135 59 E | 17.8  | 36.04    | 04       | 3       | 04        | 3    | 22   | 1      | 03              | 3 | 1012.0 | 1 |
| /6     | 3             | 58             | 64  | 4    | 24  | 0135 | J 35 46 S 136 19 E | 17.6  | 35.93    | 02       | 5       | 04        | 4    | 22   | 1      | 03              | 2 | 1020.0 | 1 |
| /6     | 3             | 59             | 64  | 4    | 28  | 0611 | J 35 02 S 136 00 E | 17.1  | 36.02    | 30       | 2       | 99        | 2    | 22   | 3      | 02              | 5 | 1021.0 | 1 |
| /6     | 3             | 60             | 64  | 4    | 28  | 0900 | J 35 13 S 135 45 E | 17.6  | 36.06    | 22       | 2       | 99        | 3    | 21   | 4      | 02              | 7 | 1022.0 | 1 |
| /6     | 3             | 61             | 64  | 4    | 28  | 1145 | J 35 25 S 135 32 E | 18.2  | 36.11    | 27       | 1       | 99        | 2    | 21   | 3      | 02              | 7 | 1021.0 | 1 |
| /6     | 3             | 62             | 64  | 4    | 28  | 1420 | J 35 37 S 135 22 E | 18.2  | 36.11    | 22       | 1       | 99        | 2    | 21   | 3      | 02              | 7 | 1020.0 | 1 |
| /6     | 3             | 63             | 64  | 4    | 28  | 1612 | J 35 43 S 135 15 E | 17.9  | 35.93    | 14       | 1       | 99        | 2    | 21   | 3      | 02              | 7 | 1020.0 | 1 |
| /6     | 3             | 64             | 64  | 4    | 28  | 1905 | J 35 44 S 135 16 E | 17.8  | 35.93    | 10       | 1       | 99        | 2    | 21   | 3      | 02              | 1 | 1020.0 | 1 |
| /6     | 3             | 65             | 64  | 4    | 28  | 2205 | J 35 46 S 135 17 E | 17.7  | 35.95    | 09       | 2       | 99        | 2    | 21   | 4      | 01              | 5 | 1020.0 | 1 |
| /6     | 3             | 66             | 64  | 4    | 29  | 0105 | J 35 49 S 135 18 E | 17.7  | 35.93    | 07       | 3       | 99        | 2    | 21   | 4      | 01              | 4 | 1018.0 | 1 |
| /6     | 3             | 67             | 64  | 4    | 29  | 0420 | J 35 51 S 135 19 E | 17.7  | 35.99    | 07       | 3       | 09        | 3    | 21   | 4      | 01              | 4 | 1016.0 | 1 |
| /6     | 3             | 68             | 64  | 4    | 29  | 0900 | J 35 34 S 135 31 E | 18.2  | 36.13    | 04       | 3       | 05        | 3    | 21   | 3      | 03              | 6 | 1017.0 | 1 |
| /6     | 3             | 69             | 64  | 4    | 29  | 1152 | J 35 22 S 135 41 E | 17.9  | 36.11    | 34       | 4       | 34        | 3    | 21   | 3      | 04              | 6 | 1016.0 | 1 |
| /6     | 4             | 70             | 64  | 5    | 4   | 2237 | J 35 13 S 136 17 E | 17.3  | 35.91    | 11       | 2       | 99        | 2    | 22   | 4      | 01              | 1 | 1021.0 | 1 |
| /6     | 4             | 71             | 64  | 5    | 5   | 0115 | J 35 00 S 136 26 E | 17.3  | 36.02    | 06       | 3       | 06        | 2    | 22   | 4      | 01              | 3 | 1021.0 | 1 |
| /6     | 4             | 72             | 64  | 5    | 5   | 0424 | J 34 49 S 136 35 E | 17.6  | 36.150   | 05       | 3       | 06        | 2    | 22   | 4      | 01              | 3 | 1021.0 | 1 |
| /6     | 4             | 73             | 64  | 5    | 5   | 0805 | J 34 35 S 136 45 E | 17.8  | 36.94    | 06       | 1       | 06        | 2    | 18   | 2      | 01              | 7 | 1022.0 | 1 |
| /6     | 4             | 74             | 64  | 5    | 5   | 1015 | J 34 24 S 136 52 E | 17.7  | 36.75    | 03       | 2       | 99        | 2    | 18   | 1      | 01              | 7 | 1022.0 | 1 |
| /6     | 4             | 75             | 64  | 5    | 5   | 1315 | J 34 12 S 137 01 E | 18.3  | 37.42    | 05       | 2       | 99        | 2    | 18   | 1      | 01              | 8 | 1021.0 | 1 |
| /6     | 4             | 76             | 64  | 5    | 5   | 1540 | J 34 00 S 137 20 E | 18.2  | 38.52    | 08       | 2       | 06        | 2    | 99   | 0      | 01              | 8 | 1020.0 | 1 |
| /6     | 4             | 77             | 64  | 5    | 5   | 1755 | J 33 25 S 137 25 E | 17.5  | 37.97    | 03       | 1       | 05        | 2    | 99   | 0      | 01              | 8 | 1020.0 | 1 |
| /6     | 4             | 78             | 64  | 5    | 5   | 2205 | J 33 29 S 137 29 E | 17.9  | 38.70    | 14       | 2       | 13        | 2    | 00   | 0      | 02              | 1 | 1021.0 | 1 |
| /6     | 4             | 79             | 64  | 5    | 5   | 0210 | J 33 04 S 137 40 E | 18.4  | 40.60    | 05       | 2       | 10        | 1    | 00   | 0      | 01              | 2 | 1020.0 | 1 |
| /6     | 4             | 80             | 64  | 5    | 6   | 0421 | J 32 57 S 137 51 E | 18.2  | 41.64    | 05       | 1       | 05        | 1    | 00   | 0      | 02              | 2 | 1020.0 | 1 |

| VESSEL | CRUISE NUMBER | STATION NUMBER | YR. | MTH. | DAY | TIME | ✓ | LATITUDE | LONGITUDE | TEMP. | SALINITY | WIND DN. AMT. | SEA DN. AMT. | SWELL DN. AMT. | HEA. VIS. | BAROM. | SAMPLING METHOD |    |    |        |        |   |
|--------|---------------|----------------|-----|------|-----|------|---|----------|-----------|-------|----------|---------------|--------------|----------------|-----------|--------|-----------------|----|----|--------|--------|---|
| /6     | 4             | 81             | 64  | 5    | 6   | 0655 | J | 33       | 42        | E     | 18.2     | 40.97         | 28           | 1              | 99        | 1      | 00              | 0  | 03 | 1022.0 | 1      |   |
| /6     | 4             | 82             | 64  | 5    | 6   | 0900 | J | 33       | 24        | S     | 137      | 39            | E            | 18.2           | 40.28     | 04     | 1               | 00 | 0  | 03     | 1023.0 | 1 |
| /6     | 4             | 83             | 64  | 5    | 6   | 1054 | J | 33       | 36        | S     | 137      | 36            | E            | 17.9           | 39.57     | 08     | 3               | 00 | 0  | 02     | 1023.0 | 1 |
| /6     | 4             | 84             | 64  | 5    | 6   | 1244 | J | 33       | 46        | S     | 137      | 31            | E            | 18.0           | 39.37     | 03     | 3               | 00 | 0  | 03     | 1020.0 | 1 |
| /6     | 4             | 85             | 64  | 5    | 6   | 1445 | J | 33       | 57        | S     | 137      | 25            | E            | 18.0           | 39.58     | 02     | 3               | 00 | 0  | 02     | 1020.0 | 1 |
| /6     | 4             | 86             | 64  | 5    | 6   | 1621 | J | 34       | 02        | S     | 137      | 25            | E            | 17.3           | 37.79     | 02     | 1               | 00 | 0  | 01     | 1020.6 | 1 |
| /6     | 4             | 87             | 64  | 5    | 6   | 1735 | J | 34       | 07        | S     | 137      | 24            | E            | 17.6           | 37.73     | 02     | 0               | 02 | 1  | 01     | 1020.0 | 1 |
| /6     | 4             | 88             | 64  | 5    | 6   | 1905 | J | 34       | 03        | S     | 137      | 17            | E            | 18.0           | 37.95     | 02     | 0               | 02 | 1  | 01     | 1021.0 | 1 |
| /6     | 4             | 89             | 64  | 5    | 6   | 2035 | J | 34       | 00        | S     | 137      | 10            | E            | 17.9           | 38.07     | 02     | 0               | 00 | 0  | 00     | 1021.0 | 1 |
| /6     | 4             | 90             | 64  | 5    | 6   | 2200 | J | 33       | 56        | S     | 137      | 02            | E            | 18.1           | 37.47     | 02     | 1               | 00 | 0  | 00     | 1021.0 | 1 |
| /6     | 4             | 91             | 64  | 5    | 6   | 2330 | J | 33       | 53        | S     | 136      | 55            | E            | 18.1           | 37.28     | 34     | 1               | 02 | 2  | 01     | 1020.0 | 1 |
| /6     | 4             | 92             | 64  | 5    | 7   | 0047 | J | 33       | 50        | S     | 136      | 48            | E            | 17.7           | 37.25     | 34     | 2               | 00 | 0  | 01     | 1020.0 | 1 |
| /6     | 4             | 93             | 64  | 5    | 7   | 0320 | J | 34       | 04        | S     | 136      | 51            | E            | 18.0           | 37.14     | 36     | 2               | 00 | 0  | 01     | 1019.0 | 1 |
| /6     | 4             | 94             | 64  | 5    | 7   | 0550 | J | 34       | 18        | S     | 136      | 53            | E            | 17.6           | 36.94     | 02     | 2               | 00 | 1  | 01     | 1019.0 | 1 |
| /6     | 4             | 95             | 64  | 5    | 7   | 0840 | J | 34       | 32        | S     | 136      | 56            | E            | 17.9           | 37.16     | 36     | 2               | 20 | 1  | 01     | 1021.0 | 1 |
| /6     | 4             | 96             | 64  | 5    | 7   | 1040 | J | 34       | 46        | S     | 136      | 59            | E            | 18.3           | 37.48     | 34     | 3               | 35 | 2  | 01     | 1021.0 | 1 |
| /6     | 4             | 97             | 64  | 5    | 7   | 1225 | J | 34       | 54        | S     | 136      | 56            | E            | 18.1           | 37.58     | 34     | 3               | 34 | 2  | 01     | 1020.0 | 1 |
| /6     | 4             | 98             | 64  | 5    | 7   | 1415 | J | 34       | 52        | S     | 136      | 47            | E            | 18.2           | 37.32     | 36     | 3               | 34 | 3  | 01     | 1018.0 | 1 |
| /6     | 4             | 99             | 64  | 5    | 7   | 1610 | J | 34       | 51        | S     | 136      | 39            | E            | 17.8           | 37.10     | 03     | 3               | 36 | 3  | 01     | 1018.0 | 1 |
| /6     | 4             | 100            | 64  | 5    | 7   | 1805 | J | 34       | 49        | S     | 136      | 30            | E            | 17.4           | 36.11     | 02     | 3               | 36 | 3  | 01     | 1018.0 | 1 |
| /6     | 4             | 101            | 64  | 5    | 7   | 2010 | J | 34       | 48        | S     | 136      | 21            | E            | 17.3           | 36.13     | 02     | 3               | 02 | 3  | 03     | 1019.0 | 1 |
| /6     | 4             | 102            | 64  | 5    | 7   | 2150 | J | 34       | 47        | S     | 136      | 12            | E            | 16.9           | 35.88     | 36     | 2               | 02 | 2  | 03     | 1019.0 | 1 |
| /6     | 5             | 104            | 64  | 8    | 16  | 1145 | J | 35       | 13        | S     | 138      | 10            | E            | 12.6           | 36.55     | 25     | 2               | 25 | 2  | 01     | 1024.4 | 1 |
| /6     | 5             | 105            | 64  | 8    | 16  | 1447 | J | 35       | 13        | S     | 137      | 50            | E            | 13.0           | 36.26     | 22     | 3               | 22 | 3  | 01     | 1022.6 | 1 |
| /6     | 5             | 106            | 64  | 8    | 16  | 1758 | J | 35       | 20        | S     | 137      | 29            | E            | 13.7           | 36.15     | 21     | 3               | 22 | 3  | 01     | 1023.0 | 1 |
| /6     | 5             | 107            | 64  | 8    | 16  | 2108 | J | 35       | 28        | S     | 137      | 06            | E            | 13.9           | 36.17     | 27     | 3               | 25 | 3  | 01     | 1024.2 | 1 |
| /6     | 5             | 108            | 64  | 8    | 17  | 0012 | J | 35       | 33        | S     | 136      | 44            | E            | 14.6           | 36.00     | 28     | 3               | 23 | 4  | 01     | 1023.0 | 1 |
| /6     | 5             | 109            | 64  | 8    | 17  | 0605 | J | 36       | 10        | S     | 136      | 36            | E            | 14.7           | 35.84     | 28     | 3               | 23 | 4  | 01     | 1022.0 | 1 |
| /6     | 5             | 110            | 64  | 8    | 17  | 0846 | J | 36       | 17        | S     | 136      | 29            | E            | 14.2           | 35.64     | 28     | 3               | 27 | 3  | 02     | 1023.0 | 1 |
| /6     | 5             | 111            | 64  | 8    | 17  | 1200 | J | 36       | 30        | S     | 136      | 16            | E            | 13.8           | 35.77*    | 28     | 4               | 27 | 3  | 02     | 1022.0 | 1 |
| /6     | 5             | 112            | 64  | 8    | 17  | 1626 | J | 36       | 17        | S     | 136      | 05            | E            | 14.0           | 35.59     | 28     | 4               | 28 | 4  | 02     | 1020.8 | 1 |
| /6     | 5             | 113            | 64  | 8    | 17  | 1934 | J | 36       | 01        | S     | 136      | 04            | E            | 14.3           | 35.64     | 28     | 4               | 28 | 4  | 02     | 1022.7 | 1 |
| /6     | 5             | 114            | 64  | 8    | 17  | 2217 | J | 35       | 45        | S     | 136      | 02            | E            | 14.9           | 35.73     | 26     | 4               | 27 | 4  | 01     | 1023.0 | 1 |
| /6     | 5             | 115            | 64  | 8    | 18  | 0120 | J | 35       | 28        | S     | 136      | 01            | E            | 14.4           | 35.73     | 24     | 4               | 27 | 4  | 01     | 1023.0 | 1 |
| /6     | 5             | 116            | 64  | 8    | 18  | 0355 | J | 35       | 12        | S     | 135      | 59            | E            | 14.8           | 35.90     | 31     | 2               | 25 | 3  | 03     | 1023.0 | 1 |
| /6     | 5             | 117            | 64  | 8    | 18  | 1345 | J | 35       | 04        | S     | 135      | 58            | E            | 15.0           | 35.93     | 25     | 2               | 25 | 3  | 01     | 1024.2 | 1 |
| /6     | 5             | 118            | 64  | 8    | 18  | 1625 | J | 35       | 15        | S     | 135      | 44            | E            | 15.3           | 35.73     | 22     | 1               | 22 | 3  | 01     | 1024.2 | 1 |
| /6     | 5             | 119            | 64  | 8    | 18  | 1904 | J | 35       | 27        | S     | 135      | 31            | E            | 15.3           | 35.71     | 00     | 0               | 16 | 1  | 01     | 1024.8 | 1 |
| /6     | 5             | 120            | 64  | 8    | 18  | 2215 | J | 35       | 36        | S     | 135      | 16            | E            | 14.2           | 35.57     | 18     | 1               | 00 | 1  | 01     | 1024.6 | 1 |

\* \* PROPERTY DOUBTFUL  
PROPERTY INTERPOLATED

| VESSE- | CRUISE | STATION | YR. | MTH. | DAY  | TIME | LONGITUDE | SALINITY | WIND | SEA | SWELL | WEA. | VIS. | BAROM. | SAMPLING |   |
|--------|--------|---------|-----|------|------|------|-----------|----------|------|-----|-------|------|------|--------|----------|---|
| NUMBER | NUMBER | NUMBER  |     |      |      |      |           |          | DN.  | DN. | DN.   | AMT. | AMT. |        | METHOD   |   |
| 121    | 5      | 64      | 8   | 19   | 0007 | J 35 | 43 S 135  | 35.48    | 18   | 1   | 22    | 4    | 01   | 6      | 1024.2   | 1 |
| 122    | 5      | 64      | 8   | 19   | 0433 | J 35 | 30 S 134  | 35.49    | 00   | 0   | 22    | 4    | 01   | 6      | 1024.0   | 1 |
| 123    | 5      | 64      | 8   | 19   | 0805 | J 35 | 20 S 134  | 35.51    | 00   | 0   | 22    | 4    | 00   | 8      | 1024.8   | 1 |
| 124    | 5      | 64      | 8   | 19   | 1045 | J 35 | 13 S 134  | 35.55    | 00   | 0   | 22    | 2    | 00   | 8      | 1024.5   | 1 |
| 125    | 5      | 64      | 8   | 19   | 1337 | J 35 | 01 S 134  | 35.62    | 06   | 0   | 22    | 3    | 00   | 8      | 1022.0   | 1 |
| 126    | 5      | 64      | 8   | 19   | 1620 | J 34 | 50 S 134  | 35.73    | 12   | 1   | 22    | 3    | 00   | 8      | 1021.0   | 1 |
| 127    | 5      | 64      | 8   | 19   | 1914 | J 34 | 38 S 135  | 36.08    | 07   | 2   | 22    | 3    | 00   | 4      | 1020.2   | 1 |
| 128    | 5      | 64      | 8   | 20   | 1505 | J 34 | 28 S 134  | 35.91    | 36   | 2   | 22    | 3    | 03   | 7      | 1013.5   | 1 |
| 129    | 5      | 64      | 8   | 20   | 1814 | J 34 | 34 S 134  | 35.68    | 36   | 2   | 22    | 3    | 03   | 6      | 1012.1   | 1 |
| 130    | 5      | 64      | 8   | 20   | 2113 | J 34 | 40 S 134  | 35.68    | 37   | 2   | 22    | 2    | 03   | 4      | 1011.8   | 1 |
| 131    | 5      | 64      | 8   | 21   | 0010 | J 34 | 46 S 133  | 35.68    | 26   | 2   | 22    | 2    | 03   | 4      | 1011.8   | 1 |
| 132    | 5      | 64      | 8   | 21   | 0300 | J 34 | 52 S 133  | 35.59    | 22   | 4   | 22    | 2    | 00   | 5      | 1012.0   | 1 |
| 133    | 5      | 64      | 8   | 21   | 0520 | J 34 | 46 S 133  | 35.66    | 22   | 4   | 22    | 2    | 03   | 5      | 1012.5   | 1 |
| 134    | 5      | 64      | 8   | 21   | 0803 | J 34 | 36 S 133  | 35.66    | 22   | 4   | 22    | 1    | 03   | 7      | 1013.3   | 1 |
| 135    | 5      | 64      | 8   | 21   | 1121 | J 34 | 26 S 133  | 35.81    | 22   | 1   | 22    | 1    | 01   | 8      | 1015.0   | 1 |
| 136    | 5      | 64      | 8   | 21   | 1354 | J 34 | 15 S 134  | 35.86    | 27   | 3   | 22    | 3    | 03   | 8      | 1013.5   | 1 |
| 137    | 5      | 64      | 8   | 21   | 1635 | J 34 | 02 S 134  | 36.13    | 28   | 2   | 22    | 3    | 03   | 7      | 1013.0   | 1 |
| 138    | 5      | 64      | 8   | 25   | 1130 | J 33 | 37 S 134  | 36.29    | 02   | 4   | 22    | 1    | 03   | 7      | 1007.0   | 1 |
| 139    | 5      | 64      | 8   | 25   | 1443 | J 33 | 16 S 134  | 36.29    | 03   | 4   | 22    | 1    | 03   | 6      | 1002.0   | 1 |
| 140    | 5      | 64      | 8   | 28   | 0150 | J 33 | 51 S 133  | 36.13    | 25   | 2   | 22    | 2    | 03   | 4      | 1017.2   | 1 |
| 141    | 5      | 64      | 8   | 28   | 0520 | J 33 | 01 S 133  | 35.95    | 21   | 2   | 22    | 2    | 03   | 4      | 1015.1   | 1 |
| 142    | 5      | 64      | 8   | 28   | 0826 | J 33 | 11 S 132  | 35.86    | 17   | 1   | 22    | 2    | 03   | 8      | 1018.0   | 1 |
| 143    | 5      | 64      | 8   | 28   | 1122 | J 33 | 21 S 132  | 35.68    | 18   | 1   | 22    | 2    | 03   | 8      | 1019.0   | 1 |
| 144    | 5      | 64      | 8   | 28   | 1423 | J 33 | 31 S 132  | 35.67    | 19   | 1   | 22    | 2    | 03   | 7      | 1016.0   | 1 |
| 145    | 5      | 64      | 8   | 28   | 1650 | J 33 | 41 S 131  | 35.57    | 22   | 1   | 22    | 2    | 03   | 8      | 1016.1   | 1 |
| 146    | 5      | 64      | 8   | 28   | 1910 | J 33 | 29 S 132  | 35.61    | 22   | 2   | 22    | 2    | 02   | 5      | 1019.3   | 1 |
| 147    | 5      | 64      | 8   | 28   | 2215 | J 33 | 23 S 132  | 35.70    | 22   | 1   | 22    | 2    | 02   | 5      | 1019.3   | 1 |
| 148    | 5      | 64      | 8   | 29   | 0109 | J 33 | 12 S 132  | 35.85    | 22   | 2   | 22    | 2    | 01   | 6      | 1018.8   | 1 |
| 149    | 5      | 64      | 8   | 29   | 0348 | J 33 | 00 S 132  | 35.84    | 22   | 2   | 22    | 1    | 01   | 6      | 1018.4   | 1 |
| 150    | 5      | 64      | 8   | 29   | 0654 | J 32 | 46 S 132  | 35.99    | 15   | 2   | 22    | 1    | 01   | 7      | 1018.7   | 1 |
| 151    | 5      | 64      | 8   | 29   | 0911 | J 32 | 37 S 133  | 36.11    | 16   | 2   | 22    | 1    | 02   | 7      | 1020.0   | 1 |
| 152    | 5      | 64      | 8   | 29   | 1205 | J 32 | 26 S 133  | 36.18    | 13   | 2   | 16    | 1    | 03   | 8      | 1021.0   | 1 |
| 153    | 5      | 64      | 8   | 31   | 1025 | J 32 | 21 S 133  | 36.26    | 04   | 3   | 19    | 3    | 03   | 7      | 1024.3   | 1 |
| 154    | 5      | 64      | 8   | 31   | 1323 | J 32 | 38 S 133  | 36.20    | 04   | 3   | 17    | 3    | 14   | 7      | 1022.5   | 1 |
| 155    | 5      | 64      | 8   | 31   | 1610 | J 32 | 55 S 133  | 36.24    | 05   | 3   | 18    | 3    | 14   | 7      | 1021.0   | 1 |
| 156    | 5      | 64      | 8   | 31   | 1830 | J 33 | 12 S 133  | 36.26    | 08   | 2   | 18    | 3    | 14   | 5      | 1022.0   | 1 |
| 157    | 5      | 64      | 8   | 31   | 2111 | J 33 | 24 S 133  | 36.02    | 08   | 2   | 18    | 3    | 14   | 5      | 1022.0   | 1 |
| 158    | 5      | 64      | 8   | 31   | 2350 | J 33 | 35 S 133  | 35.84    | 05   | 3   | 18    | 3    | 21   | 5      | 1021.1   | 1 |
| 159    | 5      | 64      | 9   | 1    | 0235 | J 33 | 47 S 133  | 35.81    | 05   | 3   | 18    | 3    | 21   | 5      | 1020.0   | 1 |
| 160    | 5      | 64      | 9   | 1    | 0520 | J 33 | 59 S 132  | 35.66    | 04   | 3   | 18    | 3    | 21   | 5      | 1019.0   | 1 |

| VESSE- | CRUISE | STATION | YR. | MTM. | DAY | TIME | LATITUDE | LONGITUDE | TEMP.     | SALINITY | WIND     | SEA      | SWELL    | HEA. | VIS. | BAROM. | SAMPLING |   |        |   |
|--------|--------|---------|-----|------|-----|------|----------|-----------|-----------|----------|----------|----------|----------|------|------|--------|----------|---|--------|---|
|        |        | NUMBER  |     |      |     |      |          |           |           | DN. AMT. | DN. AMT. | DN. AMT. | DN. AMT. |      |      |        | METHOD   |   |        |   |
| /6     | 5      | 161     | 64  | 9    | 1   | 0810 | J 34     | 10 S 132  | 44 E 15.2 | 35.62    | 02       | 4        | 99       | 5    | 18   | 2      | 14       | 7 | 1019.1 | 1 |
| /6     | 5      | 162     | 64  | 9    | 1   | 0955 | J 34     | 17 S 132  | 36 E 15.0 | 35.61    | 01       | 4        | 99       | 5    | 20   | 1      | 01       | 7 | 1018.8 | 1 |
| /6     | 5      | 163     | 64  | 9    | 1   | 1358 | J 34     | 19 S 133  | 00 E 15.4 | 35.68    | 01       | 4        | 01       | 5    | 20   | 1      | 01       | 7 | 1017.0 | 1 |
| /6     | 5      | 164     | 64  | 9    | 1   | 1648 | J 34     | 22 S 133  | 24 E 15.2 | 35.64    | 02       | 4        | 02       | 4    | 20   | 1      | 01       | 7 | 1015.5 | 1 |
| /6     | 5      | 165     | 64  | 9    | 1   | 1957 | J 34     | 25 S 133  | 47 E 15.3 | 35.82    | 07       | 4        | 03       | 5    | 99   | 0      | 01       | 5 | 1018.0 | 1 |
| /6     | 5      | 166     | 64  | 9    | 1   | 2301 | J 34     | 28 S 134  | 11 E 15.2 | 35.79    | 07       | 4        | 07       | 3    | 99   | 0      | 01       | 5 | 1017.5 | 1 |
| /6     | 5      | 167     | 64  | 9    | 2   | 0155 | J 34     | 31 S 134  | 37 E 15.1 | 35.71    | 01       | 3        | 07       | 3    | 99   | 0      | 03       | 5 | 1016.0 | 1 |
| /6     | 5      | 168     | 64  | 9    | 2   | 0445 | J 34     | 44 S 134  | 55 E 15.1 | 35.79    | 36       | 1        | 01       | 2    | 00   | 0      | 01       | 6 | 1015.5 | 1 |
| /6     | 5      | 169     | 64  | 9    | 2   | 0734 | J 34     | 56 S 135  | 15 E 14.9 | 35.85    | 36       | 1        | 01       | 2    | 22   | 4      | 03       | 6 | 1015.6 | 1 |
| /6     | 5      | 170     | 64  | 9    | 2   | 1026 | J 35     | 02 S 135  | 39 E 15.1 | 35.77    | 01       | 3        | 01       | 2    | 22   | 4      | 03       | 7 | 1015.6 | 1 |

