



# HOKKAIDO UNIVERSITY

|                  |                                                                                   |
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| Title            | 3 THE "USHIO MARU" CRUISE 330, CRUISE 331, CRUISE 332 IN MARCH -APRIL 2015        |
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**THE " USHIO MARU "**

**CRUISE 330**

**CRUISE 331**

**CRUISE 332**

**IN MARCH 2015**

**IN APRIL 2015**

## 1.Cruise Itinerary

### Cruise 330

|                                        |      |          |
|----------------------------------------|------|----------|
| Departure from Usujiri                 | Mar. | 16, 2015 |
| Start hydrographic research (US15131)  |      | 16       |
| Arrival at Usujiri                     |      | 17       |
| Departure from Usujiri                 |      | 18       |
| Arrival at Muroran                     |      | 18       |
| Departure from Muroran                 |      | 19       |
| Finish hydrographic research (US15154) |      | 19       |
| Return to Hakodate                     |      | 20       |
| Total coverage 281.6 miles             |      |          |

### Cruise 331

|                                                                    |      |         |
|--------------------------------------------------------------------|------|---------|
| Departure from Hakodate                                            | Apr. | 9, 2015 |
| Start hydrographic research (US15155) and frame trawl net sampling |      | 9       |
| Arrival at Usujiri                                                 |      | 10      |
| Departure from Usujiri                                             |      | 11      |
| Operate underwater camera observation                              |      | 12      |
| Finish frame trawl net sampling                                    |      | 12      |
| Finish hydrographic research (US15162)                             |      | 13      |
| Return to Hakodate                                                 |      | 13      |
| Total coverage 253.0 miles                                         |      |         |

### Cruise 332

|                                                                    |      |          |
|--------------------------------------------------------------------|------|----------|
| Departure from Hakodate                                            | Apr. | 17, 2015 |
| Start hydrographic research (US15163) and frame trawl net sampling |      | 18       |
| Finish frame trawl net sampling                                    |      | 18       |
| Set mooring current meter                                          |      | 19       |
| Arrival at Usujiri                                                 |      | 19       |
| Departure from Usujiri                                             |      | 22       |
| Set mooring current meter                                          |      | 22       |
| Finish hydrographic research (US15183)                             |      | 23       |
| Return to Hakodate                                                 |      | 23       |
| Total coverage 385.4 miles                                         |      |          |

## 2. Data on Temperature, Salinity and Computed Dynamic Depth Anomaly

Hydrographic work on deck and the data processing were made by the deck officers, crews, research staff and cadets of the “Ushio Maru”. Temperature and salinity were measured by CTD (Seabird SBE-9Plus and SBE-19). Dynamic computations were made using a desk-top computer aboard the “Ushio Maru”.

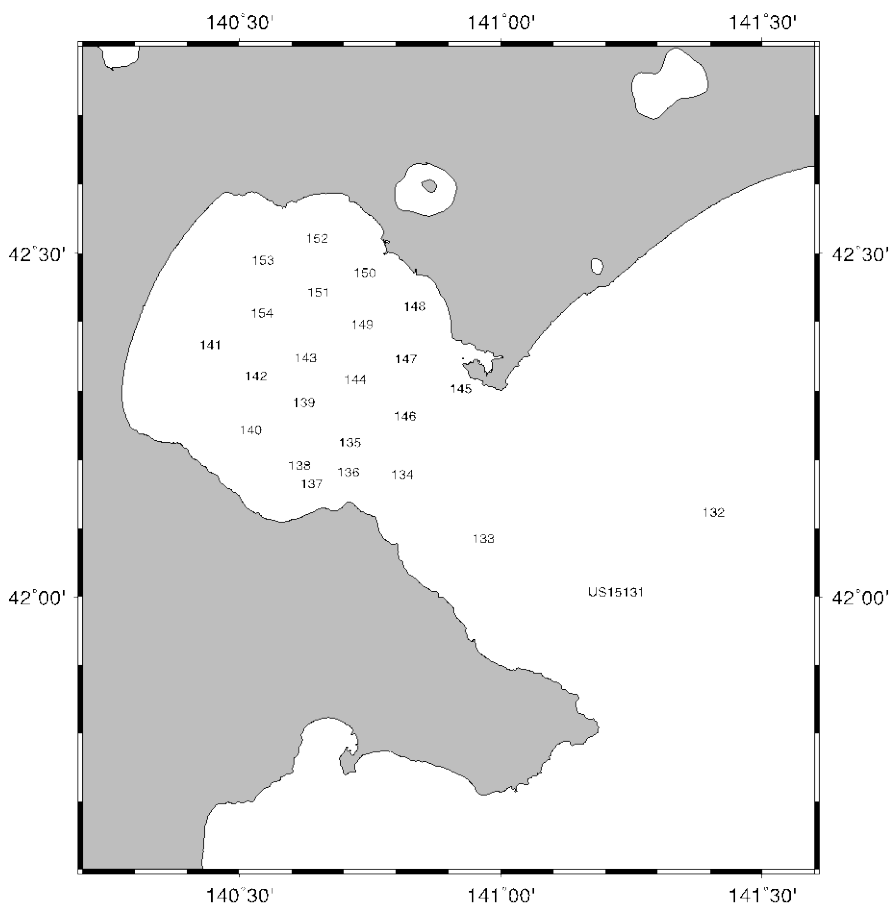


Figure 1. Oceanographic stations (Cruise 330)

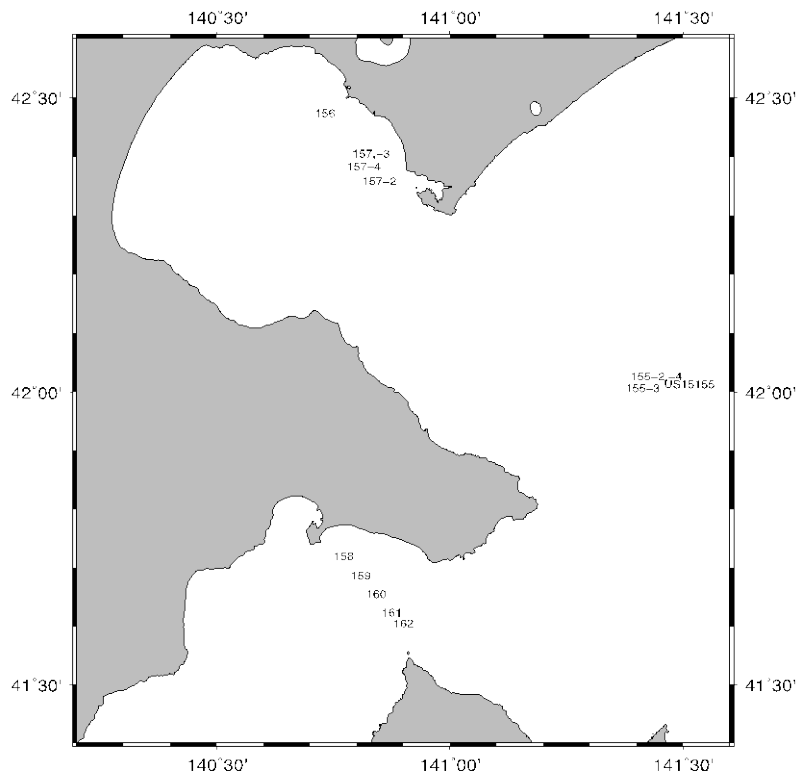


Figure 2. Oceanographic stations (Cruise 331)

