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**THE " USHIO MARU "**

**CRUISE 369**

**CRUISE 370**

**CRUISE 371**

**IN SEPTEMBER 2016**

## 1.Cruise Itinerary

### 1. Cruise Itinerary

#### Cruise 369

Departure from Hakodate	Sep. 12, 2016
Start whales and dolphins watching research	13
Start hydrographic research (US16374)	14
Finish hydrographic research (US16375)	16
Arrival at Kushiro	16
Depart from Kushiro	17
Finish whales and dolphins watching research	18
Return to Hakodate	19
Total coverage 1005.4 miles	

#### Cruise 370

Departure from Hakodate	Sep. 23, 2016
Start hydrographic research (US16376)	24
Sampling by trawl net	24
Arrival at Muroran	24
Departure from Muroran	25
Sampling by trawl net	25
Arrival at Hakodate	25
Departure from Hakodate	26
Arrival at Hakodate	27
Departure from Hakodate	28
Arrival at Ominato	28
Departure from Ominato	29
Finish hydrographic research (US16426)	29
Return to Hakodate	30
Total coverage 531.8 miles	

#### Cruise 371

Cancelled by rough weather

## 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”.

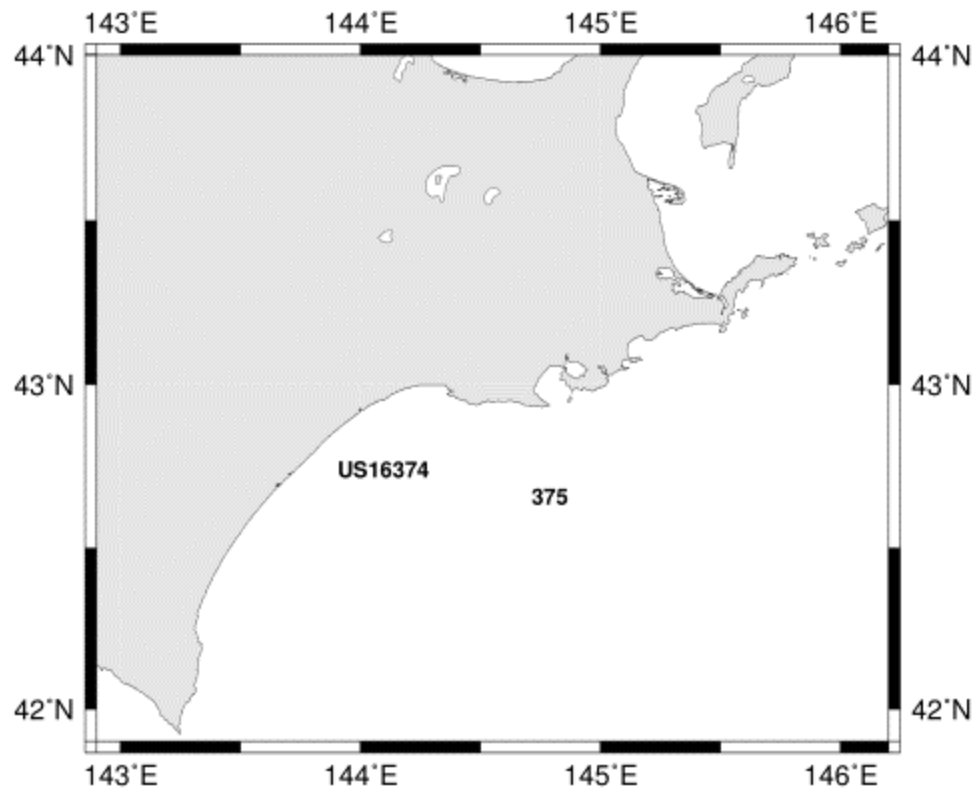


Figure 1. Oceanographic stations (Cruise 369)

