



# HOKKAIDO UNIVERSITY

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| Title            | 9.THE " USHIO MARU " CRUISE 375, CRUISE 376, CRUISE 377, CRUISE 378 IN NOVEMBER - DECEMBER 2016 |
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**THE " USHIO MARU "**

**CRUISE 375**

**CRUISE 376**

**CRUISE 377**

**CRUISE 378**

**IN NOVEMBER 2016**

**IN DECEMBER 2016**

## 1.Cruise Itinerary

### 1. Cruise Itinerary

#### Cruise 375

|                                        |              |
|----------------------------------------|--------------|
| Departure from Hakodate                | Nov. 7, 2016 |
| Start hydrographic research (US16449)  | 7            |
| Finish hydrographic research (US16456) | 8            |
| Return to Hakodate                     | 8            |
| Total coverage 128.8 miles             |              |

#### Cruise 376

|                                        |               |
|----------------------------------------|---------------|
| Departure from Hakodate                | Nov. 14, 2016 |
| Start hydrographic research (US16457)  | 14            |
| Arrival at Hakodate                    | 15            |
| Departure from Hakodate                | 17            |
| Arrival at Muroran                     | 17            |
| Depart from Muroran                    | 18            |
| Sampling by trawl net                  | 18            |
| Arrival at Muroran                     | 18            |
| Departure from Muroran                 | 19            |
| Sampling by trawl net                  | 19            |
| Finish hydrographic research (US16480) | 19            |
| Return to Hakodate                     | 20            |
| Total coverage 349.3 miles             |               |

#### Cruise 377

|                                        |               |
|----------------------------------------|---------------|
| Departure from Hakodate                | Dec. 12, 2016 |
| Start hydrographic research (US16481)  | 13            |
| Retrieval ADCP mooring system          | 13            |
| Setting ADCP mooring system            | 14            |
| Arrival at Usujiri                     | 14            |
| Departure from Usujiri                 | 15            |
| Finish hydrographic research (US16509) | 15            |
| Return to Hakodate                     | 16            |
| Total coverage 330.9 miles             |               |

#### Cruise 378

|                                        |               |
|----------------------------------------|---------------|
| Departure from Hakodate                | Dec. 20, 2016 |
| Start hydrographic research (US16510)  | 20            |
| Finish hydrographic research (US14527) | 21            |
| Return to Hakodate                     | 21            |
| Total coverage 116.2 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-19Plus and SBE-19). Dynamic computations were made using a desk-top computer aboard the “Ushio Maru”.



Figure 1. Oceanographic stations (Cruise 375)

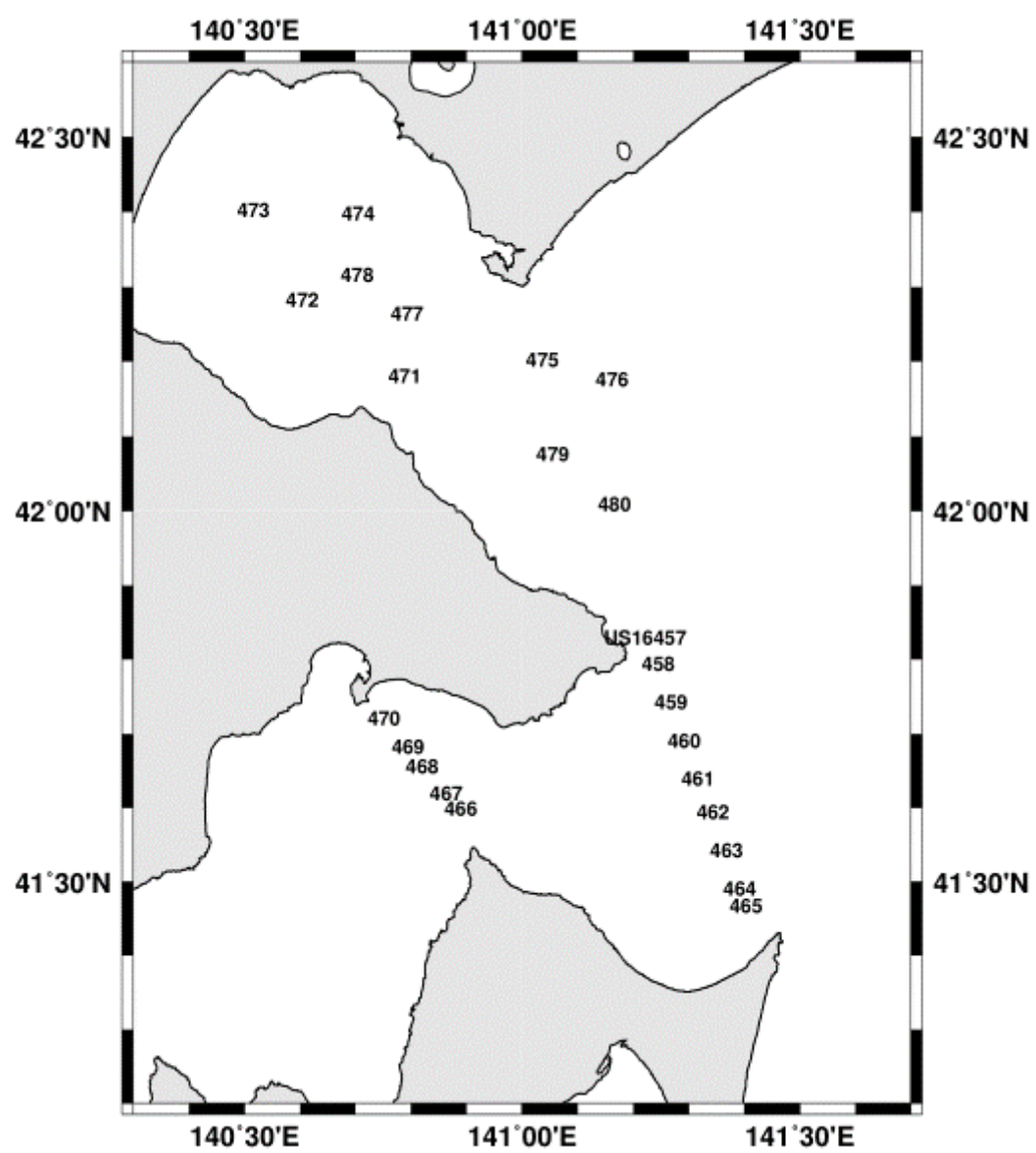


Figure 2. Oceanographic stations (Cruise 376)

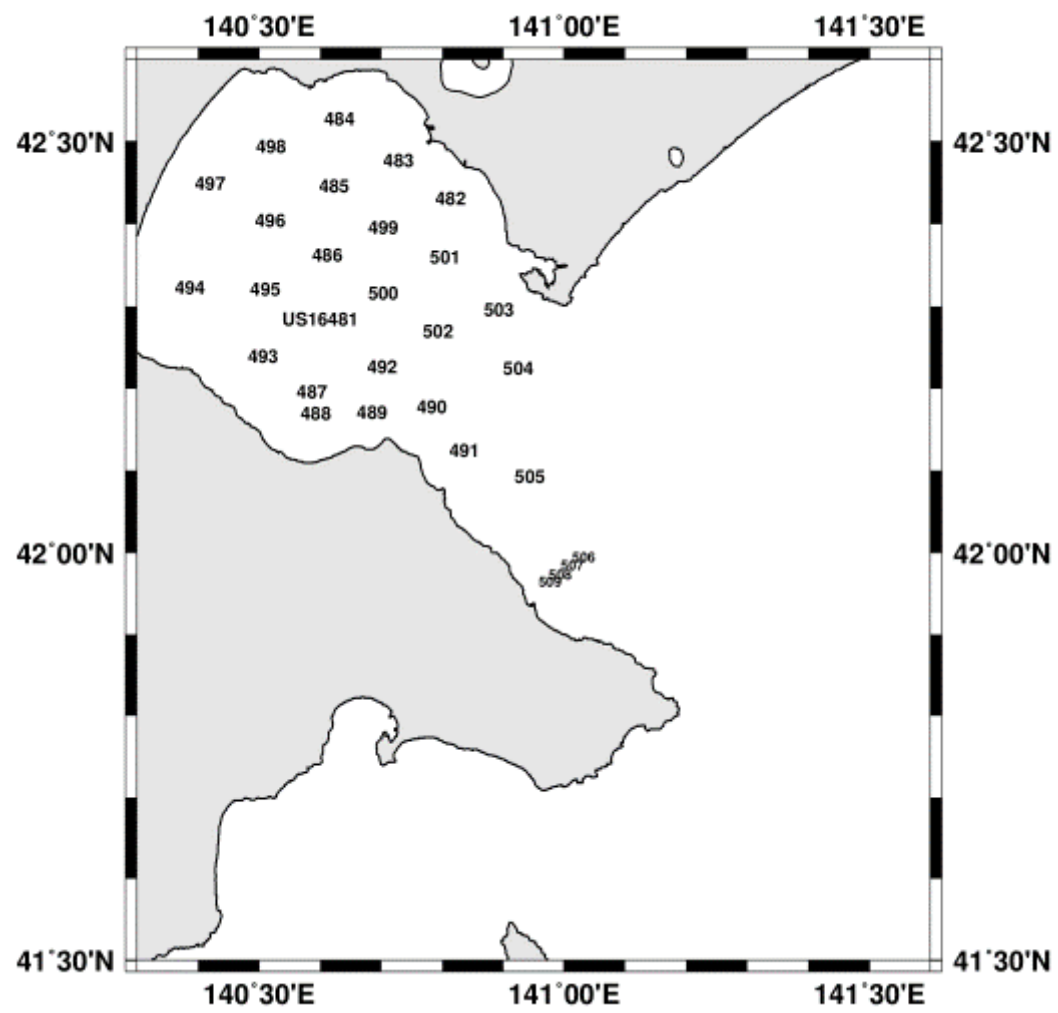


Figure 3. Oceanographic stations (Cruise 377)

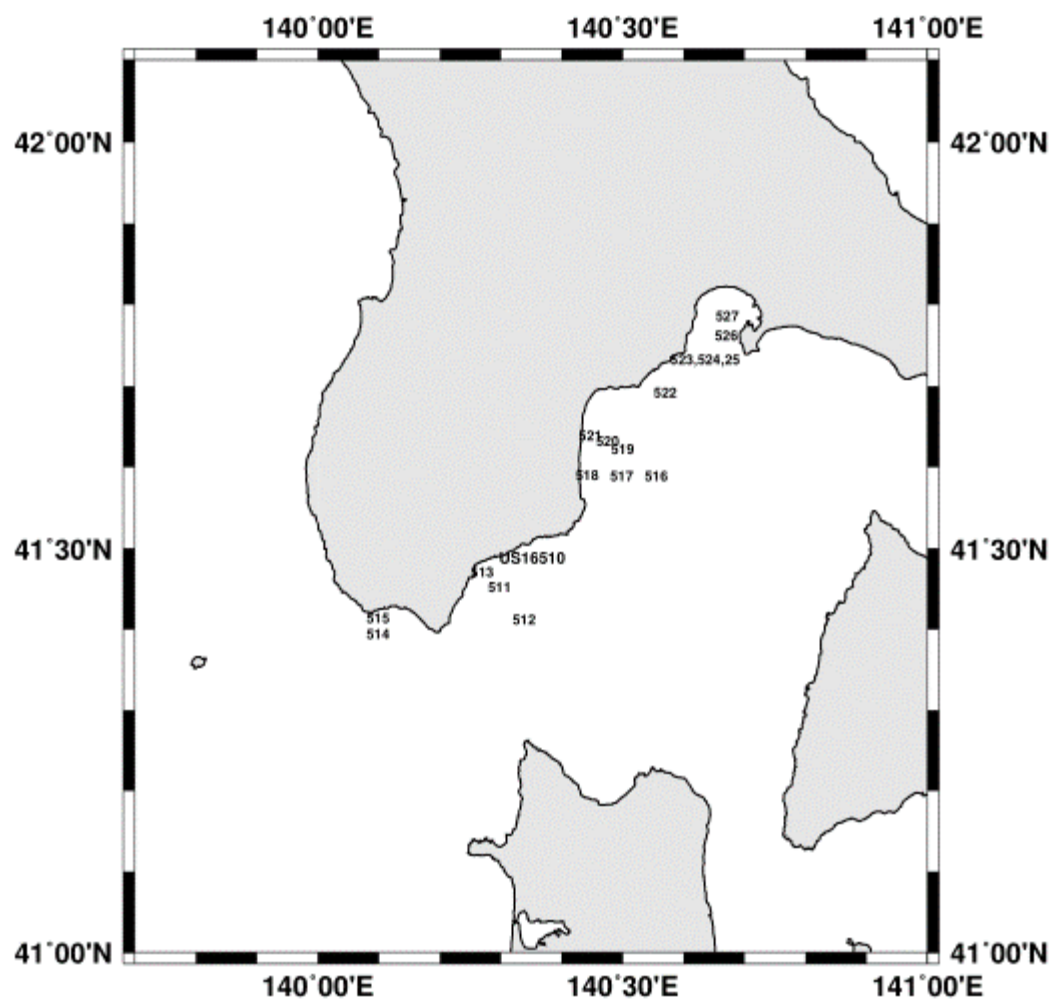


Figure 3. Oceanographic stations (Cruise 378)

