



HOKKAIDO UNIVERSITY

Title	PART II -5. THE " USHIO MARU " CRUISE 391, CRUISE 392, CRUISE 393 IN JUNE - JULY 2017
Citation	海洋調査漁業試験要報, 61, 103-112
Issue Date	2021-03-31
Doc URL	https://hdl.handle.net/2115/80714
Type	dataset
File Information	Data.Rec.Oceanogr.Obs.Expl.Fish.61.103.pdf



THE " USHIO MARU "

CRUISE 391

CRUISE 392

CRUISE 393

IN JUNE 2017

IN JULY 2017

1. Cruise Itinerary

Cruise 391

Departure from Hakodate	Jun.	6, 2017
Start hydrographic research (US17275)		6
Calibration of EK-80		6
Noise test for EK-80 and EK-60		7
Sampling by plankton net		7
Arrival at Hakodate		8
Departure from Hakodate		9
Sampling by bottom trawl net		9
Arrival at Muroran		9
Departure from Muroran		9
Sampling by bottom trawl net		10
Arrival at Muroran		10
Departure from Muroran		11
Sampling by bottom trawl net		11
Arrival at Muroran		11
Departure from Muroran		12
Sampling by bottom trawl net		12
Retrieval ADCP mooring system		12
Arrival at Mori		12
Departure from Mori		13
Set ADCP mooring system		13
Finish hydrographic research (US17297)		13
Return to Hakodate		14
Total coverage 483.7 miles		

Cruise 392

Departure from Hakodate	Jun.	19, 2017
Start hydrographic research (US17298)		19
Arrival at Ominato		19
Departure from Ominato		20
Finish hydrographic research (US17314)		20
Return to Hakodate		21
Total coverage 167.5 miles		

Cruise 393		
Departure from Hakodate	Jul.	28, 2017
Start ADCP and echo sounding research		28
Start hydrographic research (US17315)		29
Finish ADCP and echo sounding research		30
Arrival at Hakodate		31
Departure from Hakodate	Aug.	1, 2017
Arrival at Hakodate		3
Departure from Hakodate		5
Calibration of EK-60 and EK-80		5
Hook and line sampling for squid		6
Calibration of EK-60 and EK-80		6
Finish hydrographic research (US17323)		6
Return to Hakodate		7
Total coverage 809.4 miles		

2. Data on Temperature, Salinity and Pressure

Hydrographic work on deck and the data processing were made by the deck officers, crews, research staff and cadets of the “Ushio Maru”. Temperature, salinity and pressure were measured by CTD (Seabird SBE-19Plus and SBE-19).