DATA  
PART 2  
HYDROLOGY  
SUBSURFACE SAMPLES

STATION IN 1/ 1/64 DATE 12/ 2/64 TIME 1319 J LATITUDE 35 01 S LONGITUDE 136 02 E

SONIC AIR TEMP. WIND ANEM. CLOUD VIS. SEA SWELL ATMOS. WIRE ANGLES  
 WET DRY DIR. SP. HEIGHT TYPE AMT. DIR. AMT. PRESSURE CAST1 CAST2 CAST3

60 \*\*\* \*\* 18 2 \* 6 2 \* 18 2 24 3 1010.0 0 \* \*

CAST DEPTH TEMP. SALINITY SIGMA-T OXYGEN OXYGEN % SAT. INORG. P TOTAL P NITRATE

1 0 18.19 36.260 26.21 \*\*\* \*\* \*\*\* \*\*

1 10 17.60 36.200 26.31 5.27 \*\*\* \*\* \*\*\* \*\*

1 20 17.38 36.150 26.32 5.26 101 \*\*\* \*\* \*\*\* \*\*

1 30 17.20 36.110 26.34 5.20 99 \*\*\* \*\* \*\*\* \*\*

1 50 16.54 36.000 26.41 5.17 97 \*\*\* \*\* \*\*\* \*\*

STATION IN 1/ 2/64 DATE 12/ 2/64 TIME 1610 J LATITUDE 35 14 S LONGITUDE 136 11 E

SONIC AIR TEMP. WIND ANEM. CLOUD VIS. SEA SWELL ATMOS. WIRE ANGLES  
 WET DRY DIR. SP. HEIGHT TYPE AMT. DIR. AMT. PRESSURE CAST1 CAST2 CAST3

55 \*\*\* \*\* 17 1 \* 6 1 7 17 1 24 3 1008.0 0 \* \*

CAST DEPTH TEMP. SALINITY SIGMA-T OXYGEN OXYGEN % SAT. INORG. P TOTAL P NITRATE

1 0 18.39 36.020 25.97 5.33 \*\*\* \*\* \*\*\* \*\*

1 10 18.11 36.090 26.10 5.35 104 \*\*\* \*\* \*\*\* \*\*

1 20 18.09 36.090 26.10 5.28 103 \*\*\* \*\* \*\*\* \*\*

1 30 16.19 35.840 26.37 5.31 99 \*\*\* \*\* \*\*\* \*\*

1 50 13.81 35.480 26.62 5.03 89 \*\*\* \*\* \*\*\* \*\*



| STATION         | DATE     | TIME   | LATITUDE |         | LONGITUDE |               |          |           |                 |                   |
|-----------------|----------|--------|----------|---------|-----------|---------------|----------|-----------|-----------------|-------------------|
| IN 1/           | 3/64     | 1456 J | 35       | 27 S    | 136       | 20 E          |          |           |                 |                   |
| SONIC AIR TEMP. | WIND     | ANEM.  | CLOUD    | SEA     | VIS.      | DIR. AMT.     | SWELL    | DIR. AMT. | ATMOS. PRESSURE | WIRE ANGLES       |
| DEPTH MET       | DIR. SP. | HEIGHT | TYPE     | AMT.    |           |               |          |           |                 | CAS11 CAS12 CAS13 |
| 73 ***          | ***      | 16     | 1        | *       | 6         | 1             | 23       | 2         | 1008.0          | 0 0 *             |
| CAS1            | DEPTH    | TEMP.  | SALINITY | SIGMA-T | OXYGEN    | OXYGEN % SAT. | INORG. P | TOTAL P   | NITRATE         |                   |
| 1               | 0        | 17.58  | 35.840   | 26.04   | 5.43      | 104           | ***      | ***       | ***             |                   |
| 1               | 20       | 17.32  | 35.880   | 26.13   | 5.41      | 103           | ***      | ***       | ***             |                   |
| 2               | 30       | 17.81  | 36.080   | 26.16   | 5.19      | 100           | ***      | ***       | ***             |                   |
| 2               | 40       | 16.59  | 35.820   | 26.30   | 5.39      | 101           | ***      | ***       | ***             |                   |
| 1               | 50       | 14.78  | 35.590   | 26.49   | 5.69      | 103           | ***      | ***       | ***             |                   |
| 1               | 70       | 13.34  | 35.410   | 26.66   | 4.91      | 86            | ***      | ***       | ***             |                   |

| STATION         | DATE     | TIME   | LATITUDE |         | LONGITUDE |               |          |           |                 |                   |     |
|-----------------|----------|--------|----------|---------|-----------|---------------|----------|-----------|-----------------|-------------------|-----|
| IN 1/           | 4/64     | 2212 J | 35       | 41 S    | 136       | 32 E          |          |           |                 |                   |     |
| SONIC AIR TEMP. | WIND     | ANEM.  | CLOUD    | SEA     | VIS.      | DIR. AMT.     | SWELL    | DIR. AMT. | ATMOS. PRESSURE | WIRE ANGLES       |     |
| DEPTH MET       | DIR. SP. | HEIGHT | TYPE     | AMT.    |           |               |          |           |                 | CAS11 CAS12 CAS13 |     |
| 73 ***          | ***      | 12     | 1        | *       | 9         | 99            | 1        | 20        | 1               | 1009.0            | 0 * |
| CAS1            | DEPTH    | TEMP.  | SALINITY | SIGMA-T | OXYGEN    | OXYGEN % SAT. | INORG. P | TOTAL P   | NITRATE         |                   |     |
| 1               | 0        | 16.64  | 35.820   | 26.25   | 5.50      | 104           | ***      | ***       | ***             |                   |     |
| 1               | 25       | 16.47  | 35.820   | 26.29   | 5.46      | 103           | ***      | ***       | ***             |                   |     |
| 1               | 50       | 13.73  | 35.430   | 26.59   | 5.33      | 94            | ***      | ***       | ***             |                   |     |
| 1               | 70       | 13.20  | 35.350   | 26.64   | 5.20      | 91            | ***      | ***       | ***             |                   |     |

STATION IN 1/ 5/64 DATE 13/ 2/64 TIME 0134 J LATITUDE 36 00 S LONGITUDE 136 32 E

SONIC AIR TEMP. WIND DIR. SP. CLOUD ANEM. WIRE ANGLES  
 DEPTH MET DRY DIR. SP. TYPE AMT. HEIGHT TYPE AMT. VIS. SEA DIR. AMT. SWELL DIR. AMT. ATMOS. CAST1 CAST2 CAST3  
 37 \*\*\* \*\* 14 2 \* \* 0 \* 9 14 3 22 2 100R.0 0 \* \* \*

CAST DEPTH TEMP. SALINITY SIGMA-T OXYGEN OXYGEN % SAT. INORG. P TOTAL P NITRATE

|   |    |       |        |       |      |     |     |     |     |
|---|----|-------|--------|-------|------|-----|-----|-----|-----|
| 1 | 0  | 16.48 | 35.840 | 26.30 | 5.63 | 106 | *** | *** | *** |
| 1 | 10 | 16.40 | 35.820 | 26.30 | 5.69 | 107 | *** | *** | *** |
| 1 | 20 | 13.70 | 35.430 | 26.60 | 4.94 | 87  | *** | *** | *** |
| 1 | 30 | 13.59 | 35.430 | 26.62 | 4.92 | 87  | *** | *** | *** |

STATION IN 1/ 6/64 DATE 13/ 2/64 TIME 0437 J LATITUDE 36 16 S LONGITUDE 136 32 E

SONIC AIR TEMP. WIND DIR. SP. CLOUD ANEM. WIRE ANGLES  
 DEPTH MET DRY DIR. SP. TYPE AMT. HEIGHT TYPE AMT. VIS. SEA DIR. AMT. SWELL DIR. AMT. ATMOS. CAST1 CAST2 CAST3  
 82 \*\*\* \*\* 06 1 \* \* 8 \* 9 99 2 22 2 100R.0 0 \* \* \*

CAST DEPTH TEMP. SALINITY SIGMA-T OXYGEN OXYGEN % SAT. INORG. P TOTAL P NITRATE

|   |    |       |        |       |      |     |     |     |     |
|---|----|-------|--------|-------|------|-----|-----|-----|-----|
| 1 | 0  | 18.19 | 36.040 | 26.04 | 5.15 | 100 | *** | *** | *** |
| 1 | 25 | 18.18 | 36.040 | 26.04 | 5.14 | 100 | *** | *** | *** |
| 1 | 50 | 17.77 | 35.900 | 26.04 | 5.21 | 100 | *** | *** | *** |
| 1 | 75 | 13.35 | 35.390 | 26.64 | 5.20 | 91  | *** | *** | *** |

STATION IN 1/ 7/64 DATE 13/ 2/64 TIME 0722 J LATITUDE 36 32 S LONGITUDE 136 32 E

SONIC AIR TEMP. WIND ANEM. CLOUD SEA SWELL ATMOS. WIRE ANGLES  
 DEPTH MET DRY DIR. SP. HEIGHT TYPE AMT. DIR. AMT. DIR. AMT. PRESSURE CAST1 CAST2 CAST3  
 \*\*\* \*\* \*\*\* 02 3 \* 4 8 \* 8 99 2 21 2 100R.0 10 0 \*

CST DEPTH TEMP. SALINITY SIGMA-T OXYGEN CXYGEN % SAT. INORG. P TOTAL P NITRATE

|   |     |       |        |       |      |     |     |     |     |     |
|---|-----|-------|--------|-------|------|-----|-----|-----|-----|-----|
| 2 | 0   | 17.37 | 35.640 | 25.93 | 5.26 | 100 | *** | *** | *** | *** |
| 2 | 25  | 17.34 | 35.640 | 25.94 | 5.24 | 100 | *** | *** | *** | *** |
| 2 | 50  | 17.25 | 35.750 | 26.05 | 5.34 | 102 | *** | *** | *** | *** |
| 2 | 75  | 13.92 | 35.410 | 26.54 | 5.35 | 95  | *** | *** | *** | *** |
| 2 | 100 | 13.11 | 35.320 | 26.64 | 5.47 | 96  | *** | *** | *** | *** |
| 2 | 150 | 12.16 | 35.190 | 26.72 | 5.40 | 92  | *** | *** | *** | *** |
| 1 | 200 | 11.27 | 35.170 | 26.88 | 5.43 | 91  | *** | *** | *** | *** |
| 1 | 300 | 9.84  | 34.850 | 26.88 | 5.43 | 88  | *** | *** | *** | *** |

STATION IN 1/ 9/64 DATE 13/ 2/64 TIME 1333 J LATITUDE 36 14 S LONGITUDE 136 01 E

SONIC AIR TEMP. WIND ANEM. CLOUD SEA SWELL ATMOS. WIRE ANGLES  
 DEPTH MET DRY DIR. SP. HEIGHT TYPE AMT. DIR. AMT. DIR. AMT. PRESSURE CAST1 CAST2 CAST3  
 155 \*\*\* \*\*\* 36 1 \* 9 8 \* 7 99 2 18 2 100R.0 0 \* \*

CST DEPTH TEMP. SALINITY SIGMA-T OXYGEN CXYGEN % SAT. INORG. P TOTAL P NITRATE

|   |     |       |        |       |      |     |     |     |     |     |
|---|-----|-------|--------|-------|------|-----|-----|-----|-----|-----|
| 1 | 0   | 18.00 | 35.680 | 25.81 | 5.27 | 102 | *** | *** | *** | *** |
| 1 | 25  | 17.57 | 35.660 | 25.90 | 5.30 | 102 | *** | *** | *** | *** |
| 1 | 50  | 17.57 | 35.680 | 25.92 | 5.28 | 101 | *** | *** | *** | *** |
| 1 | 75  | 13.58 | 35.320 | 26.54 | 5.70 | 101 | *** | *** | *** | *** |
| 1 | 100 | 13.05 | 35.340 | 26.66 | 5.39 | 94  | *** | *** | *** | *** |
| 1 | 150 | 12.48 | ***    | ***   | 5.39 | *** | *** | *** | *** | *** |

| STATION         | DATE     | TIME   | LATITUDE |           | LONGITUDE |               |                   |         |         |   |        |    |   |   |
|-----------------|----------|--------|----------|-----------|-----------|---------------|-------------------|---------|---------|---|--------|----|---|---|
| IN 1/ 11/64     | 13/ 2/64 | 1830 J | 35       | 51 S      | 135       | 37 E          |                   |         |         |   |        |    |   |   |
| SONIC AIR TEMP. | WIND     | ANEM.  | CLOUD    | SEA       | SWELL     | ATMOS.        | WIRE ANGLES       |         |         |   |        |    |   |   |
| DEPTH MET DRY   | DIR. SP. | HEIGHT | TYPE     | DIR. AMT. | DIR. AMT. | PRESSURE      | CAST1 CAST2 CAST3 |         |         |   |        |    |   |   |
| 183 ***         | 26       | 4      | *        | 7         | 7         | 5             | 26                | 1       | 20      | 1 | 1005.0 | 10 | * | * |
| CAST            | DEPTH    | TEMP.  | SALINITY | SIGMA-T   | OXYGEN    | OXYGEN X SAT. | INORG. P          | TOTAL P | NITRATE |   |        |    |   |   |
| 1               | 0        | 17.85  | 35.730   | 25.89     | 5.25      | 101           | ***               | ***     | ***     |   |        |    |   |   |
| 1               | 22       | 17.72  | 35.770   | 25.95     | 5.25      | 101           | ***               | ***     | ***     |   |        |    |   |   |
| 1               | 45       | 17.72  | 35.770   | 25.95     | 5.28      | 102           | ***               | ***     | ***     |   |        |    |   |   |
| 1               | 66       | 17.63  | 35.790   | 25.99     | 5.30      | 102           | ***               | ***     | ***     |   |        |    |   |   |
| 1               | 132      | 13.36  | 35.350   | 26.61     | 5.40      | 95            | ***               | ***     | ***     |   |        |    |   |   |

| STATION         | DATE     | TIME   | LATITUDE |           | LONGITUDE |               |                   |         |         |        |   |   |   |
|-----------------|----------|--------|----------|-----------|-----------|---------------|-------------------|---------|---------|--------|---|---|---|
| IN 1/ 12/64     | 13/ 2/64 | 2134 J | 35       | 36 S      | 135       | 43 E          |                   |         |         |        |   |   |   |
| SONIC AIR TEMP. | WIND     | ANEM.  | CLOUD    | SEA       | SWELL     | ATMOS.        | WIRE ANGLES       |         |         |        |   |   |   |
| DEPTH MET DRY   | DIR. SP. | HEIGHT | TYPE     | DIR. AMT. | DIR. AMT. | PRESSURE      | CAST1 CAST2 CAST3 |         |         |        |   |   |   |
| 110 ***         | 27       | 2      | *        | 7         | 9         | 99            | 2                 | 20      | 1       | 1008.0 | 0 | * | * |
| CAST            | DEPTH    | TEMP.  | SALINITY | SIGMA-T   | OXYGEN    | OXYGEN X SAT. | INORG. P          | TOTAL P | NITRATE |        |   |   |   |
| 1               | 0        | 17.81  | 35.910   | 26.03     | 5.30      | 102           | ***               | ***     | ***     |        |   |   |   |
| 1               | 25       | 17.71  | 35.930   | 26.07     | 5.23      | 101           | ***               | ***     | ***     |        |   |   |   |
| 1               | 50       | 17.48  | 35.880   | 26.09     | 5.33      | 102           | ***               | ***     | ***     |        |   |   |   |
| 1               | 75       | 14.41  | 35.480   | 26.49     | 5.49      | 99            | ***               | ***     | ***     |        |   |   |   |
| 1               | 100      | 13.30  | 35.370   | 26.64     | 5.09      | 89            | ***               | ***     | ***     |        |   |   |   |

STATION IN 1/ 13/64 DATE 14/ 2/64 TIME 0026 J LATITUDE 35 22 S LONGITUDE 135 50 E

SONIC AIR TEMP, WIND DIR, SP, WIND ANEM, CLOUD SWELL ATMOS, WIRE ANGLES  
 DEPTH MET DRY DIR, SP, HEIGHT TYPE AMT, DIR, AMT, DIR, AMT, PRESSURE CAST1 CAST2 CAST3

90 \*\*\* \*\* 27 3 \* \* \* 5 \* 9 27 2 99 1 1007.0 0 \* \* \*

CAST DEPTH TEMP, SALINITY SIGMA-T OXYGEN OXYGEN % SAT, INORG. P TOTAL P NITRATE

|   |    |       |        |       |      |     |     |     |     |
|---|----|-------|--------|-------|------|-----|-----|-----|-----|
| 1 | 0  | 17.84 | 36.020 | 26.11 | 5.26 | 102 | *** | *** | *** |
| 1 | 25 | 17.64 | 35.990 | 26.14 | 5.31 | 102 | *** | *** | *** |
| 1 | 50 | 15.41 | 35.700 | 26.44 | 5.45 | 100 | *** | *** | *** |
| 1 | 75 | 13.51 | 35.350 | 26.58 | 5.17 | 91  | *** | *** | *** |

STATION IN 1/ 14/64 DATE 14/ 2/64 TIME 0740 J LATITUDE 35 05 S LONGITUDE 135 57 E

SONIC AIR TEMP, WIND DIR, SP, WIND ANEM, CLOUD SWELL ATMOS, WIRE ANGLES  
 DEPTH MET DRY DIR, SP, HEIGHT TYPE AMT, DIR, AMT, DIR, AMT, PRESSURE CAST1 CAST2 CAST3

75 \*\*\* \*\* 27 3 \* \* \* 5 \* 4 27 2 99 1 1009.0 0 \* \* \*

CAST DEPTH TEMP, SALINITY SIGMA-T OXYGEN OXYGEN % SAT, INORG. P TOTAL P NITRATE

|   |    |       |        |       |      |     |     |     |     |
|---|----|-------|--------|-------|------|-----|-----|-----|-----|
| 1 | 0  | 17.41 | 36.200 | 26.35 | 5.28 | 101 | *** | *** | *** |
| 1 | 25 | 16.58 | 35.950 | 26.36 | 5.20 | 98  | *** | *** | *** |
| 1 | 50 | 14.59 | 35.620 | 26.56 | 4.93 | 89  | *** | *** | *** |
| 1 | 70 | 14.23 | 35.570 | 26.60 | 4.85 | 87  | *** | *** | *** |

STATION 15/ 15/64 DATE 15/ 4/64 TIME 2127 J LATITUDE 35 03 S LONGITUDE 135 56 E

SONIC AIR TEMP. WIND ANEM. CLOUD SWELL ATMOS. WIRE ANGLES  
 DEPTH MET DRY DIR. SP. HEIGHT TYPE AMT. DIR. AMT. PRESSURE CAST1 CAST2 CAST3

66 15.0 17.2 00 0 \* \* 0 \* 99 2 22 4 1023.0 0 \* \* \*

CAST DEPTH TEMP. SALINITY SIGMA-T OXYGEN CYGEN % SAT. INORG. P TOTAL P NITRATE

1 0 17.46 35.820 26.05 5.40 103 \*\*\* \*\*\* \*\*\*

1 25 17.11 35.910 26.20 5.36 102 \*\*\* \*\*\* \*\*\*

1 50 16.77 35.840 26.23 5.20 98 \*\*\* \*\*\* \*\*\*

STATION 16/ 16/64 DATE 15/ 4/64 TIME 2347 J LATITUDE 35 11 S LONGITUDE 135 41 E

SONIC AIR TEMP. WIND ANEM. CLOUD SWELL ATMOS. WIRE ANGLES  
 DEPTH MET DRY DIR. SP. HEIGHT TYPE AMT. DIR. AMT. PRESSURE CAST1 CAST2 CAST3