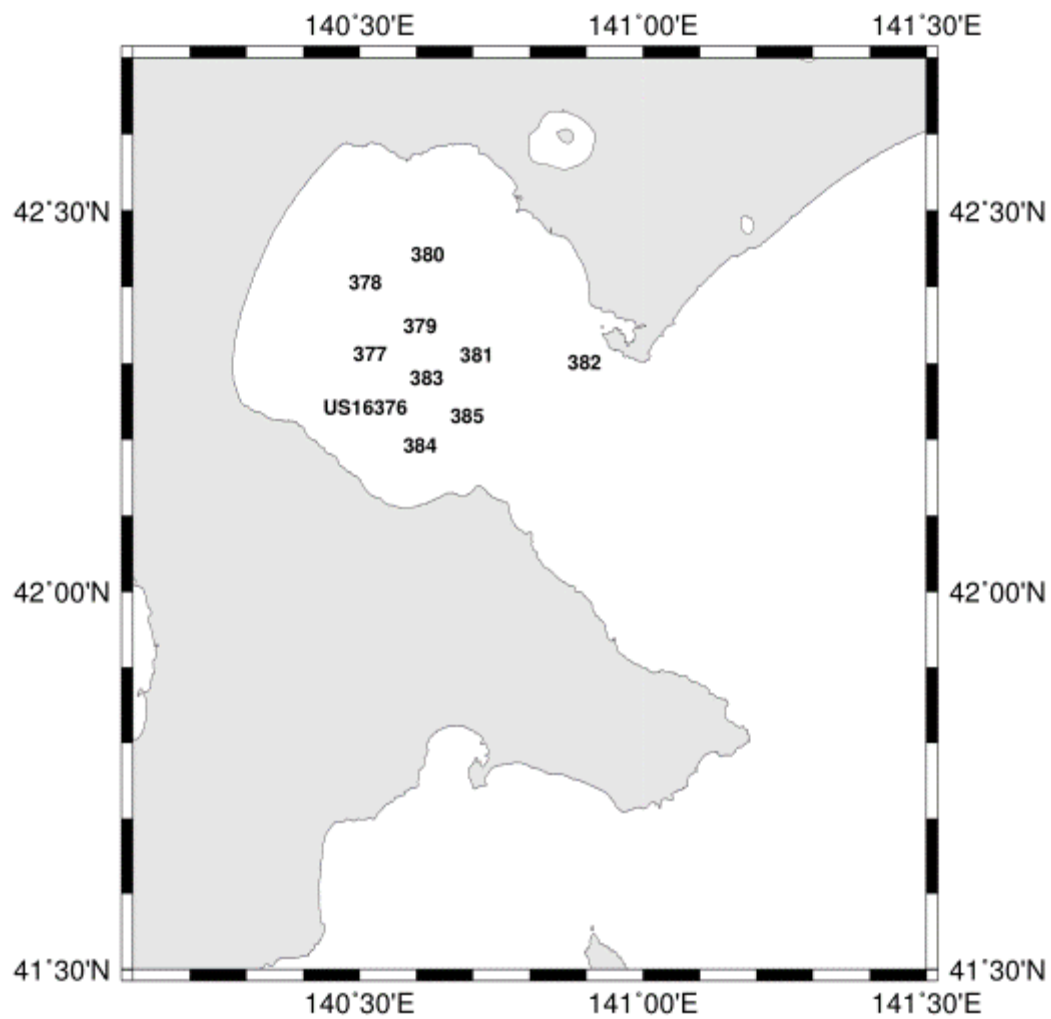


Figure 2. Oceanographic stations (Cruise 370-1)

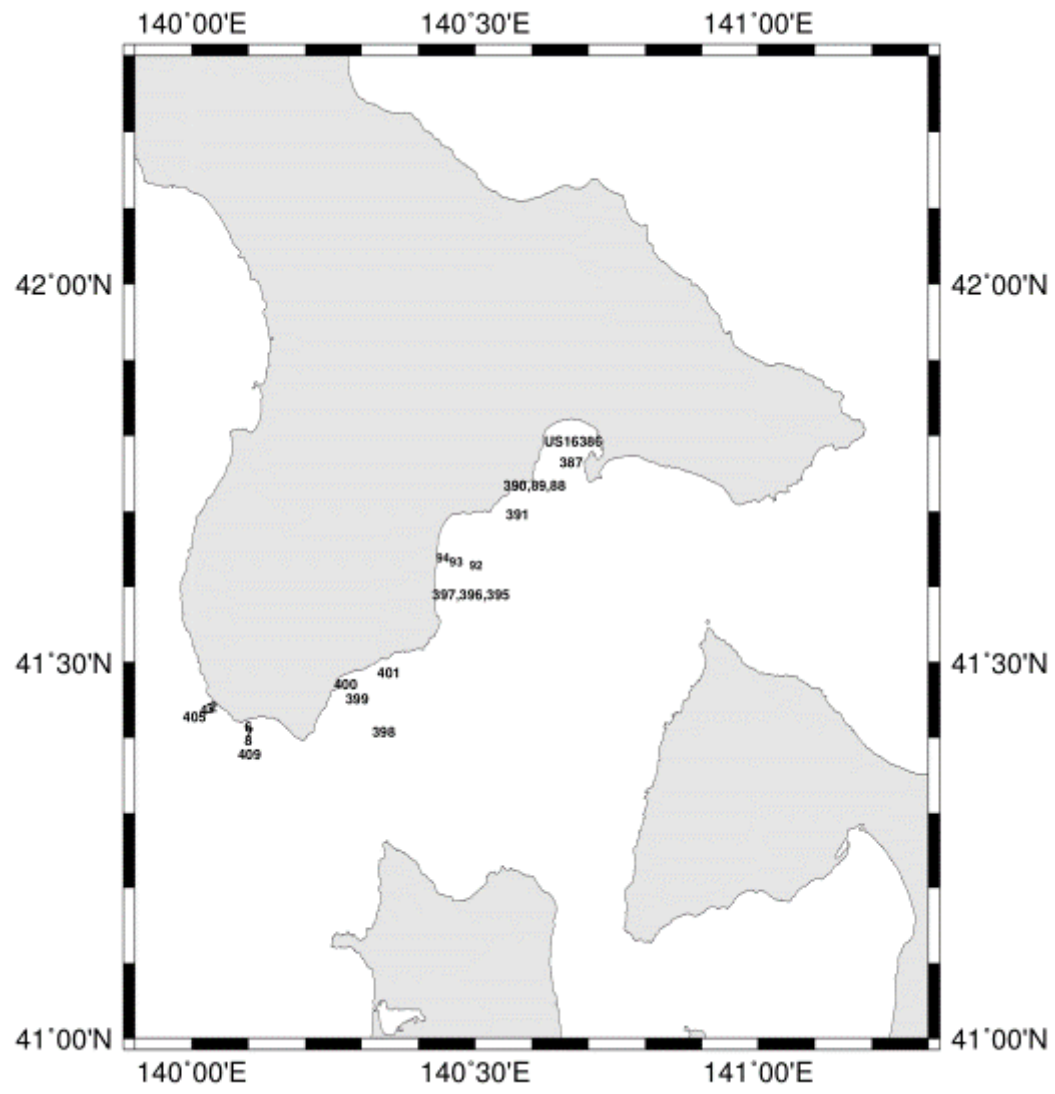


Figure 3. Oceanographic stations (Cruise 370-2)