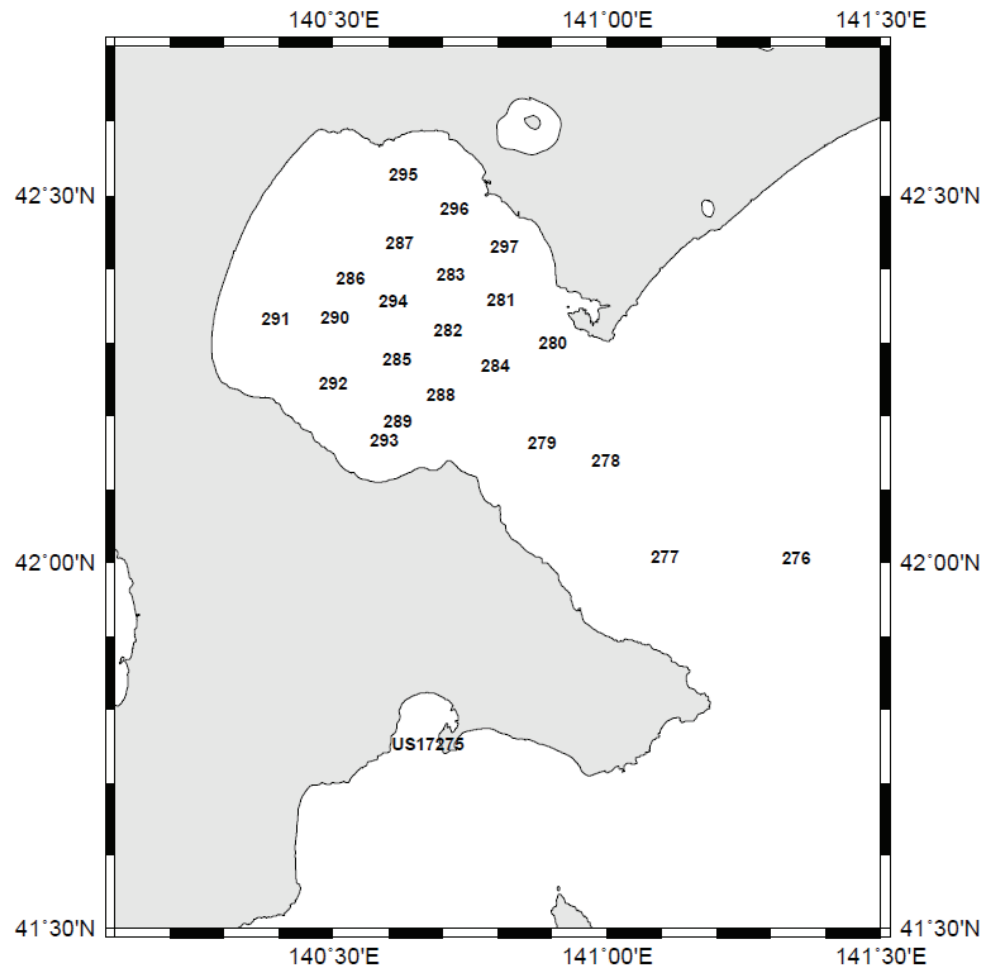


Figure 1. Oceanographic stations (Cruise 391)