66 14.3 16.5 00 0 \* \* 0 \* 99 3 22 4 1022.0 0 \* \* \*

CAST DEPTH TEMP. SALINITY SIGMA-T OXYGEN CYGEN % SAT. INORG. P TOTAL P NITRATE

1 0 17.98 35.820 25.92 5.33 103 \*\*\* \*\*\* \*\*\*

1 25 17.90 35.820 25.94 5.28 102 \*\*\* \*\*\* \*\*\*

1 50 17.18 \*\*\* \*\*\* \*\*\*

| STATION         | DATE     | TIME     | LATITUDE | LONGITUDE |               |          |                   |
|-----------------|----------|----------|----------|-----------|---------------|----------|-------------------|
| IN 2/ 17/64     | 16/ 4/64 | 0244 J   | 35 22 S  | 135 37 E  |               |          |                   |
| SONIC AIR TEMP. | WIND     | ANEM.    | CLOUD    | SEA       | SWELL         | ATMOS.   | WIRE ANGLES       |
| DEPTH WET DRY   | DIR. SP. | HEIGHT   | TYPE     | DIR. AMT. | DIR. AMT.     | PRESSURE | CAST1 CAST2 CAST3 |
| 82 14.7 16.6    | 04 1     | * * 0    | * * 0    | * * 3     | 22 4          | 1021.0   | 0 * *             |
| CAST DEPTH      | TEMP.    | SALINITY | SIGMA-T  | OXYGEN    | OXYGEN % SAT. | INORG. P | TOTAL P NITRATE   |
| 1 0             | 17.94    | 36.130*  | 26.17    | 5.28      | 102           | ***      | ***               |
| 1 25            | 17.91    | 35.900   | 26.00    | 5.20      | 101           | ***      | ***               |
| 1 50            | 17.53    | 35.810   | 26.03    | 5.31      | 102           | ***      | ***               |
| 1 75            | 17.38    | 35.810   | 26.06    | 5.37      | 103           | ***      | ***               |

| STATION         | DATE     | TIME     | LATITUDE | LONGITUDE |               |          |                   |
|-----------------|----------|----------|----------|-----------|---------------|----------|-------------------|
| IN 2/ 18/64     | 16/ 4/64 | 0543 J   | 35 33 S  | 135 18 E  |               |          |                   |
| SONIC AIR TEMP. | WIND     | ANEM.    | CLOUD    | SEA       | SWELL         | ATMOS.   | WIRE ANGLES       |
| DEPTH WET DRY   | DIR. SP. | HEIGHT   | TYPE     | DIR. AMT. | DIR. AMT.     | PRESSURE | CAST1 CAST2 CAST3 |
| 128 15.4 16.8   | 01 4     | * * 8 2  | * * 3    | 01 3      | 22 4          | 1020.0   | 5 * *             |
| CAST DEPTH      | TEMP.    | SALINITY | SIGMA-T  | OXYGEN    | OXYGEN % SAT. | INORG. P | TOTAL P NITRATE   |
| 1 0             | 18.34    | 36.000*  | 25.97    | 5.18      | 101           | ***      | ***               |
| 1 25            | 18.34    | 35.910   | 25.90    | 5.24      | 102           | ***      | ***               |
| 1 50            | 18.34    | 35.900   | 25.89    | 5.21      | 102           | ***      | ***               |
| 1 75            | 18.20    | 35.880   | 25.91    | 5.22      | 102           | ***      | ***               |
| 1 100           | 16.34    | 35.680   | 26.21    | 4.89      | 92            | ***      | ***               |
| 1 120           | 15.70    | 35.680   | 26.36    | 4.76      | 88            | ***      | ***               |

\* PROPERTY DOUBTFUL  
 \* PROPERTY INTERPOLATED

STATION IN 2/ 20/64 DATE 16/ 4/64 TIME 0921 J LATITUDE 38 45 S LONGITUDE 135 02 E

SONIC AIR TEMP. WIND ANEM. CLOUD VIS. SEA SWELL ATMOS. WIRE ANGLES  
 DEPTH WET DRY DIR. SP. HEIGHT TYPE AMT. DIR. AMT. DIR. AMT. PRESSURE CAST1 CAST2 CAST3

\*\*\* 16.0 17.8 31 3 \* 8 6 7 34 3 28 4 1021.0 5 0 \*

CAST DEPTH TEMP. SALINITY SIGMA-T OXYGEN OXYGEN % SAT. INDRG. P TOTAL P NITRATE

|   |     |       |        |       |      |     |     |     |     |     |
|---|-----|-------|--------|-------|------|-----|-----|-----|-----|-----|
| 2 | 0   | 18.34 | 35.810 | 25.83 | 5.19 | 101 | *** | *** | *** | *** |
| 2 | 25  | 18.27 | 35.900 | 25.91 | 5.22 | 108 | *** | *** | *** | *** |
| 2 | 50  | 18.27 | 35.930 | 25.93 | 5.21 | 101 | *** | *** | *** | *** |
| 2 | 75  | 17.61 | 35.930 | 26.10 | 5.23 | 101 | *** | *** | *** | *** |
| 2 | 100 | 15.44 | 35.590 | 26.35 | 5.26 | 97  | *** | *** | *** | *** |
| 2 | 150 | 13.34 | ***    | ***   | 5.44 | *** | *** | *** | *** | *** |
| 1 | 200 | 12.82 | 35.320 | 26.70 | 5.44 | 94  | *** | *** | *** | *** |
| 1 | 300 | 12.20 | 35.430 | 26.90 | 5.49 | 94  | *** | *** | *** | *** |

34

STATION IN 2/ 22/64 DATE 16/ 4/64 TIME 1530 J LATITUDE 35 45 S LONGITUDE 135 39 E

SONIC AIR TEMP. WIND ANEM. CLOUD VIS. SEA SWELL ATMOS. WIRE ANGLES  
 DEPTH WET DRY DIR. SP. HEIGHT TYPE AMT. DIR. AMT. DIR. AMT. PRESSURE CAST1 CAST2 CAST3

124 16.4 18.1 33 1 \* 8 5 7 99 3 22 3 1018.0 0 \* \*

CAST DEPTH TEMP. SALINITY SIGMA-T OXYGEN OXYGEN % SAT. INDRG. P TOTAL P NITRATE

|   |     |       |        |       |      |     |     |     |     |     |
|---|-----|-------|--------|-------|------|-----|-----|-----|-----|-----|
| 1 | 0   | 18.19 | 35.900 | 25.93 | 5.29 | 103 | *** | *** | *** | *** |
| 1 | 25  | 18.13 | 35.900 | 25.95 | 5.29 | 103 | *** | *** | *** | *** |
| 1 | 50  | 18.10 | 35.900 | 25.95 | 5.28 | 102 | *** | *** | *** | *** |
| 1 | 75  | 17.67 | 35.880 | 26.05 | 5.30 | 102 | *** | *** | *** | *** |
| 1 | 100 | 14.61 | 35.570 | 26.51 | 5.22 | 94  | *** | *** | *** | *** |
| 1 | 115 | 14.57 | 35.530 | 26.49 | 4.97 | 90  | *** | *** | *** | *** |



STATION IN 2/ 24/64 DATE 16/ 4/64 TIME 2057 J LATITUDE 35 46 S LONGITUDE 136 21 E

| SONIC DEPTH | AIR TEMP. WET | WIND DIR. SP. | WIND DIR. SP. | ANEM. HEIGHT | CLOUD TYPE | SEA DIR. AMT. | SWELL DIR. AMT. | ATMOS. PRESSURE | WIRE ANGLES CAST1 | WIRE ANGLES CAST2 | WIRE ANGLES CAST3 |
|-------------|---------------|---------------|---------------|--------------|------------|---------------|-----------------|-----------------|-------------------|-------------------|-------------------|
| 91          | 15.8          | 17.6          | 00            | 0            | *          | *             | 20              | 1               | 1019.0            | 0                 | *                 |
| CAST        | DEPTH         | TEMP.         | SALINITY      | SIGMA-T      | OXYGEN     | OXYGEN % SAT. | INORG. P        | TOTAL P         | NITRATE           |                   |                   |
| 1           | 0             | 17.45         | 35.840        | 26.07        | 5.40       | 103           | ***             | ***             | ***               |                   |                   |
| 1           | 25            | 17.20         | 35.910        | 26.18        | 5.40       | 103           | ***             | ***             | ***               |                   |                   |
| 1           | 50            | 16.90         | 35.910        | 26.25        | 5.35       | 101           | ***             | ***             | ***               |                   |                   |
| 1           | 80            | 14.99         | 36.150        | 26.42        | 4.88       | 93            | ***             | ***             | ***               |                   |                   |

STATION IN 2/ 25/64 DATE 16/ 4/64 TIME 2350 J LATITUDE 36 00 S LONGITUDE 136 30 E

| SONIC DEPTH | AIR TEMP. WET | WIND DIR. SP. | WIND DIR. SP. | ANEM. HEIGHT | CLOUD TYPE | SEA DIR. AMT. | SWELL DIR. AMT. | ATMOS. PRESSURE | WIRE ANGLES CAST1 | WIRE ANGLES CAST2 | WIRE ANGLES CAST3 |
|-------------|---------------|---------------|---------------|--------------|------------|---------------|-----------------|-----------------|-------------------|-------------------|-------------------|
| 68          | 14.5          | 16.2          | 02            | 2            | *          | *             | 20              | 1               | 1019.0            | 0                 | *                 |
| CAST        | DEPTH         | TEMP.         | SALINITY      | SIGMA-T      | OXYGEN     | OXYGEN % SAT. | INORG. P        | TOTAL P         | NITRATE           |                   |                   |
| 1           | 0             | 17.28         | 35.860        | 26.13        | 5.24       | 100           | ***             | ***             | ***               |                   |                   |
| 1           | 25            | 16.97         | 35.840        | 26.18        | 5.43       | 103           | ***             | ***             | ***               |                   |                   |
| 1           | 50            | 16.65         | 35.820        | 26.25        | 5.25       | 99            | ***             | ***             | ***               |                   |                   |

| STATION         | DATE           | TIME          | LATITUDE        | LONGITUDE          |                 |                 |                               |
|-----------------|----------------|---------------|-----------------|--------------------|-----------------|-----------------|-------------------------------|
| IN 2/ 27/64     | 17/ 4/64       | 0549 J        | 36 32 S         | 136 30 E           |                 |                 |                               |
| SONIC AIR TEMP. | WIND DIR, SP.  | WIND DIR, SP. | CLOUD TYPE AMT. | VIS. SEA DIR, AMT. | SWELL DIR, AMT. | ATMOS. PRESSURE | WIRE ANGLES CAST1 CAST2 CAST3 |
| DEPTH MET       | DRY            | DIR, SP.      | TYPE AMT.       | DIR, AMT.          | DIR, AMT.       | PRESSURE        | CAST1 CAST2 CAST3             |
| 914             | 15.0 16.7 03 2 | *             | 6 6             | 5 35 2             | 21 2            | 1018.0          | 0 0 *                         |
| CAST DEPTH      | TEMP.          | SALINITY      | SIGMA-T         | OXYGEN             | OXYGEN % SAT.   | INORG. P        | TOTAL P NITRATE               |
| 2               | 0              | 17.57         | 35.810          | 26.02              | 102             | ***             | ***                           |
| 2               | 25             | 17.57         | 35.810          | 26.02              | 101             | ***             | ***                           |
| 2               | 50             | 16.18         | 35.520          | 26.12              | 102             | ***             | ***                           |
| 2               | 75             | 14.21         | 35.530          | 26.13              | 102             | ***             | ***                           |
| 2               | 100            | 15.85         | 35.480          | 26.17              | 100             | ***             | ***                           |
| 2               | 150            | 12.94         | 35.320          | 26.67              | 95              | ***             | ***                           |
| 2               | 200            | 11.95         | 35.170          | 26.75              | 92              | ***             | ***                           |
| 1               | 300            | 11.43         | 35.160          | 26.84              | 91              | ***             | ***                           |

| STATION         | DATE           | TIME          | LATITUDE        | LONGITUDE          |                 |                 |                               |
|-----------------|----------------|---------------|-----------------|--------------------|-----------------|-----------------|-------------------------------|
| IN 2/ 29/64     | 17/ 4/64       | 1230 J        | 36 12 S         | 136 00 E           |                 |                 |                               |
| SONIC AIR TEMP. | WIND DIR, SP.  | WIND DIR, SP. | CLOUD TYPE AMT. | VIS. SEA DIR, AMT. | SWELL DIR, AMT. | ATMOS. PRESSURE | WIRE ANGLES CAST1 CAST2 CAST3 |
| DEPTH MET       | DRY            | DIR, SP.      | TYPE AMT.       | DIR, AMT.          | DIR, AMT.       | PRESSURE        | CAST1 CAST2 CAST3             |
| 128             | 16.0 18.0 35 1 | *             | 2 7             | 7 35 2             | 22 4            | 1017.0          | 0 0 *                         |
| CAST DEPTH      | TEMP.          | SALINITY      | SIGMA-T         | OXYGEN             | OXYGEN % SAT.   | INORG. P        | TOTAL P NITRATE               |
| 1               | 0              | 18.20         | 35.930          | 25.95              | 102             | ***             | ***                           |
| 1               | 25             | 18.00         | 35.840          | 25.93              | 101             | ***             | ***                           |
| 1               | 50             | 17.91         | 35.880          | 25.99              | 102             | ***             | ***                           |
| 1               | 75             | 17.39         | 35.820          | 26.07              | 100             | ***             | ***                           |
| 1               | 100            | 15.88         | 35.680          | 26.32              | 96              | ***             | ***                           |
| 1               | 120            | 14.80         | 35.640          | 26.53              | 92              | ***             | ***                           |

| STATION            | DATE     | TIME     | LATITUDE  | LONGITUDE |               |           |          |                   |
|--------------------|----------|----------|-----------|-----------|---------------|-----------|----------|-------------------|
| IN 2/ 31/64        | 17/ 4/64 | 1857 J   | 35 50 S   | 135 28 E  |               |           |          |                   |
| SONIC AIR TEMP.    | WIND     | ANEM.    | CLOUD     | VIS.      | SEA           | SWELL     | ATMOS.   | WIRE ANGLES       |
| DEPTH WET DRY      | DIR. SP. | HEIGHT   | TYPE AMT. | DIR. AMT. | DIR. AMT.     | DIR. AMT. | PRESSURE | CAST1 CAST2 CAST3 |
| 914 16.5 18.0 00 0 | *        | *        | 8 7       | 6 99 1    | 22 4          | 1017.0    | 0        | * *               |
| CASST DEPTH        | TEMP.    | SALINITY | SIGMA-T   | OXYGEN    | OXYGEN % SAT. | INORG. P  | TOTAL P  | NITRATE           |
| 1 0                | 18.29    | 35.730   | 25.78     | 5.23      | 102           | ***       | ***      | ***               |
| 1 25               | 18.19    | 35.910   | 25.94     | 5.21      | 101           | ***       | ***      | ***               |
| 1 50               | 18.19    | 35.860   | 25.90     | 5.22      | 101           | ***       | ***      | ***               |
| 1 75               | 17.44    | 35.900   | 26.12     | 5.23      | 100           | ***       | ***      | ***               |
| 1 100              | 15.43    | 35.710   | 26.44     | 4.80      | 88            | ***       | ***      | ***               |
| 1 150              | 13.57    | 35.440   | 26.63     | 5.34      | 94            | ***       | ***      | ***               |
| 1 200              | 13.00    | 35.350   | 26.68     | 5.37      | 94            | ***       | ***      | ***               |
| 1 300              | 11.97    | 35.210   | 26.78     | 5.45      | 93            | ***       | ***      | ***               |

| STATION            | DATE     | TIME     | LATITUDE  | LONGITUDE |               |           |          |                   |
|--------------------|----------|----------|-----------|-----------|---------------|-----------|----------|-------------------|
| IN 2/ 34/64        | 18/ 4/64 | 0629 J   | 35 41 S   | 135 15 E  |               |           |          |                   |
| SONIC AIR TEMP.    | WIND     | ANEM.    | CLOUD     | VIS.      | SEA           | SWELL     | ATMOS.   | WIRE ANGLES       |
| DEPTH WET DRY      | DIR. SP. | HEIGHT   | TYPE AMT. | DIR. AMT. | DIR. AMT.     | DIR. AMT. | PRESSURE | CAST1 CAST2 CAST3 |
| 914 15.4 16.8 17 4 | *        | *        | 7 6       | 5 16 2    | 22 4          | 1018.0    | 5        | 5 *               |
| CASST DEPTH        | TEMP.    | SALINITY | SIGMA-T   | OXYGEN    | OXYGEN % SAT. | INORG. P  | TOTAL P  | NITRATE           |
| 2 0                | 18.26    | 35.930   | 25.94     | 5.29      | 103           | ***       | ***      | ***               |
| 2 25               | 18.25    | 35.930   | 25.94     | 5.22      | 102           | ***       | ***      | ***               |
| 2 50               | 18.23    | 35.930   | 25.94     | 5.22      | 102           | ***       | ***      | ***               |
| 2 75               | 18.12    | 35.910   | 25.96     | 5.15      | 100           | ***       | ***      | ***               |
| 2 100              | 16.72    | 35.430   | 25.93     | 5.07      | 95            | ***       | ***      | ***               |
| 2 150              | 13.78    | 35.790*  | 26.86     | 5.30      | 94            | ***       | ***      | ***               |
| 1 200              | 13.40    | 35.340   | 26.59     | 5.29      | 93            | ***       | ***      | ***               |
| 1 300              | 12.14    | 35.260   | 26.78     | 5.40      | 92            | ***       | ***      | ***               |

\* PROPERTY DOUBTFUL  
+ PROPERTY INTERPOLATED

STATION DATE TIME LATITUDE LONGITUDE  
 IN 2/ 36/64 18/ 4/64 1241 J 35 09 S 135 05 E

SONIC AIR TEMP, WIND ANEM, CLOUD SWELL ATMOS. WIRE ANGLES  
 DEPTH WET DRY DIR, SP, HEIGHT TYPE AMT, VIS, SEA DIR, AMT, DIR, AMT, PRESSURE CAST1 CAST2 CAST3

99 15.6 17.8 16 4 \* 7 5 7 17 3 22 3 1020.0 0 \* \*

CAST DEPTH TEMP, SALINITY SIGMA-T OXYGEN OXYGEN % SAT, INORG, P TOTAL P NITRATE

1 0 17.89 36.040 26.11 5.34 103 \*\*\* \*\*\*

1 25 17.82 35.990 26.09 5.23 101 \*\*\* \*\*\*

1 50 17.71 35.900 26.05 5.36 103 \*\*\* \*\*\*

1 85 16.12 35.810 26.36 4.60 86 \*\*\* \*\*\*

STATION DATE TIME LATITUDE LONGITUDE  
 IN 2/ 39/64 19/ 4/64 2039 J 34 40 S 134 46 E

SONIC AIR TEMP, WIND ANEM, CLOUD SWELL ATMOS. WIRE ANGLES  
 DEPTH WET DRY DIR, SP, HEIGHT TYPE AMT, VIS, SEA DIR, AMT, DIR, AMT, PRESSURE CAST1 CAST2 CAST3

90 12.6 15.5 35 1 \* 9 7 3 99 3 22 4 1014.0 0 \* \*

CAST DEPTH TEMP, SALINITY SIGMA-T OXYGEN OXYGEN % SAT, INORG, P TOTAL P NITRATE

1 0 17.85 35.900 26.02 5.34 103 \*\*\* \*\*\*

1 25 17.85 35.950 26.05 5.32 103 \*\*\* \*\*\*

1 50 17.43 35.910 26.13 5.28 101 \*\*\* \*\*\*

1 75 16.95 35.900 26.24 5.06 96 \*\*\* \*\*\*

| STATION                | DATE             | TIME                 | LATITUDE           | LONGITUDE         |
|------------------------|------------------|----------------------|--------------------|-------------------|
| IN 3/ 50/64            | 23/ 4/64         | 0245 J               | 34 49 S            | 134 39 E          |
| SONIC ATR TEMP. WIND   | ANEM. CLOUD      | SEA SWELL            | ATMOS.             | WIRE ANGLES       |
| DEPTH WFT DRY DIR, SP. | HEIGHT TYPE AMT. | DIR, AMT.            | DIR, AMT. PRESSURE | CAST1 CAST2 CAST3 |
| 88 15.7 17.4 07 1      | * 8 2            | 5 07 2               | 22 1 1016.0        | 0 * *             |
| CAST DEPTH TEMP.       | SALINITY SIGMA-T | OXYGEN OXYGEN % SAT. | INORG. P           | TOTAL P NITRATE   |
| 1 0 18.19              | 36.020 26.02     | 5.25 102             | ***                | ***               |
| 1 25 18.17             | 36.020 26.03     | 5.28 103             | ***                | ***               |
| 1 50 18.16             | 36.060 26.06     | 5.26 102             | ***                | ***               |
| 1 75 18.15             | 36.020 26.03     | 5.20 101             | ***                | ***               |

| STATION                | DATE             | TIME                 | LATITUDE           | LONGITUDE         |
|------------------------|------------------|----------------------|--------------------|-------------------|
| IN 3/ 52/64            | 23/ 4/64         | 0800 J               | 35 22 S            | 134 29 E          |
| SONIC ATR TEMP. WIND   | ANEM. CLOUD      | SEA SWELL            | ATMOS.             | WIRE ANGLES       |
| DEPTH WFT DRY DIR, SP. | HEIGHT TYPE AMT. | DIR, AMT.            | DIR, AMT. PRESSURE | CAST1 CAST2 CAST3 |
| 457 15.4 17.2 04 2     | * 8 8            | 7 99 2               | 22 1 1016.0        | 10 0 *            |
| CAST DEPTH TEMP.       | SALINITY SIGMA-T | OXYGEN OXYGEN % SAT. | INORG. P           | TOTAL P NITRATE   |
| 2 0 18.41              | 35.950 25.92     | 5.29 103             | ***                | ***               |
| 2 25 18.39             | 35.950 25.92     | 5.23 102             | ***                | ***               |
| 2 50 18.34             | 35.970 25.95     | 5.25 102             | ***                | ***               |
| 2 75 18.16             | 35.970 25.99     | 5.14 100             | ***                | ***               |
| 2 100 15.49            | 35.700 26.42     | 4.90 90              | ***                | ***               |
| 2 150 14.42            | 35.570 26.58     | 5.23 94              | ***                | ***               |
| 1 200 13.28            | 35.390 26.66     | 5.41 95              | ***                | ***               |
| 1 300 11.94            | 35.210 26.78     | 5.43 92              | ***                | ***               |

| STATION         | DATE          | TIME          | LATITUDE        | LONGITUDE       |                               |               |          |         |         |
|-----------------|---------------|---------------|-----------------|-----------------|-------------------------------|---------------|----------|---------|---------|
| IN 3/ 54/64     | 23/ 4/64      | 1325 J        | 35 34 S         | 135 04 E        |                               |               |          |         |         |
| SONIC AIR TEMP. | WIND DIR. SP. | WIND DIR. SP. | SWELL DIR. AMT. | ATMOS. PRESSURE | WIRE ANGLES CAST1 CAST2 CAST3 |               |          |         |         |
| DEPTH NET DRY   | 17.5 36 2     | * 3 2         | 22 1            | 1015.0          | 5 0 *                         |               |          |         |         |
| 914             | 16.1          | 17.5          | 36              | 2               | 7 99 2                        | 1015.0        | 5        | 0       | *       |
| CAST            | DEPTH         | TEMP.         | SALINITY        | SIRMA-T         | OXYGEN                        | OXYGEN % SAT. | INORG. P | TOTAL P | NITRATE |
| 2               | 0             | 18.55         | 35.970          | 25.90           | 5.20                          | 102           | ***      | ***     | ***     |
| 2               | 25            | 18.53         | 35.970          | 25.90           | 5.21                          | 102           | ***      | ***     | ***     |
| 2               | 50            | 18.52         | 35.970          | 25.90           | 5.25                          | 103           | ***      | ***     | ***     |
| 2               | 75            | 18.45         | 36.040          | 25.97           | 5.25                          | 103           | ***      | ***     | ***     |
| 2               | 100           | 18.18         | 35.810          | 26.35           | 4.97                          | 93            | ***      | ***     | ***     |
| 2               | 150           | 14.15         | 35.610          | 26.64           | 5.31                          | 95            | ***      | ***     | ***     |
| 1               | 200           | 13.03         | 35.430          | 26.74           | 5.38                          | 94            | ***      | ***     | ***     |
| 1               | 300           | 11.98         | 35.320          | 26.86           | 5.33                          | 91            | ***      | ***     | ***     |