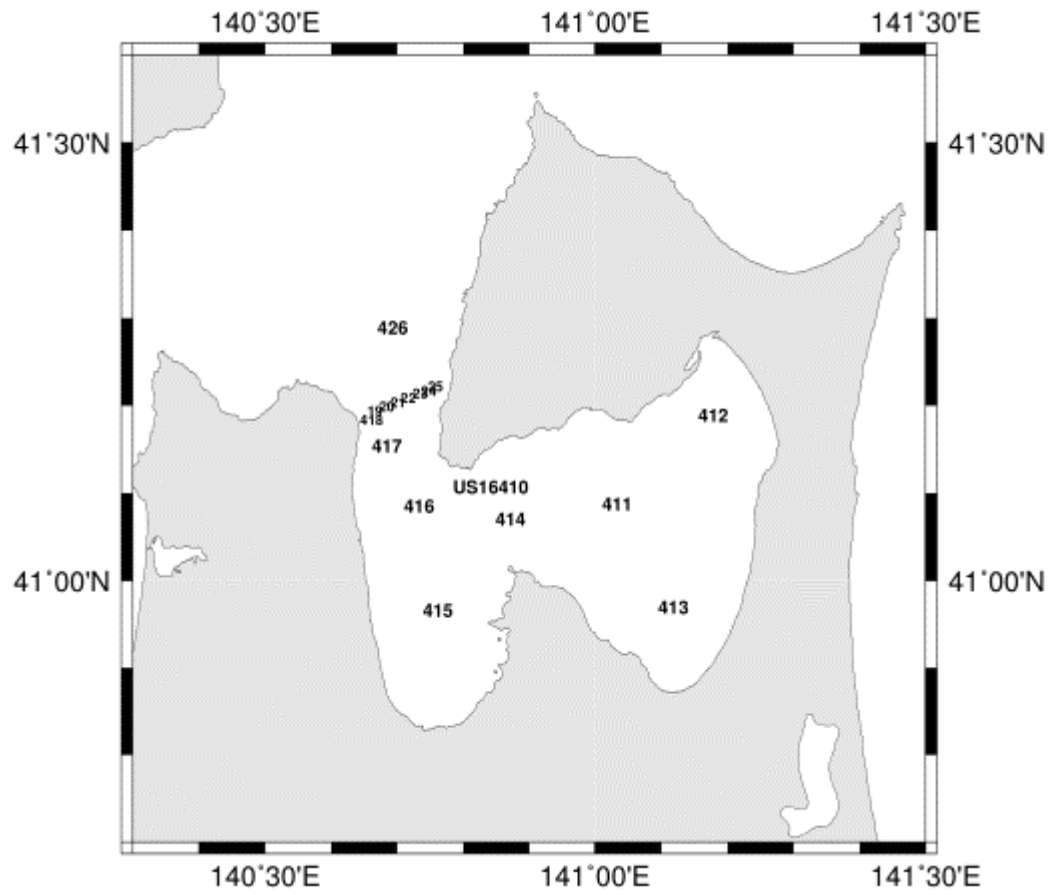


Figure 4. Oceanographic stations (Cruise 370-3)