Table 1. List of Oceanographic Station

| Cruise 375 |           |            |      |           |           |        |       |        |           |           |     |           |
|------------|-----------|------------|------|-----------|-----------|--------|-------|--------|-----------|-----------|-----|-----------|
| station    | Lat. (N)° | Long. (E)° | Date | Hour      | Depth (m) | Wave   | Swell | Wind   | Air Temp. | Sea Temp. | Wr. | Bar (hPa) |
| US16449    | 41-04.7   | 141-02.3   | 11/7 | 1232-1238 | 46        | Calm   | WNW-1 | Calm   | 8.1       | 14.1      | bc  | 1030.7    |
| US16450    | 41-03.7   | 140-52.6   | 11/7 | 1417-1424 | 50        | East-1 | NNW-1 | East-2 | 8.4       | 14.4      | bc  | 1029.3    |
| US16451    | 40-57.2   | 140-45.6   | 11/7 | 1557-1609 | 49        | East-2 | NE-1  | East-3 | 8.1       | 14.8      | bc  | 1028.1    |
| US16452    | 40-05.1   | 140-44.1   | 11/8 | 0534-0542 | 59        | WSW-1  | ESE-1 | WSW-2  | 7.9       | 14.7      | c   | 1018.1    |
| US16453    | 41-11.3   | 140-40.1   | 11/8 | 0624-0632 | 54        | SE-2   | ESE-1 | SE-3   | 8.7       | 15.1      | c   | 1018      |
| US16454    | 41-12.0   | 140-41.9   | 11/8 | 0643-0650 | 74        | SSE-2  | ESE-1 | SSE-3  | 8.9       | 15.4      | o   | 1017.9    |
| US16455    | 41-12.3   | 140-43.4   | 11/8 | 0702-0713 | 69        | ESE-3  | ESE-1 | ESE-4  | 9.3       | 15.2      | o   | 1017.2    |
| US16456    | 41-12.8   | 140-45.1   | 11/8 | 0720-0730 | 62        | SE-3   | ESE-1 | SE-5   | 9.3       | 15.1      | o   | 1016.8    |

| Cruise 376 |           |            |       |           |           |         |         |         |           |           |     |           |
|------------|-----------|------------|-------|-----------|-----------|---------|---------|---------|-----------|-----------|-----|-----------|
| station    | Lat. (N)° | Long. (E)° | Date  | Hour      | Depth (m) | Wave    | Swell   | Wind    | Air Temp. | Sea Temp. | Wr. | Bar (hPa) |
| US16457    | 41-49.2   | 141-13.3   | 11/14 | 1204-1219 | 174       | SSE-2   | South-1 | SSE-3   | 10.9      | 11.9      | bc  | 1023.8    |
| US16458    | 41-47.1   | 141-14.7   | 11/14 | 1310-1326 | 200       | SSE-3   | SE-1    | SSE-5   | 11.5      | 11.1      | bc  | 1021.4    |
| US16459    | 41-44.0   | 141-16.1   | 11/14 | 1348-1406 | 227       | SE-3    | SE-1    | SE-5    | 12.1      | 13.5      | bc  | 1020.7    |
| US16460    | 41-40.9   | 141-17.5   | 11/14 | 1428-1445 | 230       | SSE-3   | SE-1    | SSE-5   | 12.3      | 14        | bc  | 1020      |
| US16461    | 41-37.8   | 141-19.0   | 11/14 | 1509-1525 | 214       | SSE-3   | SE-1    | SSE-6   | 12.9      | 14        | bc  | 1019.8    |
| US16462    | 41-35.1   | 141-20.6   | 11/14 | 1546-1610 | 309       | SSE-3   | SE-1    | SSE-6   | 13        | 14.1      | bc  | 1019.3    |
| US16463    | 41-32.0   | 141-22.1   | 11/14 | 1637-1647 | 253       | SSE-3   | SE-1    | SSE-6   | 12.9      | 14.8      | bc  | 1018      |
| US16464    | 41-28.9   | 141-23.5   | 11/14 | 1712-1719 | 90        | SSE-3   | SE-1    | SSE-7   | 13.4      | 14.7      | bc  | 1017.5    |
| US16465    | 41-27.5   | 141-24.2   | 11/14 | 1731-1735 | 49        | SSE-3   | SE-1    | SSE-6   | 13.7      | 14.7      | bc  | 1017.3    |
| US16466    | 41-35.4   | 140-53.4   | 11/14 | 2013-2019 | 50        | SE-1    | East-1  | SE-1    | 13.3      | 14.9      | c   | 1016.1    |
| US16467    | 41-36.6   | 140-51.8   | 11/14 | 2037-2046 | 72        | East-1  | East-1  | Calm    | 13        | 14.9      | c   | 1015.4    |
| US16468    | 41-38.8   | 140-49.2   | 11/14 | 2115-2137 | 300       | NE-1    | East-1  | Calm    | 13        | 14.2      | bc  | 1014.5    |
| US16469    | 41-40.4   | 140-47.7   | 11/14 | 2211-2235 | 253       | SW-1    | East-1  | WSW-2   | 12.7      | 13.4      | bc  | 1013.5    |
| US16470    | 41-42.7   | 140-45.1   | 11/14 | 2259-2308 | 85        | Calm    | East-1  | Calm    | 11.8      | 14.2      | bc  | 1012.5    |
| US16471    | 42-10.3   | 140-47.3   | 11/17 | 1135-1143 | 92        | NW-3    | NW-1    | NW-6    | 3         | 10.3      | bc  | 1020.7    |
| US16472    | 42-16.4   | 140-36.3   | 11/17 | 1252-1300 | 90        | WNW-3   | NW-1    | WNW-6   | 3.2       | 10        | bc  | 1020.7    |
| US16473    | 42-23.6   | 140-31.0   | 11/17 | 1352-1400 | 94        | West-3  | WNW-1   | West-6  | 3         | 9.8       | bc  | 1020.4    |
| US16474    | 42-23.3   | 140-42.3   | 11/17 | 1452-1458 | 63        | West-3  | WNW-1   | West-6  | 3.4       | 9.8       | bc  | 1021      |
| US16475    | 42-11.6   | 141-02.2   | 11/18 | 0756-0802 | 79        | WSW-3   | WSW-1   | WSW-4   | 6.6       | 10.6      | bc  | 1022.8    |
| US16476    | 42-10.0   | 141-09.7   | 11/18 | 0914-0921 | 120       | SW-3    | WSW-1   | SW-4    | 7.6       | 11        | c   | 1023      |
| US16477    | 42-15.3   | 140-47.6   | 11/18 | 1136-1145 | 70        | WSW-3   | WSW-1   | WSW-5   | 9.7       | 10.3      | c   | 1020      |
| US16478    | 42-18.4   | 140-42.2   | 11/19 | 0813-0818 | 64        | South-1 | West-1  | South-2 | 10.9      | 9.6       | o   | 1018      |
| US16479    | 42-04.0   | 141-03.3   | 11/19 | 1056-1101 | 96        | South-2 | SE-1    | South-4 | 12.5      | 11.1      | o   | 1017.3    |
| US16480    | 42-00.0   | 141-10.0   | 11/19 | 1218-1227 | 134       | SW-2    | SE-1    | SW-4    | 13.2      | 11.3      | c   | 1016.2    |

Table 1. List of Oceanographic Station(continued)