| STATION         | DATE           | TIME          | LATITUDE        | LONGITUDE       |                               |               |          |         |         |
|-----------------|----------------|---------------|-----------------|-----------------|-------------------------------|---------------|----------|---------|---------|
| IN 3/ 56/64     | 23/ 4/64       | 2005 J        | 35 46 S         | 135 40 E        |                               |               |          |         |         |
| SONIC AIR TEMP. | WIND DIR. SP.  | WIND DIR. SP. | SWELL DIR. AMT. | ATMOS. PRESSURE | WIRE ANGLES CAST1 CAST2 CAST3 |               |          |         |         |
| DEPTH NET DRY   | 15.2 18.1 04 4 | * 4 8         | 22 1            | 1013.0          | 0 * *                         |               |          |         |         |
| 110             | 15.2           | 18.1          | 04              | 4               | 4 04 3                        | 22 1          | 1013.0   | 0       | * *     |
| CAST            | DEPTH          | TEMP.         | SALINITY        | SIRMA-T         | OXYGEN                        | OXYGEN % SAT. | INORG. P | TOTAL P | NITRATE |
| 1               | 0              | 18.30         | 36.060          | 26.03           | 5.28                          | 103           | ***      | ***     | ***     |
| 1               | 25             | 18.28         | 35.990          | 25.98           | 5.18                          | 101           | ***      | ***     | ***     |
| 1               | 50             | 18.29         | 35.990          | 25.98           | 5.30                          | 103           | ***      | ***     | ***     |
| 1               | 75             | 18.00         | 36.000          | 26.05           | 5.28                          | 102           | ***      | ***     | ***     |
| 1               | 100            | 16.21         | 35.820          | 26.35           | 5.28                          | 99            | ***      | ***     | ***     |

| STATION         | DATE           | TIME         | LATITUDE        |               | LONGITUDE       |                 |                               |
|-----------------|----------------|--------------|-----------------|---------------|-----------------|-----------------|-------------------------------|
| IN 3/ 58/64     | 24/ 4/64       | 0155 J       | 35 46 S         |               | 136 19 E        |                 |                               |
| SONIC AIR TEMP. | WIND DIR. SP.  | ANEM. HEIGHT | CLOUD TYPE AMT. | SEA DIR. AMT. | SWELL DIR. AMT. | ATMOS. PRESSURE | WIRE ANGLES CAST1 CAST2 CAST3 |
| DEPTH WET DRY   | 15.5 16.8 02 5 | * *          | 0 8             | 2 04 4        | 22 1            | 1010.0          | 0 * *                         |
| CAST DEPTH      | TEMP.          | SALINITY     | SIGMA-T         | OXYGEN        | OXYGEN % SAT.   | INORG. P        | TOTAL P NITRATE               |
| 1               | 0 17.59        | 35.930       | 26.10           | 5.37          | 103             | ***             | *** ***                       |
| 1               | 25 17.58       | 35.930       | 26.10           | 5.36          | 103             | ***             | *** ***                       |
| 1               | 50 16.51       | 35.900       | 26.34           | 5.25          | 99              | ***             | *** ***                       |
| 1               | 75 15.54       | 35.820       | 26.50           | 4.82          | 89              | ***             | *** ***                       |

| STATION         | DATE           | TIME         | LATITUDE        |               | LONGITUDE       |                 |                               |
|-----------------|----------------|--------------|-----------------|---------------|-----------------|-----------------|-------------------------------|
| IN 3/ 60/64     | 28/ 4/64       | 0900 J       | 35 13 S         |               | 135 45 E        |                 |                               |
| SONIC AIR TEMP. | WIND DIR. SP.  | ANEM. HEIGHT | CLOUD TYPE AMT. | SEA DIR. AMT. | SWELL DIR. AMT. | ATMOS. PRESSURE | WIRE ANGLES CAST1 CAST2 CAST3 |
| DEPTH WET DRY   | 12.0 16.3 22 2 | * *          | 8 7             | 7 99 3        | 21 4            | 1022.0          | 0 * *                         |
| CAST DEPTH      | TEMP.          | SALINITY     | SIGMA-T         | OXYGEN        | OXYGEN % SAT.   | INORG. P        | TOTAL P NITRATE               |
| 1               | 0 17.59        | 36.060       | 26.20           | 5.25          | 101             | ***             | *** ***                       |
| 1               | 25 17.58       | 36.130       | 26.26           | 5.25          | 101             | ***             | *** ***                       |
| 1               | 50 17.32       | 36.040       | 26.25           | 5.11          | 98              | ***             | *** ***                       |
| 1               | 65 17.20       | 36.040       | 26.28           | 5.06          | 97              | ***             | *** ***                       |

STATION IN 3/ 62/64 DATE 28/ 4/64 TIME 1420 J LATITUDE 35 37 S LONGITUDE 135 22 E

SONIC AIR TEMP. WIND ANEM. CLOUD SWELL ATMOS. WIRE ANGLES  
 DEPTH WET DRY DIR. SP. HEIGHT TYPE AMT. DIR. AMT. DIR. AMT. PRESSURE CAST1 CAST2 CAST3

123 12.0 16.3 22 1 \* 8 7 \* 7 99 2 21 3 1020.0 0 0 \* \*

CAST DEPTH TEMP. SALINITY SIGMA-T OXYGEN OXYGEN X SAT, INORG. P TOTAL P NITRATE

1 0 18.22 36.110 26.09 5.26 102 \*\*\* \*\*\*

1 25 18.12 36.110 26.11 5.25 \*\*\* \*\*\*

1 50 18.07 36.150 26.15 5.26 102 \*\*\* \*\*\*

1 75 18.00 36.090 26.12 5.22 101 \*\*\* \*\*\*

1 100 16.23 35.910 26.41 4.65 87 \*\*\* \*\*\*

1 115 16.10 35.930 26.46 4.58 85 \*\*\* \*\*\*

STATION IN 3/ 67/64 DATE 29/ 4/64 TIME 0420 J LATITUDE 35 51 S LONGITUDE 135 19 E

SONIC AIR TEMP. WIND ANEM. CLOUD SWELL ATMOS. WIRE ANGLES  
 DEPTH WET DRY DIR. SP. HEIGHT TYPE AMT. DIR. AMT. DIR. AMT. PRESSURE CAST1 CAST2 CAST3

914 13.3 16.2 07 3 \* 2 8 \* 4 09 3 21 4 1016.0 0 0 \* \*

CAST DEPTH TEMP. SALINITY SIGMA-T OXYGEN OXYGEN X SAT, INORG. P TOTAL P NITRATE

2 0 17.67 35.990 26.13 5.22 101 \*\*\* \*\*\*

2 25 17.63 35.990 26.14 5.30 \*\*\* \*\*\*

2 50 17.52 35.930 26.12 5.31 102 \*\*\* \*\*\*

2 75 17.42 35.910 26.13 5.30 \*\*\* \*\*\*

2 100 15.10 35.620 26.45 5.67 103 \*\*\* \*\*\*

2 150 12.95 35.500 26.81 5.49 \*\*\* \*\*\*

1 200 12.58 35.500 26.88 5.48 \*\*\* \*\*\*

1 300 11.35 35.300 26.96 5.48 \*\*\* \*\*\*



STATION DATE TIME LATITUDE LONGITUDE  
IN 4/ 70/64 4/ 5/64 2237 J 35 13 S 136 17 E

SONIC AIR TEMP, WIND ANEM. CLOUD SWELL ATMOS. WIRE ANGLES  
DEPTH MET DRY DIR, SP, HEIGHT TYPE AMT. VIS. SEA DIR, AMT. DIR, AMT. PRESSURE CAST1 CAST2 CAST3

| 72   | 13.5  | 15.3  | 11       | 2       | 12     | 8             | 2        | 1       | 99      | 2 | 22 | 4 | 1022.0 | 0   | 0 | *   |
|------|-------|-------|----------|---------|--------|---------------|----------|---------|---------|---|----|---|--------|-----|---|-----|
| CAST | DEPTH | TEMP. | SALINITY | SIGMA-T | OXYGEN | OXYGEN % SAT. | INORG. P | TOTAL P | NITRATE |   |    |   |        |     |   |     |
| 1    | 0     | 17.32 | 35.910   | 26.15   | 5.06   | 97            | ***      | ***     | ***     |   |    |   | ***    | *** |   | *** |
| 1    | 10    | 17.30 | 35.910   | 26.16   | 5.09   | 97            | ***      | ***     | ***     |   |    |   | ***    | *** |   | *** |
| 1    | 20    | 17.33 | 35.910   | 26.15   | 5.12   | 98            | ***      | ***     | ***     |   |    |   | ***    | *** |   | *** |
| 1    | 30    | 17.33 | 35.930   | 26.17   | 5.21   | 100           | ***      | ***     | ***     |   |    |   | ***    | *** |   | *** |
| 1    | 40    | 17.33 | 35.930   | 26.17   | 5.08   | 97            | ***      | ***     | ***     |   |    |   | ***    | *** |   | *** |
| 1    | 50    | 17.32 | 35.930   | 26.17   | 5.16   | 99            | ***      | ***     | ***     |   |    |   | ***    | *** |   | *** |
| 2    | 65    | 17.31 | 35.930   | 26.17   | 5.21   | 100           | ***      | ***     | ***     |   |    |   | ***    | *** |   | *** |

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STATION DATE TIME LATITUDE LONGITUDE  
IN 4/ 71/64 5/ 5/64 0115 J 35 00 S 136 26 E

SONIC AIR TEMP, WIND ANEM. CLOUD SWELL ATMOS. WIRE ANGLES  
DEPTH MET DRY DIR, SP, HEIGHT TYPE AMT. VIS. SEA DIR, AMT. DIR, AMT. PRESSURE CAST1 CAST2 CAST3

| 50   | 13.6  | 15.7  | 06       | 3       | 12     | 8             | 5        | 3       | 06      | 2 | 22 | 4 | 1021.0 | 0   | 0 | *   |
|------|-------|-------|----------|---------|--------|---------------|----------|---------|---------|---|----|---|--------|-----|---|-----|
| CAST | DEPTH | TEMP. | SALINITY | SIGMA-T | OXYGEN | OXYGEN % SAT. | INORG. P | TOTAL P | NITRATE |   |    |   |        |     |   |     |
| 2    | 0     | 17.32 | 36.020   | 26.24   | 5.28   | 101           | ***      | ***     | ***     |   |    |   | ***    | *** |   | *** |
| 2    | 10    | 17.32 | 36.020   | 26.24   | 5.29   | 101           | ***      | ***     | ***     |   |    |   | ***    | *** |   | *** |
| 2    | 20    | 17.32 | 36.020   | 26.24   | 5.25   | 100           | ***      | ***     | ***     |   |    |   | ***    | *** |   | *** |
| 2    | 30    | 18.03 | 36.580   | 26.49   | 5.11   | 100           | ***      | ***     | ***     |   |    |   | ***    | *** |   | *** |
| 2    | 35    | 18.44 | 36.920   | 26.65   | 4.80   | 94            | ***      | ***     | ***     |   |    |   | ***    | *** |   | *** |
| 2    | 40    | 18.63 | 37.030   | 26.69   | 4.78   | 94            | ***      | ***     | ***     |   |    |   | ***    | *** |   | *** |
| 1    | 45    | 18.62 | 37.050   | 26.70   | 4.84   | 96            | ***      | ***     | ***     |   |    |   | ***    | *** |   | *** |

STATION IN 4/ 72/64 DATE 5/ 5/64 TIME 0424 J LATITUDE 34 49 S LONGITUDE 136 35 E

SONIC AIR TEMP. WIND ANEM. CLOUD SWELL ATMOS. WIRE ANGLES  
 WET DRY DIR. SP. HEIGHT TYPE AMT. DIR. AMT. DIR. AMT. PRESSURE CAST1 CAST2 CAST3

50 14.1 16.0 05 3 12 8 5 3 06 2 22 4 1021.0 0 0 \*

CAST DEPTH TEMP. SALINITY SIGMA-T OXYGEN CXYGEN % SAT. INORG. P TOTAL P NITRATE

2 0 17.63 36.500 26.53 5.13 99 \*\*\* \*\*\*

2 10 17.65 36.520 26.54 5.21 101 \*\*\* \*\*\*

2 20 17.88 36.700 26.62 5.10 99 \*\*\* \*\*\*

2 25 17.88 36.720 26.64 5.09 99 \*\*\* \*\*\*

2 30 17.94 36.770 26.66 5.11 99 \*\*\* \*\*\*

2 35 18.01 36.790 26.66 5.09 99 \*\*\* \*\*\*

1 40 18.27 36.930 26.70 4.87 96 \*\*\* \*\*\*

1 45 18.62 37.160 26.79 4.72 93 \*\*\* \*\*\*

STATION IN 4/ 73/64 DATE 5/ 5/64 TIME 0805 J LATITUDE 34 35 S LONGITUDE 136 43 E

SONIC AIR TEMP. WIND ANEM. CLOUD SWELL ATMOS. WIRE ANGLES  
 WET DRY DIR. SP. HEIGHT TYPE AMT. DIR. AMT. DIR. AMT. PRESSURE CAST1 CAST2 CAST3

44 14.0 16.3 06 1 12 8 7 7 06 2 18 2 1022.0 0 \* \*

CAST DEPTH TEMP. SALINITY SIGMA-T OXYGEN CXYGEN % SAT. INORG. P TOTAL P NITRATE

1 0 17.81 36.940 26.82 5.11 99 \*\*\* \*\*\*

1 5 17.81 36.940 26.82 5.13 100 \*\*\* \*\*\*

1 15 17.84 36.980 26.85 5.14 100 \*\*\* \*\*\*

1 25 17.83 37.030 26.89 5.10 99 \*\*\* \*\*\*

1 35 18.67 37.580 27.10 4.64 92 \*\*\* \*\*\*

STATION DATE TIME LATITUDE LONGITUDE  
 IN 4/ 74/64 5/ 5/64 1015 J 34 24 S 136 52 E

SONIC AIR TEMP, WIND ANEM. CLOUD SWELL ATMOS. WIRE ANGLES  
 DIR. SP. DIR. SP. HEIGHT TYPE AMT. VIS. SEA DIR. AMT. DIR. AMT. PRESSURE CAST1 CAST2 CAST3  
 37 14.5 16.5 03 2 12 8 4 7 99 2 18 1 1022.0 0 0 \*

CASST DEPTH TEMP. SALINITY SIGMA-T OXYGEN OXYGEN % SAT. INORG. P TOTAL P NITRATE  
 2 0 17.73 36.750 26.70 5.19 101 \*\*\* \*\*\* \*\*\*  
 2 5 17.71 36.750 26.70 5.19 101 \*\*\* \*\*\* \*\*\*  
 2 10 18.07 36.980 26.79 5.02 98 \*\*\* \*\*\* \*\*\*  
 2 15 17.96 37.120 26.92 5.00 98 \*\*\* \*\*\* \*\*\*  
 2 20 18.06 37.210 26.97 4.98 97 \*\*\* \*\*\* \*\*\*  
 2 30 18.16 37.300 27.01 5.01 98 \*\*\* \*\*\* \*\*\*  
 1 35 18.15 37.300 27.01 5.04 99 \*\*\* \*\*\* \*\*\*

STATION DATE TIME LATITUDE LONGITUDE  
 IN 4/ 75/64 5/ 5/64 1315 J 34 12 S 137 01 E

SONIC AIR TEMP, WIND ANEM. CLOUD SWELL ATMOS. WIRE ANGLES  
 DIR. SP. DIR. SP. HEIGHT TYPE AMT. VIS. SEA DIR. AMT. DIR. AMT. PRESSURE CAST1 CAST2 CAST3  
 24 14.5 17.0 05 2 12 4 4 8 99 2 18 1 1021.0 0 0 \*

CASST DEPTH TEMP. SALINITY SIGMA-T OXYGEN OXYGEN % SAT. INORG. P TOTAL P NITRATE  
 1 0 18.27 37.420 27.07 5.11 101 \*\*\* \*\*\* \*\*\*  
 1 5 18.19 37.460 27.12 5.11 100 \*\*\* \*\*\* \*\*\*  
 1 10 18.13 37.500 27.17 5.08 100 \*\*\* \*\*\* \*\*\*  
 1 15 18.23 37.540 27.18 5.01 99 \*\*\* \*\*\* \*\*\*  
 1 20 18.10 37.540 27.21 5.07 100 \*\*\* \*\*\* \*\*\*

STATION IN 4/ 76/64 DATE 5/ 5/64 TIME 1540 J LATITUDE 34 00 S LONGITUDE 137 10 E

SONIC AIR TEMP. WIND ANEM. CLOUD VIS. SEA SWELL ATMOS. WIRE ANGLES  
 DEPTH MET DRY DIR. SP. HEIGHT TYPE AMT. DIR. AMT. DIR. AMT. PRESSURE CAST1 CAST2 CAST3

20 14.5 17.7 08 2 12 4 3 8 06 2 99 0 1020.0 0 \* \*

CAST DEPTH TEMP. SALINITY SIGMA-T OXYGEN CYGEN X SAT. INORG. P TOTAL P NITRATE

1 0 18.17 38.320 27.79 5.07 100 \*\*\* \*\*\*

1 5 18.16 38.320 27.79 5.03 99 \*\*\* \*\*\*

1 10 17.98 38.400 27.90 4.95 98 \*\*\* \*\*\*

1 15 17.98 38.460 27.94 4.92 97 \*\*\* \*\*\*

1 19 17.98 38.500 27.97 5.03 99 \*\*\* \*\*\*

STATION IN 4/ 77/64 DATE 5/ 5/64 TIME 1755 J LATITUDE 33 57 S LONGITUDE 137 25 E

SONIC AIR TEMP. WIND ANEM. CLOUD VIS. SEA SWELL ATMOS. WIRE ANGLES  
 DEPTH MET DRY DIR. SP. HEIGHT TYPE AMT. DIR. AMT. DIR. AMT. PRESSURE CAST1 CAST2 CAST3

22 14.0 17.6 03 1 12 4 3 4 05 2 99 0 1020.0 0 0 \*

CAST DEPTH TEMP. SALINITY SIGMA-T OXYGEN CYGEN X SAT. INORG. P TOTAL P NITRATE

1 0 17.88 37.970 27.69 5.00 97 \*\*\* \*\*\*

1 5 17.49 37.950 27.68 4.98 96 \*\*\* \*\*\*

1 10 17.64 38.390 27.97 5.01 98 \*\*\* \*\*\*

1 15 17.73 38.710 28.20 4.92 97 \*\*\* \*\*\*

2 19 17.73 38.720 28.21 4.87 96 \*\*\* \*\*\*

| STATION         | DATE          | TIME          | LATITUDE      | LONGITUDE       |                 |                   |         |         |
|-----------------|---------------|---------------|---------------|-----------------|-----------------|-------------------|---------|---------|
| IN 4/ 78/64     | 5/ 5/64       | 2205 J        | 33 29 S       | 137 29 E        |                 |                   |         |         |
| SONIC AIR TEMP. | WIND DIR. SP. | WIND DIR. SP. | SEA DIR. AMT. | SHELL DIR. AMT. | ATMOS. PRESSURE | WIRE ANGLES       |         |         |
| DEPTH MET DRY   | WIND DIR. SP. | WIND DIR. SP. | SEA DIR. AMT. | SHELL DIR. AMT. | ATMOS. PRESSURE | CAST1 CAST2 CAST3 |         |         |
| 18 14.7 17.8    | 14 2          | 12 12         | 1 13 2        | 00 0            | 1021.0          | 5 * *             |         |         |
| CAST DEPTH      | TEMP.         | SALINITY      | SIGMA-T       | OXYGEN          | OXYGEN % SAT.   | INORG. P          | TOTAL P | NITRATE |
| 1 0             | 17.91         | 38.700        | 2R.15         | 5.10            | 101             | ***               | ***     | ***     |
| 1 5             | 17.90         | 38.760        | 2R.19         | 5.09            | 100             | ***               | ***     | ***     |
| 1 10            | 17.92         | 38.790        | 2R.21         | 5.11            | 101             | ***               | ***     | ***     |
| 1 15            | 17.95         | 38.880        | 2R.27         | 5.06            | 100             | ***               | ***     | ***     |

| STATION         | DATE          | TIME          | LATITUDE      | LONGITUDE       |                 |                   |         |         |
|-----------------|---------------|---------------|---------------|-----------------|-----------------|-------------------|---------|---------|
| IN 4/ 79/64     | 6/ 5/64       | 0210 J        | 33 04 S       | 137 44 E        |                 |                   |         |         |
| SONIC AIR TEMP. | WIND DIR. SP. | WIND DIR. SP. | SEA DIR. AMT. | SHELL DIR. AMT. | ATMOS. PRESSURE | WIRE ANGLES       |         |         |
| DEPTH MET DRY   | WIND DIR. SP. | WIND DIR. SP. | SEA DIR. AMT. | SHELL DIR. AMT. | ATMOS. PRESSURE | CAST1 CAST2 CAST3 |         |         |
| 13 14.0 18.0    | 05 2          | 12 12         | 2 10 1        | 00 0            | 1020.0          | 0 * *             |         |         |
| CAST DEPTH      | TEMP.         | SALINITY      | SIGMA-T       | OXYGEN          | OXYGEN % SAT.   | INORG. P          | TOTAL P | NITRATE |
| 1 0             | 18.38         | 40.600        | 29.48         | 4.98            | 100             | ***               | ***     | ***     |
| 1 5             | 18.37         | 40.620        | 29.50         | 4.95            | 100             | ***               | ***     | ***     |
| 1 10            | 18.33         | 40.870        | 29.70         | 4.90            | 99              | ***               | ***     | ***     |

| STATION         | DATE           | TIME              | LATITUDE        | LONGITUDE      |               |                 |                 |                               |
|-----------------|----------------|-------------------|-----------------|----------------|---------------|-----------------|-----------------|-------------------------------|
| IN 4/ 80/64     | 6/ 5/64        | 0421 J            | 32 57 S         | 137 51 E       |               |                 |                 |                               |
| SONIC AIR TEMP. | WIND DIR. SP.  | WIND ANEM. HEIGHT | CLOUD TYPE AMT. | VIS. DIR. AMT. | SEA DIR. AMT. | SHELL DIR. AMT. | ATMOS. PRESSURE | WIRE ANGLES CAST1 CAST2 CAST3 |
| DEPTH 17        | 13.0 17.5 05 1 | 12                | 6 7             | 2 05 1         | 00 0          | 1020.0          | 0               | *                             |
| CAST DEPTH      | TEMP.          | SALINITY          | SIGMA-T         | OXYGEN         | OXYGEN % SAT. | INORG. P        | TOTAL P         | NITRATE                       |
| 1               | 0 18.21        | 41.640            | 30.33           | 4.95           | 100           | ***             | ***             | ***                           |
| 1               | 5 18.30        | 41.880            | 30.49           | 4.87           | 99            | ***             | ***             | ***                           |
| 1               | 10 18.36       | 42.060            | 30.61           | 4.85           | 99            | ***             | ***             | ***                           |
| 1               | 14 18.36       | 42.120            | 30.66           | 4.87           | 99            | ***             | ***             | ***                           |

| STATION         | DATE           | TIME              | LATITUDE        | LONGITUDE      |               |                 |                 |                               |
|-----------------|----------------|-------------------|-----------------|----------------|---------------|-----------------|-----------------|-------------------------------|
| IN 4/ 81/64     | 6/ 5/64        | 0655 J            | 33 10 S         | 137 42 E       |               |                 |                 |                               |
| SONIC AIR TEMP. | WIND DIR. SP.  | WIND ANEM. HEIGHT | CLOUD TYPE AMT. | VIS. DIR. AMT. | SEA DIR. AMT. | SHELL DIR. AMT. | ATMOS. PRESSURE | WIRE ANGLES CAST1 CAST2 CAST3 |
| DEPTH 19        | 13.0 16.8 28 1 | 12                | 7 7             | 6 99 1         | 00 0          | 1022.0          | 0               | *                             |
| CAST DEPTH      | TEMP.          | SALINITY          | SIGMA-T         | OXYGEN         | OXYGEN % SAT. | INORG. P        | TOTAL P         | NITRATE                       |
| 1               | 0 18.23        | 40.970            | 29.81           | 4.92           | 99            | ***             | ***             | ***                           |
| 1               | 5 18.24        | 40.980            | 29.81           | 4.86           | 98            | ***             | ***             | ***                           |
| 1               | 10 18.26       | 41.050            | 29.86           | 4.90           | 99            | ***             | ***             | ***                           |