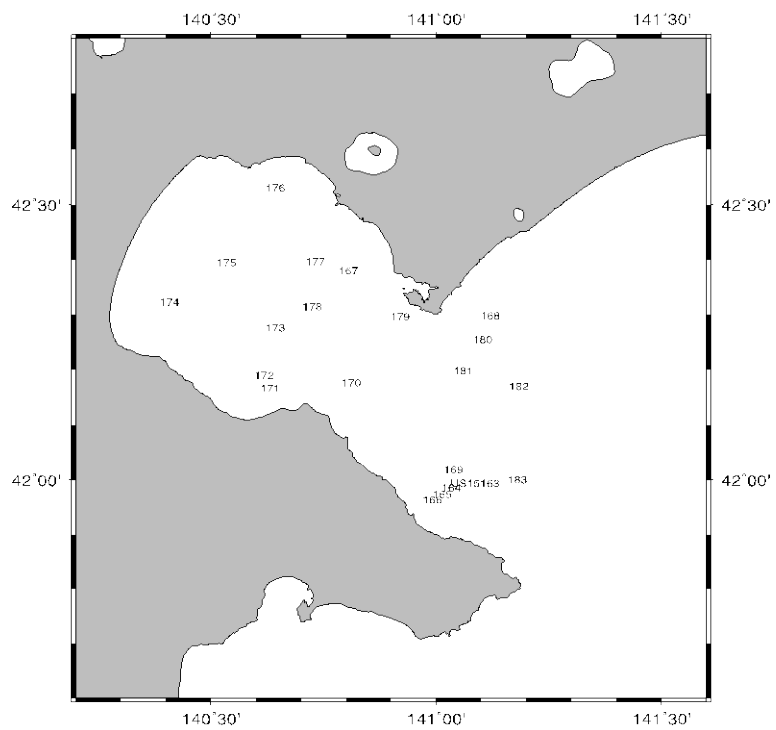


Figure 3. Oceanographic stations (Cruise 332)

Table 1. List of Oceanographic Station

| Cruise 330 |                       |                        |      |           |           |         |        |         |           |           |     |            |
|------------|-----------------------|------------------------|------|-----------|-----------|---------|--------|---------|-----------|-----------|-----|------------|
| Station    | Lat. (N) <sup>*</sup> | Long. (E) <sup>*</sup> | Date | S.M.T.    | Depth (m) | Wave    | Swell  | Wind    | Air Temp. | Sea Temp. | Wr. | Bar. (hPa) |
| US15131    | 42-00.0               | 141-10.0               | 3/16 | 1223-1230 | 136       | ENE-1   | ENE-2  | ENE-2   | 6.8       | 6.9       | c   | 1024.0     |
| US15132    | 42-07.0               | 141-23.1               | 3/16 | 1414-1429 | 399       | SE-1    | ESE-1  | SE-3    | 5.1       | 2.3       | bc  | 1023.2     |
| US15133    | 42-04.7               | 140-56.7               | 3/18 | 0559-0603 | 84        | WNW-3   | ESE-1  | WNW-3   | 4.2       | 2.1       | bc  | 1021.0     |
| US15134    | 42-10.3               | 140-47.4               | 3/18 | 0713-0717 | 92        | West-3  | ESE-1  | West-4  | 4.1       | 2.2       | b   | 1021.4     |
| US15135    | 42-13.1               | 140-41.4               | 3/18 | 0803-0807 | 89        | WNW-2   | ESE-1  | WNW-4   | 4.5       | 1.8       | bc  | 1021.7     |
| US15136    | 42-10.5               | 140-41.2               | 3/18 | 0840-0845 | 87        | West-3  | ESE-1  | West-3  | 3.8       | 2.5       | bc  | 1022.6     |
| US15137    | 42-09.5               | 140-37.0               | 3/18 | 0918-0922 | 74        | NW-2    | ESE-1  | NW-3    | 4.0       | 2.6       | bc  | 1022.5     |
| US15138    | 42-11.1               | 140-35.6               | 3/18 | 0945-0949 | 80        | NW-1    | ESE-1  | NW-2    | 4.8       | 2.4       | bc  | 1022.7     |
| US15139    | 42-16.6               | 140-36.1               | 3/18 | 1126-1130 | 90        | Calm    | ESE-1  | Calm    | 6.6       | 3.3       | bc  | 1022.7     |
| US15140    | 42-14.2               | 140-30.0               | 3/18 | 1226-1230 | 80        | Calm    | ESE-1  | Calm    | 8.4       | 3.5       | bc  | 1022.2     |
| US15141    | 42-21.6               | 140-25.4               | 3/18 | 1340-1344 | 73        | NE-1    | ESE-1  | NE-2    | 7.3       | 3.1       | bc  | 1021.4     |
| US15142    | 42-18.9               | 140-30.6               | 3/18 | 1433-1439 | 94        | NE-1    | ESE-1  | NE-2    | 6.6       | 3.2       | bc  | 1021.2     |
| US15143    | 42-20.5               | 140-36.3               | 3/18 | 1523-1527 | 89        | Calm    | ESE-1  | Calm    | 7.8       | 3.1       | bc  | 1021.2     |
| US15144    | 42-18.6               | 140-42.0               | 3/18 | 1607-1611 | 70        | Calm    | ESE-1  | SSE-2   | 5.4       | 4.1       | bc  | 1020.4     |
| US15145    | 42-17.8               | 140-54.1               | 3/19 | 0638-0641 | 56        | East-3  | ESE-1  | East-4  | 3.9       | 2.2       | o   | 1017.3     |
| US15146    | 42-15.5               | 140-47.7               | 3/19 | 0724-0728 | 71        | East-3  | ESE-1  | East-4  | 3.7       | 1.8       | o   | 1016.7     |
| US15147    | 42-20.4               | 140-47.8               | 3/19 | 0808-0812 | 56        | East-2  | ESE-1  | East-4  | 4.2       | 2.7       | o   | 1017.1     |
| US15148    | 42-25.0               | 140-48.8               | 3/19 | 0847-0850 | 43        | North-2 | SE-1   | North-3 | 4.9       | 3.1       | c   | 1016.6     |
| US15149    | 42-23.4               | 140-42.8               | 3/19 | 0926-0929 | 61        | NNW-1   | SE-1   | NNW-3   | 3.7       | 2.6       | o   | 1016.9     |
| US15150    | 42-27.9               | 140-43.1               | 3/19 | 1006-1009 | 61        | NW-2    | SE-1   | NW-3    | 4.3       | 2.9       | o   | 1016.6     |
| US15151    | 42-26.2               | 140-37.8               | 3/19 | 1045-1049 | 82        | NW-1    | East-1 | NW-3    | 4.2       | 3.5       | c   | 1016.2     |
| US15152    | 42-30.9               | 140-37.6               | 3/19 | 1126-1130 | 63        | West-2  | SE-1   | West-3  | 5.3       | 3.1       | c   | 1016.2     |
| US15153    | 42-29.0               | 140-31.4               | 3/19 | 1210-1215 | 75        | WSW-2   | SE-1   | WSW-3   | 5.2       | 3.1       | bc  | 1015.8     |
| US15154    | 42-24.4               | 140-31.3               | 3/19 | 1253-1258 | 95        | SSE-2   | SE-1   | SSE-3   | 5.2       | 4.0       | bc  | 1015.1     |

| Cruise 331 |                       |                        |      |           |           |        |        |        |           |           |     |            |
|------------|-----------------------|------------------------|------|-----------|-----------|--------|--------|--------|-----------|-----------|-----|------------|
| Station    | Lat. (N) <sup>*</sup> | Long. (E) <sup>*</sup> | Date | S.M.T.    | Depth (m) | Wave   | Swell  | Wind   | Air Temp. | Sea Temp. | Wr. | Bar. (hPa) |
| US15155    | 42-00.4               | 141-27.5               | 4/9  | 1839-1849 | 390       | SE-3   | ESE-1  | SE-4   | 3.2       | 3.3       | b   | 1031.7     |
| US15155-2  | 42-01.2               | 141-23.2               | 4/9  | 2110-2126 | 351       | SE-3   | SE-1   | SE-5   | 3.0       | 3.1       | b   | 1032.6     |
| US15155-3  | 42-00.0               | 141-27.0               | 4/10 | 0643-0652 | 378       | ESE-3  | ESE-1  | ESE-4  | 4.1       | 3.4       | c   | 1030.5     |
| US15155-4  | 42-01.3               | 141-23.1               | 4/10 | 1020-1033 | 350       | East-3 | East-1 | East-4 | 4.2       | 3.3       | r   | 1030.2     |
| US15156    | 42-28.0               | 140-42.6               | 4/11 | 1510-1514 | 62        | Calm   | SE-1   | Calm   | 6.4       | 3.8       | 0   | 1026.1     |
| US15157    | 42-23.9               | 140-47.4               | 4/12 | 1230-1235 | 47        | Calm   | SE-1   | Calm   | 9.0       | 4.0       | b   | 1031.6     |
| US15157-2  | 42-21.1               | 140-48.7               | 4/12 | 1445-1448 | 52        | WSW-1  | SW-1   | WSW-3  | 8.5       | 4.6       | bc  | 1031.6     |
| US15157-3  | 42-23.7               | 140-47.4               | 4/12 | 1857-1900 | 47        | West-4 | West-1 | West-5 | 5.6       | 4.0       | bc  | 1032.2     |
| US15157-4  | 42-22.6               | 140-46.7               | 4/12 | 2118-2122 | 51        | WNW-3  | West-1 | WNW-4  | 5.4       | 3.8       | bc  | 1033.5     |
| US15158    | 41-42.8               | 140-45.0               | 4/13 | 0422-0425 | 83        | NNE-1  | East-1 | NNE-2  | 4.3       | 8.4       | bc  | 1033.0     |
| US15159    | 41-40.8               | 140-47.2               | 4/13 | 0444-0450 | 223       | NNE-2  | East-1 | NNE-3  | 4.8       | 8.8       | c   | 1032.8     |
| US15160    | 41-38.9               | 140-49.2               | 4/13 | 0508-0518 | 349       | NE-1   | East-1 | NE-3   | 5.5       | 9.4       | bc  | 1032.7     |
| US15161    | 41-37.0               | 140-51.2               | 4/13 | 0535-0540 | 97        | ENE-2  | East-1 | ENE-3  | 6.3       | 9.2       | c   | 1032.7     |
| US15162    | 41-35.9               | 140-52.7               | 4/13 | 0553-0557 | 43        | East-3 | East-1 | East-4 | 5.9       | 9.1       | c   | 1032.7     |