Table 1. List of Oceanographic Station

Cruise 369												
station	Lat. (N)°	Long. (E)°	Date	Hour	Depth (m)	Wave	Swell	Wind	Air Temp.	Sea Temp.	Wr.	Bar (hPa)
US16374	42-43.0	144-05.6	9/14	0411-0418	136	NNE-2	SE-1	NNE-3	17.6	19.6	o	1023.6
US16375	42-37.9	144-47.3	9/16	0331-0340	721	NE-3	SE-1	NE-4	19.4	20.9	o	1019.4
Cruise 370												
station	Lat. (N)°	Long. (E)°	Date	Hour	Depth (m)	Wave	Swell	Wind	Air Temp.	Sea Temp.	Wr.	Bar (hPa)
US16376	42-14.0	140-30.6	9/24	0633-0639	79	SSW-1	ESE-1	SSW-2	18.6	20.1	bc	1020.1
US16377	42-18.2	140-31.1	9/24	0823-0828	91	West-1	ESE-1	West-2	19.7	20.4	bc	1021.2
US16378	42-23.8	140-30.6	9/24	0951-0956	93	Calm	ESE-1	Calm	20.1	20.8	bc	1020
US16379	42-20.4	140-36.4	9/24	1135-1140	86	East-1	ESE-1	East-2	20.2	21	bc	1020.2
US16380	42-26.0	140-37.2	9/24	1257-1302	82	ESE-2	ESE-1	ESE-2	22.1	21.1	bc	1020.1
US16381	42-18.1	140-42.4	9/24	1431-1435	62	SE-2	ESE-1	SE-4	20.5	20.9	bc	1020.7
US16382	42-17.5	140-53.8	9/24	1530-1534	55	ESE-2	ESE-1	ESE-4	20.9	20.1	bc	1019.9
US16383	42-16.3	140-37.1	9/25	0703-0707	88	SW-2	ESE-1	SW-2	19.7	20.4	bc	1020
US16384	42-11.0	140-36.4	9/25	0838-0843	79	NNE-2	East-1	NNE-2	20.7	20.5	bc	1019.8
US16385	42-13.3	140-41.4	9/25	1052-1057	87	ENE-2	ESE-1	ENE-3	21.5	20.5	bc	1019.6
US16386	41-47.2	140-40.4	9/26	0919-0922	14	Calm	SW-1	Calm	21.9	21.1	c	1021.6
US16387	41-45.5	140-40.2	9/26	0942-0947	38	WSW-1	SSW-1	WSW-3	22.7	21	c	1021.5
US16388	41-43.6	140-40.2	9/26	1000-1007	64	SSW-1	SSW-1	SSW-3	22.7	21.4	c	1021.6
US16389	41-43.6	140-38.1	9/26	1020-1025	56	SW-2	SW-1	SW-4	22.4	21.3	c	1021.6
US16390	41-43.7	140-36.3	9/26	1038-1042	25	SW-2	SW-1	SW-4	22.7	21.1	c	1021.6
US16391	41-41.4	140-34.5	9/26	1100-1104	41	West-1	SW-1	West-3	21.1	23.1	c	1021.6
US16392	41-37.4	140-30.1	9/26	1145-1150	30	SSE-1	South-1	SSE-3	23.8	21.8	c	1021.6
US16393	41-37.7	140-28.0	9/26	1203-1207	19	SSW-1	South-1	SSW-3	23.8	20.5	c	1021.7
US16394	41-38.0	140-26.6	9/26	1223-1227	15	SSW-1	South-1	SSW-2	25.2	21.5	c	1021.7
US16395	41-35.0	140-33.3	9/26	1308-1314	56	SSW-2	South-1	SSW-2	24.5	22.6	c	1021.6
US16396	41-35.0	140-29.6	9/26	1336-1340	39	SW-2	South-1	SW-3	23.2	22.6	c	1021.5
US16397	41-35.1	140-27.2	9/26	1357-1400	20	South-1	South-1	South-3	24.4	21.3	bc	1021.1
US16398	41-24.1	140-20.3	9/26	1516-1523	93	SW-2	SW-1	SW-4	22.1	18.7	bc	1021.1
US16399	41-26.7	140-17.5	9/26	1549-1555	61	WSW-2	SW-1	WSW-4	22	20.9	bc	1021.1
US16400	41-27.9	140-16.3	9/26	1612-1616	26	SW-2	SW-1	SW-4	22.2	21.1	bc	1021.5
US16401	41-28.8	140-20.9	9/26	1639-1645	62	SW-1	SW-1	SW-3	23.5	21	c	1021.2
US16402	41-26.1	140-02.3	9/27	0618-0622	37	NW-1	NW-1	NW-2	20	20	c	1020.6
US16403	41-26.0	140-01.9	9/27	0640-0646	53	East-1	NW-1	East-2	19.8	19.4	o	1020.6
US16404	41-25.8	140-01.3	9/27	0653-0700	79	Calm	NW-1	Calm	20	19.7	o	1020.6
US16405	41-25.3	140-00.3	9/27	0708-0717	103	Calm	NW-1	Calm	20.1	18.8	o	1020.6
US16406	41-24.5	140-06.0	9/27	0745-0750	53	ENE-1	NW-1	ENE-3	19.4	19.9	o	1021
US16407	41-24.0	140-06.1	9/27	0801-0807	75	NE-2	West-1	NE-3	18.9	19.5	o	1021
US16408	41-23.4	140-06.0	9/27	0813-0820	95	East-1	West-1	East-2	19.6	21.3	c	1021
US16409	41-22.3	140-06.1	9/27	0830-0838	118	East-2	West-1	East-4	20.7	21	o	1020.6
US16410	41-06.0	140-50.5	9/28	1115-1125	52	West-2	West-1	West-2	23.1	21.6	c	1012.1
US16411	41-04.8	141-02.0	9/28	1221-1228	46	West-2	West-1	West-2	25.4	21.6	c	1011.8
US16412	41-10.9	141-10.7	9/28	1422-1427	29	West-2	West-1	West-2	23.4	21.6	o	1011
US16413	40-57.7	141-07.1	9/29	0841-0851	37	WSW-2	SW-1	WSW-2	19.4	21.2	o	1013.1
US16414	41-03.8	140-52.3	9/29	1008-1016	50	West-2	WSW-1	West-2	19.6	21.5	c	1013.2
US16415	40-57.5	140-45.7	9/29	1109-1115	49	West-2	WSW-1	West-2	20	21.7	c	1013.1
US16416	41-04.7	140-44.0	9/29	1237-1246	59	West-2	West-1	West-2	21.2	21.8	c	1012.2
US16417	41-08.8	141-41.1	9/29	1314-1319	45	West-2	West-1	West-2	21.5	21.8	c	1011.6
US16418	41-10.7	140-39.7	9/29	1337-1343	47	WNW-2	NW-1	WNW-2	19.8	21.6	c	1011.6
US16419	41-11.3	140-40.0	9/29	1352-1357	53	NW-2	NW-1	NW-2	19.8	21.7	c	1011.8
US16420	41-11.6	140-41.1	9/29	1406-1413	69	NW-2	NW-1	NW-2	19.3	21.7	c	1012
US16421	41-11.9	140-42.1	9/29	1418-1431	73	NW-2	NW-1	NW-2	20.2	22	c	1012
US16422	41-12.2	140-43.0	9/29	1439-1449	72	NW-2	NW-1	NW-2	20.5	21.7	c	1012.2
US16423	41-12.5	140-44.1	9/29	1456-1507	69	NW-2	NW-1	NW-2	20.5	21.7	c	1012.1
US16424	41-12.7	140-44.9	9/29	1515-1525	66	NNW-2	NW-1	NNW-2	20	21.7	c	1012.2
US16425	41-13.0	140-45.5	9/29	1530-1537	65	NW-2	NW-1	NW-2	20.6	21.8	c	1012.4
US16426	41-16.9	140-41.6	9/29	1608-1622	144	WNW-3	WNW-1	WNW-3	19.5	21.3	bc	1012.6

## Cruise 371

Cancelled by rough weather

Table 2. Oceanographic data

STATION US16374			
LATITUDE 42-43.0 N			
LONGITUD 144-05.6 E			
DEPTH (m) 136			
Press.	Temp.	Salinity	Sigma-T
5	19.882	32.933	23.217
10	19.830	32.962	23.252
20	19.773	33.003	23.298
30	19.896	33.119	23.354
40	17.773	33.000	23.796
50	13.297	33.457	25.139
75	12.911	34.305	25.872
100	10.0991	33.9978	26.1525
122	9.0262	33.8685	26.2279