| STATION   | DATE           | TIME     | LATITUDE  | LONGITUDE      |      |    |     |     |     |
|---|----------------|----------|-----------|----------------|------|----|-----|-----|-----|
| IN 4/ 82/64   | 6/ 5/64        | 0900 J   | 33 24 S   | 137 39 E       |      |    |     |     |     |
| SONIC AIR TEMP, WIND, ANEM, CLOUD, SWELL, ATMOS, WIRE ANGLES                    |                |          |           |                |      |    |     |     |     |
| DEPTH MET   | DIR, SP,       | DIR, SP, | DIR, AMT, | CAS1 CAS2 CAS3 |      |    |     |     |     |
| 15  | 13.8 17.6 04 1 | 12 7 7   | 00 0      | 0 * *          |      |    |     |     |     |
| CAST DEPTH TEMP, SALINITY SIGMA-T OXYGEN OXYGEN % SAT, INORG, P TOTAL P NITRATE |                |          |           |                |      |    |     |     |     |
| 1   | 0              | 18.20    | 40.280    | 29.29          | 4.93 | 99 | *** | *** | *** |
| 1   | 5              | 18.20    | 40.340    | 29.33          | 4.92 | 99 | *** | *** | *** |
| 1   | 12             | 18.20    | 40.360    | 29.35          | 4.90 | 98 | *** | *** | *** |

| STATION   | DATE           | TIME     | LATITUDE  | LONGITUDE      |      |     |     |     |     |
|---|----------------|----------|-----------|----------------|------|-----|-----|-----|-----|
| IN 4/ 83/64   | 6/ 5/64        | 1054 J   | 33 36 S   | 137 36 E       |      |     |     |     |     |
| SONIC AIR TEMP, WIND, ANEM, CLOUD, SWELL, ATMOS, WIRE ANGLES                    |                |          |           |                |      |     |     |     |     |
| DEPTH MET   | DIR, SP,       | DIR, SP, | DIR, AMT, | CAS1 CAS2 CAS3 |      |     |     |     |     |
| 19  | 14.0 17.3 06 3 | 12 7 4   | 00 0      | 0 * *          |      |     |     |     |     |
| CAST DEPTH TEMP, SALINITY SIGMA-T OXYGEN OXYGEN % SAT, INORG, P TOTAL P NITRATE |                |          |           |                |      |     |     |     |     |
| 1   | 0              | 17.90    | 39.570    | 28.82          | 4.94 | 98  | *** | *** | *** |
| 1   | 5              | 17.93    | 39.770    | 28.96          | 4.95 | 98  | *** | *** | *** |
| 1   | 10             | 18.07    | 39.970    | 29.08          | 5.01 | 100 | *** | *** | *** |
| 1   | 16             | 18.10    | 40.020    | 29.11          | 4.97 | 99  | *** | *** | *** |

| STATION                | DATE          | TIME     | LATITUDE  | LONGITUDE      |
|------------------------|---------------|----------|-----------|----------------|
| IN 4/ 84/64            | 6/ 5/64       | 1244 J   | 33 46 S   | 137 31 E       |
| SONIC AIR TEMP.        | WIND          | ANEM.    | CLOUD     | WIRE ANGLES    |
| DEPTH MET DRY DIR, SP. | DIR, SP.      | HEIGHT   | TYPE AMT, | CAS1 CAS2 CAS3 |
| 21 14.2 17.8 03 3      | 3 12          | 7 03 2   | 00 0      | 0 * *          |
| VIS. SEA               | DIR. AMT.     | SHELL    | ATMOS.    |                |
| 7 03 2                 | 00 0          | 1021.0   |           |                |
| OXYGEN                 | OXYGEN % SAT. | INORG. P | TOTAL P   | NITRATE        |
| 4.98                   | 99            | ***      | ***       | ***            |
| 4.98                   | 99            | ***      | ***       | ***            |
| 4.95                   | 99            | ***      | ***       | ***            |
| 4.85                   | 97            | ***      | ***       | ***            |
| 4.86                   | 97            | ***      | ***       | ***            |

| STATION               | DATE          | TIME     | LATITUDE  | LONGITUDE      |
|-----------------------|---------------|----------|-----------|----------------|
| IN 4/ 85/64           | 6/ 5/64       | 1445 J   | 33 57 S   | 137 25 E       |
| SONIC AIR TEMP.       | WIND          | ANEM.    | CLOUD     | WIRE ANGLES    |
| DEPTH MET WY DIR, SP. | DIR, SP.      | HEIGHT   | TYPE AMT, | CAS1 CAS2 CAS3 |
| 25 14.5 18.8 02 3     | 3 12          | 7 02 3   | 00 0      | 0 * *          |
| VIS. SEA              | DIR. AMT.     | SHELL    | ATMOS.    |                |
| 7 02 3                | 00 0          | 1020.0   |           |                |
| OXYGEN                | OXYGEN % SAT. | INORG. P | TOTAL P   | NITRATE        |
| 5.05                  | 100           | ***      | ***       | ***            |
| 5.06                  | 101           | ***      | ***       | ***            |
| 5.01                  | 100           | ***      | ***       | ***            |
| 4.95                  | 98            | ***      | ***       | ***            |
| 4.96                  | 99            | ***      | ***       | ***            |



| STATION           | DATE     | TIME     | LATITUDE  | LONGITUDE |                    |                   |         |         |
|-------------------|----------|----------|-----------|-----------|--------------------|-------------------|---------|---------|
| IN 4/ 86/64       | 6/ 5/64  | 1621 J   | 34 02 S   | 137 25 E  |                    |                   |         |         |
| SONIC AIR TEMP.   | WIND     | ANEM.    | CLOUD     | SEA       | ATMOS.             | WIRE ANGLES       |         |         |
| DEPTH WET DRY     | DIR. SP. | HEIGHT   | TYPE AMT. | DIR. APT. | DIR. APT. PRESSURE | CAS11 CAS12 CAS13 |         |         |
| 10 15.7 18.8 02 1 | 12       | 6 2      | 6 2       | 7 02 1    | 00 0               | 1020.6 0 * *      |         |         |
| CAST DEPTH        | TEMP.    | SALINITY | SIGMA-T   | OXYGEN    | CXYGEN % SAT.      | INORG. P          | TOTAL P | NITRATE |
| 1 0               | 17.29    | 37.790   | 27.60     | 5.02      | 97                 | ***               | ***     | ***     |
| 1 7               | 17.29    | 37.810   | 27.62     | 5.04      | 98                 | ***               | ***     | ***     |

| STATION           | DATE     | TIME     | LATITUDE  | LONGITUDE |                    |                   |         |         |
|-------------------|----------|----------|-----------|-----------|--------------------|-------------------|---------|---------|
| IN 4/ 87/64       | 6/ 5/64  | 1755 J   | 34 07 S   | 137 24 E  |                    |                   |         |         |
| SONIC AIR TEMP.   | WIND     | ANEM.    | CLOUD     | SEA       | ATMOS.             | WIRE ANGLES       |         |         |
| DEPTH WET DRY     | DIR. SP. | HEIGHT   | TYPE AMT. | DIR. APT. | DIR. APT. PRESSURE | CAS11 CAS12 CAS13 |         |         |
| 13 15.8 18.5 02 0 | 12       | 2 2      | 2 2       | 6 02 1    | 22 1               | 1020.0 0 * *      |         |         |
| CAST DEPTH        | TEMP.    | SALINITY | SIGMA-T   | OXYGEN    | CXYGEN % SAT.      | INORG. P          | TOTAL P | NITRATE |
| 1 0               | 17.57    | 37.730   | 27.49     | 5.06      | 98                 | ***               | ***     | ***     |
| 1 5               | 17.56    | 37.730   | 27.49     | 5.04      | 98                 | ***               | ***     | ***     |
| 1 8               | 17.60    | 37.770   | 27.51     | 5.03      | 98                 | ***               | ***     | ***     |

STATION IN 4/ 88/64 DATE 6/ 5/64 TIME 1905 J LATITUDE 34 03 S LONGITUDE 137 17 E

SONIC ATM TEMP, WIND ANEM, CLOUD SWELL ATMOS, WIRE ANGLES  
 DEPTH MET DRY DIR, SP, HEIGHT TYPE AMT, DIR, AMT, DIR, AMT, PRESSURE CAST1 CAST2 CAST3

20 15.6 17.0 02 0 12 2 2 1 02 1 22 1 1021.0 0 \* \* \*

CAST DEPTH TEMP, SALINITY SIGMA-T OXYGEN OXYGEN % SAT, INORG, P TOTAL P NITRATE

1 0 17.96 37.950 27.56 5.02 99 \*\*\* \*\*\* \*\*\*

1 3 17.97 37.950 27.56 5.03 99 \*\*\* \*\*\* \*\*\*

1 8 17.98 37.950 27.55 5.07 100 \*\*\* \*\*\* \*\*\*

1 15 17.99 38.170 27.75 5.03 99 \*\*\* \*\*\* \*\*\*

STATION IN 4/ 89/64 DATE 6/ 5/64 TIME 2035 J LATITUDE 34 00 S LONGITUDE 137 10 E

SONIC AIR TEMP, WIND ANEM, CLOUD SWELL ATMOS, WIRE ANGLES  
 DEPTH MET DRY DIR, SP, HEIGHT TYPE AMT, DIR, AMT, DIR, AMT, PRESSURE CAST1 CAST2 CAST3

19 16.0 17.8 02 0 12 \* 9 1 02 1 00 0 1021.0 0 \* \* \*

CAST DEPTH TEMP, SALINITY SIGMA-T OXYGEN OXYGEN % SAT, INORG, P TOTAL P NITRATE

1 0 17.85 38.070 27.68 5.08 100 \*\*\* \*\*\* \*\*\*

1 5 17.88 38.070 27.67 5.09 100 \*\*\* \*\*\* \*\*\*

1 10 17.99 38.170 27.72 5.04 99 \*\*\* \*\*\* \*\*\*

1 15 17.95 38.240 27.78 5.04 99 \*\*\* \*\*\* \*\*\*

STATION DATE TIME LATITUDE LONGITUDE  
 IN 4/ 90/64 6/ 5/64 2200 J 33 56 S 137 02 E

SONIC AIR TEMP. WIND ANEM. CLOUD SWELL ATMOS. WIRE ANGLES  
 DEPTH WET DIR, SP. HEIGHT TYPE AMT. DIR, AMT. DIR, AMT. PRESSURE CAST1 CAST2 CAST3

25 15.8 18.0 02 1 12 \* 9 \* 2 02 2 20 1 1021.0 0 \* \*

CST DEPTH TEMP. SALINITY SIGMA-T OXYGEN OXYGEN % SAT. INCRG. P TOTAL P NITRATE

1 0 18.11 37.470 27.15 5.12 100 \*\*\* \*\*\*

1 5 18.10 37.470 27.16 5.07 99 \*\*\* \*\*\*

1 10 18.10 37.470 27.16 5.08 100 \*\*\* \*\*\*

1 15 18.10 37.540 27.21 5.01 98 \*\*\* \*\*\*

1 23 18.08 \*\*\* 4.90 \*\*\* \*\*\*

01  
03

STATION DATE TIME LATITUDE LONGITUDE  
 IN 4/ 91/64 6/ 5/64 2330 J 33 53 S 136 55 E

SONIC AIR TEMP. WIND ANEM. CLOUD SWELL ATMOS. WIRE ANGLES  
 DEPTH WET DIR, SP. HEIGHT TYPE AMT. DIR, AMT. DIR, AMT. PRESSURE CAST1 CAST2 CAST3

26 13.4 17.8 34 1 32 2 2 2 02 2 20 1 1020.0 0 \* \*

CST DEPTH TEMP. SALINITY SIGMA-T OXYGEN OXYGEN % SAT. INCRG. P TOTAL P NITRATE

1 0 18.11 37.280 27.01 5.11 100 \*\*\* \*\*\*

1 10 18.11 37.310 27.03 5.12 100 \*\*\* \*\*\*

1 15 18.11 37.310 27.03 5.13 101 \*\*\* \*\*\*

1 22 18.11 37.310\* 27.03 5.06 99 \*\*\* \*\*\*

\* PROPERTY DOUBTFUL  
 + PROPERTY INTERPOLATED

STATION IN 4/ 92/64 DATE 7/ 5/64 TIME 0047 J LATITUDE 33 50 S LONGITUDE 136 48 E

SONIC AIR TEMP, WIND ANEM. CLOUD SWELL ATMOS. WIRE ANGLES  
 DEPTH WET DRY DIR, SP. HEIGHT TYPE AMT. VIS. DIR. AMT. DIR. AMT. PRESSURE CAST1 CAST2 CAST3

13 12.0 14.8 34 2 12 2 3 2 99 1 00 0 1020.0 0 \* \*

CAST DEPTH TEMP. SALINITY SIGMA-T OXYGEN OXYGEN % SAT. INDRG. P TOTAL P NITRATE

1 0 17.67 37.250 27.09 5.21 101 \*\*\* \*\*\*

1 5 17.66 37.260 27.10 5.21 101 \*\*\* \*\*\*

1 10 17.67 37.280 27.12 5.17 100 \*\*\* \*\*\*

54

STATION IN 4/ 93/64 DATE 7/ 5/64 TIME 0320 J LATITUDE 34 04 S LONGITUDE 136 51 E

SONIC AIR TEMP, WIND ANEM. CLOUD SWELL ATMOS. WIRE ANGLES  
 DEPTH WET DRY DIR, SP. HEIGHT TYPE AMT. VIS. DIR. AMT. DIR. AMT. PRESSURE CAST1 CAST2 CAST3

30 15.6 17.3 36 2 12 2 3 2 99 1 00 0 1019.0 0 \* \*

CAST DEPTH TEMP. SALINITY SIGMA-T OXYGEN OXYGEN % SAT. INDRG. P TOTAL P NITRATE

1 0 17.96 37.140 26.93 5.12 100 \*\*\* \*\*\*

1 5 17.67 37.130 26.93 5.13 100 \*\*\* \*\*\*

1 10 17.98 37.140 26.93 4.96 97 \*\*\* \*\*\*

1 15 17.99 37.140 26.93 5.11 100 \*\*\* \*\*\*

1 20 18.04 37.150 26.92 5.09 100 \*\*\* \*\*\*

1 26 18.22 37.400 27.07 4.93 97 \*\*\* \*\*\*

STATION IN 4/ 94/64 DATE 7/ 5/64 TIME 0550 J LATITUDE 34 18 S LONGITUDE 136 53 E

SONIC AIR TEMP. WIND ANEM. CLOUD SWELL ATMOS. WIRE ANGLES  
 DEPTH WET DRY DIR. SP. HEIGHT TYPE AMT. DIR. AMT. DIR. AMT. PRESSURE CAST1 CAST2 CAST3

35 14.5 17.4 02 2 12 2 4 3 99 2 22 1 1019.0 0 \* \*

CAST DEPTH TEMP. SALINITY SIGMA-T OXYGEN OXYGEN % SAT. INORG. P TOTAL P NITRATE

1 0 17.64 36.940 26.86 5.15 100 \*\*\* \*\*\*

1 5 17.64 36.930 26.86 5.06 98 \*\*\* \*\*\*

1 10 18.13 \*\*\* 5.09 \*\*\* \*\*\*

1 15 18.16 37.400 27.09 5.03 \*\*\* \*\*\*

1 25 18.19 37.520 27.17 4.99 \*\*\* \*\*\*

1 35 18.13 37.590 27.24 5.01 \*\*\* \*\*\*

55

STATION IN 4/ 95/64 DATE 7/ 5/64 TIME 0840 J LATITUDE 34 32 S LONGITUDE 136 56 E

SONIC AIR TEMP. WIND ANEM. CLOUD SWELL ATMOS. WIRE ANGLES  
 DEPTH WET DRY DIR. SP. HEIGHT TYPE AMT. DIR. AMT. DIR. AMT. PRESSURE CAST1 CAST2 CAST3

35 14.8 18.0 36 2 12 2 6 7 36 2 20 1 1021.0 0 \* \*

CAST DEPTH TEMP. SALINITY SIGMA-T OXYGEN OXYGEN % SAT. INORG. P TOTAL P NITRATE

1 0 17.86 37.160 26.98 5.06 99 \*\*\* \*\*\*

1 5 17.85 37.140 26.97 5.15 100 \*\*\* \*\*\*

1 10 17.86 37.140 26.96 5.16 101 \*\*\* \*\*\*

1 15 17.95 37.180 26.97 5.13 100 \*\*\* \*\*\*

1 20 18.14 37.340 27.04 5.06 99 \*\*\* \*\*\*

1 30 18.15 37.340 27.04 5.01 98 \*\*\* \*\*\*

STATION IN 4/ 96/64 DATE 7/ 5/64 TIME 1040 J LATITUDE 34 46 S LONGITUDE 136 59 E

SONIC AIR TEMP, WIND ANEM, CLOUD SWELL ATMOS. WIRE ANGLES  
 DEPTH WET DRY DIR, SP, HEIGHT TYPE AMT, DIR, AMT, DIR, AMT, PRESSURE CAST1 CAST2 CAST3

43 14.8 18.7 34 3 12 2 6 7 35 2 22 1 1021.0 0 0 \*

CST DEPTH TEMP. SALINITY SIGMA-T OXYGEN OXYGEN % SAT. INORG. P TOTAL P NITRATE

2 0 18.28 37.480 27.12 5.15 101 \*\*\* \*\*\*

2 10 18.23 37.490 27.14 5.15 101 \*\*\* \*\*\*

2 20 18.23 37.500 27.14 5.15 101 \*\*\* \*\*\*

2 25 18.23 37.520 27.16 5.14 101 \*\*\* \*\*\*

2 30 18.10 37.550 27.22 4.96 97 \*\*\* \*\*\*

2 35 17.78 37.740 27.44 4.92 96 \*\*\* \*\*\*

1 40 17.80 37.770 27.46 4.95 97 \*\*\* \*\*\*

STATION IN 4/ 97/64 DATE 7/ 5/64 TIME 1225 J LATITUDE 34 54 S LONGITUDE 136 56 E

SONIC AIR TEMP, WIND ANEM, CLOUD SWELL ATMOS. WIRE ANGLES  
 DEPTH WET DRY DIR, SP, HEIGHT TYPE AMT, DIR, AMT, DIR, AMT, PRESSURE CAST1 CAST2 CAST3

40 14.8 18.6 34 3 12 2 6 7 34 2 21 1 1020.0 0 0 \*

CST DEPTH TEMP. SALINITY SIGMA-T OXYGEN OXYGEN % SAT. INORG. P TOTAL P NITRATE

1 0 18.06 37.580 27.25 5.13 101 \*\*\* \*\*\*

1 10 17.96 37.590 27.28 5.13 100 \*\*\* \*\*\*

1 20 17.91 37.580 27.29 5.13 100 \*\*\* \*\*\*

1 25 17.92 37.600 27.30 5.06 99 \*\*\* \*\*\*

1 30 17.93 37.580 27.28 5.05 99 \*\*\* \*\*\*

1 35 17.94 37.770 27.43 5.05 99 \*\*\* \*\*\*

| STATION         | DATE     | TIME   | LATITUDE  | LONGITUDE |           |               |                   |         |         |
|-----------------|----------|--------|-----------|-----------|-----------|---------------|-------------------|---------|---------|
| IN 4/ 98/64     | 7/ 5/64  | 1415 J | 34 52 S   | 136 47 E  |           |               |                   |         |         |
| SONIC AIR TEMP. | WIND     | ANEM.  | CLOUD     | SEA       | SWELL     | ATMOS.        | WIRE ANGLES       |         |         |
| DEPTH WET DRY   | DIR. SP. | HEIGHT | TYPE AMT. | DIR. AMT. | DIR. AMT. | PRESSURE      | CAST1 CAST2 CAST3 |         |         |
| 48 14.7 18.0    | 36 3     | 12     | 2 8       | 6 34 3    | 21 1      | 1018.0        | 0 0 *             |         |         |
| CAST            | DEPTH    | TEMP.  | SALINITY  | SIGMA-T   | OXYGEN    | OXYGEN % SAT. | INORG. P          | TOTAL P | NITRATE |
| 1               | 0        | 18.15  | 37.320    | 27.03     | 5.10      | 100           | ***               | ***     | ***     |
| 1               | 5        | 18.13  | 37.340    | 27.05     | 5.13      | 101           | ***               | ***     | ***     |
| 1               | 10       | 18.20  | 37.500    | 27.15     | 5.15      | 101           | ***               | ***     | ***     |
| 1               | 15       | 18.21  | 37.530    | 27.17     | 5.07      | 100           | ***               | ***     | ***     |
| 1               | 20       | 18.22  | 37.540    | 27.18     | 5.01      | 99            | ***               | ***     | ***     |
| 1               | 25       | 18.20  | 37.560    | 27.20     | 4.95      | 97            | ***               | ***     | ***     |
| 2               | 30       | 18.06  | 37.560    | 27.23     | 5.04      | 99            | ***               | ***     | ***     |
| 2               | 35       | 17.96  | 37.550    | 27.25     | 5.01      | 98            | ***               | ***     | ***     |
| 2               | 40       | 17.91  | 37.600    | 27.30     | 4.92      | 96            | ***               | ***     | ***     |

| STATION         | DATE     | TIME   | LATITUDE  | LONGITUDE |           |               |                   |         |         |
|-----------------|----------|--------|-----------|-----------|-----------|---------------|-------------------|---------|---------|
| IN 4/ 99/64     | 7/ 5/64  | 1410 J | 34 51 S   | 136 39 E  |           |               |                   |         |         |
| SONIC AIR TEMP. | WIND     | ANEM.  | CLOUD     | SEA       | SWELL     | ATMOS.        | WIRE ANGLES       |         |         |
| DEPTH WET DRY   | DIR. SP. | HEIGHT | TYPE AMT. | DIR. AMT. | DIR. AMT. | PRESSURE      | CAST1 CAST2 CAST3 |         |         |
| 50 15.5 18.0    | 03 3     | 12     | 2 8       | 6 36 3    | 21 1      | 1018.0        | 0 0 *             |         |         |
| CAST            | DEPTH    | TEMP.  | SALINITY  | SIGMA-T   | OXYGEN    | OXYGEN % SAT. | INORG. P          | TOTAL P | NITRATE |
| 1               | 0        | 17.82  | 37.100    | 26.94     | 5.21      | 101           | ***               | ***     | ***     |
| 1               | 5        | 17.82  | 37.040    | 26.90     | 5.24      | 102           | ***               | ***     | ***     |
| 1               | 10       | 18.02  | 37.100    | 26.89     | 5.18      | 101           | ***               | ***     | ***     |
| 1               | 15       | 18.08  | 36.840*   | 26.68     | 5.14      | 100           | ***               | ***     | ***     |
| 1               | 20       | 18.06  | 37.110    | 26.89     | 5.16      | 101           | ***               | ***     | ***     |
| 1               | 25       | 18.15  | 37.170    | 26.91     | 5.04      | 99            | ***               | ***     | ***     |
| 2               | 30       | 18.17  | 37.200    | 26.93     | 5.09      | 100           | ***               | ***     | ***     |
| 2               | 35       | 18.19  | 37.220    | 26.94     | 5.08      | 100           | ***               | ***     | ***     |
| 2               | 40       | 18.20  | 37.230    | 26.95     | 5.04      | 99            | ***               | ***     | ***     |
| 2               | 45       | 18.21  | 37.300    | 27.00     | 4.99      | 98            | ***               | ***     | ***     |