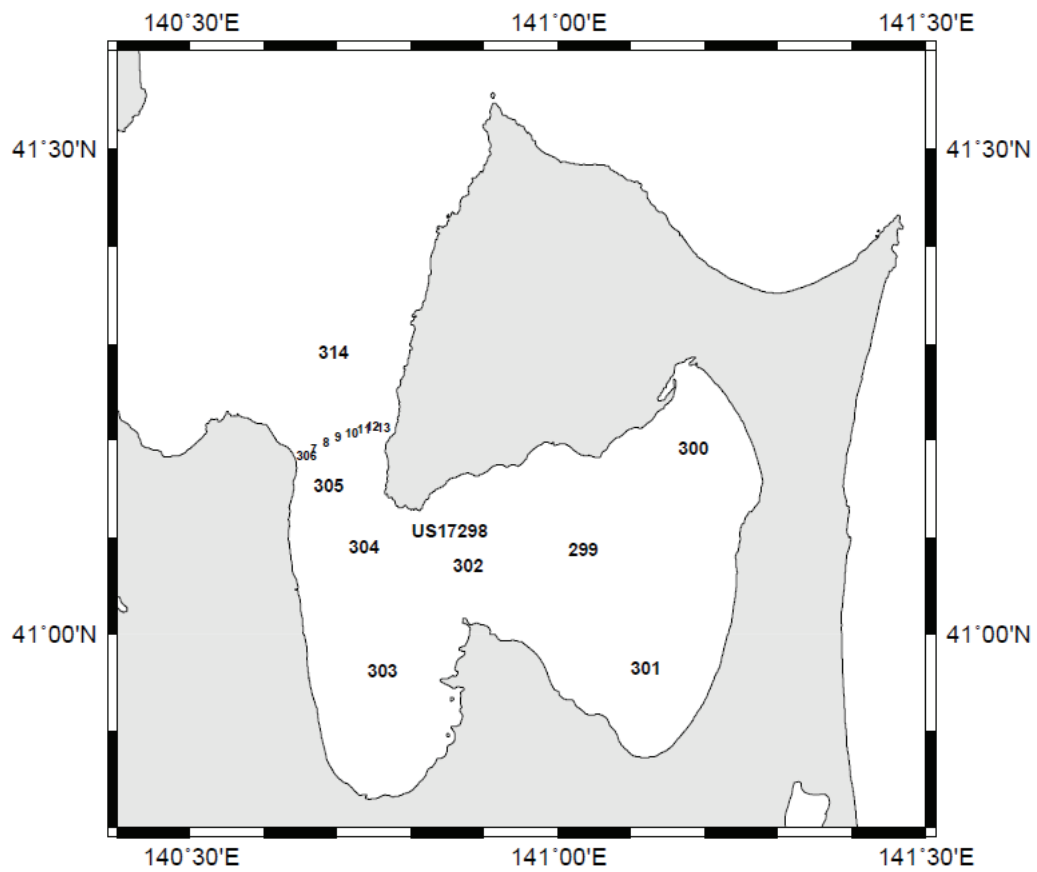


Figure 2. Oceanographic stations (Cruise 392)

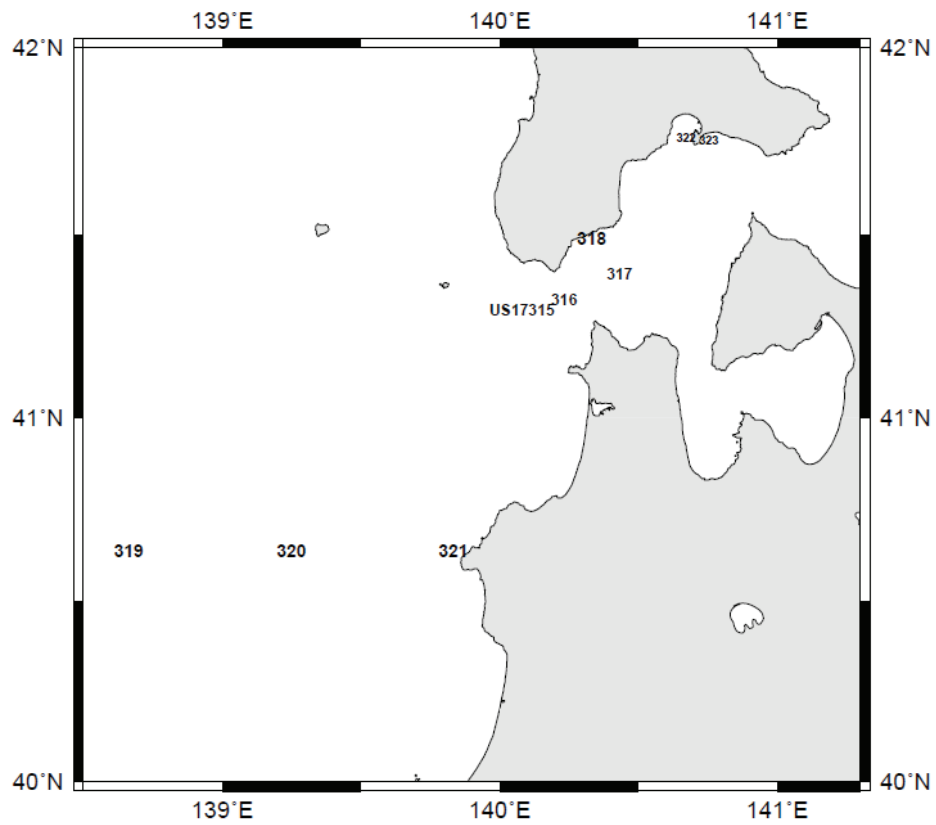


Figure 3. Oceanographic stations (Cruise 393)