| Cruise 377 |           |            |       |           |           |        |        |        |           |           |     |           |
|------------|-----------|------------|-------|-----------|-----------|--------|--------|--------|-----------|-----------|-----|-----------|
| station    | Lat. (N)° | Long. (E)° | Date  | Hour      | Depth (m) | Wave   | Swell  | Wind   | Air Temp. | Sea Temp. | Wr. | Bar (hPa) |
| US16481    | 42-16.6   | 140-36.0   | 12/12 | 1455-1505 | 90        | NW-2   | NW-1   | NW-4   | 0.8       | 8.2       | bc  | 1027      |
| US16482    | 42-25.4   | 140-48.8   | 12/13 | 0717-0721 | 42        | SE-3   | SE-1   | SE-6   | 5.7       | 7.8       | r   | 1016      |
| US16483    | 42-28.2   | 140-43.7   | 12/13 | 0802-0806 | 58        | SSE-3  | SSE-2  | SSE-6  | 6         | 8         | o   | 1015.7    |
| US16484    | 42-31.2   | 140-37.9   | 12/13 | 0840-0847 | 60        | SSE-3  | SSE-2  | SSE-5  | 6.1       | 7.8       | o   | 1014.5    |
| US16485    | 42-26.3   | 140-37.4   | 12/13 | 0931-0936 | 81        | SSW-3  | SSE-1  | SSW-5  | 6.1       | 7.9       | r   | 1014.1    |
| US16486    | 42-21.3   | 140-36.7   | 12/13 | 1020-1027 | 86        | West-3 | ESE-1  | West-5 | 5.1       | 7.8       | r   | 1014.6    |
| US16487    | 42-11.3   | 140-35.2   | 12/13 | 1152-1157 | 80        | West-2 | West-1 | West-4 | 6         | 8         | c   | 1014.2    |
| US16488    | 42-09.7   | 140-35.6   | 12/13 | 1211-1219 | 72        | West-2 | West-1 | West-4 | 6         | 8.2       | c   | 1014.1    |
| US16489    | 42-09.8   | 140-41.1   | 12/13 | 1258-1304 | 79        | West-2 | West-1 | West-4 | 6.6       | 8.4       | c   | 1014.2    |
| US16490    | 42-10.2   | 140-47.0   | 12/13 | 1342-1349 | 94        | West-3 | West-1 | West-5 | 6.5       | 8.5       | o   | 1014.4    |
| US16491    | 42-07.0   | 140-50.2   | 12/13 | 1422-1425 | 63        | WNW-3  | West-1 | WNW-4  | 5.9       | 8.6       | o   | 1014.6    |
| US16492    | 42-13.1   | 140-42.1   | 12/14 | 0900-0907 | 89        | West-2 | NW-1   | West-4 | 1.2       | 8.1       | o   | 1010.6    |
| US16493    | 42-13.9   | 140-30.4   | 12/14 | 1013-1018 | 79        | West-1 | NW-1   | West-2 | 1.5       | 8         | c   | 1009.7    |
| US16494    | 42-18.9   | 140-23.2   | 12/14 | 1111-1115 | 54        | NW-1   | NW-1   | NW-1   | 1.7       | 7.8       | c   | 1008.1    |
| US16495    | 42-18.8   | 140-30.6   | 12/14 | 1202-1209 | 92        | West-1 | NW-1   | West-2 | 2.2       | 7.9       | bc  | 1007.5    |
| US16496    | 42-23.8   | 140-31.1   | 12/14 | 1250-1258 | 95        | NNW-1  | NW-1   | NNW-2  | 2.2       | 8         | bc  | 1006.4    |
| US16497    | 42-26.5   | 140-25.2   | 12/14 | 1331-1337 | 63        | NNW-1  | NW-1   | NNW-2  | 1.8       | 7.9       | bc  | 1005.8    |
| US16498    | 42-29.2   | 140-31.2   | 12/14 | 1422-1429 | 73        | NNW-1  | NW-1   | NNW-2  | 3.4       | 7.9       | bc  | 1005.3    |
| US16499    | 42-23.3   | 140-42.2   | 12/14 | 1534-1539 | 63        | WNW-1  | NW-1   | WNW-2  | 2.1       | 7.9       | bc  | 1005.1    |
| US16500    | 42-18.5   | 140-42.2   | 12/15 | 0706-0710 | 64        | NNW-2  | ESE-1  | NNW-4  | -0.4      | 9         | c   | 1010.6    |
| US16501    | 42-21.1   | 140-48.3   | 12/15 | 0746-0751 | 51        | West-2 | SE-1   | West-2 | -0.6      | 8.2       | bc  | 1010.9    |
| US16502    | 42-15.7   | 140-47.6   | 12/15 | 0830-0836 | 70        | WSW-2  | SE-1   | WSW-4  | -0.6      | 9         | c   | 1010.8    |
| US16503    | 42-17.3   | 140-53.6   | 12/15 | 0919-0924 | 58        | WNW-2  | ESE-1  | WNW-3  | 1.2       | 9.4       | bc  | 1011.1    |
| US16504    | 42-13.0   | 140-55.5   | 12/15 | 1001-1007 | 67        | West-2 | ESE-1  | West-4 | 0.8       | 9.4       | c   | 1011.1    |
| US16505    | 42-05.1   | 140-56.6   | 12/15 | 1104-1111 | 83        | West-2 | ESE-1  | West-4 | 0.7       | 9.5       | bc  | 1010.6    |
| US16506    | 41-59.3   | 141-01.9   | 12/15 | 1201-1206 | 100       | NW-2   | ESE-1  | NW-2   | 1.2       | 9.6       | bc  | 1010.1    |
| US16507    | 41-58.7   | 141-00.8   | 12/15 | 1214-1219 | 94        | Calm   | ESE-1  | Calm   | 1.5       | 9.7       | c   | 1010.1    |
| US16508    | 41-58.0   | 140-59.6   | 12/15 | 1229-1233 | 86        | Calm   | ESE-1  | Calm   | 1.2       | 9.7       | c   | 1010.1    |
| US16509    | 41-57.5   | 140-58.6   | 12/15 | 1242-1247 | 81        | SW-2   | ESE-1  | SW-4   | 0.7       | 9.7       | o   | 1009.7    |

| Cruise 378 |           |            |       |           |           |        |         |        |           |           |     |           |
|------------|-----------|------------|-------|-----------|-----------|--------|---------|--------|-----------|-----------|-----|-----------|
| station    | Lat. (N)° | Long. (E)° | Date  | Hour      | Depth (m) | Wave   | Swell   | Wind   | Air Temp. | Sea Temp. | Wr. | Bar (hPa) |
| US16510    | 41-28.9   | 140-21.1   | 12/20 | 1025-1031 | 63        | West-2 | SW-1    | West-4 | 8.3       | 10.6      | c   | 1025.5    |
| US16511    | 41-26.8   | 140-17.9   | 12/20 | 1100-1106 | 65        | WNW-2  | SW-1    | WNW-4  | 8.5       | 10.8      | c   | 1025.5    |
| US16512    | 41-24.4   | 140-20.3   | 12/20 | 1135-1143 | 95        | West-3 | SW-1    | West-5 | 8.2       | 10.9      | bc  | 1025.4    |
| US16513    | 41-27.9   | 140-16.2   | 12/20 | 1214-1218 | 24        | West-2 | SW-1    | West-5 | 8.1       | 10.7      | bc  | 1025.5    |
| US16514    | 41-23.3   | 140-05.9   | 12/20 | 1343-1350 | 100       | WNW-3  | West-1  | WNW-6  | 6.5       | 10.9      | bc  | 1025.5    |
| US16515    | 41-24.5   | 140-05.9   | 12/20 | 1407-1414 | 52        | NW-3   | West-1  | NW-6   | 6.4       | 10.4      | bc  | 1025.6    |
| US16516    | 41-35.0   | 140-33.3   | 12/21 | 0715-0722 | 56        | WNW-2  | SW-1    | WNW-3  | 7.5       | 11        | c   | 1029.3    |
| US16517    | 41-35.0   | 140-29.9   | 12/21 | 0757-0804 | 45        | NNW-2  | South-1 | NNW-3  | 5.2       | 11        | c   | 1029.9    |
| US16518    | 41-35.1   | 140-26.5   | 12/21 | 0822-0825 | 13        | NNW-2  | South-1 | NNW-3  | 3.7       | 10.7      | c   | 1029.8    |
| US16519    | 41-37.0   | 140-30.0   | 12/21 | 0907-0912 | 32        | NNW-2  | South-1 | NNW-3  | 5.4       | 10.7      | c   | 1030.5    |
| US16520    | 41-37.6   | 140-28.5   | 12/21 | 0932-0937 | 23        | WNW-2  | South-1 | WNW-3  | 5         | 10.1      | c   | 1030.7    |
| US16521    | 41-38.0   | 140-26.8   | 12/21 | 0947-0952 | 16        | SW-2   | South-1 | SW-3   | 5.2       | 9.6       | c   | 1030.7    |
| US16522    | 41-41.2   | 140-34.2   | 12/21 | 1054-1100 | 39        | SSW-2  | South-1 | SSW-2  | 7.3       | 10.9      | c   | 1030.5    |
| US16523    | 41-43.7   | 140-36.6   | 12/21 | 1121-1126 | 33        | SSW-1  | SW-1    | SSW-2  | 7.5       | 10.8      | c   | 1030      |
| US16524    | 41-43.6   | 140-38.1   | 12/21 | 1154-1201 | 57        | SW-2   | SW-1    | SW-4   | 8         | 10.9      | o   | 1029.7    |
| US16525    | 41-43.5   | 140-40.0   | 12/21 | 1222-1230 | 67        | West-2 | SW-1    | West-4 | 8.2       | 10.7      | c   | 1029.6    |
| US16526    | 41-45.4   | 140-40.2   | 12/21 | 1254-1259 | 41        | Calm   | South-1 | Calm   | 7.2       | 10        | o   | 1029.5    |
| US16527    | 41-46.8   | 140-40.3   | 12/21 | 1320-1325 | 20        | Calm   | Calm    | Calm   | 6.9       | 8.8       | o   | 1029.5    |

Table 2. Oceanographic data

|                 |          |          |         |
|-----------------|----------|----------|---------|
| STATION US16449 |          |          |         |
| LATITUDE        | 41-04.7  | N        |         |
| LONGITUD        | 141-02.3 | E        |         |
| DEPTH (m)       | 46       |          |         |
| Press.          | Temp.    | Salinity | Sigma-T |
| 5               | 14.4548  | 33.5262  | 24.9529 |
| 10              | 14.3809  | 33.5256  | 24.9681 |
| 20              | 14.3994  | 33.5346  | 24.971  |
| 30              | 14.4     | 33.5364  | 24.9723 |
| 40              | 14.3733  | 33.5294  | 24.9726 |
| 42              | 14.3658  | 33.5288  | 24.9736 |

|                 |          |          |         |
|-----------------|----------|----------|---------|
| STATION US16452 |          |          |         |
| LATITUDE        | 40-05.1  | N        |         |
| LONGITUD        | 140-44.1 | E        |         |
| DEPTH (m)       | 59       |          |         |
| Press.          | Temp.    | Salinity | Sigma-T |
| 5               | 15.0861  | 33.7641  | 25.0004 |
| 10              | 15.0861  | 33.7614  | 24.9983 |
| 20              | 15.0954  | 33.7601  | 24.9953 |
| 30              | 15.0935  | 33.7596  | 24.9953 |
| 40              | 15.094   | 33.7595  | 24.9952 |
| 50              | 15.0924  | 33.7597  | 24.9956 |
| 55              | 15.0847  | 33.763   | 24.9998 |

|                 |          |          |         |
|-----------------|----------|----------|---------|
| STATION US16455 |          |          |         |
| LATITUDE        | 41-12.3  | N        |         |
| LONGITUD        | 140-43.4 | E        |         |
| DEPTH (m)       | 69       |          |         |
| Press.          | Temp.    | Salinity | Sigma-T |
| 5               | 15.4067  | 33.9214  | 25.051  |
| 10              | 15.4067  | 33.9175  | 25.0481 |
| 20              | 15.3901  | 33.9146  | 25.0496 |
| 30              | 15.3582  | 33.9088  | 25.0521 |
| 40              | 15.3265  | 33.9019  | 25.0538 |
| 50              | 15.1719  | 33.8668  | 25.0607 |
| 65              | 14.8863  | 33.9429  | 25.1816 |

|                 |          |          |         |
|-----------------|----------|----------|---------|
| STATION US16458 |          |          |         |
| LATITUDE        | 41-47.1  | N        |         |
| LONGITUD        | 141-14.7 | E        |         |
| DEPTH (m)       | 200      |          |         |
| Press.          | Temp.    | Salinity | Sigma-T |
| 5               | 11.6239  | 33.9802  | 25.8675 |
| 10              | 11.6119  | 33.9636  | 25.8569 |
| 20              | 11.5862  | 33.9602  | 25.859  |
| 30              | 11.5822  | 33.9602  | 25.8598 |
| 40              | 11.5898  | 33.9615  | 25.8593 |
| 50              | 11.4113  | 33.9853  | 25.9107 |
| 75              | 11.3834  | 33.9861  | 25.9165 |
| 100             | 11.3251  | 34.0012  | 25.9389 |
| 125             | 11.2596  | 34.0189  | 25.9646 |
| 150             | 11.0677  | 34.0143  | 25.9958 |
| 175             | 10.6941  | 34.0101  | 26.0591 |
| 191             | 10.6299  | 34.0051  | 26.0664 |

|                 |          |          |         |
|-----------------|----------|----------|---------|
| STATION US16450 |          |          |         |
| LATITUDE        | 41-03.7  | N        |         |
| LONGITUD        | 140-52.6 | E        |         |
| DEPTH (m)       | 50       |          |         |
| Press.          | Temp.    | Salinity | Sigma-T |
| 5               | 14.6579  | 33.6727  | 25.0226 |
| 10              | 14.6453  | 33.6615  | 25.0166 |
| 20              | 14.9581  | 33.8002  | 25.0561 |
| 30              | 14.9386  | 33.8239  | 25.0786 |
| 40              | 14.9038  | 33.8404  | 25.0989 |
| 46              | 14.8701  | 33.869   | 25.1281 |

|                 |          |          |         |
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| STATION US16453 |          |          |         |
| LATITUDE        | 41-11.3  | N        |         |
| LONGITUD        | 140-40.1 | E        |         |
| DEPTH (m)       | 54       |          |         |
| Press.          | Temp.    | Salinity | Sigma-T |
| 5               | 15.6628  | 33.8616  | 24.948  |
| 10              | 15.6676  | 33.8601  | 24.9457 |
| 20              | 15.6635  | 33.8585  | 24.9455 |
| 30              | 15.6054  | 33.8631  | 24.962  |
| 40              | 15.4858  | 33.8833  | 25.0042 |
| 50              | 15.4411  | 33.8935  | 25.022  |