## Cruise 332

| Station | Lat. (N)* | Long. (E)* | Date | S.M.T.    | Depth (m) | Wave    | Swell  | Wind    | Air Temp. | Sea Temp. | Wr. | Bar. (hPa) |
|---------|-----------|------------|------|-----------|-----------|---------|--------|---------|-----------|-----------|-----|------------|
| US15163 | 41-59.2   | 141-01.9   | 4/18 | 0722-0726 | 101       | NNE-2   | East-1 | NNE-3   | 5.6       | 3.6       | bc  | 1011.9     |
| US15164 | 41-58.7   | 141-00.7   | 4/18 | 0735-0739 | 94        | NNE-2   | East-1 | NNE-3   | 5.5       | 3.6       | bc  | 1011.8     |
| US15165 | 41-58.0   | 140-59.5   | 4/18 | 0749-0753 | 86        | NE-1    | East-1 | NE-3    | 6.5       | 3.6       | bc  | 1011.7     |
| US15166 | 41-57.4   | 140-58.2   | 4/18 | 0802-0806 | 78        | North-1 | East-1 | North-2 | 7.1       | 3.6       | bc  | 1011.8     |
| US15167 | 42-22.4   | 140-47.0   | 4/18 | 1927-1930 | 50        | West-3  | West-1 | West-5  | 6.2       | 4.2       | bc  | 1011.2     |
| US15168 | 42-17.5   | 141-05.9   | 4/19 | 1054-1100 | 69        | WSW-3   | WSW-1  | WSW-5   | 7.3       | 4.4       | bc  | 1017.1     |
| US15169 | 42-00.7   | 141-01.0   | 4/22 | 0553-0559 | 93        | South-2 | East-1 | South-4 | 7.7       | 3.9       | bc  | 1015.6     |
| US15170 | 42-10.2   | 140-47.4   | 4/22 | 0747-0751 | 95        | North-2 | East-1 | North-4 | 7.4       | 4.2       | m   | 1016.0     |
| US15171 | 42-09.6   | 140-36.6   | 4/22 | 0905-0912 | 73        | West-3  | WSW-1  | West-5  | 11.0      | 4.7       | bc  | 1015.6     |
| US15172 | 42-11.0   | 140-35.8   | 4/22 | 0935-0939 | 80        | NE-3    | SW-1   | NE-4    | 10.6      | 4.3       | bc  | 1016.1     |
| US15173 | 42-16.2   | 140-37.3   | 4/22 | 1120-1129 | 89        | SW-2    | SSW-1  | SW-3    | 10.3      | 4.6       | bc  | 1016.1     |
| US15174 | 42-19.0   | 140-23.2   | 4/22 | 1310-1313 | 54        | SW-3    | SW-1   | SW-5    | 10.5      | 4.8       | bc  | 1015.7     |
| US15175 | 42-23.3   | 140-30.8   | 4/22 | 1414-1419 | 95        | SW-3    | SW-1   | SW-5    | 11.2      | 5.1       | bc  | 1016.1     |
| US15176 | 42-31.4   | 140-37.7   | 4/22 | 1538-1546 | 60        | SW-2    | SW-1   | SW-3    | 11.0      | 4.7       | bc  | 1016.1     |
| US15177 | 42-23.4   | 140-42.6   | 4/22 | 1657-1702 | 62        | SW-2    | SW-1   | SW-4    | 8.7       | 5.1       | bc  | 1016.6     |
| US15178 | 42-18.5   | 140-42.2   | 4/23 | 0550-0555 | 65        | West-1  | East-1 | West-2  | 5.6       | 4.4       | bc  | 1020.7     |
| US15179 | 42-17.4   | 140-53.9   | 4/23 | 0707-0712 | 57        | calm    | East-1 | calm    | 6.1       | 5.0       | b   | 1021.1     |
| US15180 | 42-14.9   | 141-04.9   | 4/23 | 0817-0821 | 79        | calm    | East-1 | calm    | 7.3       | 4.6       | b   | 1021.6     |
| US15181 | 42-11.5   | 141-02.3   | 4/23 | 0912-0916 | 81        | calm    | East-1 | calm    | 7.2       | 4.9       | b   | 1021.8     |
| US15182 | 42-09.8   | 141-09.7   | 4/23 | 1007-1012 | 121       | East-1  | SE-1   | East-1  | 7.8       | 5.6       | b   | 1022.5     |
| US15183 | 41-59.6   | 141-09.5   | 4/23 | 1207-1214 | 132       | ESE-2   | SE-1   | ESE-4   | 8.7       | 5.6       | bc  | 1022.1     |

(\*): Fixed position by Global Positioning System

Table 2. Oceanographic data

| STATION   | US15131  |          |         |
|-----------|----------|----------|---------|
| LATITUDE  | 42-00.0  | N        |         |
| LONGITUDE | 141-10.0 | E        |         |
| DEPTH (m) | 136      |          |         |
| Press.    | Temp.    | Salinity | Sigma-T |
| 5         | 2.669    | 32.877   | 26.219  |
| 10        | 6.998    | 33.771   | 26.451  |
| 20        | 7.474    | 33.788   | 26.398  |
| 30        | 7.549    | 33.795   | 26.393  |
| 40        | 7.605    | 33.797   | 26.387  |
| 50        | 7.631    | 33.801   | 26.386  |
| 75        | 7.754    | 33.826   | 26.388  |
| 100       | 7.912    | 33.866   | 26.396  |
| 125       | 5.913    | 33.576   | 26.438  |

| STATION   | US15132  |          |         |
|-----------|----------|----------|---------|
| LATITUDE  | 42-07.0  | N        |         |
| LONGITUDE | 141-23.1 | E        |         |
| DEPTH (m) | 399      |          |         |
| Press.    | Temp.    | Salinity | Sigma-T |
| 5         | 2.411    | 32.752   | 26.139  |
| 10        | 2.373    | 32.815   | 26.193  |
| 20        | 2.495    | 32.878   | 26.233  |
| 30        | 2.626    | 32.957   | 26.286  |
| 40        | 2.653    | 32.990   | 26.311  |
| 50        | 2.662    | 32.999   | 26.317  |
| 75        | 3.064    | 33.072   | 26.340  |
| 100       | 3.389    | 33.126   | 26.354  |
| 125       | 4.426    | 33.352   | 26.431  |
| 150       | 5.142    | 33.493   | 26.464  |
| 175       | 4.312    | 33.423   | 26.502  |
| 200       | 4.810    | 33.523   | 26.525  |
| 250       | 3.492    | 33.500   | 26.639  |
| 300       | 2.661    | 33.484   | 26.704  |
| 365       | 3.507    | 33.883   | 26.946  |