Table 1. List of Oceanographic Station

Crs391												
station	Lat. (N)°	Long. (E)°	Date	Hour (JST)	Depth (m)	Wave	Swell	Wind	Air Temp.	Sea Temp.	Wr.	Bar (hPa)
US17275	41-44.6	140-40.3	6/6	0908-0914	58	South-1	SSE-1	South-3	13.1	13.2	bc	1021.7
US17276	41-59.9	141-20.7	6/6	1900-1925	323	Calm	SSE-1	Calm	13.6	11.8	b	1019.6
US17277	42-00.0	141-06.3	6/9	1114-1122	120	SSW-3	SE-1	SSW-5	15.9	9.9	bc	1005.6
US17278	42-07.8	140-59.8	6/9	1306-1314	83	SSE-3	SE-1	SSE-4	16.7	10.3	bc	1005
US17279	42-09.3	140-52.8	6/9	1441-1447	78	NE-2	SE-1	NE-3	15.9	11.7	r	1005.5
US17280	42-17.5	140-54.0	6/9	1538-1544	57	East-2	SE-1	East-3	15.1	11.8	o	1004.5
US17281	42-21.0	140-48.3	6/10	1239-1245	51	East-2	East-1	East-4	12.8	10.9	r	1000.7
US17282	42-18.5	140-42.5	6/10	1317-1324	62	East-2	East-1	East-4	12.4	11.7	o	999.5
US17283	42-23.0	140-42.8	6/10	1427-1434	56	East-2	East-1	East-3	12.3	11.6	o	999.6
US17284	42-15.6	140-47.7	6/11	0754-0801	70	West-2	East-1	West-4	11.8	10.3	bc	1006.2
US17285	42-16.1	140-36.9	6/11	0851-0900	89	WNW-2	East-1	WNW-4	13	11.9	bc	1006.6
US17286	42-22.7	140-31.8	6/11	1047-1054	96	NW-2	East-1	NW-3	13.7	12.3	c	1007.1
US17287	42-25.6	140-37.2	6/11	1256-1301	83	WNW-2	NW-1	WNW-4	14.5	12.1	c	1007.1
US17288	42-13.2	140-41.7	6/12	0835-0841	89	SSE-2	SE-1	SSE-4	11	11.3	o	1013.2
US17289	42-11.0	140-37.0	6/12	0909-0917	81	ESE-2	SE-1	ESE-3	12.7	11.9	o	1013.6
US17290	42-19.5	140-30.1	6/12	1119-1127	92	South-2	SE-1	South-3	16.2	12.6	bc	1014
US17291	42-19.4	140-23.6	6/12	1200-1205	56	ESW-2	SE-1	ESE-3	15.7	13.5	bc	1013.9
US17292	42-14.1	140-29.9	6/12	1343-1348	77	SSE-1	SE-1	SSE-2	15.7	13.5	bc	1013.5
US17293	42-09.5	140-35.5	6/12	1433-1438	70	SSE-2	SE-1	SSE-2	17.3	13.1	bc	1013.2
US17294	42-20.8	140-36.5	6/13	0908-0914	87	NW-2	SE-1	NW-2	13	12.6	b	1016.3
US17295	42-31.1	140-37.6	6/13	1027-1035	61	SSW-2	SE-1	SSW-2	17.2	13.5	b	1016.1
US17296	42-28.4	140-43.2	6/13	1109-1114	59	Calm	SE-1	Calm	13.7	13.4	bc	1015.8
US17297	42-25.3	140-48.7	6/13	1146-1150	42	NNW-1	SE-1	NNW-2	14.9	13.5	bc	1015.5
Crs392												
station	Lat. (N)°	Long. (E)°	Date	Hour (JST)	Depth (m)	Wave	Swell	Wind	Air Temp.	Sea Temp.	Wr.	Bar (hPa)
US17298	41-06.0	140-51.1	6/19	1226-1233	52	East-3	East-1	East-4	18.3	16.8	c	1013.7