STATION US16375			
LATITUDE 42-37.9 N			
LONGITUD 144-47.3 E			
DEPTH (m) 721			
Press.	Temp.	Salinity	Sigma-T
5	21.093	33.5375	23.3558
10	21.0533	33.5348	23.3645
20	20.5118	33.5587	23.5277
30	15.6499	34.2578	25.2558
40	14.134	34.3788	25.6788
50	12.9112	34.3148	25.8797
75	11.055	34.1947	26.1385
100	9.8907	34.1322	26.2928
125	8.6934	33.9798	26.3674
150	6.9816	33.7748	26.4561
175	6.837	33.8312	26.5201
198	5.452	33.6539	26.5557

STATION US16376			
LATITUDE 42-14.0 N			
LONGITUD 140-30.6 E			
DEPTH (m) 79			
Press.	Temp.	Salinity	Sigma-T
5	20.3634	31.729	22.1741
10	20.3877	31.7571	22.1892
20	20.4181	32.5412	22.7779
30	19.2823	33.0558	23.4643
40	16.766	33.0161	24.0466
50	13.4536	33.2206	24.9236
75	9.6219	33.5926	25.9159
77	9.559	33.609	25.9391

STATION US16377			
LATITUDE 42-18.2 N			
LONGITUD 140-31.1 E			
DEPTH (m) 91			
Press.	Temp.	Salinity	Sigma-T
5	20.5334	31.8377	22.2123
10	20.5308	31.8396	22.2144
20	20.5844	31.9723	22.3012
30	19.5648	33.3133	23.5884
40	17.1162	33.1841	24.0936
50	13.5363	33.1677	24.8662
75	8.208	33.5519	26.1058
88	7.2748	33.6051	26.2822

STATION US16378			
LATITUDE 42-23.8 N			
LONGITUD 140-30.6 E			
DEPTH (m) 93			
Press.	Temp.	Salinity	Sigma-T
5	20.602	31.8969	22.2392
10	20.5065	31.9051	22.2706
20	20.6214	32.055	22.3543
30	19.731	33.2258	23.4789
40	16.4895	33.1045	24.1784
50	14.6156	33.3952	24.8174
75	8.4732	33.5922	26.0975
91	6.5745	33.5637	26.3442

STATION US16379			
LATITUDE 42-20.4 N			
LONGITUD 140-36.4 E			
DEPTH (m) 86			
Press.	Temp.	Salinity	Sigma-T
5	20.6756	31.8414	22.1775
10	20.5851	31.8516	22.2092
20	20.6658	31.9634	22.2729
30	20.9041	33.0646	23.047
40	19.1841	33.1588	23.5679
50	13.7378	33.0672	24.7477
75	9.0926	33.6285	26.0295
84	7.3502	33.6185	26.2823

STATION US16380			
LATITUDE 42-26.0 N			
LONGITUD 140-37.2 E			
DEPTH (m) 82			
Press.	Temp.	Salinity	Sigma-T
5	20.9063	31.9238	22.1789
10	20.6976	31.9314	22.2401
20	20.6466	31.9688	22.2821
30	19.9913	33.01	23.2468
40	16.535	33.1178	24.1783
50	12.7506	33.1679	25.0227
75	9.9094	33.7834	26.0172
79	8.8316	33.5807	26.0333

STATION US16381			
LATITUDE 42-18.1 N			
LONGITUD 140-42.4 E			
DEPTH (m) 62			
Press.	Temp.	Salinity	Sigma-T
5	20.5323	31.8339	22.2096
10	20.3319	31.8691	22.289
20	20.4596	32.7968	22.9616
30	20.3007	33.3762	23.4447
40	17.5769	33.6661	24.3532
50	15.2027	33.7656	24.976
60	12.4075	33.8273	25.6005

STATION US16382			
LATITUDE 42-17.5 N			
LONGITUD 140-53.8 E			
DEPTH (m) 55			
Press.	Temp.	Salinity	Sigma-T
5	20.2548	32.6584	22.9101
10	20.1964	32.7727	23.0125
20	20.1732	32.9612	23.1621
30	20.1791	33.1312	23.29
40	18.4066	33.7392	24.2064
50	16.5099	33.8577	24.7521
53	16.1988	33.8472	24.8156

STATION US16383			
LATITUDE 42-16.3 N			
LONGITUD 140-37.1 E			
DEPTH (m) 88			
Press.	Temp.	Salinity	Sigma-T
5	20.6001	31.8463	22.2012
10	20.6041	31.8479	22.2014
20	20.2656	32.1587	22.5268
30	20.6232	33.4081	23.3835
40	18.1019	33.6515	24.2146
50	13.9027	33.6871	25.1927
75	8.1328	33.5748	26.135
85	7.5353	33.6265	26.2624

STATION US16384			
LATITUDE 42-11.0 N			
LONGITUD 140-36.4 E			
DEPTH (m) 79			
Press.	Temp.	Salinity	Sigma-T
5	20.6645	31.8675	22.2003
10	20.6666	31.8733	22.2042
20	20.4708	32.0574	22.3959
30	18.9753	33.0515	23.5385
40	15.5944	33.051	24.3395
50	12.3214	33.3104	25.216
75	8.9515	33.5868	26.0192
76	8.9436	33.595	26.0269

STATION US16385			
LATITUDE 42-13.3 N			
LONGITUD 140-41.4 E			
DEPTH (m) 87			
Press.	Temp.	Salinity	Sigma-T
5	20.6811	31.8129	22.1544
10	20.5937	31.8127	22.1773
20	19.4883	32.7883	23.2077
30	18.5748	33.399	23.9046
40	15.8065	33.3371	24.5122
50	12.7238	33.4948	25.2812
75	9.2953	33.6427	26.0081
85	7.9644	33.5602	26.1493

STATION US16386			
LATITUDE 41-47.2 N			
LONGITUD 140-40.4 E			
DEPTH (m) 16			
Press.	Temp.	Salinity	Sigma-T
5	21.4937	33.0659	22.8884
10	21.4531	33.4362	23.1809
15	20.6735	33.7537	23.6334