| STATION   | US15133  |          |         |
|-----------|----------|----------|---------|
| LATITUDE  | 42-04.7  | N        |         |
| LONGITUDE | 140-56.7 | E        |         |
| DEPTH (m) | 84       |          |         |
| Press.    | Temp.    | Salinity | Sigma-T |
| 5         | 2.466    | 32.497   | 25.932  |
| 10        | 2.360    | 32.700   | 26.102  |
| 20        | 2.411    | 32.730   | 26.122  |
| 30        | 2.665    | 32.834   | 26.185  |
| 40        | 5.557    | 33.473   | 26.400  |
| 50        | 7.183    | 33.803   | 26.451  |
| 75        | 6.123    | 33.682   | 26.496  |

| STATION   | US15134  |          |         |
|-----------|----------|----------|---------|
| LATITUDE  | 42-10.3  | N        |         |
| LONGITUDE | 140-47.4 | E        |         |
| DEPTH (m) | 92       |          |         |
| Press.    | Temp.    | Salinity | Sigma-T |
| 5         | 2.325    | 32.607   | 26.030  |
| 10        | 2.331    | 32.610   | 26.032  |
| 20        | 2.380    | 32.732   | 26.126  |
| 30        | 2.683    | 32.876   | 26.216  |
| 40        | 3.080    | 33.091   | 26.354  |
| 50        | 3.375    | 33.181   | 26.399  |
| 75        | 4.930    | 33.778   | 26.714  |

| STATION   | US15135  |          |         |
|-----------|----------|----------|---------|
| LATITUDE  | 42-13.1  | N        |         |
| LONGITUDE | 140-41.4 | E        |         |
| DEPTH (m) | 89       |          |         |
| Press.    | Temp.    | Salinity | Sigma-T |
| 5         | 2.497    | 32.528   | 25.954  |
| 10        | 2.338    | 32.557   | 25.989  |
| 20        | 2.134    | 32.672   | 26.097  |
| 30        | 2.562    | 32.809   | 26.173  |
| 40        | 2.686    | 32.896   | 26.233  |
| 50        | 3.277    | 33.144   | 26.379  |
| 75        | 4.468    | 33.621   | 26.640  |

| STATION   | US15136  |          |         |
|-----------|----------|----------|---------|
| LATITUDE  | 42-10.5  | N        |         |
| LONGITUDE | 140-41.2 | E        |         |
| DEPTH (m) | 87       |          |         |
| Press.    | Temp.    | Salinity | Sigma-T |
| 5         | 2.841    | 32.485   | 25.891  |
| 10        | 2.352    | 32.475   | 25.923  |
| 20        | 2.484    | 32.583   | 25.999  |
| 30        | 2.314    | 32.640   | 26.057  |
| 40        | 2.526    | 32.771   | 26.146  |
| 50        | 2.911    | 32.965   | 26.268  |
| 75        | 4.970    | 33.786   | 26.716  |

| STATION   | US15137  |          |         |
|-----------|----------|----------|---------|
| LATITUDE  | 42-09.5  | N        |         |
| LONGITUDE | 140-37.0 | E        |         |
| DEPTH (m) | 74       |          |         |
| Press.    | Temp.    | Salinity | Sigma-T |
| 5         | 3.042    | 32.532   | 25.910  |
| 10        | 2.839    | 32.549   | 25.942  |
| 20        | 2.401    | 32.512   | 25.949  |
| 30        | 2.349    | 32.654   | 26.066  |
| 40        | 2.496    | 32.748   | 26.130  |
| 50        | 2.675    | 32.871   | 26.213  |
| 70        | 4.499    | 33.696   | 26.697  |

| STATION   | US15138  |          |         |
|-----------|----------|----------|---------|
| LATITUDE  | 42-11.1  | N        |         |
| LONGITUDE | 140-35.6 | E        |         |
| DEPTH (m) | 80       |          |         |
| Press.    | Temp.    | Salinity | Sigma-T |
| 5         | 2.757    | 32.470   | 25.887  |
| 10        | 2.608    | 32.472   | 25.900  |
| 20        | 2.584    | 32.612   | 26.014  |
| 30        | 2.405    | 32.646   | 26.055  |
| 40        | 2.420    | 32.758   | 26.144  |
| 50        | 2.742    | 32.881   | 26.216  |
| 75        | 4.873    | 33.772   | 26.716  |

| STATION   | US15139  |          |         |
|-----------|----------|----------|---------|
| LATITUDE  | 42-16.6  | N        |         |
| LONGITUDE | 140-36.1 | E        |         |
| DEPTH (m) | 90       |          |         |
| Press.    | Temp.    | Salinity | Sigma-T |
| 5         | 3.091    | 32.519   | 25.897  |
| 10        | 2.836    | 32.543   | 25.938  |
| 20        | 2.291    | 32.601   | 26.028  |
| 30        | 2.329    | 32.657   | 26.070  |
| 40        | 2.372    | 32.687   | 26.091  |
| 50        | 2.571    | 32.797   | 26.163  |
| 75        | 4.238    | 33.535   | 26.597  |



| STATION   |       | US15140  |         |  |
|-----------|-------|----------|---------|--|
| LATITUDE  |       | 42-14.2  | N       |  |
| LONGITUDE |       | 140-30.0 | E       |  |
| DEPTH (m) |       | 80       |         |  |
| Press.    | Temp. | Salinity | Sigma-T |  |
| 5         | 3.020 | 32.413   | 25.819  |  |
| 10        | 2.766 | 32.540   | 25.942  |  |
| 20        | 2.423 | 32.601   | 26.018  |  |
| 30        | 2.236 | 32.624   | 26.050  |  |
| 40        | 2.302 | 32.691   | 26.099  |  |
| 50        | 2.384 | 32.741   | 26.133  |  |
| 75        | 4.800 | 33.740   | 26.698  |  |

| STATION   |       | US15143  |         |  |
|-----------|-------|----------|---------|--|
| LATITUDE  |       | 42-20.5  | N       |  |
| LONGITUDE |       | 140-36.3 | E       |  |
| DEPTH (m) |       | 89       |         |  |
| Press.    | Temp. | Salinity | Sigma-T |  |
| 5         | 2.756 | 32.514   | 25.922  |  |
| 10        | 2.724 | 32.519   | 25.928  |  |
| 20        | 2.334 | 32.628   | 26.046  |  |
| 30        | 2.335 | 32.666   | 26.076  |  |
| 40        | 2.286 | 32.676   | 26.088  |  |
| 50        | 2.337 | 32.704   | 26.107  |  |
| 75        | 4.770 | 33.740   | 26.702  |  |

| STATION   |       | US15146  |         |  |
|-----------|-------|----------|---------|--|
| LATITUDE  |       | 42-15.4  | N       |  |
| LONGITUDE |       | 140-47.7 | E       |  |
| DEPTH (m) |       | 71       |         |  |
| Press.    | Temp. | Salinity | Sigma-T |  |
| 5         | 2.798 | 32.455   | 25.871  |  |
| 10        | 2.580 | 32.535   | 25.953  |  |
| 20        | 2.554 | 32.786   | 26.155  |  |

| STATION   |       | US15149  |         |  |
|-----------|-------|----------|---------|--|
| LATITUDE  |       | 42-23.4  | N       |  |
| LONGITUDE |       | 140-42.8 | E       |  |
| DEPTH (m) |       | 61       |         |  |
| Press.    | Temp. | Salinity | Sigma-T |  |
| 5         | 2.705 | 32.403   | 25.837  |  |
| 10        | 2.665 | 32.408   | 25.844  |  |
| 20        | 2.375 | 32.634   | 26.048  |  |
| 30        | 2.512 | 32.748   | 26.128  |  |
| 40        | 2.620 | 32.809   | 26.169  |  |
| 50        | 3.046 | 33.020   | 26.301  |  |

| STATION   |       | US15141  |         |  |
|-----------|-------|----------|---------|--|
| LATITUDE  |       | 42-21.6  | N       |  |
| LONGITUDE |       | 140-25.4 | E       |  |
| DEPTH (m) |       | 73       |         |  |
| Press.    | Temp. | Salinity | Sigma-T |  |
| 5         | 3.117 | 32.388   | 25.790  |  |
| 10        | 2.171 | 32.528   | 25.979  |  |
| 20        | 2.287 | 32.687   | 26.097  |  |
| 30        | 2.629 | 32.857   | 26.206  |  |
| 40        | 2.677 | 32.883   | 26.222  |  |
| 50        | 2.724 | 32.908   | 26.239  |  |