US17299	41-04.8	140-02.0	6/19	1326-1332	47	ESE-3	East-1	ESE-5	18.2	16.6	o	1013.8
US17300	41-11.1	141-11.0	6/19	1538-1543	29	East-2	East-1	East-3	17.9	17.4	c	1014
US17301	40-57.5	141-07.1	6/20	0741-0749	36	Calm	NNE-1	Calm	16	16.7	bc	1014.3
US17302	41-03.8	140-52.6	6/20	0908-0914	50	Calm	NNE-1	Calm	17.4	15.8	bc	1014.5
US17303	40-57.3	140-45.6	6/20	1009-1015	50	NE-2	NNE-1	NE-2	20.8	17.5	bc	1014.5
US17304	41-05.0	140-44.1	6/20	1133-1140	59	NE-2	NNE-1	NE-2	18.6	17.3	bc	1014.3
US17305	41-08.8	140-41.2	6/20	1208-1214	48	North-2	NNE-1	North-3	18	17.4	bc	1014
US17306	41-10.8	140-39.4	6/20	1234-1239	39	North-2	North-1	North-3	17.8	17.3	bc	1013.9
US17307	41-11.2	140-40.0	6/20	1251-1256	54	North-2	North-1	North-3	19.3	16.8	bc	1013.7
US17308	41-11.6	140-41.0	6/20	1307-1313	66	North-2	North-1	North-3	19.2	16.7	bc	1013.6
US17309	41-11.9	140-42.0	6/20	1321-1328	74	North-2	North-1	North-3	18.6	17.6	bc	1013.6
US17310	41-12.2	140-43.1	6/20	1336-1344	72	North-2	North-1	North-4	20.8	17.5	bc	1013.6
US17311	41-12.4	140-44.1	6/20	1352-1359	70	North-2	North-1	North-3	21.6	17.6	bc	1013.6
US17312	41-12.6	140-44.8	6/20	1406-1416	67	North-2	North-1	North-3	20.6	17.9	bc	1013.6
US17313	41-12.5	140-45.7	6/20	1424-1430	55	North-2	North-1	North-3	21.8	18	bc	1013.6
US17314	41-17.0	140-41.6	6/20	1505-1516	147	North-2	North-1	North-3	19.2	17.6	bc	1013.6
Crs393												
station	Lat. (N)°	Long. (E)°	Date	Hour (JST)	Depth (m)	Wave	Swell	Wind	Air Temp.	Sea Temp.	Wr.	Bar (hPa)
US17315	41-16.7	140-04.8	7/29	1333-1349	281	NE-1	ENE-1	NE-3	26.1	24.5	bc	1012.1
US17316	41-18.3	140-13.9	7/29	1432-1446	256	NE-1	ENE-1	NE-3	24.5	24.2	bc	1011.8
US17317	41-22.6	140-25.9	7/29	1534-1551	251	East-1	ENE-1	East-2	25	24.6	bc	1011.8
US17318	41-28.2	140-19.8	7/29	1717-1723	62	East-1	ENE-1	East-2	23.5	19.8	bc	1011.7
US17319	40-37.0	138-39.8	8/1	1912-1936	3267	North-2	NNE-1	North-4	25	25.8	bc	1011.7
US17320	40-37.0	139-14.9	8/2	0004-0029	2785	NE-2	NNE-1	NE-4	24.3	24.5	bc	1012.1
US17321	40-37.1	139-49.9	8/2	0653-0704	115	NE-2	North-1	NE-2	26.9	25.2	bc	1012.6
US17322	41-44.8	140-40.3	8/5	0920-0925	54	Calm	SE-1	Calm	23.2	22.4	o	1012
US17323	41-44.5	140-45.2	8/6	0650-0655	56	East-2	East-1	East-4	22.3	22.3	o	1010.1