\* PROPERTY DOUBTFUL + PROPERTY INTERPOLATED

STATION IN 4/ 100/64 DATE 7/ 5/64 TIME 1805 J LATITUDE 34 49 S LONGITUDE 136 30 E

SONIC AIR TEMP. WIND ANEM. CLOUD SWELL ATMOS. WIRE ANGLES  
 DEPTH WET DRY DIR. SP. HEIGHT TYPE AMT. DIR. AMT. DIR. AMT. PRESSURE CAST1 CAST2 CAST3

44 16.0 18.0 02 3 12 2 8 5 36 3 19 1 1018.0 0 0 \*

CAST DEPTH TEMP. SALINITY SIGMA-T OXYGEN OXYGEN % SAT. INORG. P TOTAL P NITRATE

2 0 17.37 36.110 26.29 5.34 102 \*\*\* \*\*\*

2 10 17.39 36.110 26.29 5.29 101 \*\*\* \*\*\*

2 15 17.43 36.140 26.30 5.30 102 \*\*\* \*\*\*

2 20 18.03 36.770 26.64 5.04 98 \*\*\* \*\*\*

2 30 18.00 36.930 26.77 5.03 98 \*\*\* \*\*\*

2 35 18.10 36.990 26.79 5.07 99 \*\*\* \*\*\*

1 40 18.48 37.220 26.87 4.73 93 \*\*\* \*\*\*

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STATION IN 4/ 101/64 DATE 7/ 5/64 TIME 2010 J LATITUDE 34 48 S LONGITUDE 136 21 E

SONIC AIR TEMP. WIND ANEM. CLOUD SWELL ATMOS. WIRE ANGLES  
 DEPTH WET DRY DIR. SP. HEIGHT TYPE AMT. DIR. AMT. DIR. AMT. PRESSURE CAST1 CAST2 CAST3

40 15.5 18.0 02 3 12 2 8 1 02 3 00 0 1019.0 0 0 \*

CAST DEPTH TEMP. SALINITY SIGMA-T OXYGEN OXYGEN % SAT. INORG. P TOTAL P NITRATE

1 0 17.33 36.130 26.32 5.30 101 \*\*\* \*\*\*

1 10 17.32 36.120 26.31 5.29 101 \*\*\* \*\*\*

1 20 17.33 36.120 26.31 5.26 101 \*\*\* \*\*\*

1 25 17.32 36.130 26.32 5.27 101 \*\*\* \*\*\*

1 30 17.34 36.140 26.32 5.27 101 \*\*\* \*\*\*

1 35 17.36 36.170 26.34 5.16 99 \*\*\* \*\*\*



| STATION         | DATE           | TIME          | LATITUDE     | LONGITUDE       |               |               |                 |                 |                               |
|-----------------|----------------|---------------|--------------|-----------------|---------------|---------------|-----------------|-----------------|-------------------------------|
| IN 4/ 102/64    | 7/ 5/64        | 2150 J        | 34 47 S      | 136 12 E        |               |               |                 |                 |                               |
| SONIC AIR TEMP. | WIND DIR. SP.  | WIND DIR. SP. | ANEM. HEIGHT | CLOUD TYPE AMT. | VIS.          | SEA DIR. AMT. | SWELL DIR. AMT. | ATMOS. PRESSURE | WIRE ANGLES CAST1 CAST2 CAST3 |
| DEPTH 22        | 15.5 17.5 36 2 | 12            | 2 8          | 2 8             | 1             | 02 2          | 00 0            | 1019.0          | 0 * *                         |
| CAST DEPTH      | TEMP.          | SALINITY      | SIGMA-T      | OXYGEN          | OXYGEN % SAT. | INORG. P      | TOTAL P         | NITRATE         |                               |
| 1               | 0 16.86        | 35.880        | 26.24        | 5.32            | 101           | ***           | ***             | ***             |                               |
| 1               | 5 16.86        | 35.870        | 26.23        | 5.31            | 101           | ***           | ***             | ***             |                               |
| 1               | 10 16.87       | 35.880        | 26.24        | 5.31            | 101           | ***           | ***             | ***             |                               |
| 1               | 18 16.87       | 35.870        | 26.23        | 5.30            | 100           | ***           | ***             | ***             |                               |

| STATION         | DATE           | TIME          | LATITUDE     | LONGITUDE       |               |               |                 |                 |                               |
|-----------------|----------------|---------------|--------------|-----------------|---------------|---------------|-----------------|-----------------|-------------------------------|
| IN 4/ 103/64    | 7/ 5/64        | 2315 J        | 34 46 S      | 136 02 E        |               |               |                 |                 |                               |
| SONIC AIR TEMP. | WIND DIR. SP.  | WIND DIR. SP. | ANEM. HEIGHT | CLOUD TYPE AMT. | VIS.          | SEA DIR. AMT. | SWELL DIR. AMT. | ATMOS. PRESSURE | WIRE ANGLES CAST1 CAST2 CAST3 |
| DEPTH 23        | 14.5 17.0 36 1 | 12            | 2 6          | 2 6             | 1             | 36 1          | 00 0            | 1019.0          | 0 * *                         |
| CAST DEPTH      | TEMP.          | SALINITY      | SIGMA-T      | OXYGEN          | OXYGEN % SAT. | INORG. P      | TOTAL P         | NITRATE         |                               |
| 1               | 0 16.91        | 35.840        | 26.20        | 5.34            | 101           | ***           | ***             | ***             |                               |
| 1               | 5 16.91        | 35.850        | 26.21        | 5.41            | 103           | ***           | ***             | ***             |                               |
| 1               | 10 16.93       | 35.840        | 26.19        | 5.35            | 101           | ***           | ***             | ***             |                               |
| 1               | 17 16.96       | 35.850        | 26.19        | 5.33            | 101           | ***           | ***             | ***             |                               |

STATION IN 5/ 109/64 DATE 17/ 8/64 TIME 0605 J LATITUDE 36 10 S LONGITUDE 136 36 E

SONIC AIR TEMP. WIND DIR. SP. ANEM. CLOUD VIS. SEA SWELL ATMOS. WIRE ANGLES  
 DEPTH MET DRY DIR. SP. HEIGHT TYPE AMT. DIR. AMT. DIR. AMT. PRESSURE CAST1 CAST2 CASTS

| CAST | DEPTH | TEMP. | SALINITY | SIGMA-T | OXYGEN | OXYGEN % SAT. | INORG. P | TOTAL P | NITRATE |
|------|-------|-------|----------|---------|--------|---------------|----------|---------|---------|
| 1    | 0     | 14.69 | 35.840   | 26.71   | 5.58   | 101           | ***      | ***     | ***     |
| 1    | 25    | 14.73 | 35.900   | 26.74   | 5.56   | 101           | ***      | ***     | ***     |
| 1    | 50    | 14.69 | 36.000   | 26.83   | 5.58   | 101           | ***      | ***     | ***     |
| 1    | 70    | 14.69 | 36.000   | 26.83   | 5.51   | 100           | ***      | ***     | ***     |

STATION IN 5/ 110/64 DATE 17/ 8/64 TIME 0846 J LATITUDE 36 17 S LONGITUDE 136 29 E

SONIC AIR TEMP. WIND DIR. SP. ANEM. CLOUD VIS. SEA SWELL ATMOS. WIRE ANGLES  
 DEPTH MET DRY DIR. SP. HEIGHT TYPE AMT. DIR. AMT. DIR. AMT. PRESSURE CAST1 CAST2 CASTS

| CAST | DEPTH | TEMP. | SALINITY | SIGMA-T | OXYGEN | OXYGEN % SAT. | INORG. P | TOTAL P | NITRATE |
|------|-------|-------|----------|---------|--------|---------------|----------|---------|---------|
| 1    | 0     | 14.18 | 35.640   | 26.66   | 5.66   | 101           | ***      | ***     | ***     |
| 1    | 25    | 13.94 | 35.550   | 26.64   | 5.70   | 101           | ***      | ***     | ***     |
| 1    | 50    | 13.71 | 35.530   | 26.67   | 5.64   | 100           | ***      | ***     | ***     |
| 1    | 75    | 13.68 | 35.520   | 26.67   | 5.74   | 102           | ***      | ***     | ***     |
| 1    | 90    | 14.42 | 35.910   | 26.82   | 5.56   | 100           | ***      | ***     | ***     |

STATION DATE TIME LATITUDE LONGITUDE  
 IN 5/ 111/64 17/ 8/64 1200 J 36 30 S 136 16 E

SONIC AIR TEMP. WIND ANEM. CLOUD SWELL ATMOS. WIRE ANGLES  
 WET DRY DIR. SP. DIR. SP. HFIGHT TYPE AMT. DIR. AMT. DIR. AMT. PRESSURE CAST1 CAST2 CAST3  
 274 11.7 14.2 28 4 11 7 7 7 27 3 23 4 1022.0 0 0 \*

CAST DEPTH TEMP. SALINITY SIGMA-T OXYGEN OXYGEN % SAT. INORG. P TOTAL P NITRATE  
 2 0 13.78 35.770\* 26.85 5.73 102 \*\*\* \*\*\*  
 2 25 13.76 35.340 26.52 5.61 99 \*\*\* \*\*\*  
 2 50 13.71 35.540 26.68 5.71 101 \*\*\* \*\*\*  
 2 75 13.56 35.550 26.72 5.71 101 \*\*\* \*\*\*  
 2 100 13.04 35.550 26.83 5.70 100 \*\*\* \*\*\*  
 2 150 14.39 35.530 26.53 5.53 99 \*\*\* \*\*\*  
 1 200 14.22 35.440 26.50 5.47 98 \*\*\* \*\*\*  
 1 300 12.45 35.820 27.16 5.78 100 \*\*\* \*\*\*

STATION DATE TIME LATITUDE LONGITUDE  
 IN 5/ 112/64 17/ 8/64 1626 J 36 17 S 136 05 E

SONIC AIR TEMP. WIND ANEM. CLOUD SWELL ATMOS. WIRE ANGLES  
 WET DRY DIR. SP. DIR. SP. HFIGHT TYPE AMT. DIR. AMT. DIR. AMT. PRESSURE CAST1 CAST2 CAST3  
 183 11.6 12.8 28 4 11 9 8 6 28 4 23 4 1020.8 0 \* \*

CAST DEPTH TEMP. SALINITY SIGMA-T OXYGEN OXYGEN % SAT. INORG. P TOTAL P NITRATE  
 1 0 14.01 35.590 26.66 5.72 102 \*\*\* \*\*\*  
 1 25 14.01 35.590 26.66 5.72 102 \*\*\* \*\*\*  
 1 50 14.00 35.590 26.66 5.68 101 \*\*\* \*\*\*  
 1 75 14.00 35.590 26.66 5.67 101 \*\*\* \*\*\*  
 1 100 14.00 35.590 26.66 5.66 101 \*\*\* \*\*\*  
 1 150 14.02 35.590 26.66 5.63 100 \*\*\* \*\*\*

\* PROPERTY DOUBTFUL  
 \* PROPERTY INTERPOLATED

STATION IN 5/ 114/64 DATE 17/ 8/64 TIME 2217 J LATITUDE 35 45 S LONGITUDE 136 02 E

SONIC AIR TEMP, WIND DIR, SP, WIND ANEM. CLOUD SEA VIS, DIR, AMT, SWELL ATMOS. WIRE ANGLES  
 DEPTH WET DRY DIR, SP, HEIGHT TYPE AMT, HEIGHT TYPE AMT, DIR, AMT, PRESSURE CAST1 CAST2 CAST3

|      |       |       |          |         |        |               |          |         |         |   |    |   |        |   |   |   |
|------|-------|-------|----------|---------|--------|---------------|----------|---------|---------|---|----|---|--------|---|---|---|
| 102  | 12.4  | 14.6  | 26       | 4       | 11     | 9             | 5        | 6       | 27      | 4 | 22 | 3 | 1023.0 | 0 | * | * |
| CAST | DEPTH | TEMP. | SALINITY | SIGMA-T | OXYGEN | OXYGEN % SAT. | INORG. P | TOTAL P | NITRATE |   |    |   |        |   |   |   |
| 1    | 0     | 14.91 | 35.730   | 26.57   | 5.63   | 102           | ***      | ***     | ***     |   |    |   |        |   |   |   |
| 1    | 25    | 14.95 | 35.730   | 26.56   | 5.63   | 102           | ***      | ***     | ***     |   |    |   |        |   |   |   |
| 1    | 50    | 14.95 | 35.750   | 26.58   | 5.63   | 102           | ***      | ***     | ***     |   |    |   |        |   |   |   |

STATION IN 5/ 116/64 DATE 18/ 8/64 TIME 0355 J LATITUDE 35 12 S LONGITUDE 135 59 E

SONIC AIR TEMP, WIND DIR, SP, WIND ANEM. CLOUD SEA VIS, DIR, AMT, SWELL ATMOS. WIRE ANGLES  
 DEPTH WET DRY DIR, SP, HEIGHT TYPE AMT, HEIGHT TYPE AMT, DIR, AMT, PRESSURE CAST1 CAST2 CAST3

|      |       |       |          |         |        |               |          |         |         |   |   |   |        |   |   |   |
|------|-------|-------|----------|---------|--------|---------------|----------|---------|---------|---|---|---|--------|---|---|---|
| 77   | 12.3  | 14.5  | 31       | 2       | 11     | *             | 9        | *       | 99      | 3 | * | * | 1023.0 | 0 | * | * |
| CAST | DEPTH | TEMP. | SALINITY | SIGMA-T | OXYGEN | OXYGEN % SAT. | INORG. P | TOTAL P | NITRATE |   |   |   |        |   |   |   |
| 1    | 0     | 14.81 | 35.900   | 26.72   | 5.64   | 103           | ***      | ***     | ***     |   |   |   |        |   |   |   |
| 1    | 25    | 14.75 | 35.930   | 26.76   | 5.64   | 102           | ***      | ***     | ***     |   |   |   |        |   |   |   |
| 1    | 50    | 14.67 | 35.930   | 26.78   | 5.65   | 102           | ***      | ***     | ***     |   |   |   |        |   |   |   |
| 1    | 70    | 14.62 | 36.000   | 26.84   | 5.66   | 103           | ***      | ***     | ***     |   |   |   |        |   |   |   |

STATION DATE TIME LATITUDE LONGITUDE  
 IN 5/ 117/64 18/ 8/64 1345 J 35 04 S 135 58 E

SONIC AIR TEMP. WIND ANEM. CLOUD SWELL ATMOS. WIRE ANGLES  
 DEPTH WET DRY DIR. SP. HEIGHT TYPE AMT. DIR. AMT. DIR. AMT. PRESSURE CAST1 CAST2 CAST3

73 13.4 15.0 25 2 11 4 4 8 25 1 22 3 1024.2 0 \* \* \*

CAST DEPTH TEMP. SALINITY SIGMA-T OXYGEN OXYGEN % SAT. INORG. P TOTAL P NITRATE

1 0 14.95 35.930 26.72 5.68 104 \*\*\* \*\*\* \*\*\*  
 1 25 14.62 35.930 26.79 5.75 104 \*\*\* \*\*\* \*\*\*  
 1 50 14.57 35.950 26.82 5.72 103 \*\*\* \*\*\* \*\*\*  
 1 60 14.56 35.950 26.82 5.61 101 \*\*\* \*\*\* \*\*\*

STATION DATE TIME LATITUDE LONGITUDE  
 IN 5/ 118/64 18/ 8/64 1425 J 35 15 S 135 44 E

SONIC AIR TEMP. WIND ANEM. CLOUD SWELL ATMOS. WIRE ANGLES  
 DEPTH WET DRY DIR. SP. HEIGHT TYPE AMT. DIR. AMT. DIR. AMT. PRESSURE CAST1 CAST2 CAST3

84 12.8 15.1 22 1 11 4 3 8 25 2 22 3 1024.2 0 \* \* \*

CAST DEPTH TEMP. SALINITY SIGMA-T OXYGEN OXYGEN % SAT. INORG. P TOTAL P NITRATE

1 0 15.32 35.730 26.48 5.63 103 \*\*\* \*\*\* \*\*\*  
 1 25 14.07 35.730 26.54 5.68 104 \*\*\* \*\*\* \*\*\*  
 1 50 14.92 35.900 26.70 5.67 103 \*\*\* \*\*\* \*\*\*  
 1 75 14.74 36.060 26.86 5.53 100 \*\*\* \*\*\* \*\*\*

| STATION         | DATE           | TIME     | LATITUDE  | LONGITUDE |               |          |                   |
|-----------------|----------------|----------|-----------|-----------|---------------|----------|-------------------|
| IN 5/ 119/64    | 18/ 8/64       | 1904 J   | 35 27 S   | 135 31 E  |               |          |                   |
| SOVIC AIR TEMP. | WIND           | ANEM.    | CLOUD     | SEA       | SWELL         | ATMOS.   | WIRE ANGLES       |
| DEPTH KFT       | DRY DIR. SP.   | HEIGHT   | TYPE AMT. | DIR. AMT. | DIR. AMT.     | PRESSURE | CAST1 CAST2 CAST3 |
| 104             | 12.2 14.4 00 0 | 11       | 1 1       | 6 18 1    | 22 3          | 1024.8   | 0 * *             |
| CAST DEPTH      | TEMP.          | SALINITY | SIGMA-T   | OXYGEN    | CXYGEN % SAT. | INORG. P | TOTAL P NITRATE   |
| 1               | 0 15.30        | 35.710   | 26.47     | 5.62      | 103           | ***      | ***               |
| 1               | 25 15.17       | 35.710   | 26.50     | 5.60      | 102           | ***      | ***               |
| 1               | 50 15.16       | 35.710   | 26.50     | 5.59      | 102           | ***      | ***               |
| 1               | 75 15.19       | 35.770   | 26.54     | 5.52      | 101           | ***      | ***               |
| 1               | 95 15.09       | 36.110   | 26.83     | 5.45      | 100           | ***      | ***               |

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| STATION         | DATE           | TIME     | LATITUDE  | LONGITUDE |               |          |                   |
|-----------------|----------------|----------|-----------|-----------|---------------|----------|-------------------|
| IN 5/ 120/64    | 18/ 8/64       | 2215 J   | 35 36 S   | 135 16 E  |               |          |                   |
| SONIC AIR TEMP. | WIND           | ANEM.    | CLOUD     | SEA       | SWELL         | ATMOS.   | WIRE ANGLES       |
| DEPTH KFT       | DRY DIR. SP.   | HEIGHT   | TYPE AMT. | DIR. AMT. | DIR. AMT.     | PRESSURE | CAST1 CAST2 CAST3 |
| 134             | 11.8 12.6 18 1 | 11       | 0 0       | 6 00 1    | 22 3          | 1024.6   | 0 * *             |
| CAST DEPTH      | TEMP.          | SALINITY | SIGMA-T   | OXYGEN    | OXYGEN % SAT. | INORG. P | TOTAL P NITRATE   |
| 1               | 0 14.17        | 35.570   | 26.61     | 5.61      | 100           | ***      | ***               |
| 1               | 25 13.86       | 35.480   | 26.61     | 5.71      | 101           | ***      | ***               |
| 1               | 50 13.81       | 35.440   | 26.59     | 5.73      | 102           | ***      | ***               |
| 1               | 75 13.78       | 35.440   | 26.59     | 5.66      | 100           | ***      | ***               |
| 1               | 100 13.77      | 35.480   | 26.62     | 5.70      | 101           | ***      | ***               |
| 1               | 125 13.79      | 35.480   | 26.62     | 5.68      | 101           | ***      | ***               |

| STATION                | DATE             | TIME      | LATITUDE  |           | LONGITUDE     |                   |         |         |
|------------------------|------------------|-----------|-----------|-----------|---------------|-------------------|---------|---------|
| IN 5/ 121/64           | 19/ 8/64         | 0007 J    | 35 43 S   |           | 135 11 E      |                   |         |         |
| SONIC AIR TEMP, WIND   | ANEM.            | CLOUD     | SEA       | SWELL     | ATMOS.        | WIRE ANGLES       |         |         |
| DEPTH WET DRY DIR. SP. | HEIGHT TYPE AMT. | TYPE AMT. | DIR. AMT. | DIR. AMT. | PRESSURE      | CAST1 CAST2 CAST3 |         |         |
| 366 11.5 13.5 18 1     | 11 11 0 0        | 0 0       | 6 00 1    | 22 4      | 1024.2        | 0 0 *             |         |         |
| CASST DEPTH            | TEMP.            | SALINITY  | SIGMA-T   | OXYGEN    | OXYGEN % SAT. | INORG. P          | TOTAL P | NITRATE |
| 2 0                    | 13.83            | 35.480    | 26.61     | 5.69      | 101           | ***               | ***     | ***     |
| 2 25                   | 13.71            | 35.480    | 26.64     | 5.73      | 101           | ***               | ***     | ***     |
| 2 50                   | 13.70            | 35.460    | 26.62     | 5.68      | 101           | ***               | ***     | ***     |
| 2 75                   | 13.70            | 35.480    | 26.64     | 5.68      | 101           | ***               | ***     | ***     |
| 2 100                  | 13.70            | 35.440    | 26.61     | 5.70      | 101           | ***               | ***     | ***     |
| 2 150                  | 13.71            | 35.440    | 26.61     | 5.71      | 101           | ***               | ***     | ***     |
| 1 200                  | 13.69            | 35.460    | 26.62     | 5.70      | 101           | ***               | ***     | ***     |
| 1 300                  | 11.88            | 35.130    | 26.83     | 5.49      | 92            | ***               | ***     | ***     |

| STATION                | DATE             | TIME      | LATITUDE  |           | LONGITUDE     |                   |         |         |
|------------------------|------------------|-----------|-----------|-----------|---------------|-------------------|---------|---------|
| IN 5/ 123/64           | 19/ 8/64         | 0805 J    | 35 20 S   |           | 134 18 E      |                   |         |         |
| SONIC AIR TEMP, WIND   | ANEM.            | CLOUD     | SEA       | SWELL     | ATMOS.        | WIRE ANGLES       |         |         |
| DEPTH WET DRY DIR. SP. | HEIGHT TYPE AMT. | TYPE AMT. | DIR. AMT. | DIR. AMT. | PRESSURE      | CAST1 CAST2 CAST3 |         |         |
| *** 11.3 14.1 00 0     | 11 11 0 0        | 0 0       | 8 00 1    | 22 4      | 1024.8        | 0 0 *             |         |         |
| CASST DEPTH            | TEMP.            | SALINITY  | SIGMA-T   | OXYGEN    | OXYGEN % SAT. | INORG. P          | TOTAL P | NITRATE |
| 1 0                    | 14.76            | 35.610    | 26.51     | 5.58      | 101           | ***               | ***     | ***     |
| 1 25                   | 14.78            | 35.610    | 26.51     | 5.60      | 101           | ***               | ***     | ***     |
| 1 50                   | 14.78            | 35.610    | 26.51     | 5.56      | 101           | ***               | ***     | ***     |
| 1 75                   | 14.77            | 35.590    | 26.50     | 5.52      | 100           | ***               | ***     | ***     |
| 1 100                  | 14.78            | 35.570    | 26.48     | 5.58      | 101           | ***               | ***     | ***     |
| 1 150                  | 14.72            | 35.620    | 26.53     | 5.52      | 100           | ***               | ***     | ***     |
| 2 200                  | 14.01            | 35.460    | 26.56     | 5.57      | 99            | ***               | ***     | ***     |
| 2 300                  | 13.70            | 35.430    | 26.60     | 5.62      | 99            | ***               | ***     | ***     |

| STATION                | DATE             | TIME     | LATITUDE  | LONGITUDE |                   |          |         |         |
|------------------------|------------------|----------|-----------|-----------|-------------------|----------|---------|---------|
| IN 5/ 124/64           | 19/ 8/64         | 1043 J   | 35 13 S   | 134 26 E  |                   |          |         |         |
| SONIC AIR TEMP.        | WIND ANEM.       | CLOUD    | SWELL     | ATMOS.    | WIRE ANGLES       |          |         |         |
| DEPTH KFT DRY DIR, SP. | HEIGHT TYPE AMT. |          | DIR, AMT. | PRESSURE  | CAST1 CAST2 CAST3 |          |         |         |
| 183 12.4 15.2 00 0 11  | 0 0 0            | 8 00 0   | 22 2      | 1024.5    | 0 0 *             |          |         |         |
| CAST DEPTH             | TEMP.            | SALINITY | SIGMA-T   | OXYGEN    | OXYGEN % SAT.     | INDRG. P | TOTAL P | NITRATE |
| 2 0                    | 14.46            | 35.550   | 26.53     | 5.68      | 102               | ***      | ***     | ***     |
| 2 25                   | 14.32            | 35.550   | 26.56     | 5.66      | 102               | ***      | ***     | ***     |
| 2 50                   | 14.27            | 35.550   | 26.57     | 5.64      | 101               | ***      | ***     | ***     |
| 2 75                   | 14.14            | 35.500   | 26.56     | 5.66      | 101               | ***      | ***     | ***     |
| 2 100                  | 13.99            | 35.500   | 26.59     | 5.66      | 101               | ***      | ***     | ***     |
| 2 150                  | 14.06            | 35.530   | 26.60     | 5.53      | 99                | ***      | ***     | ***     |
| 1 175                  | 14.05            | 35.530   | 26.60     | 5.61      | 100               | ***      | ***     | ***     |

| STATION                | DATE             | TIME     | LATITUDE  | LONGITUDE |                   |          |         |         |
|------------------------|------------------|----------|-----------|-----------|-------------------|----------|---------|---------|
| IN 5/ 125/64           | 19/ 8/64         | 1837 J   | 35 01 S   | 134 35 E  |                   |          |         |         |
| SONIC AIR TEMP.        | WIND ANEM.       | CLOUD    | SWELL     | ATMOS.    | WIRE ANGLES       |          |         |         |
| DEPTH KFT DRY DIR, SP. | HEIGHT TYPE AMT. |          | DIR, AMT. | PRESSURE  | CAST1 CAST2 CAST3 |          |         |         |
| 104 11.7 14.8 06 2 11  | 0 0 0            | 8 06 1   | 22 3      | 1022.2    | 0 0 *             |          |         |         |
| CAST DEPTH             | TEMP.            | SALINITY | SIGMA-T   | OXYGEN    | OXYGEN % SAT.     | INDRG. P | TOTAL P | NITRATE |
| 1 0                    | 15.17            | 35.620   | 26.43     | 5.62      | 103               | ***      | ***     | ***     |
| 1 25                   | 14.87            | 35.680*  | 26.54     | 5.58      | 101               | ***      | ***     | ***     |
| 1 50                   | 14.83            | 35.590   | 26.48     | 5.49      | 100               | ***      | ***     | ***     |
| 1 75                   | 14.91            | 35.620   | 26.49     | 5.57      | 101               | ***      | ***     | ***     |
| 1 100                  | 15.10            | 35.700   | 26.51     | 5.47      | 100               | ***      | ***     | ***     |