STATION US16387			
LATITUDE 41-45.5 N			
LONGITUD 140-40.2 E			
DEPTH (m) 38			
Press.	Temp.	Salinity	Sigma-T
5	21.4418	33.6186	23.3226
10	21.4807	33.7041	23.3769
20	20.9571	33.7924	23.5864
30	19.9554	33.9084	23.941
33	19.72	33.9227	24.0132

STATION US16388			
LATITUDE 41-43.6 N			
LONGITUD 140-40.2 E			
DEPTH (m) 64			
Press.	Temp.	Salinity	Sigma-T
5	21.3182	33.6534	23.3828
10	21.1215	33.7532	23.5121
20	20.6439	33.8548	23.718
30	19.7501	33.9335	24.0136
40	17.3421	34.0769	24.7245
50	15.7949	34.1784	25.1621
60	14.8977	34.2166	25.3902

STATION US16389			
LATITUDE 41-43.6 N			
LONGITUD 140-38.1 E			
DEPTH (m) 56			
Press.	Temp.	Salinity	Sigma-T
5	22.3712	33.7986	23.2013
10	20.5809	33.8567	23.7364
20	18.2265	34.038	24.4796
30	16.0996	34.1788	25.0932
40	15.3081	34.2589	25.3328
50	13.5481	34.18	25.6468
51	13.4235	34.1794	25.6719

STATION US16390			
LATITUDE 41-43.7 N			
LONGITUD 140-36.3 E			
DEPTH (m) 25			
Press.	Temp.	Salinity	Sigma-T
5	21.1294	33.1523	23.0531
10	21.4505	33.6897	23.3742
20	20.1976	33.8734	23.8507

STATION US16391			
LATITUDE 41-41.4 N			
LONGITUD 140-34.5 E			
DEPTH (m) 41			
Press.	Temp.	Salinity	Sigma-T
5	21.2714	33.5315	23.3028
10	21.1871	33.5565	23.3447
20	21.059	33.6246	23.4313
30	20.5223	33.8455	23.7434
37	19.2857	33.9748	24.1649

STATION US16392			
LATITUDE 41-37.4 N			
LONGITUD 140-30.1 E			
DEPTH (m) 30			
Press.	Temp.	Salinity	Sigma-T
5	22.0004	33.7674	23.2814
10	20.0541	33.8205	23.848
20	15.3741	34.1151	25.2074
25	15.2253	34.1469	25.2648

STATION US16393			
LATITUDE 41-37.7 N			
LONGITUD 140-28.0 E			
DEPTH (m) 19			
Press.	Temp.	Salinity	Sigma-T
5	21.5168	33.5449	23.246
10	20.6868	33.7942	23.6604
14	18.3066	33.9923	24.425

STATION US16394			
LATITUDE 41-38.0 N			
LONGITUD 140-26.6 E			
DEPTH (m) 15			
Press.	Temp.	Salinity	Sigma-T
5	21.1592	33.5838	23.3731
10	21.0129	33.6805	23.4863

STATION US16395			
LATITUDE 41-35.0 N			
LONGITUD 140-33.3 E			
DEPTH (m) 56			
Press.	Temp.	Salinity	Sigma-T
5	22.3712	33.7986	23.2013
10	20.5809	33.8567	23.7364
20	18.2265	34.038	24.4796
30	16.0996	34.1788	25.0932
40	15.3081	34.2589	25.3328
50	13.5481	34.18	25.6468
51	13.4235	34.1794	25.6719

STATION US16396			
LATITUDE 41-35.0 N			
LONGITUD 140-29.6 E			
DEPTH (m) 39			
Press.	Temp.	Salinity	Sigma-T
5	21.6168	33.8358	23.4396
10	20.6764	33.8944	23.7395
20	17.6641	34.077	24.6471
30	14.1401	34.1407	25.4937
35	13.7481	34.1913	25.6145

STATION US16397			
LATITUDE 41-35.1 N			
LONGITUD 140-27.2 E			
DEPTH (m) 20			
Press.	Temp.	Salinity	Sigma-T
5	21.4145	33.6622	23.3632
10	21.3462	33.6598	23.38
15	21.2303	33.6508	23.4047

STATION US16398			
LATITUDE 41-24.1 N			
LONGITUD 140-20.3 E			
DEPTH (m) 93			
Press.	Temp.	Salinity	Sigma-T
5	18.5297	34.1528	24.4922
10	17.4229	34.0513	24.6855
20	16.4009	34.069	24.9397
30	15.9319	34.0914	25.0642
40	15.4604	34.0909	25.1696
50	10.7122	34.0904	26.1184
75	6.4566	34.0544	26.7467
89	6.3896	34.0732	26.7703

STATION US16399			
LATITUDE 41-26.7 N			
LONGITUD 140-17.5 E			
DEPTH (m) 61			
Press.	Temp.	Salinity	Sigma-T
5	20.8561	33.8145	23.6305
10	20.3528	33.8529	23.794
20	17.3571	34.0747	24.7192
30	15.0428	34.1113	25.2773
40	13.1232	34.1637	25.7203
50	12.1942	34.172	25.909
57	12.0092	34.1819	25.9519

STATION US16400			
LATITUDE 41-27.9 N			
LONGITUD 140-16.3 E			
DEPTH (m) 26			
Press.	Temp.	Salinity	Sigma-T
5	20.986	33.6924	23.5025
10	18.7881	33.9592	24.2793
20	16.8971	34.0822	24.8341
21	16.7505	34.0904	24.8749

STATION US16401			
LATITUDE 41-28.8 N			
LONGITUD 140-20.9 E			
DEPTH (m) 62			
Press.	Temp.	Salinity	Sigma-T
5	20.7678	33.8101	23.6509
10	20.6521	33.8116	23.6829
20	16.8835	34.0536	24.8153
30	13.06	34.0398	25.6364
40	10.1843	34.1258	26.2379
50	10.0152	34.1537	26.2885
57	9.9643	34.1565	26.2993