Table 2. Oceanographic data

STATION US17275			
LATITUDE	41-44.6	N	
LONGITUDE	140-40.3	E	
DEPTH (m)	58		
Press.	Temp.	Salinity	Sigma-T
5	13.1519	33.8526	25.4737
10	12.3905	33.8535	25.624
20	11.625	34.0139	25.8935
30	10.8845	34.066	26.0688
40	10.7364	34.0497	26.0825
50	10.3108	34.0755	26.1769
54	10.273	34.0773	26.1848

STATION US17276			
LATITUDE	41-59.9	N	
LONGITUDE	141-20.7	E	
DEPTH (m)	323		
Press.	Temp.	Salinity	Sigma-T
5	11.1294	32.2666	24.6248
10	9.9933	32.2401	24.7986
20	6.6142	32.5747	25.5588
30	4.8072	32.8538	25.9952
40	5.9832	33.2382	26.1627
50	6.1942	33.3709	26.2411
75	5.7722	33.5256	26.4157
100	5.4991	33.5276	26.4501
125	4.239	33.4078	26.4953
150	3.6127	33.3843	26.539
175	3.4412	33.4086	26.5746
200	3.3978	33.413	26.5822
250	2.7787	33.3934	26.6219
297	2.8039	33.4735	26.6837

STATION US17277			
LATITUDE	42-00.0	N	
LONGITUDE	141-06.3	E	
DEPTH (m)	120		
Press.	Temp.	Salinity	Sigma-T
5	10.1948	32.1643	24.7061
10	9.7039	32.1228	24.7545
20	9.2338	32.6557	25.2461
30	5.8168	32.5935	25.6736
40	4.7955	32.8795	26.0168
50	4.7951	33.0095	26.12
75	5.0714	33.3167	26.3328
100	5.0188	33.3707	26.3815
116	4.926	33.403	26.417

STATION US17278			
LATITUDE	42-07.8	N	
LONGITUDE	140-59.8	E	
DEPTH (m)	83		
Press.	Temp.	Salinity	Sigma-T
5	9.8208	31.8099	24.4911
10	8.7923	32.0143	24.8128
20	6.7559	32.42	25.419
30	5.5144	32.6447	25.7498
40	4.916	32.684	25.8487
50	4.686	32.737	25.916
75	4.690	32.984	26.111
80	4.816	33.106	26.194

STATION US17279			
LATITUDE	42-09.3	N	
LONGITUDE	140-52.8	E	
DEPTH (m)	78		
Press.	Temp.	Salinity	Sigma-T
5	11.1885	32.1009	24.4854
10	10.0517	32.2838	24.823
20	8.4523	32.4114	25.1747
30	6.4648	32.717	25.6907
40	5.7796	32.7208	25.7786
50	5.3208	32.7315	25.8409
75	4.1067	33.3421	26.4566
75	4.1067	33.3421	26.4566

STATION US17280			
LATITUDE	42-17.5	N	
LONGITUDE	140-54.0	E	
DEPTH (m)	57		
Press.	Temp.	Salinity	Sigma-T
5	10.3378	31.4808	24.1494
10	9.6503	31.9481	24.6268
20	8.504	32.3013	25.0809
30	6.7543	32.5946	25.5568
40	6.408	32.7426	25.7181
50	5.7195	32.6955	25.7659
55	5.1711	32.7367	25.862

STATION US17281			
LATITUDE	42-21.0	N	
LONGITUDE	140-48.3	E	
DEPTH (m)	51		
Press.	Temp.	Salinity	Sigma-T
5	10.4069	31.548	24.1902
10	10.4084	31.6666	24.2823
20	10.0417	32.0675	24.656
30	7.3304	32.1449	25.1257
40	6.0843	32.5796	25.6301
48	5.3407	32.6894	25.8053