|                 |          |          |         |
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| STATION US16456 |          |          |         |
| LATITUDE        | 41-12.8  | N        |         |
| LONGITUD        | 140-45.1 | E        |         |
| DEPTH (m)       | 62       |          |         |
| Press.          | Temp.    | Salinity | Sigma-T |
| 5               | 15.0272  | 33.8893  | 25.1098 |
| 10              | 15.0353  | 33.8861  | 25.1055 |
| 20              | 15.0519  | 33.884   | 25.1003 |
| 30              | 15.0557  | 33.8846  | 25.0999 |
| 40              | 15.0555  | 33.8842  | 25.0997 |
| 50              | 15.0282  | 33.8871  | 25.1078 |
| 58              | 14.9514  | 33.8841  | 25.1222 |

|                 |          |          |         |
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| STATION US16459 |          |          |         |
| LATITUDE        | 41-44.0  | N        |         |
| LONGITUD        | 141-16.1 | E        |         |
| DEPTH (m)       | 227      |          |         |
| Press.          | Temp.    | Salinity | Sigma-T |
| 5               | 14.4405  | 33.8895  | 25.2362 |
| 10              | 14.4164  | 33.9029  | 25.2517 |
| 20              | 13.061   | 33.9188  | 25.5432 |
| 30              | 12.1627  | 33.9605  | 25.7508 |
| 40              | 11.6516  | 33.9656  | 25.851  |
| 50              | 11.5459  | 33.9699  | 25.874  |
| 75              | 11.4543  | 33.9685  | 25.8897 |
| 100             | 11.4228  | 33.971   | 25.8975 |
| 125             | 11.3868  | 33.9789  | 25.9102 |
| 150             | 11.3194  | 34.0084  | 25.9455 |
| 175             | 10.4932  | 33.9949  | 26.0825 |
| 200             | 10.0696  | 33.9808  | 26.1443 |
| 221             | 8.1657   | 33.8337  | 26.3333 |

|                 |          |          |         |
|-----------------|----------|----------|---------|
| STATION US16451 |          |          |         |
| LATITUDE        | 40-57.2  | N        |         |
| LONGITUD        | 140-45.6 | E        |         |
| DEPTH (m)       | 49       |          |         |
| Press.          | Temp.    | Salinity | Sigma-T |
| 5               | 14.96    | 33.6753  | 24.9594 |
| 10              | 14.956   | 33.6725  | 24.9581 |
| 20              | 14.9454  | 33.6702  | 24.9587 |
| 30              | 14.9451  | 33.6748  | 24.9623 |
| 40              | 14.9457  | 33.6778  | 24.9644 |
| 45              | 15.1406  | 34.0873  | 25.2376 |

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| STATION US16454 |          |          |         |
| LATITUDE        | 41-12.0  | N        |         |
| LONGITUD        | 140-41.9 | E        |         |
| DEPTH (m)       | 74       |          |         |
| Press.          | Temp.    | Salinity | Sigma-T |
| 5               | 15.4401  | 33.9043  | 25.0305 |
| 10              | 15.4448  | 33.9006  | 25.0266 |
| 20              | 15.4431  | 33.8998  | 25.0264 |
| 30              | 15.4402  | 33.904   | 25.0302 |
| 40              | 15.4412  | 33.9046  | 25.0304 |
| 50              | 15.4242  | 33.9209  | 25.0468 |
| 70              | 14.5271  | 34.0327  | 25.3283 |

|                 |          |          |         |
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| STATION US16457 |          |          |         |
| LATITUDE        | 41-49.2  | N        |         |
| LONGITUD        | 141-13.3 | E        |         |
| DEPTH (m)       | 174      |          |         |
| Press.          | Temp.    | Salinity | Sigma-T |
| 5               | 11.4132  | 33.986   | 25.9109 |
| 10              | 11.389   | 33.985   | 25.9146 |
| 20              | 11.3753  | 33.9948  | 25.9247 |
| 30              | 11.3319  | 34.0085  | 25.9433 |
| 40              | 11.3422  | 34.0163  | 25.9475 |
| 50              | 11.2934  | 34.0265  | 25.9643 |
| 75              | 10.9127  | 34.0088  | 26.0193 |
| 100             | 10.8262  | 34.0102  | 26.0358 |
| 125             | 10.8237  | 34.0104  | 26.0363 |
| 150             | 10.8284  | 34.0142  | 26.0385 |
| 160             | 10.7947  | 34.0162  | 26.046  |

|                 |          |          |         |
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| STATION US16460 |          |          |         |
| LATITUDE        | 41-40.9  | N        |         |
| LONGITUD        | 141-17.5 | E        |         |
| DEPTH (m)       | 230      |          |         |
| Press.          | Temp.    | Salinity | Sigma-T |
| 5               | 14.2774  | 33.8948  | 25.2748 |
| 10              | 13.5993  | 33.9443  | 25.4541 |
| 20              | 11.9782  | 33.9407  | 25.7705 |
| 30              | 11.8677  | 33.9596  | 25.806  |
| 40              | 11.7841  | 33.957   | 25.8197 |
| 50              | 11.8034  | 33.9587  | 25.8173 |
| 75              | 11.6446  | 33.9627  | 25.8501 |
| 100             | 11.3777  | 33.9876  | 25.9187 |
| 125             | 11.205   | 33.9944  | 25.9554 |
| 150             | 11.1555  | 34.0117  | 25.9779 |
| 175             | 10.5442  | 34.0002  | 26.0777 |
| 200             | 9.867    | 33.9637  | 26.1651 |
| 221             | 8.5382   | 33.8681  | 26.3038 |

|           |          |          |         |
|-----------|----------|----------|---------|
| STATION   | US16461  |          |         |
| LATITUDE  | 41-37.8  | N        |         |
| LONGITUD  | 141-19.0 | E        |         |
| DEPTH (m) | 214      |          |         |
| Press.    | Temp.    | Salinity | Sigma-T |
| 5         | 14.2927  | 33.8984  | 25.2744 |
| 10        | 14.2953  | 33.8982  | 25.2737 |
| 20        | 14.1505  | 33.8987  | 25.3046 |
| 30        | 12.9341  | 33.9039  | 25.5568 |
| 40        | 12.4441  | 33.91    | 25.6575 |
| 50        | 12.1775  | 33.9436  | 25.7349 |
| 75        | 11.8024  | 34.0146  | 25.861  |
| 100       | 11.3653  | 34.0054  | 25.9348 |
| 125       | 10.8245  | 33.9478  | 25.9875 |
| 150       | 10.6545  | 33.9423  | 26.0132 |
| 175       | 10.4294  | 33.9471  | 26.0562 |
| 200       | 9.4023   | 33.9307  | 26.2162 |

|           |          |          |         |
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| STATION   | US16464  |          |         |
| LATITUDE  | 41-28.9  | N        |         |
| LONGITUD  | 141-23.5 | E        |         |
| DEPTH (m) | 90       |          |         |
| Press.    | Temp.    | Salinity | Sigma-T |
| 5         | 15.0278  | 33.8851  | 25.1063 |
| 10        | 15.0293  | 33.8849  | 25.1059 |
| 20        | 15.0153  | 33.8858  | 25.1097 |
| 30        | 14.9948  | 33.8854  | 25.1138 |
| 40        | 14.8456  | 33.8969  | 25.155  |
| 50        | 14.8065  | 33.904   | 25.169  |
| 75        | 14.5115  | 33.9246  | 25.2482 |
| 80        | 14.5139  | 33.9257  | 25.2485 |

|           |          |          |         |
|-----------|----------|----------|---------|
| STATION   | US16467  |          |         |
| LATITUDE  | 41-36.6  | N        |         |
| LONGITUD  | 140-51.8 | E        |         |
| DEPTH (m) | 72       |          |         |
| Press.    | Temp.    | Salinity | Sigma-T |
| 5         | 14.6082  | 33.8045  | 25.1348 |
| 10        | 14.9606  | 33.821   | 25.0716 |
| 20        | 14.9714  | 33.8194  | 25.068  |
| 30        | 14.915   | 33.8234  | 25.0834 |
| 40        | 14.6805  | 33.8419  | 25.1482 |
| 50        | 14.6002  | 33.8547  | 25.1753 |
| 61        | 14.6241  | 33.8514  | 25.1677 |

|           |          |          |         |
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| STATION   | US16470  |          |         |
| LATITUDE  | 41-42.7  | N        |         |
| LONGITUD  | 140-45.1 | E        |         |
| DEPTH (m) | 85       |          |         |
| Press.    | Temp.    | Salinity | Sigma-T |
| 5         | 14.5112  | 33.7989  | 25.1512 |
| 10        | 14.5155  | 33.796   | 25.1481 |
| 20        | 14.4921  | 33.8143  | 25.1672 |
| 30        | 14.1955  | 33.8565  | 25.2625 |
| 40        | 13.7423  | 33.863   | 25.3619 |
| 50        | 13.0736  | 33.9467  | 25.5622 |
| 75        | 12.9436  | 33.9772  | 25.6117 |
| 76        | 12.9301  | 33.9814  | 25.6177 |

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| STATION   | US16473  |          |         |
| LATITUDE  | 42-23.6  | N        |         |
| LONGITUD  | 140-31.0 | E        |         |
| DEPTH (m) | 94       |          |         |
| Press.    | Temp.    | Salinity | Sigma-T |
| 5         | 10.1823  | 33.7793  | 25.9679 |
| 10        | 10.1841  | 33.7795  | 25.9677 |
| 20        | 10.199   | 33.779   | 25.9648 |
| 30        | 10.2001  | 33.7787  | 25.9644 |
| 40        | 10.2001  | 33.7804  | 25.9657 |
| 50        | 10.1995  | 33.7809  | 25.9662 |
| 75        | 9.1065   | 33.8345  | 26.1885 |
| 93        | 8.2407   | 33.7877  | 26.2859 |

|           |          |          |         |
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| STATION   | US16462  |          |         |
| LATITUDE  | 41-35.1  | N        |         |
| LONGITUD  | 141-20.6 | E        |         |
| DEPTH (m) | 309      |          |         |
| Press.    | Temp.    | Salinity | Sigma-T |
| 5         | 15.3062  | 33.8233  | 24.9977 |
| 10        | 15.086   | 33.8383  | 25.0576 |
| 20        | 14.6444  | 33.8672  | 25.1755 |
| 30        | 14.2888  | 33.8878  | 25.267  |
| 40        | 14.1686  | 33.8959  | 25.2986 |
| 50        | 14.1604  | 33.8978  | 25.3018 |
| 75        | 13.2601  | 33.9098  | 25.4963 |
| 100       | 12.4011  | 33.916   | 25.6705 |
| 125       | 11.8398  | 33.9237  | 25.7833 |
| 150       | 11.5546  | 33.9767  | 25.8776 |
| 175       | 10.3881  | 33.9867  | 26.0943 |
| 200       | 8.6173   | 33.8783  | 26.2996 |
| 250       | 7.2028   | 33.7728  | 26.4241 |
| 300       | 5.1022   | 33.6599  | 26.6012 |

|           |          |          |         |
|-----------|----------|----------|---------|
| STATION   | US16465  |          |         |
| LATITUDE  | 41-27.5  | N        |         |
| LONGITUD  | 141-24.2 | E        |         |
| DEPTH (m) | 49       |          |         |
| Press.    | Temp.    | Salinity | Sigma-T |
| 5         | 14.9719  | 33.8892  | 25.1217 |
| 10        | 14.9778  | 33.8893  | 25.1205 |
| 20        | 14.9839  | 33.889   | 25.119  |
| 30        | 14.7863  | 33.8977  | 25.1684 |
| 40        | 14.7325  | 33.9017  | 25.1832 |
| 41        | 14.6914  | 33.9036  | 25.1934 |