| STATION   |       | US15144  |         |  |
|-----------|-------|----------|---------|--|
| LATITUDE  |       | 42-18.6  | N       |  |
| LONGITUDE |       | 140-42.0 | E       |  |
| DEPTH (m) |       | 70       |         |  |
| Press.    | Temp. | Salinity | Sigma-T |  |
| 5         | 2.842 | 32.571   | 25.960  |  |
| 10        | 2.774 | 32.648   | 26.027  |  |
| 20        | 2.403 | 32.735   | 26.127  |  |
| 30        | 2.513 | 32.793   | 26.164  |  |
| 40        | 2.588 | 32.844   | 26.199  |  |
| 50        | 3.008 | 33.097   | 26.344  |  |

| STATION   |       | US15147  |         |  |
|-----------|-------|----------|---------|--|
| LATITUDE  |       | 42-20.4  | N       |  |
| LONGITUDE |       | 140-47.8 | E       |  |
| DEPTH (m) |       | 56       |         |  |
| Press.    | Temp. | Salinity | Sigma-T |  |
| 5         | 3.131 | 32.182   | 25.625  |  |
| 10        | 2.961 | 32.506   | 25.898  |  |
| 20        | 2.425 | 32.732   | 26.123  |  |
| 30        | 2.509 | 32.803   | 26.172  |  |
| 40        | 2.572 | 32.832   | 26.191  |  |
| 50        | 3.470 | 33.236   | 26.434  |  |

| STATION   |       | US15150  |         |  |
|-----------|-------|----------|---------|--|
| LATITUDE  |       | 42-27.9  | N       |  |
| LONGITUDE |       | 140-43.1 | E       |  |
| DEPTH (m) |       | 61       |         |  |
| Press.    | Temp. | Salinity | Sigma-T |  |
| 5         | 2.816 | 32.440   | 25.857  |  |
| 10        | 2.638 | 32.525   | 25.940  |  |
| 20        | 2.417 | 32.654   | 26.060  |  |
| 30        | 2.659 | 32.831   | 26.182  |  |
| 40        | 2.985 | 33.010   | 26.298  |  |
| 50        | 3.294 | 33.149   | 26.381  |  |

| STATION   |       | US15142  |         |  |
|-----------|-------|----------|---------|--|
| LATITUDE  |       | 42-18.9  | N       |  |
| LONGITUDE |       | 140-30.6 | E       |  |
| DEPTH (m) |       | 94       |         |  |
| Press.    | Temp. | Salinity | Sigma-T |  |
| 5         | 2.998 | 32.478   | 25.873  |  |
| 10        | 2.677 | 32.493   | 25.911  |  |
| 20        | 2.319 | 32.661   | 26.074  |  |
| 30        | 2.358 | 32.686   | 26.091  |  |
| 40        | 2.345 | 32.704   | 26.107  |  |
| 50        | 2.471 | 32.750   | 26.133  |  |
| 75        | 4.759 | 33.721   | 26.688  |  |

| STATION   |       | US15145  |         |  |
|-----------|-------|----------|---------|--|
| LATITUDE  |       | 42-17.8  | N       |  |
| LONGITUDE |       | 140-54.1 | E       |  |
| DEPTH (m) |       | 56       |         |  |
| Press.    | Temp. | Salinity | Sigma-T |  |
| 5         | 2.350 | 32.412   | 25.872  |  |
| 10        | 2.340 | 32.446   | 25.900  |  |
| 20        | 2.478 | 32.703   | 26.095  |  |
| 30        | 2.566 | 32.820   | 26.182  |  |
| 40        | 2.602 | 32.861   | 26.211  |  |
| 50        | 2.780 | 32.989   | 26.299  |  |

| STATION   |       | US15148  |         |  |
|-----------|-------|----------|---------|--|
| LATITUDE  |       | 42-25.0  | N       |  |
| LONGITUDE |       | 140-48.8 | E       |  |
| DEPTH (m) |       | 43       |         |  |
| Press.    | Temp. | Salinity | Sigma-T |  |
| 5         | 2.892 | 32.530   | 4.961   |  |
| 10        | 2.403 | 32.589   | 9.922   |  |

| STATION   |       | US15151  |         |  |
|-----------|-------|----------|---------|--|
| LATITUDE  |       | 42-26.2  | N       |  |
| LONGITUDE |       | 140-37.8 | E       |  |
| DEPTH (m) |       | 82       |         |  |
| Press.    | Temp. | Salinity | Sigma-T |  |
| 5         | 3.205 | 32.357   | 25.758  |  |
| 10        | 2.344 | 32.405   | 25.867  |  |

| STATION US15152 |          |          |         |
|-----------------|----------|----------|---------|
| LATITUDE        | 42-30.9  | N        |         |
| LONGITUDE       | 140-37.6 | E        |         |
| DEPTH (m)       | 63       |          |         |
| Press.          | Temp.    | Salinity | Sigma-T |
| 5               | 3.246    | 32.324   | 25.728  |
| 10              | 2.893    | 32.436   | 25.848  |
| 20              | 2.651    | 32.795   | 26.154  |
| 30              | 2.623    | 32.860   | 26.209  |
| 40              | 2.722    | 32.905   | 26.236  |
| 50              | 3.337    | 33.187   | 26.407  |
| 60              | 3.703    | 33.326   | 26.484  |

| STATION US15155 |          |          |         |
|-----------------|----------|----------|---------|
| LATITUDE        | 42-00.4  | N        |         |
| LONGITUDE       | 141-27.5 | E        |         |
| DEPTH (m)       | 390      |          |         |
| Press.          | Temp.    | Salinity | Sigma-T |
| 5               | 3.801    | 32.825   | 26.076  |
| 10              | 3.791    | 32.829   | 26.080  |
| 20              | 3.514    | 32.885   | 26.150  |
| 30              | 3.052    | 32.854   | 26.168  |
| 40              | 3.231    | 32.954   | 26.231  |
| 50              | 3.209    | 33.003   | 26.273  |
| 75              | 3.991    | 33.243   | 26.390  |
| 100             | 5.333    | 33.464   | 26.419  |
| 125             | 4.859    | 33.401   | 26.424  |
| 150             | 5.353    | 33.519   | 26.461  |
| 175             | 4.864    | 33.448   | 26.460  |
| 200             | 4.707    | 33.444   | 26.474  |
| 250             | 3.802    | 33.406   | 26.538  |
| 300             | 3.323    | 33.512   | 26.668  |

| STATION US15155-4 |          |          |         |
|-------------------|----------|----------|---------|
| LATITUDE          | 42-01.3  | N        |         |
| LONGITUDE         | 141-23.1 | E        |         |
| DEPTH (m)         | 350      |          |         |
| Press.            | Temp.    | Salinity | Sigma-T |
| 5                 | 3.634    | 32.827   | 26.093  |
| 10                | 3.613    | 32.826   | 26.095  |
| 20                | 3.225    | 32.866   | 26.162  |
| 30                | 2.825    | 32.847   | 26.181  |
| 40                | 5.288    | 33.359   | 26.342  |
| 50                | 5.617    | 33.354   | 26.298  |
| 75                | 5.012    | 33.424   | 26.425  |
| 100               | 5.337    | 33.502   | 26.449  |
| 125               | 5.074    | 33.471   | 26.455  |
| 150               | 4.741    | 33.436   | 26.464  |
| 175               | 6.172    | 33.728   | 26.526  |
| 200               | 5.176    | 33.587   | 26.535  |
| 250               | 3.635    | 33.579   | 26.692  |
| 300               | 2.834    | 33.567   | 26.755  |

| STATION US15153 |          |          |         |
|-----------------|----------|----------|---------|
| LATITUDE        | 42-29.0  | N        |         |
| LONGITUDE       | 140-31.4 | E        |         |
| DEPTH (m)       | 75       |          |         |
| Press.          | Temp.    | Salinity | Sigma-T |
| 5               | 2.836    | 32.406   | 25.828  |
| 10              | 2.130    | 32.592   | 26.033  |
| 20              | 2.465    | 32.774   | 26.153  |
| 30              | 2.590    | 32.836   | 26.193  |
| 40              | 2.776    | 32.926   | 26.249  |
| 50              | 3.118    | 33.097   | 26.356  |