STATION US17282			
LATITUDE	42-18.5		
LONGITUDE	140-42.5		
DEPTH (m)	62		
Press.	Temp.	Salinity	Sigma-T
5	11.2963	31.5742	24.057
10	11.0845	31.6662	24.1659
20	9.9483	32.2846	24.8408
30	5.4209	32.2675	25.4622
40	4.1328	32.4378	25.7352
50	3.6714	32.5543	25.8726
60	3.192	32.7541	26.0757

STATION US17283			
LATITUDE	42-23.0	N	
LONGITUDE	140-42.8	E	
DEPTH (m)	56		
Press.	Temp.	Salinity	Sigma-T
5	11.7652	31.4784	23.8984
10	11.525	31.6271	24.0572
20	10.7726	31.7257	24.2663
30	6.2994	32.3294	25.4059
40	5.018	32.4759	25.6725
50	5.4184	32.7209	25.8213
59	5.1554	32.7062	25.8396

STATION US17284			
LATITUDE	42-15.6	N	
LONGITUDE	140-47.7	E	
DEPTH (m)	70		
Press.	Temp.	Salinity	Sigma-T
5	10.5983	31.7135	24.2867
10	10.3651	32.1396	24.6582
20	6.9334	32.1514	25.1839
30	6.0763	32.5383	25.5985
40	4.1161	32.5352	25.8143
50	3.493	32.637	25.9551
66	3.786	33.0978	26.2942

STATION US17285			
LATITUDE	42-16.1	N	
LONGITUDE	140-36.9	E	
DEPTH (m)	89		
Press.	Temp.	Salinity	Sigma-T
5	11.9792	31.6239	23.9721
10	11.8611	31.6037	23.9781
20	9.9737	31.8115	24.4676
30	6.2081	32.0994	25.2356
40	4.6912	32.4554	25.6918
50	4.3511	32.4899	25.7546
75	4.052	33.0871	26.2594
85	4.7275	33.485	26.5045

STATION US17286			
LATITUDE	42-22.7	N	
LONGITUDE	140-31.8	E	
DEPTH (m)	96		
Press.	Temp.	Salinity	Sigma-T
5	12.0562	31.1183	23.5658
10	10.6302	31.38	24.0216
20	8.0721	31.8768	24.8115
30	5.8371	32.1929	25.3546
40	4.181	32.4144	25.7119
50	3.7137	32.5574	25.8711
75	4.6331	33.3894	26.4389
92	4.7296	33.462	26.486

STATION US17287			
LATITUDE	42-25.6	N	
LONGITUDE	140-37.2	E	
DEPTH (m)	83		
Press.	Temp.	Salinity	Sigma-T
5	12.2417	31.4081	23.7561
10	11.3541	31.663	24.1157
20	7.512	31.958	24.9542
30	6.0773	32.082	25.238
40	5.3078	32.2731	25.4796
50	4.0029	32.4171	25.7316
75	3.6089	32.9535	26.1963
80	3.7279	33.0791	26.2849

STATION US17290			
LATITUDE	42-19.5	N	
LONGITUDE	140-30.1	E	
DEPTH (m)	92		
Press.	Temp.	Salinity	Sigma-T
5	12.6645	31.1552	23.4805
10	11.8135	31.3352	23.7782
20	7.465	31.9172	24.9281
30	5.6225	32.2412	25.4181
40	4.916	32.4369	25.6529
50	3.5798	32.5236	25.8568
75	4.102	33.082	26.250
89	4.5922	33.3821	26.4376

STATION US17293			
LATITUDE	42-09.5	N	
LONGITUDE	140-35.5	E	
DEPTH (m)	70		
Press.	Temp.	Salinity	Sigma-T
5	12.2768	31.5756	23.8794
10	12.1534	31.6028	23.9235
20	9.7175	31.7769	24.4822
30	6.7981	32.0148	25.0943
40	4.8738	32.2897	25.5408
50	4.2743	32.5248	25.7901
68	3.6817	32.8521	26.1087