|           |          |          |         |
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| STATION   | US16468  |          |         |
| LATITUDE  | 41-38.8  | N        |         |
| LONGITUD  | 140-49.2 | E        |         |
| DEPTH (m) | 300      |          |         |
| Press.    | Temp.    | Salinity | Sigma-T |
| 5         | 13.8574  | 33.8897  | 25.3587 |
| 10        | 13.8349  | 33.8897  | 25.3634 |
| 20        | 13.5074  | 33.9177  | 25.4522 |
| 30        | 13.324   | 33.9483  | 25.5131 |
| 40        | 13.3743  | 33.9422  | 25.4982 |
| 50        | 13.4307  | 33.9348  | 25.4811 |
| 75        | 12.2293  | 34.0945  | 25.8421 |
| 100       | 11.7585  | 34.1024  | 25.9374 |
| 125       | 11.1881  | 34.0847  | 26.0288 |
| 150       | 10.6874  | 34.0823  | 26.1165 |
| 175       | 10.2971  | 34.0969  | 26.1959 |
| 200       | 10.262   | 34.0986  | 26.2034 |
| 250       | 10.0024  | 34.0951  | 26.2449 |
| 270       | 9.821    | 34.0945  | 26.275  |

|           |          |          |         |
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| STATION   | US16471  |          |         |
| LATITUDE  | 42-10.3  | N        |         |
| LONGITUD  | 140-47.3 | E        |         |
| DEPTH (m) | 92       |          |         |
| Press.    | Temp.    | Salinity | Sigma-T |
| 5         | 10.5267  | 33.919   | 26.0174 |
| 10        | 10.5324  | 33.9194  | 26.0167 |
| 20        | 10.5355  | 33.9197  | 26.0165 |
| 30        | 10.5317  | 33.9188  | 26.0163 |
| 40        | 10.5332  | 33.9194  | 26.0166 |
| 50        | 10.5437  | 33.9216  | 26.0165 |
| 75        | 10.5483  | 33.9219  | 26.0159 |
| 90        | 9.0548   | 33.827   | 26.1909 |

|           |          |          |         |
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| STATION   | US16474  |          |         |
| LATITUDE  | 42-23.3  | N        |         |
| LONGITUD  | 140-42.3 | E        |         |
| DEPTH (m) | 63       |          |         |
| Press.    | Temp.    | Salinity | Sigma-T |
| 5         | 10.0718  | 33.8147  | 26.0143 |
| 10        | 10.0769  | 33.8142  | 26.013  |
| 20        | 10.0782  | 33.8141  | 26.0127 |
| 30        | 10.0792  | 33.8145  | 26.0129 |
| 40        | 10.0822  | 33.8147  | 26.0125 |
| 50        | 10.083   | 33.8148  | 26.0125 |
| 60        | 10.0684  | 33.8156  | 26.0156 |

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| STATION   | US16463  |          |         |
| LATITUDE  | 41-32.0  | N        |         |
| LONGITUD  | 141-22.1 | E        |         |
| DEPTH (m) | 253      |          |         |
| Press.    | Temp.    | Salinity | Sigma-T |
| 5         | 14.971   | 33.8876  | 25.1207 |
| 10        | 14.9613  | 33.8882  | 25.1233 |
| 20        | 14.9403  | 33.89    | 25.1292 |
| 30        | 14.9477  | 33.8898  | 25.1275 |
| 40        | 14.9246  | 33.8909  | 25.1333 |
| 50        | 14.9211  | 33.8918  | 25.1347 |
| 75        | 14.9204  | 33.8925  | 25.1355 |
| 100       | 14.2741  | 33.9336  | 25.3055 |
| 125       | 13.7504  | 33.9828  | 25.4528 |
| 150       | 12.9428  | 34.0478  | 25.6666 |
| 175       | 12.3903  | 34.0236  | 25.756  |
| 200       | 11.3187  | 34.0912  | 26.0101 |
| 228       | 11.3014  | 34.095   | 26.0161 |

|           |          |          |         |
|-----------|----------|----------|---------|
| STATION   | US16466  |          |         |
| LATITUDE  | 41-35.4  | N        |         |
| LONGITUD  | 140-53.4 | E        |         |
| DEPTH (m) | 50       |          |         |
| Press.    | Temp.    | Salinity | Sigma-T |
| 5         | 15.1847  | 33.799   | 25.0058 |
| 10        | 15.1864  | 33.7989  | 25.0052 |
| 20        | 15.1827  | 33.7989  | 25.0061 |
| 30        | 15.1812  | 33.7992  | 25.0067 |
| 40        | 15.1769  | 33.7992  | 25.0076 |

|           |          |          |         |
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| STATION   | US16469  |          |         |
| LATITUDE  | 41-40.4  | N        |         |
| LONGITUD  | 140-47.7 | E        |         |
| DEPTH (m) | 253      |          |         |
| Press.    | Temp.    | Salinity | Sigma-T |
| 5         | 13.6391  | 33.9038  | 25.4146 |
| 10        | 13.5085  | 33.9096  | 25.4458 |
| 20        | 13.4183  | 33.919   | 25.4714 |
| 30        | 13.3891  | 33.9207  | 25.4786 |
| 40        | 13.3678  | 33.9214  | 25.4835 |
| 50        | 13.3751  | 33.9218  | 25.4823 |
| 75        | 12.6322  | 34.0051  | 25.6947 |
| 100       | 11.9552  | 34.0709  | 25.8759 |
| 125       | 10.8087  | 34.0855  | 26.0975 |
| 150       | 10.7252  | 34.093   | 26.1182 |
| 175       | 10.5976  | 34.0959  | 26.1429 |
| 200       | 10.3911  | 34.0939  | 26.1774 |
| 231       | 9.6299   | 34.0957  | 26.3078 |

|           |          |          |         |
|-----------|----------|----------|---------|
| STATION   | US16472  |          |         |
| LATITUDE  | 42-16.4  | N        |         |
| LONGITUD  | 140-36.3 | E        |         |
| DEPTH (m) | 90       |          |         |
| Press.    | Temp.    | Salinity | Sigma-T |
| 5         | 10.3702  | 33.85    | 25.9908 |
| 10        | 10.3768  | 33.85    | 25.9896 |
| 20        | 10.3896  | 33.8534  | 25.9901 |
| 30        | 10.3845  | 33.8508  | 25.9889 |
| 40        | 10.3872  | 33.8514  | 25.989  |
| 50        | 10.4061  | 33.8563  | 25.9895 |
| 75        | 9.1649   | 33.8564  | 26.1964 |
| 87        | 8.5067   | 33.8046  | 26.2589 |

|           |          |          |         |
|-----------|----------|----------|---------|
| STATION   | US16475  |          |         |
| LATITUDE  | 42-11.6  | N        |         |
| LONGITUD  | 141-02.2 | E        |         |
| DEPTH (m) | 79       |          |         |
| Press.    | Temp.    | Salinity | Sigma-T |
| 5         | 11.2227  | 34.0458  | 25.9922 |
| 10        | 11.2069  | 34.0447  | 25.9943 |
| 20        | 11.2105  | 34.0438  | 25.9929 |
| 30        | 11.1989  | 34.0406  | 25.9925 |
| 40        | 11.2211  | 34.0459  | 25.9926 |
| 50        | 11.2059  | 34.0401  | 25.9909 |
| 75        | 10.9984  | 33.9993  | 25.9966 |
| 77        | 10.9118  | 33.9859  | 26.0016 |

|                     |         |          |         |
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| STATION US16476     |         |          |         |
| LATITUDE 42-10.0 N  |         |          |         |
| LONGITUD 141-09.7 E |         |          |         |
| DEPTH (m) 120       |         |          |         |
| Press.              | Temp.   | Salinity | Sigma-T |
| 5                   | 12.0766 | 34.0243  | 25.8167 |
| 10                  | 12.0756 | 34.0233  | 25.8162 |
| 20                  | 11.7751 | 33.9855  | 25.8435 |
| 30                  | 11.3838 | 33.9509  | 25.889  |
| 40                  | 11.3421 | 33.9478  | 25.8943 |
| 50                  | 11.3557 | 33.9502  | 25.8936 |
| 75                  | 11.3161 | 33.948   | 25.8991 |
| 100                 | 11.2215 | 33.9599  | 25.9256 |
| 116                 | 10.6702 | 33.9875  | 26.0456 |

|                     |         |          |         |
|---------------------|---------|----------|---------|
| STATION US16479     |         |          |         |
| LATITUDE 42-04.0 N  |         |          |         |
| LONGITUD 141-03.3 E |         |          |         |
| DEPTH (m) 96        |         |          |         |
| Press.              | Temp.   | Salinity | Sigma-T |
| 5                   | 11.4419 | 33.9536  | 25.8805 |
| 10                  | 11.4416 | 33.9555  | 25.882  |
| 20                  | 11.4464 | 33.9565  | 25.8819 |
| 30                  | 11.4455 | 33.9561  | 25.8817 |
| 40                  | 11.4458 | 33.9557  | 25.8813 |
| 50                  | 11.4339 | 33.9531  | 25.8816 |
| 75                  | 11.4252 | 33.9525  | 25.8827 |
| 94                  | 11.2186 | 34.0105  | 25.9655 |

|                     |        |          |         |
|---------------------|--------|----------|---------|
| STATION US16482     |        |          |         |
| LATITUDE 42-25.4 N  |        |          |         |
| LONGITUD 140-48.8 E |        |          |         |
| DEPTH (m) 42        |        |          |         |
| Press.              | Temp.  | Salinity | Sigma-T |
| 5                   | 8.3571 | 33.872   | 26.3345 |
| 10                  | 8.3459 | 33.8705  | 26.3351 |
| 20                  | 8.3276 | 33.8668  | 26.3349 |
| 30                  | 8.3166 | 33.8644  | 26.3346 |
| 40                  | 8.2665 | 33.8533  | 26.3336 |
| 41                  | 8.222  | 33.8448  | 26.3335 |

|                     |        |          |         |
|---------------------|--------|----------|---------|
| STATION US16485     |        |          |         |
| LATITUDE 42-26.3 N  |        |          |         |
| LONGITUD 140-37.4 E |        |          |         |
| DEPTH (m) 81        |        |          |         |
| Press.              | Temp.  | Salinity | Sigma-T |
| 5                   | 8.262  | 33.8414  | 26.3249 |
| 10                  | 8.266  | 33.8424  | 26.3251 |
| 20                  | 8.2666 | 33.8416  | 26.3243 |
| 30                  | 8.2611 | 33.8405  | 26.3243 |
| 40                  | 8.2602 | 33.8407  | 26.3246 |
| 50                  | 8.2595 | 33.8406  | 26.3246 |
| 75                  | 8.2479 | 33.8385  | 26.3247 |
| 79                  | 8.2273 | 33.8382  | 26.3276 |

|                     |        |          |         |
|---------------------|--------|----------|---------|
| STATION US16488     |        |          |         |
| LATITUDE 42-09.7 N  |        |          |         |
| LONGITUD 140-35.6 E |        |          |         |
| DEPTH (m) 72        |        |          |         |
| Press.              | Temp.  | Salinity | Sigma-T |
| 5                   | 8.2953 | 33.8688  | 26.3413 |
| 10                  | 8.2965 | 33.8655  | 26.3385 |
| 20                  | 8.2973 | 33.8639  | 26.3372 |
| 30                  | 8.2938 | 33.8627  | 26.3368 |
| 40                  | 8.2943 | 33.8623  | 26.3364 |
| 50                  | 8.2957 | 33.8624  | 26.3363 |
| 65                  | 8.2984 | 33.8625  | 26.336  |