| STATION US15155-2 |          |          |         |
|-------------------|----------|----------|---------|
| LATITUDE          | 42-01.2  | N        |         |
| LONGITUDE         | 141-23.2 | E        |         |
| DEPTH (m)         | 351      |          |         |
| Press.            | Temp.    | Salinity | Sigma-T |
| 5                 | 3.471    | 32.739   | 26.038  |
| 10                | 3.471    | 32.739   | 26.038  |
| 20                | 3.968    | 32.999   | 26.198  |
| 30                | 4.388    | 33.107   | 26.241  |
| 40                | 4.526    | 33.141   | 26.253  |
| 50                | 4.587    | 33.151   | 26.255  |
| 75                | 4.848    | 33.326   | 26.365  |
| 100               | 6.042    | 33.601   | 26.442  |
| 125               | 6.107    | 33.633   | 26.459  |
| 150               | 6.181    | 33.671   | 26.480  |
| 175               | 6.674    | 33.802   | 26.519  |
| 200               | 6.753    | 33.859   | 26.554  |
| 250               | 4.445    | 33.592   | 26.620  |
| 300               | 2.886    | 33.544   | 26.733  |

| STATION US15156 |          |          |         |
|-----------------|----------|----------|---------|
| LATITUDE        | 42-28.0  | N        |         |
| LONGITUDE       | 140-42.6 | E        |         |
| DEPTH (m)       | 62       |          |         |
| Press.          | Temp.    | Salinity | Sigma-T |
| 5               | 4.164    | 32.278   | 25.605  |
| 10              | 4.049    | 32.281   | 25.619  |
| 20              | 3.906    | 32.307   | 25.653  |
| 30              | 3.315    | 32.511   | 25.871  |
| 40              | 2.852    | 32.719   | 26.077  |
| 50              | 2.717    | 32.804   | 26.156  |
| 55              | 2.640    | 32.916   | 26.252  |

| STATION US15154 |          |          |         |
|-----------------|----------|----------|---------|
| LATITUDE        | 42-24.4  | N        |         |
| LONGITUDE       | 140-31.3 | E        |         |
| DEPTH (m)       | 95       |          |         |
| Press.          | Temp.    | Salinity | Sigma-T |
| 5               | 3.605    | 32.517   | 25.849  |
| 10              | 2.875    | 32.695   | 26.056  |
| 20              | 2.548    | 32.804   | 26.170  |
| 30              | 2.612    | 32.843   | 26.196  |
| 40              | 2.670    | 32.882   | 26.223  |
| 50              | 3.661    | 33.310   | 26.475  |
| 75              | 4.977    | 33.784   | 26.714  |

| STATION US15155-3 |          |          |         |
|-------------------|----------|----------|---------|
| LATITUDE          | 42-00.0  | N        |         |
| LONGITUDE         | 141-27.0 | E        |         |
| DEPTH (m)         | 378      |          |         |
| Press.            | Temp.    | Salinity | Sigma-T |
| 5                 | 3.748    | 32.850   | 26.101  |
| 10                | 3.745    | 32.851   | 26.102  |
| 20                | 3.581    | 32.849   | 26.116  |
| 30                | 3.794    | 32.950   | 26.175  |
| 40                | 5.275    | 33.288   | 26.286  |
| 50                | 7.088    | 33.689   | 26.374  |
| 75                | 3.791    | 33.161   | 26.344  |
| 100               | 4.994    | 33.458   | 26.454  |
| 125               | 5.544    | 33.572   | 26.480  |
| 150               | 5.396    | 33.534   | 26.467  |
| 175               | 5.148    | 33.528   | 26.491  |
| 200               | 3.891    | 33.397   | 26.522  |
| 250               | 3.237    | 33.388   | 26.577  |
| 300               | 3.233    | 33.513   | 26.677  |

| STATION US15157 |          |          |         |
|-----------------|----------|----------|---------|
| LATITUDE        | 42-23.9  | N        |         |
| LONGITUDE       | 140-47.4 | E        |         |
| DEPTH (m)       | 47       |          |         |
| Press.          | Temp.    | Salinity | Sigma-T |
| 5               | 4.266    | 32.339   | 25.644  |
| 10              | 4.002    | 32.339   | 25.670  |
| 20              | 3.983    | 32.439   | 25.751  |
| 30              | 3.746    | 32.491   | 25.815  |
| 40              | 2.829    | 32.842   | 26.177  |

STATION US15157-2  
LATITUDE 42-21.1 N  
LONGITUDE 140-48.7 E  
DEPTH (m) 52

| Press. | Temp. | Salinity | Sigma-T |
|--------|-------|----------|---------|
| 5      | 4.830 | 32.246   | 25.511  |
| 10     | 4.047 | 32.270   | 25.611  |
| 20     | 3.702 | 32.352   | 25.708  |
| 30     | 3.513 | 32.382   | 25.750  |
| 40     | 3.118 | 32.573   | 25.938  |
| 45     | 2.913 | 32.736   | 26.086  |

STATION US15158  
LATITUDE 41-42.8 N  
LONGITUDE 140-45.0 E  
DEPTH (m) 83

| Press. | Temp. | Salinity | Sigma-T |
|--------|-------|----------|---------|
| 5      | 9.118 | 33.885   | 26.226  |
| 10     | 9.213 | 33.913   | 26.233  |
| 20     | 9.194 | 33.987   | 26.294  |
| 30     | 9.153 | 33.992   | 26.305  |
| 40     | 9.124 | 33.994   | 26.311  |
| 50     | 8.979 | 34.016   | 26.351  |
| 75     | 8.585 | 34.069   | 26.454  |

STATION US15161  
LATITUDE 41-37.0 N  
LONGITUDE 140-51.2 E  
DEPTH (m) 97

| Press. | Temp. | Salinity | Sigma-T |
|--------|-------|----------|---------|
| 5      | 9.487 | 33.938   | 26.208  |
| 10     | 9.477 | 34.015   | 26.270  |
| 20     | 9.453 | 34.035   | 26.289  |
| 30     | 9.451 | 34.036   | 26.291  |
| 40     | 9.440 | 34.041   | 26.296  |
| 50     | 9.416 | 34.054   | 26.310  |
| 75     | 9.418 | 34.055   | 26.311  |

STATION US15157-3  
LATITUDE 42-23.7 N  
LONGITUDE 140-47.4 E  
DEPTH (m) 47

| Press. | Temp. | Salinity | Sigma-T |
|--------|-------|----------|---------|
| 5      | 4.411 | 32.372   | 25.655  |
| 10     | 4.399 | 32.374   | 25.658  |
| 20     | 3.975 | 32.406   | 25.726  |
| 30     | 3.855 | 32.422   | 25.750  |
| 40     | 3.091 | 32.701   | 26.042  |

STATION US15159  
LATITUDE 41-40.8 N  
LONGITUDE 140-47.2 E  
DEPTH (m) 223

| Press. | Temp. | Salinity | Sigma-T |
|--------|-------|----------|---------|
| 5      | 9.468 | 33.984   | 26.247  |
| 10     | 9.465 | 33.984   | 26.248  |
| 20     | 9.304 | 34.006   | 26.291  |
| 30     | 9.252 | 34.014   | 26.305  |
| 40     | 9.188 | 34.025   | 26.325  |
| 50     | 9.078 | 34.034   | 26.349  |
| 75     | 9.002 | 34.033   | 26.361  |
| 100    | 8.888 | 34.025   | 26.372  |
| 125    | 8.780 | 34.032   | 26.394  |
| 150    | 8.679 | 34.049   | 26.424  |
| 175    | 8.580 | 34.068   | 26.454  |
| 200    | 8.512 | 34.100   | 26.490  |

STATION US15162  
LATITUDE 41-35.9 N  
LONGITUDE 140-52.7 E  
DEPTH (m) 43

| Press. | Temp. | Salinity | Sigma-T |
|--------|-------|----------|---------|
| 5      | 9.494 | 33.922   | 26.195  |
| 10     | 9.491 | 34.016   | 26.269  |
| 20     | 9.479 | 34.023   | 26.276  |
| 30     | 9.466 | 34.027   | 26.281  |