STATION US16402			
LATITUDE 41-26.1 N			
LONGITUD 140-02.3 E			
DEPTH (m) 37			
Press.	Temp.	Salinity	Sigma-T
5	19.5127	33.9485	24.0866
10	18.6957	33.988	24.3246
20	18.1988	34.0139	24.468
30	18.1759	34.0178	24.4767
33	18.1761	34.0186	24.4772

STATION US16403			
LATITUDE 41-26.0 N			
LONGITUD 140-01.9 E			
DEPTH (m) 53			
Press.	Temp.	Salinity	Sigma-T
5	19.2656	33.9281	24.1345
10	17.7364	34.0129	24.5804
20	17.0963	34.0538	24.7653
30	15.6124	34.1142	25.1537
40	14.2964	34.1341	25.4556
48	13.3506	34.1509	25.6646

STATION US16404			
LATITUDE 41-25.8 N			
LONGITUD 140-01.3 E			
DEPTH (m) 79			
Press.	Temp.	Salinity	Sigma-T
5	17.92	34.0177	24.5394
10	17.7558	34.0432	24.5989
20	17.5121	34.0531	24.6654
30	15.0139	34.12	25.2905
40	13.8122	34.1497	25.569
50	13.1359	34.1645	25.7184
75	9.0761	34.1181	26.4155
75	9.0761	34.1181	26.4155

STATION US16405			
LATITUDE 41-25.3 N			
LONGITUD 140-00.3 E			
DEPTH (m) 103			
Press.	Temp.	Salinity	Sigma-T
5	20.4272	33.8959	23.8069
10	18.8086	33.8923	24.223
20	17.6613	33.9505	24.5508
30	15.3287	34.1254	25.2254
40	12.466	34.1256	25.8205
50	10.9643	34.1317	26.1057
75	7.7338	34.0934	26.6009
95	5.8837	34.059	26.8237

STATION US16406			
LATITUDE 41-24.5 N			
LONGITUD 140-06.0 E			
DEPTH (m) 53			
Press.	Temp.	Salinity	Sigma-T
5	19.6537	33.9231	24.0307
10	19.6857	33.939	24.0346
20	18.4001	34.0046	24.4111
30	15.8971	34.1449	25.1132
40	14.193	34.2017	25.5296
48	13.5992	34.225	25.6713



STATION US16407  
 LATITUDE 41-24.0 N  
 LONGITUD 140-06.1 E  
 DEPTH (m) 75

Press.	Temp.	Salinity	Sigma-T
5	20.8355	33.8677	23.6765
10	20.2123	33.9023	23.8688
20	19.4399	33.9528	24.1086
30	16.0059	34.1404	25.085
40	12.4136	34.1727	25.8672
50	10.3456	34.1345	26.2169
70	8.7907	34.117	26.4597

STATION US16408  
 LATITUDE 41-23.4 N  
 LONGITUD 140-06.0 E  
 DEPTH (m) 95

Press.	Temp.	Salinity	Sigma-T
5	20.6081	33.8921	23.7559
10	20.247	33.9146	23.869
20	18.6179	34.0595	24.3986
30	14.0933	34.1997	25.5491
40	12.7929	34.1509	25.7759
50	10.112	34.0799	26.2143
75	8.0725	34.1007	26.5567
90	7.9521	34.1033	26.5767

STATION US16409  
 LATITUDE 41-22.3 N  
 LONGITUD 140-06.1 E  
 DEPTH (m) 118

Press.	Temp.	Salinity	Sigma-T
5	20.0529	33.9182	23.9229
10	19.4379	33.9336	24.0944
20	18.2036	34.049	24.4937
30	15.2629	34.1891	25.2887
40	11.338	34.0152	25.9466
50	9.0327	34.1067	26.4134
75	7.6635	34.0787	26.5995
100	6.7699	34.0739	26.7205
105	6.7325	34.0742	26.7257

STATION US16410  
 LATITUDE 41-06.0 N  
 LONGITUD 140-50.5 E  
 DEPTH (m) 52

Press.	Temp.	Salinity	Sigma-T
5	21.822	33.0669	22.7989
10	21.8152	33.079	22.81
20	21.6027	33.2191	22.9748
30	19.998	33.6279	23.716
40	18.5997	33.9873	24.3481
48	17.124	34.0721	24.7728

STATION US16411  
 LATITUDE 41-04.8 N  
 LONGITUD 141-02.0 E  
 DEPTH (m) 46

Press.	Temp.	Salinity	Sigma-T
5	21.7952	33.0582	22.7997
10	21.782	33.1395	22.8651
20	21.7828	33.2253	22.9301
30	19.857	33.3814	23.5648
40	18.6379	33.6734	24.0986
42	18.5313	33.902	24.2999

STATION US16412  
 LATITUDE 41-10.9 N  
 LONGITUD 141-10.7 E  
 DEPTH (m) 29

Press.	Temp.	Salinity	Sigma-T
5	21.7693	32.7885	22.6021
10	21.7514	32.8645	22.6647
20	21.4992	33.1177	22.9262
24	21.4644	33.1474	22.9583

STATION US16413  
 LATITUDE 40-57.7 N  
 LONGITUD 141-07.1 E  
 DEPTH (m) 37

Press.	Temp.	Salinity	Sigma-T
5	21.6522	33.0544	22.8362
10	21.6484	33.0538	22.8368
20	21.6429	33.0748	22.8543
30	20.2121	33.5424	23.5947
32	19.2783	33.4686	23.7809

STATION US16414  
 LATITUDE 41-03.8 N  
 LONGITUD 140-52.3 E  
 DEPTH (m) 50

Press.	Temp.	Salinity	Sigma-T
5	21.6536	33.0842	22.8585
10	21.6568	33.0837	22.8572
20	21.6305	33.2092	22.9598
30	20.2327	33.7134	23.7195
40	19.0549	33.9463	24.2021
46	18.0892	34.0272	24.5053