|                     |         |          |         |
|---------------------|---------|----------|---------|
| STATION US16477     |         |          |         |
| LATITUDE 42-15.3 N  |         |          |         |
| LONGITUD 140-47.6 E |         |          |         |
| DEPTH (m) 70        |         |          |         |
| Press.              | Temp.   | Salinity | Sigma-T |
| 5                   | 10.5586 | 33.9486  | 26.0349 |
| 10                  | 10.5563 | 33.9487  | 26.0354 |
| 20                  | 10.5556 | 33.9488  | 26.0356 |
| 30                  | 10.547  | 33.9512  | 26.0389 |
| 40                  | 10.5482 | 33.9514  | 26.0389 |
| 50                  | 10.5496 | 33.9514  | 26.0387 |
| 68                  | 10.5467 | 33.9525  | 26.04   |

|                     |         |          |         |
|---------------------|---------|----------|---------|
| STATION US16480     |         |          |         |
| LATITUDE 42-00.0 N  |         |          |         |
| LONGITUD 141-10.0 E |         |          |         |
| DEPTH (m) 134       |         |          |         |
| Press.              | Temp.   | Salinity | Sigma-T |
| 5                   | 11.6271 | 34.0364  | 25.9107 |
| 10                  | 11.5738 | 34.0315  | 25.9167 |
| 20                  | 11.4486 | 34.023   | 25.9332 |
| 30                  | 11.4045 | 34.0223  | 25.9408 |
| 40                  | 11.405  | 34.0269  | 25.9442 |
| 50                  | 11.3973 | 34.0264  | 25.9453 |
| 75                  | 11.2987 | 34.0208  | 25.9589 |
| 100                 | 11.1012 | 34.0203  | 25.9944 |
| 125                 | 10.0523 | 33.9639  | 26.134  |
| 128                 | 9.6439  | 33.9279  | 26.1743 |

|                     |        |          |         |
|---------------------|--------|----------|---------|
| STATION US16483     |        |          |         |
| LATITUDE 42-28.2 N  |        |          |         |
| LONGITUD 140-43.7 E |        |          |         |
| DEPTH (m) 58        |        |          |         |
| Press.              | Temp.  | Salinity | Sigma-T |
| 5                   | 8.3011 | 33.8361  | 26.3148 |
| 10                  | 8.2905 | 33.8324  | 26.3135 |
| 20                  | 8.2713 | 33.8288  | 26.3136 |
| 30                  | 8.2571 | 33.8242  | 26.3121 |
| 40                  | 8.2576 | 33.8233  | 26.3114 |
| 50                  | 8.2583 | 33.8235  | 26.3114 |
| 57                  | 8.2627 | 33.8254  | 26.3122 |

|                     |        |          |         |
|---------------------|--------|----------|---------|
| STATION US16486     |        |          |         |
| LATITUDE 42-21.3 N  |        |          |         |
| LONGITUD 140-36.7 E |        |          |         |
| DEPTH (m) 86        |        |          |         |
| Press.              | Temp.  | Salinity | Sigma-T |
| 5                   | 8.1961 | 33.8317  | 26.3271 |
| 10                  | 8.2022 | 33.832   | 26.3264 |
| 20                  | 8.2035 | 33.8313  | 26.3257 |
| 30                  | 8.2029 | 33.831   | 26.3256 |
| 40                  | 8.1989 | 33.8298  | 26.3252 |
| 50                  | 8.1871 | 33.8274  | 26.3251 |
| 75                  | 8.1906 | 33.8278  | 26.3249 |
| 84                  | 8.1917 | 33.828   | 26.3249 |

|                     |        |          |         |
|---------------------|--------|----------|---------|
| STATION US16489     |        |          |         |
| LATITUDE 42-09.8 N  |        |          |         |
| LONGITUD 140-41.1 E |        |          |         |
| DEPTH (m) 79        |        |          |         |
| Press.              | Temp.  | Salinity | Sigma-T |
| 5                   | 8.7505 | 33.9134  | 26.3065 |
| 10                  | 8.7563 | 33.9146  | 26.3066 |
| 20                  | 8.6348 | 33.8851  | 26.3023 |
| 30                  | 8.4661 | 33.8603  | 26.3088 |
| 40                  | 8.3721 | 33.8479  | 26.3134 |
| 50                  | 8.3814 | 33.8516  | 26.3148 |
| 75                  | 8.4126 | 33.8614  | 26.3177 |
| 77                  | 8.4287 | 33.8653  | 26.3184 |

|                     |        |          |         |
|---------------------|--------|----------|---------|
| STATION US16478     |        |          |         |
| LATITUDE 42-18.4 N  |        |          |         |
| LONGITUD 140-42.2 E |        |          |         |
| DEPTH (m) 64        |        |          |         |
| Press.              | Temp.  | Salinity | Sigma-T |
| 5                   | 9.9946 | 33.7958  | 26.0126 |
| 10                  | 9.9892 | 33.7966  | 26.0141 |
| 20                  | 9.9754 | 33.7972  | 26.0169 |
| 30                  | 9.9733 | 33.7978  | 26.0177 |
| 40                  | 9.9709 | 33.7985  | 26.0187 |
| 50                  | 9.982  | 33.8029  | 26.0202 |
| 62                  | 9.9779 | 33.8045  | 26.0221 |

|                     |        |          |         |
|---------------------|--------|----------|---------|
| STATION US16481     |        |          |         |
| LATITUDE 42-16.6 N  |        |          |         |
| LONGITUD 140-36.0 E |        |          |         |
| DEPTH (m) 90        |        |          |         |
| Press.              | Temp.  | Salinity | Sigma-T |
| 5                   | 8.4047 | 33.8729  | 26.328  |
| 10                  | 8.4086 | 33.8692  | 26.3245 |
| 20                  | 8.422  | 33.8687  | 26.322  |
| 30                  | 8.4253 | 33.8696  | 26.3223 |
| 40                  | 8.426  | 33.8696  | 26.3222 |
| 50                  | 8.4258 | 33.8699  | 26.3225 |
| 75                  | 8.4126 | 33.8699  | 26.3244 |
| 85                  | 8.4045 | 33.8698  | 26.3256 |

|                     |        |          |         |
|---------------------|--------|----------|---------|
| STATION US16484     |        |          |         |
| LATITUDE 42-31.2 N  |        |          |         |
| LONGITUD 140-37.9 E |        |          |         |
| DEPTH (m) 60        |        |          |         |
| Press.              | Temp.  | Salinity | Sigma-T |
| 5                   | 7.7275 | 33.7567  | 26.3372 |
| 10                  | 7.7278 | 33.7563  | 26.3368 |
| 20                  | 7.7429 | 33.7582  | 26.3362 |
| 30                  | 7.7289 | 33.7558  | 26.3363 |
| 40                  | 7.7159 | 33.7533  | 26.3362 |
| 50                  | 7.7098 | 33.752   | 26.3361 |
| 55                  | 7.7101 | 33.752   | 26.336  |

|                     |        |          |         |
|---------------------|--------|----------|---------|
| STATION US16487     |        |          |         |
| LATITUDE 42-11.3 N  |        |          |         |
| LONGITUD 140-35.2 E |        |          |         |
| DEPTH (m) 80        |        |          |         |
| Press.              | Temp.  | Salinity | Sigma-T |
| 5                   | 8.5323 | 33.8882  | 26.3205 |
| 10                  | 8.5312 | 33.8878  | 26.3204 |
| 20                  | 8.5267 | 33.8879  | 26.3211 |
| 30                  | 8.5188 | 33.8878  | 26.3222 |
| 40                  | 8.5021 | 33.8851  | 26.3227 |
| 50                  | 8.4829 | 33.8833  | 26.3242 |
| 75                  | 8.4534 | 33.8785  | 26.325  |
| 78                  | 8.45   | 33.8783  | 26.3253 |

|                     |        |          |         |
|---------------------|--------|----------|---------|
| STATION US16490     |        |          |         |
| LATITUDE 42-10.2 N  |        |          |         |
| LONGITUD 140-47.0 E |        |          |         |
| DEPTH (m) 94        |        |          |         |
| Press.              | Temp.  | Salinity | Sigma-T |
| 5                   | 8.9012 | 33.937   | 26.3013 |
| 10                  | 8.9038 | 33.9371  | 26.301  |
| 20                  | 8.9145 | 33.9422  | 26.3033 |
| 30                  | 8.9216 | 33.943   | 26.3029 |
| 40                  | 8.9113 | 33.9429  | 26.3044 |
| 50                  | 8.8808 | 33.939   | 26.3062 |
| 75                  | 8.8624 | 33.9402  | 26.31   |
| 91                  | 8.8434 | 33.9366  | 26.3101 |

| STATION   | US16491  |          |         |
|-----------|----------|----------|---------|
| LATITUDE  | 42-07.0  | N        |         |
| LONGITUD  | 140-50.2 | E        |         |
| DEPTH (m) | 63       |          |         |
| Press.    | Temp.    | Salinity | Sigma-T |
| 5         | 8.8815   | 33.9136  | 26.2862 |
| 10        | 8.8802   | 33.9135  | 26.2862 |
| 20        | 8.8769   | 33.9129  | 26.2863 |
| 30        | 8.8332   | 33.9079  | 26.2892 |
| 40        | 8.8376   | 33.9158  | 26.2947 |
| 50        | 8.8488   | 33.9188  | 26.2953 |
| 60        | 8.8524   | 33.9195  | 26.2954 |

| STATION   | US16494  |          |         |
|-----------|----------|----------|---------|
| LATITUDE  | 42-18.9  | N        |         |
| LONGITUD  | 140-23.2 | E        |         |
| DEPTH (m) | 54       |          |         |
| Press.    | Temp.    | Salinity | Sigma-T |
| 5         | 8.0448   | 33.8185  | 26.3393 |
| 10        | 8.0379   | 33.8179  | 26.3399 |
| 20        | 8.0335   | 33.8171  | 26.3399 |
| 30        | 8.0348   | 33.8169  | 26.3396 |
| 40        | 8.0344   | 33.8173  | 26.3399 |
| 50        | 8.0341   | 33.817   | 26.3397 |
| 52        | 8.0345   | 33.8169  | 26.3394 |

| STATION   | US16497  |          |         |
|-----------|----------|----------|---------|
| LATITUDE  | 42-26.5  | N        |         |
| LONGITUD  | 140-25.2 | E        |         |
| DEPTH (m) | 63       |          |         |
| Press.    | Temp.    | Salinity | Sigma-T |
| 5         | 8.2007   | 33.8457  | 26.3374 |
| 10        | 8.1794   | 33.843   | 26.3385 |
| 20        | 8.1304   | 33.8403  | 26.3437 |
| 30        | 8.0802   | 33.8362  | 26.348  |
| 40        | 8.0285   | 33.8321  | 26.3524 |
| 50        | 8.01     | 33.8302  | 26.3537 |
| 60        | 8.0032   | 33.8299  | 26.3545 |

| STATION   | US16500  |          |         |
|-----------|----------|----------|---------|
| LATITUDE  | 42-18.5  | N        |         |
| LONGITUD  | 140-42.2 | E        |         |
| DEPTH (m) | 64       |          |         |
| Press.    | Temp.    | Salinity | Sigma-T |
| 5         | 9.2769   | 34.0031  | 26.2931 |
| 10        | 9.2761   | 34.0025  | 26.2928 |
| 20        | 9.2702   | 34.0022  | 26.2935 |
| 30        | 9.1756   | 33.9949  | 26.3031 |
| 40        | 9.1439   | 33.997   | 26.3097 |
| 50        | 9.1166   | 33.9959  | 26.3133 |
| 61        | 9.0919   | 33.993   | 26.315  |