STATION US15157-4  
LATITUDE 42-22.6 N  
LONGITUDE 140-46.7 E  
DEPTH (m) 51

| Press. | Temp. | Salinity | Sigma-T |
|--------|-------|----------|---------|
| 5      | 4.160 | 32.405   | 25.706  |
| 10     | 4.131 | 32.402   | 25.707  |
| 20     | 3.973 | 32.407   | 25.726  |
| 30     | 3.879 | 32.422   | 25.747  |
| 40     | 3.550 | 32.571   | 25.898  |
| 45     | 2.896 | 32.894   | 26.213  |

STATION US15160  
LATITUDE 41-38.9 N  
LONGITUDE 140-49.2 E  
DEPTH (m) 349

| Press. | Temp. | Salinity | Sigma-T |
|--------|-------|----------|---------|
| 5      | 9.710 | 33.988   | 26.210  |
| 10     | 9.498 | 33.981   | 26.240  |
| 20     | 9.417 | 33.992   | 26.262  |
| 30     | 9.468 | 34.022   | 26.277  |
| 40     | 9.462 | 34.038   | 26.290  |
| 50     | 9.412 | 34.050   | 26.308  |
| 75     | 9.337 | 34.077   | 26.341  |
| 100    | 9.276 | 34.086   | 26.358  |
| 125    | 9.257 | 34.088   | 26.363  |
| 150    | 9.134 | 34.090   | 26.384  |
| 175    | 9.139 | 34.091   | 26.384  |
| 200    | 9.174 | 34.092   | 26.379  |
| 250    | 8.976 | 34.098   | 26.415  |
| 300    | 8.817 | 34.106   | 26.447  |

STATION US15163  
LATITUDE 41-59.2 N  
LONGITUDE 141-01.9 E  
DEPTH (m) 101

| Press. | Temp. | Salinity | Sigma-T |
|--------|-------|----------|---------|
| 5      | 3.946 | 32.289   | 25.635  |
| 10     | 3.915 | 32.289   | 25.639  |
| 20     | 3.824 | 32.335   | 25.684  |
| 30     | 3.364 | 32.591   | 25.930  |
| 40     | 2.903 | 32.711   | 26.066  |
| 50     | 2.637 | 32.761   | 26.128  |
| 75     | 2.975 | 33.039   | 26.322  |
| 95     | 4.341 | 33.525   | 26.578  |

| STATION   |       | US15164  |         |
|-----------|-------|----------|---------|
| LATITUDE  |       | 41-58.7  | N       |
| LONGITUDE |       | 141-00.7 | E       |
| DEPTH (m) |       | 94       |         |
| Press.    | Temp. | Salinity | Sigma-T |
| 5         | 3.956 | 32.283   | 25.630  |
| 10        | 3.860 | 32.331   | 25.677  |
| 20        | 3.709 | 32.540   | 25.857  |
| 30        | 2.487 | 32.720   | 26.108  |
| 40        | 2.290 | 32.812   | 26.197  |
| 50        | 2.378 | 32.885   | 26.249  |
| 75        | 3.740 | 33.280   | 26.443  |
| 90        | 4.416 | 33.551   | 26.590  |

| STATION   |       | US15167  |         |
|-----------|-------|----------|---------|
| LATITUDE  |       | 42-22.4  | N       |
| LONGITUDE |       | 140-47.0 | E       |
| DEPTH (m) |       | 50       |         |
| Press.    | Temp. | Salinity | Sigma-T |
| 5         | 4.539 | 32.255   | 25.549  |
| 10        | 4.506 | 32.255   | 25.552  |
| 20        | 4.270 | 32.287   | 25.601  |
| 30        | 4.009 | 32.347   | 25.676  |
| 40        | 2.791 | 32.795   | 26.143  |

| STATION   |       | US15170  |         |
|-----------|-------|----------|---------|
| LATITUDE  |       | 42-10.2  | N       |
| LONGITUDE |       | 140-47.4 | E       |
| DEPTH (m) |       | 95       |         |
| Press.    | Temp. | Salinity | Sigma-T |
| 5         | 4.596 | 32.008   | 25.347  |
| 10        | 4.555 | 32.024   | 25.363  |
| 20        | 4.434 | 32.121   | 25.453  |
| 30        | 4.009 | 32.363   | 25.688  |
| 40        | 3.758 | 32.420   | 25.757  |
| 50        | 2.913 | 32.741   | 26.089  |
| 75        | 3.511 | 33.203   | 26.404  |

| STATION   |       | US15173  |         |
|-----------|-------|----------|---------|
| LATITUDE  |       | 42-16.2  | N       |
| LONGITUDE |       | 140-37.3 | E       |
| DEPTH (m) |       | 89       |         |
| Press.    | Temp. | Salinity | Sigma-T |
| 5         | 4.787 | 32.261   | 25.528  |
| 10        | 4.708 | 32.271   | 25.544  |
| 20        | 4.630 | 32.280   | 25.559  |
| 30        | 4.449 | 32.285   | 25.582  |
| 40        | 3.745 | 32.442   | 25.776  |
| 50        | 2.906 | 32.761   | 26.106  |
| 75        | 4.398 | 33.549   | 26.591  |

| STATION   |       | US15165  |         |
|-----------|-------|----------|---------|
| LATITUDE  |       | 41-58.0  | N       |
| LONGITUDE |       | 140-59.5 | E       |
| DEPTH (m) |       | 86       |         |
| Press.    | Temp. | Salinity | Sigma-T |
| 5         | 3.947 | 32.282   | 25.629  |
| 10        | 3.878 | 32.308   | 25.657  |
| 20        | 3.058 | 32.648   | 26.003  |
| 30        | 2.844 | 32.757   | 26.106  |
| 40        | 2.295 | 32.821   | 26.204  |
| 50        | 2.365 | 32.888   | 26.252  |
| 75        | 3.826 | 33.318   | 26.465  |

| STATION   |       | US15168  |         |
|-----------|-------|----------|---------|
| LATITUDE  |       | 42-17.5  | N       |
| LONGITUDE |       | 141-05.9 | E       |
| DEPTH (m) |       | 69       |         |
| Press.    | Temp. | Salinity | Sigma-T |
| 5         | 4.590 | 32.162   | 25.477  |
| 10        | 3.876 | 32.644   | 25.924  |
| 20        | 3.627 | 32.685   | 25.981  |
| 30        | 3.234 | 32.777   | 26.090  |
| 40        | 3.294 | 32.869   | 26.158  |
| 50        | 4.040 | 33.066   | 26.244  |

| STATION   |       | US15171  |         |
|-----------|-------|----------|---------|
| LATITUDE  |       | 42-09.6  | N       |
| LONGITUDE |       | 140-36.6 | E       |
| DEPTH (m) |       | 73       |         |
| Press.    | Temp. | Salinity | Sigma-T |
| 5         | 5.127 | 31.667   | 25.020  |
| 10        | 4.941 | 31.822   | 25.163  |
| 20        | 4.538 | 32.124   | 25.445  |
| 30        | 3.840 | 32.353   | 25.696  |
| 40        | 3.205 | 32.619   | 25.967  |
| 50        | 2.760 | 32.802   | 26.151  |
| 65        | 3.038 | 33.010   | 26.294  |

| STATION   |       | US15174  |         |
|-----------|-------|----------|---------|
| LATITUDE  |       | 42-19.0  | N       |
| LONGITUDE |       | 140-23.2 | E       |
| DEPTH (m) |       | 54       |         |
| Press.    | Temp. | Salinity | Sigma-T |
| 5         | 5.157 | 31.536   | 24.913  |
| 10        | 5.053 | 31.628   | 24.997  |
| 20        | 4.691 | 32.174   | 25.469  |
| 30        | 3.341 | 32.542   | 25.893  |
| 40        | 2.969 | 32.728   | 26.075  |

| STATION   |       | US15166  |         |
|-----------|-------|----------|---------|
| LATITUDE  |       | 41-57.4  | N       |
| LONGITUDE |       | 140-58.2 | E       |
| DEPTH (m) |       | 78       |         |
| Press.    | Temp. | Salinity | Sigma-T |
| 5         | 4.050 | 32.253   | 25.597  |
| 10        | 4.031 | 32.253   | 25.599  |
| 20        | 3.220 | 32.620   | 25.966  |
| 30        | 2.500 | 32.709   | 26.098  |
| 40        | 2.404 | 32.807   | 26.184  |
| 50        | 3.121 | 33.054   | 26.321  |