STATION US16415  
 LATITUDE 40-57.5 N  
 LONGITUD 140-45.7 E  
 DEPTH (m) 49

Press.	Temp.	Salinity	Sigma-T
5	21.972	33.1628	22.8303
10	21.9762	33.1662	22.8317
20	21.7227	33.5014	23.1564
30	20.7515	33.7438	23.6047
40	19.2612	33.9081	24.1203
45	17.8826	34.0059	24.5396

STATION US16416  
 LATITUDE 41-04.7 N  
 LONGITUD 140-44.0 E  
 DEPTH (m) 59

Press.	Temp.	Salinity	Sigma-T
5	21.7874	33.2423	22.9417
10	21.812	33.2961	22.9758
20	21.9206	33.5088	23.1073
30	21.5687	33.7079	23.3556
40	19.6877	33.8846	23.9925
50	17.7536	34.0384	24.5957
55	17.1375	34.1488	24.8284

STATION US16417  
 LATITUDE 41-08.8 N  
 LONGITUD 141-41.1 E  
 DEPTH (m) 45

Press.	Temp.	Salinity	Sigma-T
5	22.3472	33.7011	23.134
10	22.2285	33.7156	23.1784
20	22.1015	33.7233	23.2198
30	21.538	33.765	23.4075
40	20.1661	33.8521	23.8427

STATION US16418  
 LATITUDE 41-10.7 N  
 LONGITUD 140-39.7 E  
 DEPTH (m) 47

Press.	Temp.	Salinity	Sigma-T
5	21.7537	33.32	23.01
10	21.8511	33.6081	23.2019
20	21.8033	33.7247	23.3037
30	21.6564	33.7396	23.3556
40	20.4854	33.8347	23.745
42	20.2998	33.8612	23.8144

STATION US16419  
 LATITUDE 41-11.3 N  
 LONGITUD 140-40.0 E  
 DEPTH (m) 53

Press.	Temp.	Salinity	Sigma-T
5	21.3473	33.2345	23.0564
10	21.3229	33.3348	23.1393
20	21.6511	33.703	23.3292
30	21.5447	33.7508	23.3948
40	21.2859	33.7596	23.4724
48	18.951	33.9149	24.204

STATION US16420  
 LATITUDE 41-11.6 N  
 LONGITUD 140-41.1 E  
 DEPTH (m) 69

Press.	Temp.	Salinity	Sigma-T
5	22.1372	33.6002	23.1163
10	22.1525	33.6497	23.1496
20	22.0591	33.7311	23.2375
30	21.8794	33.7395	23.2938
40	20.3957	33.8244	23.761
50	17.8339	34.0206	24.5626
65	14.5344	34.2214	25.4724

STATION US16421  
 LATITUDE 41-11.9 N  
 LONGITUD 140-42.1 E  
 DEPTH (m) 73

Press.	Temp.	Salinity	Sigma-T
5	21.8696	33.4837	23.1023
10	22.0209	33.5944	23.1444
20	22.0378	33.7341	23.2457
30	21.4488	33.7482	23.4191
40	19.3626	33.8799	24.0727
50	16.3488	34.0958	24.9722
68	14.214	34.2369	25.5524

STATION US16422  
 LATITUDE 41-12.2 N  
 LONGITUD 140-43.0 E  
 DEPTH (m) 72

Press.	Temp.	Salinity	Sigma-T
5	21.8583	33.4757	23.0994
10	21.8983	33.5078	23.1126
20	21.9528	33.5939	23.1629
30	21.5992	33.7498	23.3791
40	20.1317	33.8407	23.8431
50	15.6751	34.1266	25.1492
68	13.1662	34.2272	25.7609

STATION US16423  
 LATITUDE 41-12.5 N  
 LONGITUD 140-44.1 E  
 DEPTH (m) 69

Press.	Temp.	Salinity	Sigma-T
5	21.9408	33.5288	23.1168
10	22.0038	33.604	23.1564
20	21.8162	33.7192	23.296
30	21.3778	33.7701	23.4552
40	20.0334	33.8598	23.8835
50	18.1558	33.9948	24.4639
67	13.7255	34.2274	25.6473

STATION US16424  
 LATITUDE 41-12.7 N  
 LONGITUD 140-44.9 E  
 DEPTH (m) 66

Press.	Temp.	Salinity	Sigma-T
5	21.9602	33.5649	23.1389
10	21.9767	33.5752	23.142
20	21.7929	33.7155	23.2996
30	21.2436	33.729	23.4606
40	20.0034	33.8528	23.8859
50	18.3733	33.956	24.3806
62	16.4682	34.1197	24.9631

STATION US16425  
LATITUDE 41-13.0 N  
LONGITUD 140-45.5 E  
DEPTH (m) 65

Press.	Temp.	Salinity	Sigma-T
5	22.037	33.6106	23.1522
10	22.0441	33.6112	23.1507
20	21.7166	33.6585	23.2774
30	20.9382	33.7656	23.5711
40	19.421	33.9096	24.0804
50	18.454	33.9872	24.3844
61	16.6297	34.1099	24.918

STATION US16426  
LATITUDE 41-16.9 N  
LONGITUD 140-41.6 E  
DEPTH (m) 144

Press.	Temp.	Salinity	Sigma-T
5	21.6645	33.802	23.4008
10	21.5626	33.7988	23.4264
20	21.3247	33.8067	23.4975
30	21.0111	33.8337	23.6033
40	20.9262	33.8286	23.6223
50	19.9566	33.9105	23.9423
75	16.988	34.1353	24.8534
100	14.3364	34.2095	25.5053
125	12.6696	34.2248	25.8577
135	11.9553	34.2207	25.9923