| STATION   | US16503  |          |         |
|-----------|----------|----------|---------|
| LATITUDE  | 42-17.3  | N        |         |
| LONGITUD  | 140-53.6 | E        |         |
| DEPTH (m) | 58       |          |         |
| Press.    | Temp.    | Salinity | Sigma-T |
| 5         | 9.4404   | 34.0315  | 26.2888 |
| 10        | 9.4465   | 34.0315  | 26.2878 |
| 20        | 9.4532   | 34.0316  | 26.2867 |
| 30        | 9.453    | 34.0305  | 26.2859 |
| 40        | 9.4526   | 34.0292  | 26.285  |
| 50        | 9.4458   | 34.0289  | 26.2859 |
| 57        | 9.4409   | 34.0274  | 26.2855 |

| STATION   | US16492  |          |         |
|-----------|----------|----------|---------|
| LATITUDE  | 42-13.1  | N        |         |
| LONGITUD  | 140-42.1 | E        |         |
| DEPTH (m) | 89       |          |         |
| Press.    | Temp.    | Salinity | Sigma-T |
| 5         | 8.4449   | 33.8966  | 26.3405 |
| 10        | 8.4448   | 33.8969  | 26.3407 |
| 20        | 8.4444   | 33.8975  | 26.3412 |
| 30        | 8.4521   | 33.8983  | 26.3407 |
| 40        | 8.4561   | 33.8982  | 26.34   |
| 50        | 8.4494   | 33.8978  | 26.3407 |
| 75        | 8.4528   | 33.8974  | 26.3399 |
| 87        | 8.4514   | 33.8976  | 26.3403 |

| STATION   | US16495  |          |         |
|-----------|----------|----------|---------|
| LATITUDE  | 42-18.8  | N        |         |
| LONGITUD  | 140-30.6 | E        |         |
| DEPTH (m) | 92       |          |         |
| Press.    | Temp.    | Salinity | Sigma-T |
| 5         | 8.4561   | 33.89    | 26.3336 |
| 10        | 8.4513   | 33.8892  | 26.3337 |
| 20        | 8.4433   | 33.8876  | 26.3336 |
| 30        | 8.4568   | 33.8905  | 26.3338 |
| 40        | 8.4571   | 33.8905  | 26.3338 |
| 50        | 8.4586   | 33.8905  | 26.3335 |
| 75        | 8.4582   | 33.8895  | 26.3329 |
| 89        | 8.462    | 33.8905  | 26.3331 |

| STATION   | US16498  |          |         |
|-----------|----------|----------|---------|
| LATITUDE  | 42-29.2  | N        |         |
| LONGITUD  | 140-31.2 | E        |         |
| DEPTH (m) | 73       |          |         |
| Press.    | Temp.    | Salinity | Sigma-T |
| 5         | 8.2085   | 33.843   | 26.3342 |
| 10        | 8.2083   | 33.8427  | 26.334  |
| 20        | 8.2003   | 33.8421  | 26.3347 |
| 30        | 8.1841   | 33.8408  | 26.3361 |
| 40        | 8.1696   | 33.8397  | 26.3374 |
| 50        | 8.1444   | 33.8372  | 26.3392 |
| 71        | 8.0625   | 33.832   | 26.3473 |

| STATION   | US16501  |          |         |
|-----------|----------|----------|---------|
| LATITUDE  | 42-21.1  | N        |         |
| LONGITUD  | 140-48.3 | E        |         |
| DEPTH (m) | 51       |          |         |
| Press.    | Temp.    | Salinity | Sigma-T |
| 5         | 8.4747   | 33.9309  | 26.3628 |
| 10        | 8.4754   | 33.9312  | 26.3629 |
| 20        | 8.4781   | 33.9303  | 26.3618 |
| 30        | 8.4452   | 33.9239  | 26.3619 |
| 40        | 8.41     | 33.9214  | 26.3652 |
| 49        | 8.3632   | 33.9144  | 26.3668 |

| STATION   | US16504  |          |         |
|-----------|----------|----------|---------|
| LATITUDE  | 42-13.0  | N        |         |
| LONGITUD  | 140-55.5 | E        |         |
| DEPTH (m) | 67       |          |         |
| Press.    | Temp.    | Salinity | Sigma-T |
| 5         | 9.6842   | 34.0118  | 26.2332 |
| 10        | 9.7034   | 34.0128  | 26.2308 |
| 20        | 9.4083   | 33.976   | 26.2506 |
| 30        | 9.2998   | 33.9735  | 26.2662 |
| 38        | 9.2967   | 33.9796  | 26.2716 |

| STATION   | US16493  |          |         |
|-----------|----------|----------|---------|
| LATITUDE  | 42-13.9  | N        |         |
| LONGITUD  | 140-30.4 | E        |         |
| DEPTH (m) | 79       |          |         |
| Press.    | Temp.    | Salinity | Sigma-T |
| 5         | 8.2718   | 33.8684  | 26.3446 |
| 10        | 8.2797   | 33.8687  | 26.3436 |
| 20        | 8.2966   | 33.8686  | 26.341  |
| 30        | 8.2863   | 33.8672  | 26.3414 |
| 40        | 8.2855   | 33.8671  | 26.3415 |
| 50        | 8.2851   | 33.8666  | 26.3412 |
| 75        | 8.2915   | 33.8672  | 26.3406 |
| 77        | 8.2914   | 33.867   | 26.3405 |

| STATION   | US16496  |          |         |
|-----------|----------|----------|---------|
| LATITUDE  | 42-23.8  | N        |         |
| LONGITUD  | 140-31.1 | E        |         |
| DEPTH (m) | 95       |          |         |
| Press.    | Temp.    | Salinity | Sigma-T |
| 5         | 8.5296   | 33.8994  | 26.3296 |
| 10        | 8.5284   | 33.8992  | 26.3297 |
| 20        | 8.5257   | 33.8979  | 26.3291 |
| 30        | 8.5194   | 33.8982  | 26.3303 |
| 40        | 8.5206   | 33.8983  | 26.3302 |
| 50        | 8.5234   | 33.8987  | 26.3301 |
| 75        | 8.5229   | 33.8978  | 26.3295 |
| 90        | 8.514    | 33.8963  | 26.3296 |

| STATION   | US16499  |          |         |
|-----------|----------|----------|---------|
| LATITUDE  | 42-23.3  | N        |         |
| LONGITUD  | 140-42.2 | E        |         |
| DEPTH (m) | 63       |          |         |
| Press.    | Temp.    | Salinity | Sigma-T |
| 5         | 8.3012   | 33.8788  | 26.3483 |
| 10        | 8.2985   | 33.8784  | 26.3484 |
| 20        | 8.3085   | 33.8784  | 26.3469 |
| 30        | 8.3117   | 33.8792  | 26.347  |
| 40        | 8.3693   | 33.8937  | 26.3497 |
| 50        | 8.4421   | 33.9102  | 26.3515 |
| 62        | 8.5418   | 33.9319  | 26.3533 |

| STATION   | US16502  |          |         |
|-----------|----------|----------|---------|
| LATITUDE  | 42-15.7  | N        |         |
| LONGITUD  | 140-47.6 | E        |         |
| DEPTH (m) | 70       |          |         |
| Press.    | Temp.    | Salinity | Sigma-T |
| 5         | 9.044    | 33.9833  | 26.315  |
| 10        | 9.0441   | 33.9827  | 26.3145 |
| 20        | 9.0253   | 33.9747  | 26.3112 |
| 30        | 8.8716   | 33.9516  | 26.3175 |
| 40        | 8.7321   | 33.9313  | 26.3234 |
| 50        | 8.6745   | 33.9237  | 26.3264 |
| 69        | 8.5493   | 33.8968  | 26.3246 |

| STATION   | US16505  |          |         |
|-----------|----------|----------|---------|
| LATITUDE  | 42-05.1  | N        |         |
| LONGITUD  | 140-56.6 | E        |         |
| DEPTH (m) | 83       |          |         |
| Press.    | Temp.    | Salinity | Sigma-T |
| 5         | 9.8864   | 34.0241  | 26.2091 |
| 10        | 9.8876   | 34.0229  | 26.2079 |
| 20        | 9.8859   | 34.0222  | 26.2076 |
| 30        | 9.8778   | 34.0217  | 26.2086 |
| 40        | 9.7769   | 34.0134  | 26.219  |
| 50        | 9.3611   | 33.982   | 26.263  |
| 75        | 8.8952   | 33.9315  | 26.2981 |
| 81        | 8.901    | 33.9335  | 26.2987 |

|                 |          |          |         |
|-----------------|----------|----------|---------|
| STATION US16506 |          |          |         |
| LATITUDE        | 41-59.3  | N        |         |
| LONGITUD        | 141-01.9 | E        |         |
| DEPTH (m)       | 100      |          |         |
| Press.          | Temp.    | Salinity | Sigma-T |
| 5               | 9.9326   | 34.025   | 26.2019 |
| 10              | 9.9325   | 34.0252  | 26.2022 |
| 20              | 9.9377   | 34.025   | 26.2011 |
| 30              | 9.9355   | 34.0239  | 26.2007 |
| 40              | 9.9291   | 34.0227  | 26.2008 |
| 50              | 9.9238   | 34.0217  | 26.2009 |
| 75              | 9.9253   | 34.0219  | 26.2008 |
| 96              | 9.899    | 34.0186  | 26.2026 |

|                 |          |          |         |
|-----------------|----------|----------|---------|
| STATION US16509 |          |          |         |
| LATITUDE        | 41-57.5  | N        |         |
| LONGITUD        | 140-58.6 | E        |         |
| DEPTH (m)       | 81       |          |         |
| Press.          | Temp.    | Salinity | Sigma-T |
| 5               | 10.013   | 34.0261  | 26.1893 |
| 10              | 10.0172  | 34.0257  | 26.1883 |
| 20              | 10.0154  | 34.0242  | 26.1874 |
| 30              | 9.9156   | 34.0172  | 26.1988 |
| 40              | 9.482    | 33.9825  | 26.2436 |
| 50              | 9.2147   | 33.9647  | 26.2732 |
| 75              | 9.0754   | 33.9635  | 26.2945 |
| 78              | 9.0754   | 33.9639  | 26.2948 |

|                 |          |          |         |
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| STATION US16510 |          |          |         |
| LATITUDE        | 41-28.9  | N        |         |
| LONGITUD        | 140-21.1 | E        |         |
| DEPTH (m)       | 63       |          |         |
| Press.          | Temp.    | Salinity | Sigma-T |
| 5               | 10.819   | 33.9528  | 25.9923 |
| 10              | 10.3806  | 33.9397  | 26.0589 |
| 20              | 9.8405   | 33.9583  | 26.1653 |
| 30              | 9.6294   | 33.9585  | 26.2007 |
| 40              | 9.5448   | 33.9587  | 26.2147 |
| 50              | 9.4897   | 33.9598  | 26.2247 |
| 61              | 9.4564   | 33.9602  | 26.2304 |

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| STATION US16513 |          |          |         |
| LATITUDE        | 41-27.9  | N        |         |
| LONGITUD        | 140-16.2 | E        |         |
| DEPTH (m)       | 24       |          |         |
| Press.          | Temp.    | Salinity | Sigma-T |
| 5               | 11.0618  | 33.947   | 25.9444 |
| 10              | 11.064   | 33.9463  | 25.9435 |
| 20              | 11.0647  | 33.9457  | 25.9429 |
| 24              | 11.0627  | 33.9455  | 25.9431 |

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| STATION US16516 |          |          |         |
| LATITUDE        | 41-35.0  | N        |         |
| LONGITUD        | 140-33.3 | E        |         |
| DEPTH (m)       | 56       |          |         |
| Press.          | Temp.    | Salinity | Sigma-T |
| 5               | 11.4431  | 33.9968  | 25.9139 |
| 10              | 11.4582  | 33.9957  | 25.9102 |
| 20              | 11.2414  | 33.9799  | 25.9375 |
| 30              | 11.1137  | 33.9752  | 25.957  |
| 40              | 10.7039  | 33.9605  | 26.0187 |
| 50              | 10.5187  | 33.9591  | 26.0501 |
| 55              | 10.3915  | 33.9599  | 26.0728 |