| STATION   |       | US15169  |         |
|-----------|-------|----------|---------|
| LATITUDE  |       | 42-00.7  | N       |
| LONGITUDE |       | 141-01.0 | E       |
| DEPTH (m) |       | 93       |         |
| Press.    | Temp. | Salinity | Sigma-T |
| 5         | 4.333 | 32.740   | 25.955  |
| 10        | 4.334 | 32.741   | 25.955  |
| 20        | 4.333 | 32.742   | 25.957  |
| 30        | 4.279 | 32.751   | 25.970  |
| 40        | 3.541 | 32.836   | 26.109  |
| 50        | 4.193 | 33.115   | 26.267  |
| 75        | 3.651 | 33.331   | 26.493  |

| STATION   |       | US15172  |         |
|-----------|-------|----------|---------|
| LATITUDE  |       | 42-11.0  | N       |
| LONGITUDE |       | 140-35.8 | E       |
| DEPTH (m) |       | 80       |         |
| Press.    | Temp. | Salinity | Sigma-T |
| 5         | 4.518 | 32.281   | 25.571  |
| 10        | 4.514 | 32.282   | 25.573  |
| 20        | 4.481 | 32.282   | 25.576  |
| 30        | 4.203 | 32.272   | 25.597  |
| 40        | 3.026 | 32.601   | 25.968  |
| 50        | 2.653 | 32.798   | 26.157  |
| 75        | 4.073 | 33.433   | 26.532  |

| STATION   |       | US15175  |         |
|-----------|-------|----------|---------|
| LATITUDE  |       | 42-23.3  | N       |
| LONGITUDE |       | 140-30.8 | E       |
| DEPTH (m) |       | 95       |         |
| Press.    | Temp. | Salinity | Sigma-T |
| 5         | 5.359 | 32.066   | 25.310  |
| 10        | 5.283 | 32.092   | 25.339  |
| 20        | 4.804 | 32.143   | 25.432  |
| 30        | 3.900 | 32.361   | 25.697  |
| 40        | 3.525 | 32.503   | 25.846  |
| 50        | 2.928 | 32.795   | 26.131  |
| 75        | 3.743 | 33.273   | 26.438  |

| STATION US15176      |       |          |         |
|----------------------|-------|----------|---------|
| LATITUDE 42-31.4 N   |       |          |         |
| LONGITUDE 140-37.7 E |       |          |         |
| DEPTH (m) 60         |       |          |         |
| Press.               | Temp. | Salinity | Sigma-T |
| 5                    | 5.077 | 32.204   | 25.451  |
| 10                   | 5.050 | 32.204   | 25.454  |
| 20                   | 4.922 | 32.208   | 25.471  |
| 30                   | 4.769 | 32.221   | 25.497  |
| 40                   | 4.230 | 32.325   | 25.636  |
| 50                   | 3.638 | 32.458   | 25.799  |
| 55                   | 3.165 | 32.618   | 25.970  |

| STATION US15179      |       |          |         |
|----------------------|-------|----------|---------|
| LATITUDE 42-17.4 N   |       |          |         |
| LONGITUDE 140-53.9 E |       |          |         |
| DEPTH (m) 57         |       |          |         |
| Press.               | Temp. | Salinity | Sigma-T |
| 5                    | 5.195 | 32.043   | 25.310  |
| 10                   | 5.027 | 32.065   | 25.346  |
| 20                   | 4.648 | 32.116   | 25.427  |
| 30                   | 4.002 | 32.296   | 25.635  |
| 40                   | 3.641 | 32.550   | 25.872  |
| 50                   | 2.797 | 32.693   | 26.061  |

| STATION US15182      |       |          |         |
|----------------------|-------|----------|---------|
| LATITUDE 42-09.8 N   |       |          |         |
| LONGITUDE 141-09.7 E |       |          |         |
| DEPTH (m) 121        |       |          |         |
| Press.               | Temp. | Salinity | Sigma-T |
| 5                    | 5.151 | 32.541   | 25.709  |
| 10                   | 4.923 | 32.682   | 25.847  |
| 20                   | 4.857 | 32.893   | 26.021  |
| 30                   | 4.601 | 32.959   | 26.100  |
| 40                   | 3.783 | 33.082   | 26.282  |
| 50                   | 4.758 | 33.244   | 26.310  |
| 75                   | 6.124 | 33.565   | 26.403  |
| 100                  | 5.510 | 33.472   | 26.405  |

| STATION US15177      |       |          |         |
|----------------------|-------|----------|---------|
| LATITUDE 42-23.4 N   |       |          |         |
| LONGITUDE 140-42.6 E |       |          |         |
| DEPTH (m) 62         |       |          |         |
| Press.               | Temp. | Salinity | Sigma-T |
| 5                    | 5.294 | 32.131   | 25.369  |
| 10                   | 4.977 | 32.142   | 25.412  |
| 20                   | 4.443 | 32.279   | 25.578  |
| 30                   | 4.375 | 32.294   | 25.597  |
| 40                   | 3.557 | 32.484   | 25.827  |
| 50                   | 2.921 | 32.839   | 26.167  |

| STATION US15180      |       |          |         |
|----------------------|-------|----------|---------|
| LATITUDE 42-14.9 N   |       |          |         |
| LONGITUDE 141-04.9 E |       |          |         |
| DEPTH (m) 79         |       |          |         |
| Press.               | Temp. | Salinity | Sigma-T |
| 5                    | 4.705 | 31.689   | 25.083  |
| 10                   | 4.130 | 32.039   | 25.419  |
| 20                   | 3.590 | 32.345   | 25.713  |
| 30                   | 3.711 | 32.537   | 25.855  |
| 40                   | 2.968 | 32.503   | 25.895  |
| 50                   | 2.923 | 32.739   | 26.087  |
| 75                   | 3.586 | 33.051   | 26.276  |

| STATION US15183      |       |          |         |
|----------------------|-------|----------|---------|
| LATITUDE 41-59.6 N   |       |          |         |
| LONGITUDE 141-09.5 E |       |          |         |
| DEPTH (m) 132        |       |          |         |
| Press.               | Temp. | Salinity | Sigma-T |
| 5                    | 5.359 | 32.704   | 25.815  |
| 10                   | 5.202 | 32.689   | 25.819  |
| 20                   | 4.403 | 32.726   | 25.937  |
| 30                   | 4.413 | 32.802   | 25.996  |
| 40                   | 5.288 | 33.320   | 26.311  |
| 50                   | 5.627 | 33.389   | 26.325  |
| 75                   | 5.379 | 33.450   | 26.403  |
| 100                  | 5.548 | 33.531   | 26.447  |
| 125                  | 5.517 | 33.529   | 26.449  |

| STATION US15178      |       |          |         |
|----------------------|-------|----------|---------|
| LATITUDE 42-11.0 N   |       |          |         |
| LONGITUDE 140-35.8 E |       |          |         |
| DEPTH (m) 80         |       |          |         |
| Press.               | Temp. | Salinity | Sigma-T |
| 5                    | 4.750 | 32.290   | 25.554  |
| 10                   | 4.751 | 32.291   | 25.555  |
| 20                   | 4.498 | 32.294   | 25.584  |
| 30                   | 4.235 | 32.332   | 25.641  |
| 40                   | 3.617 | 32.489   | 25.826  |
| 50                   | 2.849 | 32.715   | 26.074  |

| STATION US15181      |       |          |         |
|----------------------|-------|----------|---------|
| LATITUDE 42-11.5 N   |       |          |         |
| LONGITUDE 141-02.3 E |       |          |         |
| DEPTH (m) 81         |       |          |         |
| Press.               | Temp. | Salinity | Sigma-T |
| 5                    | 5.002 | 31.719   | 25.074  |
| 10                   | 4.683 | 32.004   | 25.334  |
| 20                   | 3.538 | 32.517   | 25.855  |
| 30                   | 2.836 | 32.571   | 25.960  |
| 40                   | 2.825 | 32.741   | 26.097  |
| 50                   | 3.233 | 32.828   | 26.131  |
| 75                   | 3.809 | 33.094   | 26.289  |