\* PROPERTY DOUBTFUL  
+ PROPERTY INTERPOLATED



| STATION         | DATE          | TIME          | LATITUDE        | LONGITUDE     |                 |                 |                               |
|-----------------|---------------|---------------|-----------------|---------------|-----------------|-----------------|-------------------------------|
| IN 5/ 126/64    | 19/ 8/64      | 1520 J        | 34 50 S         | 134 50 E      |                 |                 |                               |
| SONIC AIR TEMP. | WIND DIR. SP. | WIND DIR. SP. | CLOUD TYPE AMT. | SEA DIR. AMT. | SWELL DIR. AMT. | ATMOS. PRESSURE | WIRE ANGLES CAST1 CAST2 CAST3 |
| DEPTH MET DRY   | 12 2          | 11 0 0        | 0 0             | 8 11 1        | 22 3            | 1021.0          | 0 0 *                         |
| 46              | 12.0 15.2     | 15.0 15.2     | 15.0 15.2       | 15.0 15.2     | 15.0 15.2       | 15.0 15.2       | 15.0 15.2                     |
| CAST DEPTH      | TEMP.         | SALINITY      | SIGMA-T         | OXYGEN        | OXYGEN % SAT.   | INORG. P        | TOTAL P NITRATE               |
| 1               | 0 15.50       | 35.730        | 26.44           | 5.57          | 103             | ***             | ***                           |
| 1               | 10 15.22      | 35.880*       | 26.62           | 5.63          | 103             | ***             | ***                           |
| 1               | 20 15.21      | 35.790        | 26.55           | 5.64          | 103             | ***             | ***                           |
| 1               | 30 15.22      | 35.790        | 26.55           | 5.61          | 103             | ***             | ***                           |
| 1               | 40 15.24      | 35.790        | 26.54           | 5.53          | 101             | ***             | ***                           |
| 1               | 50 15.27      | 35.810        | 26.55           | 5.57          | 102             | ***             | ***                           |
| 2               | 75 14.70      | 36.100        | 26.90           | 5.64          | 102             | ***             | ***                           |

| STATION         | DATE          | TIME          | LATITUDE        | LONGITUDE     |                 |                 |                               |
|-----------------|---------------|---------------|-----------------|---------------|-----------------|-----------------|-------------------------------|
| IN 5/ 127/64    | 19/ 8/64      | 1914 J        | 34 38 S         | 135 04 E      |                 |                 |                               |
| SONIC AIR TEMP. | WIND DIR. SP. | WIND DIR. SP. | CLOUD TYPE AMT. | SEA DIR. AMT. | SWELL DIR. AMT. | ATMOS. PRESSURE | WIRE ANGLES CAST1 CAST2 CAST3 |
| DEPTH MET DRY   | 15.0 07 2     | 11 0 0        | 0 0             | 4 07 1        | 22 3            | 1020.2          | 0 *                           |
| 62              | 13.2 15.0     | 15.0 15.0     | 15.0 15.0       | 15.0 15.0     | 15.0 15.0       | 15.0 15.0       | 15.0 15.0                     |
| CAST DEPTH      | TEMP.         | SALINITY      | SIGMA-T         | OXYGEN        | OXYGEN % SAT.   | INORG. P        | TOTAL P NITRATE               |
| 1               | 0 14.77       | 36.080        | 26.87           | 5.75          | 105             | ***             | ***                           |
| 1               | 10 14.66      | 36.060        | 26.88           | 5.73          | 104             | ***             | ***                           |
| 1               | 20 14.58      | 36.080        | 26.91           | 5.72          | 104             | ***             | ***                           |
| 1               | 30 14.54      | 36.180        | 27.00           | 5.65          | 102             | ***             | ***                           |
| 1               | 40 14.44      | 36.420        | 27.21           | 5.58          | 101             | ***             | ***                           |
| 1               | 55 13.96      | 36.260        | 27.19           | 5.63          | 101             | ***             | ***                           |

\* PROPERTY DOUBTFUL  
 + PROPERTY INTERPOLATED

| STATION         | DATE          | TIME              | LATITUDE   | LONGITUDE |               |               |                 |                 |                               |   |   |   |
|-----------------|---------------|-------------------|------------|-----------|---------------|---------------|-----------------|-----------------|-------------------------------|---|---|---|
| IN 5/ 152/64    | 21/ 8/64      | 0300 J            | 34 52 S    | 133 20 E  |               |               |                 |                 |                               |   |   |   |
| SONIC AIR TEMP. | WIND DIR, SP. | WIND ANEM. HEIGHT | CLOUD TYPE | AMT.      | VIS.          | SEA DIR, AMT. | SWELL DIR, AMT. | ATMOS. PRESSURE | WIRE ANGLES CAST1 CAST2 CAST3 |   |   |   |
| DEPTH 13.0      | 14.4          | 22                | 4          | 11        | 0             | 0             | 22              | 2               | 1012.0                        | 0 | 0 | * |
| CAST DEPTH      | TEMP.         | SALINITY          | SIGMA-T    | OXYGEN    | OXYGEN X SAT. | INORG. P      | TOTAL P         | NITRATE         |                               |   |   |   |
| 2               | 0             | 14.63             | 26.53      | 5.67      | 102           | ***           | ***             | ***             |                               |   |   |   |
| 2               | 25            | 14.55             | 26.54      | 5.75      | 104           | ***           | ***             | ***             |                               |   |   |   |
| 2               | 50            | 14.46             | 26.59      | 5.61      | 101           | ***           | ***             | ***             |                               |   |   |   |
| 2               | 75            | 14.11             | 26.55      | 5.70      | 102           | ***           | ***             | ***             |                               |   |   |   |
| 2               | 100           | 14.10             | 26.65      | 5.66      | 101           | ***           | ***             | ***             |                               |   |   |   |
| 1               | 150           | 13.87             | 26.56      | 5.69      | 101           | ***           | ***             | ***             |                               |   |   |   |
| 1               | 200           | 13.86             | 26.57      | 5.69      | 101           | ***           | ***             | ***             |                               |   |   |   |
| 1               | 250           | 13.75             | 26.56      | 5.69      | 101           | ***           | ***             | ***             |                               |   |   |   |

| STATION         | DATE          | TIME              | LATITUDE   | LONGITUDE |               |               |                 |                 |                               |   |   |  |
|-----------------|---------------|-------------------|------------|-----------|---------------|---------------|-----------------|-----------------|-------------------------------|---|---|--|
| IN 5/ 133/64    | 21/ 8/64      | 0520 J            | 34 46 S    | 133 26 E  |               |               |                 |                 |                               |   |   |  |
| SONIC AIR TEMP. | WIND DIR, SP. | WIND ANEM. HEIGHT | CLOUD TYPE | AMT.      | VIS.          | SEA DIR, AMT. | SWELL DIR, AMT. | ATMOS. PRESSURE | WIRE ANGLES CAST1 CAST2 CAST3 |   |   |  |
| DEPTH 12.5      | 14.4          | 22                | 4          | 11        | 6             | 1             | 22              | 2               | 1012.5                        | 0 | * |  |
| CAST DEPTH      | TEMP.         | SALINITY          | SIGMA-T    | OXYGEN    | OXYGEN X SAT. | INORG. P      | TOTAL P         | NITRATE         |                               |   |   |  |
| 1               | 0             | 15.00             | 26.50      | 5.65      | 103           | ***           | ***             | ***             |                               |   |   |  |
| 1               | 25            | 15.00             | 26.43      | 5.66      | 103           | ***           | ***             | ***             |                               |   |   |  |
| 1               | 50            | 14.98             | 26.43      | 5.61      | 102           | ***           | ***             | ***             |                               |   |   |  |
| 1               | 75            | 14.82             | 26.44      | 5.56      | 101           | ***           | ***             | ***             |                               |   |   |  |
| 1               | 95            | 14.79             | 26.45      | 5.49      | 99            | ***           | ***             | ***             |                               |   |   |  |

STATION IN 5/ 134/64 DATE 21/ 8/64 TIME 0R03 J LATITUDE 34 36 S LONGITUDE 133 42 E

SONIC AIR TEMP, WIND ANEM. CLOUD SWELL ATMOS. WIRE ANGLES  
 DEPTH WET DRY DIR. SP. HEIGHT TYPE AMT. DIR. APT. DIR. AMT. PRESSURE CAST1 CAST2 CAST3

93 12.1 14.6 22 4 11 6 6 7 22 3 22 1 1013.3 0 0 \*

CST DEPTH TEMP. SALINITY SIGMA-T OXYGEN OXYGEN % SAT, INORG. P TOTAL P NITRATE

2 0 15.34 35.660 26.42 5.64 \*\*\* \*\*\*

2 10 15.36 35.660 26.42 5.60 \*\*\* \*\*\*

2 20 15.36 35.670 26.43 5.61 \*\*\* \*\*\*

2 30 15.35 35.660 26.42 5.63 \*\*\* \*\*\*

2 40 15.34 35.710 26.46 5.57 \*\*\* \*\*\*

1 50 15.28 35.810 26.47 5.54 \*\*\* \*\*\*

2 75 15.42 35.810 26.52 5.52 \*\*\* \*\*\*

2 85 15.35 35.840 26.56 5.52 \*\*\* \*\*\*

STATION IN 5/ 135/64 DATE 21/ 8/64 TIME 1121 J LATITUDE 34 26 S LONGITUDE 133 56 E

SONIC AIR TEMP, WIND ANEM. CLOUD SWELL ATMOS. WIRE ANGLES  
 DEPTH WET DRY DIR. SP. HEIGHT TYPE AMT. DIR. APT. DIR. AMT. PRESSURE CAST1 CAST2 CAST3

86 12.1 15.4 22 1 11 6 1 8 22 3 22 1 1015.0 0 0 \*

CST DEPTH TEMP. SALINITY SIGMA-T OXYGEN OXYGEN % SAT, INORG. P TOTAL P NITRATE

1 0 15.33 35.810 26.54 5.59 \*\*\* \*\*\*

1 10 15.28 35.810 26.55 5.64 \*\*\* \*\*\*

1 20 15.26 35.810 26.56 5.61 \*\*\* \*\*\*

1 30 15.25 35.790 26.54 5.59 \*\*\* \*\*\*

1 40 15.28 35.790 26.54 5.60 \*\*\* \*\*\*

1 50 15.27 35.800 26.55 5.60 \*\*\* \*\*\*

2 75 15.06 35.990 26.74 5.60 \*\*\* \*\*\*

STATION IN 5/ 136/64 DATE 21/ 8/64 TIME 1354 J LATITUDE 34 15 S LONGITUDE 134 10 E

SONIC AIR TEMP. WIND ANEM. CLOUD SEA SWELL ATMOS. WIRE ANGLES  
 DEPTH WET DRY DIR. SP. HEIGHT TYPE AMT. DIR. AMT. DIR. AMT. PRESSURE CAST1 CAST2 CAST3

86 12.0 15.5 27 3 11 1 2 8 99 3 22 3 1013.5 0 0 \*

CST DEPTH TEMP. SALINITY SIGMA-T OXYGEN CXYGEN % SAT. INORG. P TOTAL P NITRATE

|   |    |       |        |       |      |     |     |     |     |     |
|---|----|-------|--------|-------|------|-----|-----|-----|-----|-----|
| 1 | 0  | 15.18 | 35.860 | 26.61 | 5.63 | 103 | *** | *** | *** | *** |
| 1 | 10 | 15.08 | 35.860 | 26.63 | 5.61 | 102 | *** | *** | *** | *** |
| 1 | 20 | 15.16 | 35.640 | 26.68 | 5.57 | 102 | *** | *** | *** | *** |
| 1 | 30 | 14.99 | 35.950 | 26.72 | 5.60 | 102 | *** | *** | *** | *** |
| 1 | 40 | 14.98 | 35.970 | 26.74 | 5.61 | 102 | *** | *** | *** | *** |
| 1 | 50 | 14.96 | 35.690 | 26.76 | 5.57 | 102 | *** | *** | *** | *** |
| 2 | 75 | 14.68 | 36.220 | 27.00 | 5.47 | 99  | *** | *** | *** | *** |

STATION IN 5/ 137/64 DATE 21/ 8/64 TIME 1635 J LATITUDE 34 02 S LONGITUDE 134 20 E

SONIC AIR TEMP. WIND ANEM. CLOUD SEA SWELL ATMOS. WIRE ANGLES  
 DEPTH WET DRY DIR. SP. HEIGHT TYPE AMT. DIR. AMT. DIR. AMT. PRESSURE CAST1 CAST2 CAST3

79 12.2 15.3 28 2 11 1 2 7 99 3 22 3 1013.0 0 0 \*

CST DEPTH TEMP. SALINITY SIGMA-T OXYGEN CXYGEN % SAT. INORG. P TOTAL P NITRATE

|   |    |       |        |       |      |     |     |     |     |     |
|---|----|-------|--------|-------|------|-----|-----|-----|-----|-----|
| 1 | 0  | 14.99 | 36.130 | 26.86 | 5.67 | 104 | *** | *** | *** | *** |
| 1 | 10 | 14.71 | 36.200 | 26.98 | 5.67 | 103 | *** | *** | *** | *** |
| 1 | 20 | 14.57 | 36.220 | 27.02 | 5.70 | 103 | *** | *** | *** | *** |
| 1 | 30 | 14.46 | 36.290 | 27.10 | 5.69 | 103 | *** | *** | *** | *** |
| 1 | 40 | 14.48 | 36.290 | 27.10 | 5.70 | 103 | *** | *** | *** | *** |
| 1 | 50 | 14.47 | 36.290 | 27.10 | 5.67 | 103 | *** | *** | *** | *** |
| 2 | 70 | 14.47 | 36.300 | 27.11 | 5.57 | 101 | *** | *** | *** | *** |

STATION IN 5/ 145/04 DATE 28/ 8/64 TIME 1650 J LATITUDE 33 41 S LONGITUDE 131 55 E

SONIC AIR TEMP. WIND ANEM. CLOUD SWELL ATMOS. WIRE ANGLES  
 DEPTH WET DRY DIR. SP. HEIGHT TYPE AMT. VIS. DIR. AMT. DIR. AMT. PRESSURE CAST1 CAST2 CAST3  
 \*\*\* 11.4 14.4 22 1 11 7 7 8 99 2 22 2 1016.1 5 0 \*

CAST DEPTH TEMP. SALINITY SIGMA-T OXYGEN OXYGEN % SAT. INORG. P TOTAL P NITRATE  
 2 0 15.39 35.570 26.34 5.78 106 \*\*\* \*\*\*  
 2 25 15.04 35.570 26.42 5.73 104 \*\*\* \*\*\*  
 2 50 15.02 35.570 26.42 5.80 106 \*\*\* \*\*\*  
 2 75 14.89 35.570 26.45 5.65 103 \*\*\* \*\*\*  
 2 100 14.60 35.490 26.46 5.63 102 \*\*\* \*\*\*  
 2 150 14.42 35.410 26.43 5.63 101 \*\*\* \*\*\*  
 1 200 14.34 35.480 26.55 5.55 99 \*\*\* \*\*\*  
 1 300 14.48 35.320 26.56 5.54 98 \*\*\* \*\*\*

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STATION IN 5/ 146/04 DATE 28/ 8/64 TIME 1910 J LATITUDE 33 29 S LONGITUDE 132 02 E

SONIC AIR TEMP. WIND ANEM. CLOUD SWELL ATMOS. WIRE ANGLES  
 DEPTH WET DRY DIR. SP. HEIGHT TYPE AMT. VIS. DIR. AMT. DIR. AMT. PRESSURE CAST1 CAST2 CAST3  
 115 11.2 14.4 22 2 11 8 7 5 99 2 22 2 1017.2 0 0 \*

CAST DEPTH TEMP. SALINITY SIGMA-T OXYGEN OXYGEN % SAT. INORG. P TOTAL P NITRATE  
 2 0 15.50 35.610 26.35 5.58 103 \*\*\* \*\*\*  
 2 10 15.44 35.610 26.36 5.59 103 \*\*\* \*\*\*  
 2 20 15.43 35.610 26.36 5.60 103 \*\*\* \*\*\*  
 2 30 15.42 35.610 26.37 5.60 103 \*\*\* \*\*\*  
 2 40 15.44 35.610 26.36 5.57 102 \*\*\* \*\*\*  
 2 50 15.41 35.610 26.37 5.55 102 \*\*\* \*\*\*  
 1 75 15.41 35.610 26.37 5.56 102 \*\*\* \*\*\*  
 1 100 15.23 35.580 26.39 5.53 101 \*\*\* \*\*\*

| STATION         | DATE     | TIME   | LATITUDE  | LONGITUDE |                   |               |          |         |         |
|-----------------|----------|--------|-----------|-----------|-------------------|---------------|----------|---------|---------|
| IN 5/ 147/64    | 22/ 8/64 | 2215 J | 33 23 S   | 132 14 E  |                   |               |          |         |         |
| SONIC AIR TEMP. | WIND     | ANEM.  | CLOUD     | SEA       | WIRE ANGLES       |               |          |         |         |
| DEPTH WET DRY   | DIR. SP. | HEIGHT | TYPE AMT. | DIR. AMT. | CAST1 CAST2 CAST3 |               |          |         |         |
| 110 11.6 14.4   | 22 1     | 11     | 0 9       | 5 99 2    | 0 0 *             |               |          |         |         |
| CST             | DEPTH    | TEMP.  | SALINITY  | SIGMA-T   | OXYGEN            | OXYGEN % SAT. | INORG. P | TOTAL P | NITRATE |
| 2               | 0        | 15.52  | 35.700    | 26.41     | 5.57              | 103           | ***      | ***     | ***     |
| 2               | 10       | 15.53  | 35.700    | 26.41     | 5.59              | 103           | ***      | ***     | ***     |
| 2               | 20       | 15.52  | 35.700    | 26.41     | 5.55              | 102           | ***      | ***     | ***     |
| 2               | 30       | 15.54  | 35.700    | 26.41     | 5.53              | 102           | ***      | ***     | ***     |
| 2               | 40       | 15.54  | 35.680    | 26.39     | 5.56              | 102           | ***      | ***     | ***     |
| 2               | 50       | 15.55  | 35.680    | 26.39     | 5.54              | 102           | ***      | ***     | ***     |
| 1               | 80       | 15.55  | 35.700    | 26.41     | 5.54              | 102           | ***      | ***     | ***     |

| STATION         | DATE     | TIME   | LATITUDE  | LONGITUDE |                   |               |          |         |         |
|-----------------|----------|--------|-----------|-----------|-------------------|---------------|----------|---------|---------|
| IN 5/ 148/64    | 29/ 8/64 | 0109 J | 33 12 S   | 132 26 E  |                   |               |          |         |         |
| SONIC AIR TEMP. | WIND     | ANEM.  | CLOUD     | SEA       | WIRE ANGLES       |               |          |         |         |
| DEPTH WET DRY   | DIR. SP. | HEIGHT | TYPE AMT. | DIR. AMT. | CAST1 CAST2 CAST3 |               |          |         |         |
| 82 11.5 14.1    | 22 2     | 11     | 8 5       | 6 22 2    | 0 *               |               |          |         |         |
| CST             | DEPTH    | TEMP.  | SALINITY  | SIGMA-T   | OXYGEN            | OXYGEN % SAT. | INORG. P | TOTAL P | NITRATE |
| 1               | 0        | 15.26  | 35.450    | 26.59     | 5.61              | 103           | ***      | ***     | ***     |
| 1               | 25       | 15.29  | 35.480    | 26.60     | 5.61              | 103           | ***      | ***     | ***     |
| 1               | 50       | 15.21  | 35.930    | 26.66     | 5.52              | 101           | ***      | ***     | ***     |
| 1               | 75       | 14.62  | 36.180    | 26.98     | 5.43              | 98            | ***      | ***     | ***     |