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| STATION US16507 |          |          |         |
| LATITUDE        | 41-58.7  | N        |         |
| LONGITUD        | 141-00.8 | E        |         |
| DEPTH (m)       | 94       |          |         |
| Press.          | Temp.    | Salinity | Sigma-T |
| 5               | 10.0014  | 34.0263  | 26.1914 |
| 10              | 10.016   | 34.0259  | 26.1886 |
| 20              | 9.9956   | 34.0227  | 26.1896 |
| 30              | 9.9972   | 34.0258  | 26.1917 |
| 40              | 9.9888   | 34.0251  | 26.1926 |
| 50              | 9.94     | 34.021   | 26.1976 |
| 75              | 9.9091   | 34.019   | 26.2013 |
| 90              | 9.2938   | 33.9709  | 26.2652 |

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| STATION US16511 |          |          |         |
| LATITUDE        | 41-26.8  | N        |         |
| LONGITUD        | 140-17.9 | E        |         |
| DEPTH (m)       | 65       |          |         |
| Press.          | Temp.    | Salinity | Sigma-T |
| 5               | 11.041   | 33.9526  | 25.9525 |
| 10              | 10.9489  | 33.9496  | 25.9667 |
| 20              | 10.8403  | 33.949   | 25.9856 |
| 30              | 10.7518  | 33.9483  | 26.0007 |
| 40              | 10.6782  | 33.9481  | 26.0135 |
| 50              | 10.5924  | 33.9495  | 26.0297 |
| 63              | 9.2537   | 33.9198  | 26.2322 |

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| STATION US16514 |          |          |         |
| LATITUDE        | 41-23.3  | N        |         |
| LONGITUD        | 140-05.9 | E        |         |
| DEPTH (m)       | 100      |          |         |
| Press.          | Temp.    | Salinity | Sigma-T |
| 5               | 10.797   | 33.9617  | 26.0031 |
| 10              | 10.7921  | 33.9619  | 26.0042 |
| 20              | 10.7784  | 33.9617  | 26.0065 |
| 30              | 10.7563  | 33.9626  | 26.0111 |
| 40              | 10.5728  | 33.9638  | 26.0443 |
| 50              | 9.8991   | 33.9322  | 26.1352 |
| 75              | 9.1041   | 33.939   | 26.2707 |
| 99              | 8.9629   | 33.9448  | 26.2978 |

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| STATION US16517 |          |          |         |
| LATITUDE        | 41-35.0  | N        |         |
| LONGITUD        | 140-29.9 | E        |         |
| DEPTH (m)       | 45       |          |         |
| Press.          | Temp.    | Salinity | Sigma-T |
| 5               | 17.387   | 33.787   | 24.491  |
| 5               | 11.2139  | 33.9694  | 25.9344 |
| 10              | 11.2176  | 33.9684  | 25.933  |
| 20              | 11.2202  | 33.9687  | 25.9327 |
| 30              | 11.1461  | 33.9525  | 25.9335 |
| 40              | 10.8928  | 33.9251  | 25.9576 |
| 44              | 10.6598  | 33.9078  | 25.9854 |

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| STATION US16508 |          |          |         |
| LATITUDE        | 41-58.0  | N        |         |
| LONGITUD        | 140-59.6 | E        |         |
| DEPTH (m)       | 86       |          |         |
| Press.          | Temp.    | Salinity | Sigma-T |
| 5               | 10.0601  | 34.0228  | 26.1787 |
| 10              | 10.0614  | 34.022   | 26.1779 |
| 20              | 10.0585  | 34.0217  | 26.1781 |
| 30              | 10.0597  | 34.0214  | 26.1777 |
| 40              | 10.0558  | 34.0213  | 26.1783 |
| 50              | 10.0527  | 34.0211  | 26.1786 |
| 75              | 9.0977   | 33.9529  | 26.2826 |
| 83              | 9.0651   | 33.9552  | 26.2897 |

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| STATION US16512 |          |          |         |
| LATITUDE        | 41-24.4  | N        |         |
| LONGITUD        | 140-20.3 | E        |         |
| DEPTH (m)       | 95       |          |         |
| Press.          | Temp.    | Salinity | Sigma-T |
| 5               | 12.1422  | 33.9315  | 25.7322 |
| 10              | 11.7598  | 33.931   | 25.804  |
| 20              | 11.3458  | 33.9418  | 25.8889 |
| 30              | 10.9495  | 33.9534  | 25.9695 |
| 40              | 10.3743  | 33.9552  | 26.0721 |
| 50              | 10.1458  | 33.9639  | 26.1181 |
| 75              | 9.0224   | 33.9722  | 26.3098 |
| 92              | 9.0513   | 33.9749  | 26.3073 |

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| STATION US16515 |          |          |         |
| LATITUDE        | 41-24.5  | N        |         |
| LONGITUD        | 140-05.9 | E        |         |
| DEPTH (m)       | 52       |          |         |
| Press.          | Temp.    | Salinity | Sigma-T |
| 5               | 10.7897  | 33.9567  | 26.0005 |
| 10              | 10.8013  | 33.9565  | 25.9983 |
| 20              | 10.7749  | 33.9545  | 26.0015 |
| 30              | 10.6664  | 33.9464  | 26.0143 |
| 40              | 10.3059  | 33.9342  | 26.0675 |
| 50              | 10.0067  | 33.9375  | 26.1211 |
| 52              | 9.9791   | 33.934   | 26.1231 |

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| STATION US16518 |          |          |         |
| LATITUDE        | 41-35.1  | N        |         |
| LONGITUD        | 140-26.5 | E        |         |
| DEPTH (m)       | 13       |          |         |
| Press.          | Temp.    | Salinity | Sigma-T |
| 5               | 10.9206  | 33.9369  | 25.9619 |
| 10              | 10.9343  | 33.9368  | 25.9593 |
| 12              | 10.9335  | 33.9367  | 25.9594 |

|           |          |          |         |
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| STATION   | US16519  |          |         |
| LATITUDE  | 41-37.0  | N        |         |
| LONGITUD  | 140-30.0 | E        |         |
| DEPTH (m) | 32       |          |         |
| Press.    | Temp.    | Salinity | Sigma-T |
| 5         | 11.2055  | 33.9713  | 25.9374 |
| 10        | 11.2138  | 33.9708  | 25.9355 |
| 20        | 10.6915  | 33.9162  | 25.9863 |
| 30        | 10.4287  | 33.8977  | 26.0178 |
| 31        | 10.418   | 33.8984  | 26.0202 |

|           |          |          |         |
|-----------|----------|----------|---------|
| STATION   | US16522  |          |         |
| LATITUDE  | 41-41.2  | N        |         |
| LONGITUD  | 140-34.2 | E        |         |
| DEPTH (m) | 39       |          |         |
| Press.    | Temp.    | Salinity | Sigma-T |
| 5         | 11.1879  | 33.949   | 25.9232 |
| 10        | 11.1821  | 33.9487  | 25.9241 |
| 20        | 11.1821  | 33.9487  | 25.924  |
| 30        | 11.1733  | 33.9486  | 25.9256 |
| 38        | 11.0838  | 33.9435  | 25.9377 |

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| STATION   | US16525  |          |         |
| LATITUDE  | 41-43.5  | N        |         |
| LONGITUD  | 140-40.0 | E        |         |
| DEPTH (m) | 67       |          |         |
| Press.    | Temp.    | Salinity | Sigma-T |
| 5         | 10.7878  | 33.8917  | 25.9503 |
| 10        | 10.7799  | 33.8869  | 25.9479 |
| 20        | 10.8151  | 33.8966  | 25.9492 |
| 30        | 10.8928  | 33.9157  | 25.9503 |
| 40        | 10.8331  | 33.9238  | 25.9672 |
| 50        | 10.8304  | 33.9395  | 25.9799 |
| 66        | 10.6815  | 33.9546  | 26.018  |

|           |          |          |         |
|-----------|----------|----------|---------|
| STATION   | US16520  |          |         |
| LATITUDE  | 41-37.6  | N        |         |
| LONGITUD  | 140-28.5 | E        |         |
| DEPTH (m) | 23       |          |         |
| Press.    | Temp.    | Salinity | Sigma-T |
| 5         | 10.3086  | 33.8436  | 25.9964 |
| 10        | 10.3562  | 33.859   | 26.0002 |
| 20        | 10.0538  | 33.8671  | 26.0582 |
| 22        | 10.079   | 33.8736  | 26.059  |

|           |          |          |         |
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| STATION   | US16523  |          |         |
| LATITUDE  | 41-43.7  | N        |         |
| LONGITUD  | 140-36.6 | E        |         |
| DEPTH (m) | 33       |          |         |
| Press.    | Temp.    | Salinity | Sigma-T |
| 5         | 10.8673  | 33.9344  | 25.9694 |
| 10        | 10.8701  | 33.9343  | 25.9688 |
| 20        | 10.8322  | 33.9232  | 25.967  |
| 30        | 10.4918  | 33.8748  | 25.989  |
| 32        | 10.3821  | 33.8564  | 25.9937 |

|           |          |          |         |
|-----------|----------|----------|---------|
| STATION   | US16526  |          |         |
| LATITUDE  | 41-45.4  | N        |         |
| LONGITUD  | 140-40.2 | E        |         |
| DEPTH (m) | 41       |          |         |
| Press.    | Temp.    | Salinity | Sigma-T |
| 5         | 9.9609   | 33.7103  | 25.9515 |
| 10        | 10.2302  | 33.7593  | 25.9441 |
| 20        | 10.7583  | 33.8891  | 25.9534 |
| 30        | 10.8526  | 33.9129  | 25.9553 |
| 38        | 10.7841  | 33.9055  | 25.9617 |

|           |          |          |         |
|-----------|----------|----------|---------|
| STATION   | US16521  |          |         |
| LATITUDE  | 41-38.0  | N        |         |
| LONGITUD  | 140-26.8 | E        |         |
| DEPTH (m) | 16       |          |         |
| Press.    | Temp.    | Salinity | Sigma-T |
| 5         | 9.8324   | 33.8013  | 26.0441 |
| 10        | 9.8205   | 33.8028  | 26.0472 |
| 15        | 9.8239   | 33.8212  | 26.061  |

|           |          |          |         |
|-----------|----------|----------|---------|
| STATION   | US16524  |          |         |
| LATITUDE  | 41-43.6  | N        |         |
| LONGITUD  | 140-38.1 | E        |         |
| DEPTH (m) | 57       |          |         |
| Press.    | Temp.    | Salinity | Sigma-T |
| 5         | 11.118   | 33.9497  | 25.9364 |
| 10        | 11.1084  | 33.9471  | 25.9361 |
| 20        | 11.0887  | 33.9454  | 25.9383 |
| 30        | 11.0093  | 33.9353  | 25.9448 |
| 40        | 10.976   | 33.938   | 25.9528 |
| 50        | 10.7711  | 33.9077  | 25.9657 |
| 56        | 10.7649  | 33.9094  | 25.9681 |

|           |          |          |         |
|-----------|----------|----------|---------|
| STATION   | US16527  |          |         |
| LATITUDE  | 41-46.8  | N        |         |
| LONGITUD  | 140-40.3 | E        |         |
| DEPTH (m) | 20       |          |         |
| Press.    | Temp.    | Salinity | Sigma-T |
| 5         | 9.535    | 33.5373  | 25.887  |
| 10        | 10.4458  | 33.811   | 25.9473 |
| 20        | 10.8339  | 33.9133  | 25.9589 |
| 20        | 10.8339  | 33.9133  | 25.9589 |