| STATION        | DATE                  | TIME             | LATITUDE        |                    | LONGITUDE         |                  |                    |                    |                                  |
|----------------|-----------------------|------------------|-----------------|--------------------|-------------------|------------------|--------------------|--------------------|----------------------------------|
| IN 5/ 149/64   | 29/ 8/64              | 0348 J           | 33              | 00 S               | 132               | 40 E             |                    |                    |                                  |
| SONIC<br>DEPTH | ATH TEMP.<br>DIR, SP. | WIND<br>DIR, SP. | ANEM.<br>HEIGHT | CLOUD<br>TYPE AMT. | VIS.<br>DIR, AMT. | SEA<br>DIR, AMT. | SWELL<br>DIR, AMT. | ATMOS.<br>PRESSURE | WIRE ANGLES<br>CAST1 CAST2 CAST3 |
| 68             | 11.3 14.1             | 22 2             | 11              | 8 3                | 6                 | 22 2             | 22 1               | 1018.4             | 0 * *                            |
| CAST           | DEPTH                 | TEMP.            | SALINITY        | SIGMA-T            | OXYGEN            | CXYGEN % SAT.    | INORG. P           | TOTAL P            | NITRATE                          |
| 1              | 0                     | 15.88            | 35.840          | 26.55              | 5.63              | 103              | ***                | ***                | ***                              |
| 1              | 25                    | 15.31            | 35.840          | 26.57              | 5.63              | 103              | ***                | ***                | ***                              |
| 1              | 50                    | 15.08            | 35.980          | 26.73              | 5.43              | 99               | ***                | ***                | ***                              |

| STATION        | DATE                  | TIME             | LATITUDE        |                    | LONGITUDE         |                  |                    |                    |                                  |
|----------------|-----------------------|------------------|-----------------|--------------------|-------------------|------------------|--------------------|--------------------|----------------------------------|
| IN 5/ 150/64   | 29/ 8/64              | 0454 J           | 32              | 46 S               | 132               | 55 E             |                    |                    |                                  |
| SONIC<br>DEPTH | ATH TEMP.<br>DIR, SP. | WIND<br>DIR, SP. | ANEM.<br>HEIGHT | CLOUD<br>TYPE AMT. | VIS.<br>DIR, AMT. | SEA<br>DIR, AMT. | SWELL<br>DIR, AMT. | ATMOS.<br>PRESSURE | WIRE ANGLES<br>CAST1 CAST2 CAST3 |
| 66             | 11.4 14.0             | 15 2             | 11              | 2 3                | 7                 | 15 2             | 22 1               | 1018.7             | 0 * *                            |
| CAST           | DEPTH                 | TEMP.            | SALINITY        | SIGMA-T            | OXYGEN            | CXYGEN % SAT.    | INORG. P           | TOTAL P            | NITRATE                          |
| 1              | 0                     | 14.83            | 35.090          | 26.79              | 5.67              | 103              | ***                | ***                | ***                              |
| 1              | 25                    | 14.84            | 35.990          | 26.79              | 5.61              | 102              | ***                | ***                | ***                              |
| 1              | 50                    | 14.76            | 36.040          | 26.84              | 5.52              | 100              | ***                | ***                | ***                              |

| STATION      |           | DATE     |          | TIME    |           | LATITUDE      |          | LONGITUDE |             |
|--------------|-----------|----------|----------|---------|-----------|---------------|----------|-----------|-------------|
| IN 5/ 351/64 |           | 29/ 8/64 |          | 0911 J  |           | 32 37 S       |          | 133 14 E  |             |
| SONIC        | AIR TEMP. | WIND     | ANEM.    | CLOUD   | SEA       | SWELL         | ATMOS.   | WIRE      | ANGLES      |
| DEPTH        | WET DRY   | DIR. SP. | HEIGHT   | TYPE    | DIR. AMT. | DIR. AMT.     | PRESSURE | CAST1     | CAST2 CAST3 |
| 60           | 13.6 14.6 | 16 2     | 11       | 2 6     | 7 15 2    | 22 1          | 1020.0   | 0         | * *         |
| CAST         | DEPTH     | TEMP.    | SALINITY | SIGMA-T | OXYGEN    | OXYGEN % SAT. | INORG. P | TOTAL P   | NITRATE     |
| 1            | 0         | 14.63    | 36.110   | 26.93   | 5.64      | 102           | ***      | ***       | ***         |
| 1            | 25        | 14.61    | 36.110   | 26.93   | 5.67      | 103           | ***      | ***       | ***         |
| 1            | 50        | 14.49    | 36.180   | 27.01   | 5.50      | 99            | ***      | ***       | ***         |

| STATION      |           | DATE     |          | TIME    |           | LATITUDE      |          | LONGITUDE |             |
|--------------|-----------|----------|----------|---------|-----------|---------------|----------|-----------|-------------|
| IN 5/ 152/64 |           | 29/ 8/64 |          | 1205 J  |           | 32 26 S       |          | 133 27 E  |             |
| SONIC        | AIR TEMP. | WIND     | ANEM.    | CLOUD   | SEA       | SWELL         | ATMOS.   | WIRE      | ANGLES      |
| DEPTH        | WET DRY   | DIR. SP. | HEIGHT   | TYPE    | DIR. AMT. | DIR. AMT.     | PRESSURE | CAST1     | CAST2 CAST3 |
| 37           | 13.4 15.0 | 13 2     | 11       | 6 6     | 8 13 2    | 16 1          | 1021.0   | 0         | * *         |
| CAST         | DEPTH     | TEMP.    | SALINITY | SIGMA-T | OXYGEN    | OXYGEN % SAT. | INORG. P | TOTAL P   | NITRATE     |
| 1            | 0         | 14.65    | 36.180   | 26.98   | 5.72      | 104           | ***      | ***       | ***         |
| 1            | 10        | 14.50    | 36.220   | 27.04   | 5.66      | 102           | ***      | ***       | ***         |
| 1            | 20        | 14.47    | 36.260   | 27.08   | 5.70      | 103           | ***      | ***       | ***         |
| 1            | 30        | 14.47    | 36.210   | 27.04   | 5.69      | 103           | ***      | ***       | ***         |



| STATION         | DATE           | TIME          | LATITUDE        | LONGITUDE     |                 |                 |                               |
|-----------------|----------------|---------------|-----------------|---------------|-----------------|-----------------|-------------------------------|
| IN 5/ 156/64    | 31/ 8/64       | 1430 J        | 33 12 S         | 133 54 E      |                 |                 |                               |
| SONIC AIR TEMP. | WIND DIR. SP.  | WIND DIR. SP. | CLOUD TYPE AMT. | SEA DIR. AMT. | SWELL DIR. AMT. | ATMOS. PRESSURE | WIRE ANGLES CAST1 CAST2 CAST3 |
| DEPTH MET DRY   | 13.1 16.3 08 2 | 11            | 7 8             | 5 07 2        | 18 3            | 1022.0          | 0 * *                         |
| CAST DEPTH      | TEMP.          | SALINITY      | SIGMA-T         | OXYGEN        | OXYGEN % SAT.   | INORG. P        | TOTAL P NITRATE               |
| 1               | 0 14.55        | 36.260        | 27.06           | 5.65          | 102             | ***             | ***                           |
| 1               | 10 14.54       | 36.240        | 27.05           | 5.73          | 104             | ***             | ***                           |
| 1               | 20 14.51       | 36.240        | 27.05           | 5.69          | 103             | ***             | ***                           |
| 1               | 30 14.44       | ***           | ***             | 5.57          | ***             | ***             | ***                           |
| 1               | 40 14.37       | 36.310        | 27.14           | 5.50          | 99              | ***             | ***                           |
| 1               | 50 14.31       | 36.360        | 27.20           | 5.50          | 99              | ***             | ***                           |

| STATION         | DATE           | TIME          | LATITUDE        | LONGITUDE     |                 |                 |                               |
|-----------------|----------------|---------------|-----------------|---------------|-----------------|-----------------|-------------------------------|
| IN 5/ 157/64    | 31/ 8/64       | 2111 J        | 33 24 S         | 133 41 E      |                 |                 |                               |
| SONIC AIR TEMP. | WIND DIR. SP.  | WIND DIR. SP. | CLOUD TYPE AMT. | SEA DIR. AMT. | SWELL DIR. AMT. | ATMOS. PRESSURE | WIRE ANGLES CAST1 CAST2 CAST3 |
| DEPTH MET DRY   | 14.0 16.1 08 2 | 11            | 7 8             | 5 08 2        | 18 3            | 1022.0          | 0 * *                         |
| CAST DEPTH      | TEMP.          | SALINITY      | SIGMA-T         | OXYGEN        | OXYGEN % SAT.   | INORG. P        | TOTAL P NITRATE               |
| 1               | 0 14.79        | 36.020        | 26.82           | 5.67          | 103             | ***             | ***                           |
| 1               | 10 14.81       | 36.020        | 26.82           | 5.69          | 103             | ***             | ***                           |
| 1               | 20 14.78       | 36.060        | 26.86           | 5.69          | 103             | ***             | ***                           |
| 1               | 30 14.79       | 36.090        | 26.88           | 5.63          | 102             | ***             | ***                           |
| 1               | 40 14.83       | 36.170        | 26.93           | 5.69          | 104             | ***             | ***                           |
| 1               | 50 14.83       | 36.180        | 26.94           | 5.40          | 98              | ***             | ***                           |

| STATION         | DATE           | TIME         | LATITUDE   |        | LONGITUDE      |                           |                               |         |   |   |   |
|-----------------|----------------|--------------|------------|--------|----------------|---------------------------|-------------------------------|---------|---|---|---|
| IN 5/ 158/64    | 31/ 8/64       | 2350 J       | 33         | 35 S   | 133            | 26 E                      |                               |         |   |   |   |
| SONIC ATR TEMP. | WIND DIR. SP.  | ANEM. HEIGHT | CLOUD TYPE | AMT.   | VIS. DIR. AMT. | SEA SWELL ATMOS. PRESSURE | WIRE ANGLES CAST1 CAST2 CAST3 |         |   |   |   |
| DEPTH 62        | 13.7 15.6 05 2 | 11           | 7          | 8      | 5              | 08 2                      | 18 3                          | 1021.1  | 0 | * | * |
| CAST DEPTH      | TEMP.          | SALINITY     | SIGMA-T    | OXYGEN | OXYGEN % SAT.  | INORG. P                  | TOTAL P                       | NITRATE |   |   |   |
| 1               | 0              | 15.19        | 26.59      | 5.66   | 104            | ***                       | ***                           | ***     |   |   |   |
| 1               | 10             | 15.20        | 26.57      | 5.57   | 102            | ***                       | ***                           | ***     |   |   |   |
| 1               | 20             | 15.21        | 26.57      | 5.60   | 103            | ***                       | ***                           | ***     |   |   |   |
| 1               | 30             | 15.21        | 26.57      | 5.59   | 102            | ***                       | ***                           | ***     |   |   |   |
| 1               | 40             | 15.16        | 26.65      | 5.58   | 102            | ***                       | ***                           | ***     |   |   |   |
| 1               | 50             | 15.03        | 26.73      | 5.59   | 102            | ***                       | ***                           | ***     |   |   |   |

| STATION         | DATE           | TIME         | LATITUDE   |        | LONGITUDE      |                           |                               |         |   |   |   |
|-----------------|----------------|--------------|------------|--------|----------------|---------------------------|-------------------------------|---------|---|---|---|
| IN 5/ 159/64    | 1/ 9/64        | 0235 J       | 33         | 47 S   | 133            | 12 E                      |                               |         |   |   |   |
| SONIC ATR TEMP. | WIND DIR. SP.  | ANEM. HEIGHT | CLOUD TYPE | AMT.   | VIS. DIR. AMT. | SEA SWELL ATMOS. PRESSURE | WIRE ANGLES CAST1 CAST2 CAST3 |         |   |   |   |
| DEPTH 82        | 13.5 15.4 05 3 | 11           | 7          | 8      | 5              | 05 2                      | 18 3                          | 1020.0  | 5 | * | * |
| CAST DEPTH      | TEMP.          | SALINITY     | SIGMA-T    | OXYGEN | OXYGEN % SAT.  | INORG. P                  | TOTAL P                       | NITRATE |   |   |   |
| 1               | 0              | 15.18        | 26.57      | 5.61   | 103            | ***                       | ***                           | ***     |   |   |   |
| 1               | 25             | 15.06        | 26.67      | 5.62   | 103            | ***                       | ***                           | ***     |   |   |   |
| 1               | 50             | 15.02        | 26.69      | 5.63   | 103            | ***                       | ***                           | ***     |   |   |   |
| 1               | 75             | 14.93        | 26.78      | 5.62   | 102            | ***                       | ***                           | ***     |   |   |   |

| STATION         | DATE          | TIME         | LATITUDE        | LONGITUDE          |                 |                 |                               |
|-----------------|---------------|--------------|-----------------|--------------------|-----------------|-----------------|-------------------------------|
| IN 5/ 160/64    | 1/ 9/64       | 0520 J       | 33 59 S         | 132 58 E           |                 |                 |                               |
| SONIC A1H TEMP. | WIND DIR. SP. | ANEM. HEIGHT | CLOUD TYPE AMT. | VIS. SEA DIR. AMT. | SWELL DIR. AMT. | ATMOS. PRESSURE | WIRE ANGLES CAST1 CAST2 CAST3 |
| 97 13.6 16.0    | 04 J          | 11           | 7 8             | 5 05 3             | 18 3            | 1019.0          | 5 * *                         |
| CST DEPTH       | TEMP.         | SALINITY     | SIRMA-T         | OXYGEN             | OXYGEN % SAT.   | INDRG. P        | TOTAL P NITRATE               |
| 1 0             | 15.25         | 35.660       | 26.44           | 5.64               | 103             | ***             | ***                           |
| 1 25            | 15.28         | 35.660       | 26.44           | 5.63               | 103             | ***             | ***                           |
| 1 50            | 15.28         | 35.660       | 26.44           | 5.62               | 103             | ***             | ***                           |
| 1 75            | 15.27         | 35.700       | 26.47           | 5.63               | 103             | ***             | ***                           |
| 1 90            | 15.33         | 35.820       | 26.55           | 5.49               | 101             | ***             | ***                           |

| STATION         | DATE          | TIME         | LATITUDE        | LONGITUDE          |                 |                 |                               |
|-----------------|---------------|--------------|-----------------|--------------------|-----------------|-----------------|-------------------------------|
| IN 5/ 161/64    | 1/ 9/64       | 0749 J       | 34 10 S         | 132 44 E           |                 |                 |                               |
| SONIC A1H TEMP. | WIND DIR. SP. | ANEM. HEIGHT | CLOUD TYPE AMT. | VIS. SEA DIR. AMT. | SWELL DIR. AMT. | ATMOS. PRESSURE | WIRE ANGLES CAST1 CAST2 CAST3 |
| 120 13.7 16.0   | 02 4          | 11           | 7 7             | 7 90 3             | 18 2            | 1019.1          | 5 * *                         |
| CST DEPTH       | TEMP.         | SALINITY     | SIGMA-T         | OXYGEN             | OXYGEN % SAT.   | INDRG. P        | TOTAL P NITRATE               |
| 1 0             | 15.17         | 35.620       | 26.43           | 5.63               | 103             | ***             | ***                           |
| 1 25            | 15.19         | 35.620       | 26.42           | 5.60               | 102             | ***             | ***                           |
| 1 50            | 15.19         | 35.620       | 26.43           | 5.63               | 103             | ***             | ***                           |
| 1 75            | 15.19         | 35.610       | 26.42           | 5.61               | 103             | ***             | ***                           |
| 1 100           | 15.31         | 35.640       | 26.41           | 5.57               | 102             | ***             | ***                           |
| 1 115           | 15.23         | 35.680       | 26.46           | 5.51               | 101             | ***             | ***                           |

| STATION                          | DATE            | TIME      | LATITUDE      | LONGITUDE       |                 |               |          |         |         |
|----------------------------------|-----------------|-----------|---------------|-----------------|-----------------|---------------|----------|---------|---------|
| IN 5/ 162/64                     | 1/ 9/64         | 0955 J    | 34 17 S       | 132 36 E        |                 |               |          |         |         |
| SONIC AIR TEMP. WIND ANEM. CLOUD | DIR. SP. HEIGHT | DIR. AMT. | SEA DIR. AMT. | SWELL DIR. AMT. | ATMOS. PRESSURE | WIRE ANGLES   |          |         |         |
| DEPTH WET DRY                    | 01 4            | 11 5 7    | 7 99 3        | 20 1            | 1018.8          | 5 0 *         |          |         |         |
| *** 14.0 16.7                    |                 |           |               |                 |                 |               |          |         |         |
| CST                              | DEPTH           | TEMP.     | SALINITY      | SIGMA-T         | OXYGEN          | OXYGEN % SAT. | INORG. P | TOTAL P | NITRATE |
| 2                                | 0               | 14.96     | 35.610        | 26.47           | 5.69            | 104           | ***      | ***     | ***     |
| 2                                | 25              | 14.96     | 35.610        | 26.47           | 5.63            | 102           | ***      | ***     | ***     |
| 2                                | 50              | 14.94     | 35.570        | 26.44           | 5.61            | 102           | ***      | ***     | ***     |
| 2                                | 75              | 15.14     | 35.750*       | 26.54           | 5.60            | 102           | ***      | ***     | ***     |
| 2                                | 100             | 15.03     | 35.610        | 26.45           | 5.61            | 102           | ***      | ***     | ***     |
| 2                                | 150             | 14.57     | 35.520        | 26.49           | 5.49            | 99            | ***      | ***     | ***     |
| 1                                | 200             | 14.73     | 35.610        | 26.52           | 5.49            | 99            | ***      | ***     | ***     |
| 1                                | 300             | 13.13     | 35.340        | 26.65           | 5.38            | 94            | ***      | ***     | ***     |

\* PROPERTY DOUBTFUL

+ PROPERTY INTERPOLATED

## OCEANOGRAPHICAL STATION LISTS

1. Hydrological and planktological observations by F.R.V. *Warreen* in south-eastern Australian waters, 1938-39
2. Hydrological and planktological observations by F.R.V. *Warreen* in south-eastern Australian waters, 1940-42
3. Hydrological and plantological observations by F.R.V. *Warreen* in south-western Australian waters, 1947-50
4. Onshore hydrological investigations in eastern Australia, 1942-50
5. Estuarine hydrological investigations in eastern Australia, 1940-50. Queensland: Nerang and Coomera Rivers, Moreton Bay and Brisbane River, Logan River, Dunwich Oyster Lease; New South Wales: Richmond River, Clarence River, Macleay River, Hastings River, Manning River, Port Stephens, Tilligerry Creek, Hawkesbury River
6. Estuarine hydrological investigations in eastern Australia, 1940-50. New South Wales: Middle Harbour and Port Jackson, Georges River-Botany Bay
7. Estuarine hydrological investigations in eastern Australia, 1940-50. New South Wales: Port Hacking, Lake Illawarra, Shoalhaven River, Jervis Bay, Clyde River, Moruya River, Tuross River, Wagonga Inlet; Victoria: Port Phillip; Tasmania: Tamar River, Derwent River, Huon River, D'Entrecasteaux Channel, Pittwater, Lake Dobson (freshwater), Penna Dam (freshwater)
8. Hydrological investigations in south-western Australia, 1944-50
9. Records of twenty-four hourly hydrological observations at selected stations in eastern Australian estuarine systems, 1942-50. Queensland: Logan River; New South Wales: Richmond River, Clarence River, Macleay River, Hastings River, Manning River, Port Stephens, Hawkesbury River, Georges River, Port Hacking, Clyde River, Tuross River; Tasmania: Tamar River, Derwent River
10. Records of twenty-four hourly hydrological observations at Shell Point, Georges River, New South Wales, 1942-50
11. Analyses of bottom deposits in eastern Australia, 1946-50
12. Estuarine hydrological investigations in eastern and south-western Australia, 1951
13. Analysis of bottom deposits in eastern and south-western Australia, 1951 and records of twenty-four hourly hydrological observations at selected stations in eastern Australian estuarine systems, 1951
14. Onshore hydrological investigations in eastern and south-western Australia, 1951
15. Estuarine hydrological investigations in eastern and south-western Australia, 1952
16. Analysis of bottom deposits in eastern and south-western Australia, 1952 and records of twenty-four hourly hydrological observations at selected stations in eastern Australian estuarine systems, 1952
17. Onshore hydrological investigations in eastern and south-western Australia, 1952
18. Onshore hydrological investigations in eastern and south-western Australia, 1953
19. Onshore planktological investigations in eastern Australia, 1945-54
20. Surface sampling in the Tasman Sea, 1953
21. Estuarine hydrological investigations in eastern and south-western Australia, 1953
22. Further onshore planktological investigations in eastern Australia, 1945-54
23. Planktological investigations made by F.R.V. *Derwent Hunter* in eastern Australian waters, 1952-54
24. Onshore hydrological investigations in eastern and south-western Australia, 1954
25. Surface sampling in the Tasman Sea, 1954
26. Estuarine hydrological investigations in eastern and south-western Australia, 1954
27. Onshore and oceanic hydrological investigations in eastern and south-western Australia, 1955
28. Surface sampling in the Tasman and Coral Seas, 1955
29. Estuarine hydrological investigations in eastern and south-western Australia, 1955
30. Onshore and oceanic hydrological investigations in eastern and south-western Australia, 1956
31. Surface sampling in the Tasman and Coral Seas and the south-eastern Indian Ocean, 1956
32. Estuarine hydrological investigations in eastern and south-western Australia, 1956
33. Coastal hydrological investigations in eastern and south-western Australia, 1957
34. Coastal hydrological investigations at Port Hacking, New South Wales, 1957
35. Coastal hydrological investigations at Eden, New South Wales, 1957

## OCEANOGRAPHICAL STATION LISTS

(Continued)

36. Surface sampling in the Tasman and Coral Seas, 1957
37. Hydrological investigations from F.R.V. *Derwent Hunter*, 1957
38. Coastal hydrological investigations in the New South Wales tuna fishing area, 1958
39. Surface sampling in the Coral and Tasman Seas, 1958
40. Coastal hydrological investigations in south-eastern Australia, 1958
41. Oceanic investigations in eastern Australian waters, F.R.V. *Derwent Hunter*, 1958
42. Coastal investigations at Port Hacking, New South Wales, 1958
43. Oceanic investigations in eastern Australia, H.M.A. Ships *Queenborough*, *Quickmatch*, and *Warrego*, 1958
44. Oceanic observations in Antarctic waters, M.V. *Magga Dan*, 1959
45. Coastal hydrological investigations in eastern Australia, 1959
46. Coastal hydrological investigations in the New South Wales tuna fishing area, 1959
47. Coastal investigations at Port Hacking, New South Wales, 1959
48. Oceanic investigations in eastern Australian waters, F.R.V. *Derwent Hunter*, 1959
49. Coastal hydrological sampling Rottneest Island, W.A., and Port Moresby, Papua, during the I.G.Y. (1957-58), and surface sampling in the Tasman and Coral Seas, 1959
50. Surface sampling in the Coral and Tasman Seas, 1960
51. Coastal hydrological investigations in eastern Australia, 1960
52. Coastal investigations at Port Hacking, New South Wales, 1960
53. Coastal hydrological investigations in the New South Wales tuna fishing area, 1960
54. Investigations by F.R.V. *Derwent Hunter* on the eastern Australian tuna grounds in 1961
55. Investigations by F.R.V. *Weerutta* on the South Australian tuna grounds in 1961
56. Investigations by F.R.V. *Marelda* on the eastern Australian tuna grounds in 1961
57. Investigations by F.V. *Estelle Star* in Western Australian waters in 1961
58. Temperature observations from Australian tuna fishing vessels in 1961
59. Investigations by F.R.V. *Derwent Hunter* on the eastern Australian tuna grounds in 1962
60. Investigations by F.R.V. *Investigator* on the South Australian tuna grounds in 1962
61. Investigations by F.R.V. *Marelda* on the eastern Australian tuna grounds in 1962
62. Investigations by F.V. *Estelle Star* in Western Australian waters in 1962
63. Temperature and salinity observations from Australian tuna fishing vessels in 1962
64. Investigations by F.R.V. *Investigator* on the South Australian tuna grounds in 1963
65. Investigations by F.R.V. *Marelda* on the eastern Australian tuna grounds in 1963
66. Temperature and salinity observations from Australian tuna fishing vessels in 1963
67. Investigations by F.R.V. *Investigator* on the South Australian tuna grounds in 1964