STATION US17296			
LATITUDE	42-28.4	N	
LONGITUDE	140-43.2	E	
DEPTH (m)	59		
Press.	Temp.	Salinity	Sigma-T
5	12.5854	31.5427	23.7957
10	12.1557	31.5706	23.8981
20	7.4994	31.9651	24.9615
30	5.9784	32.1587	25.3106
40	4.8496	32.4427	25.6646
50	3.8472	32.4934	25.8075
53	3.9796	32.5234	25.8184

STATION US17299			
LATITUDE	41-04.8	N	
LONGITUDE	140-02.0	E	
DEPTH (m)	47		
Press.	Temp.	Salinity	Sigma-T
5	16.4467	33.0584	24.153
10	16.1809	33.0596	24.2145
20	15.3793	33.2899	24.5709
30	13.1724	33.137	24.9157
40	11.4969	33.3001	25.3623
43	10.6966	33.3698	25.5597

STATION US17302			
LATITUDE	41-03.8	N	
LONGITUDE	140-52.6	E	
DEPTH (m)	50		
Press.	Temp.	Salinity	Sigma-T
5	15.612	33.398	24.603
10	15.589	33.4091	24.6163
20	14.79	33.5385	24.8907
30	14.3575	33.5726	25.0092
40	13.5115	33.6074	25.2114
46	12.1819	33.717	25.5582

STATION US17288			
LATITUDE	42-13.2	N	
LONGITUDE	140-41.7	E	
DEPTH (m)	89		
Press.	Temp.	Salinity	Sigma-T
5	11.0524	31.6263	24.1405
10	10.5776	31.968	24.4884
20	6.7713	32.0093	25.0933
30	5.2159	32.2825	25.4974
40	3.9415	32.4685	25.7785
50	3.6065	32.5636	25.8861
75	4.6264	33.3486	26.4073
84	4.6263	33.3972	26.4459

STATION US17291			
LATITUDE	42-19.4	N	
LONGITUDE	140-23.6	E	
DEPTH (m)	56		
Press.	Temp.	Salinity	Sigma-T
5	13.5908	30.6875	22.9389
10	12.3813	31.2949	23.6423
20	7.8963	31.9474	24.892
30	5.4876	32.2254	25.4213
40	4.2715	32.4281	25.7137
50	3.7359	32.5374	25.8531
54	3.6983	32.5434	25.8614

STATION US17294			
LATITUDE	42-20.8	N	
LONGITUDE	140-36.5	E	
DEPTH (m)	87		
Press.	Temp.	Salinity	Sigma-T
5	12.6071	31.3828	23.6677
10	10.6936	31.54	24.1354
20	10.0309	32.1036	24.686
30	6.2932	32.0842	25.2132
40	4.8334	32.3076	25.5593
50	4.2056	32.5422	25.8109
75	4.0569	33.1007	26.2698
82	4.6438	33.385	26.4343

STATION US17297			
LATITUDE	42-25.3	N	
LONGITUDE	140-48.7	E	
DEPTH (m)	42		
Press.	Temp.	Salinity	Sigma-T
5	12.726	31.4218	23.6753
10	12.1691	31.5337	23.867
20	8.3065	32.2563	25.0751
30	7.1125	32.4788	25.4181
38	4.4583	32.547	25.7889

STATION US17300			
LATITUDE	41-11.1	N	
LONGITUDE	141-11.0	E	
DEPTH (m)	29		
Press.	Temp.	Salinity	Sigma-T
5	15.7821	33.0946	24.3313
10	15.5176	33.0802	24.379
20	14.7467	33.0458	24.5201
25	14.2755	33.2663	24.7902

STATION US17303			
LATITUDE	40-57.3	N	
LONGITUDE	140-45.6	E	
DEPTH (m)	50		
Press.	Temp.	Salinity	Sigma-T
5	16.4973	33.1486	24.2104
10	15.0774	33.3796	24.706
20	14.518	33.5461	24.9548
30	14.1395	33.6415	25.1082
40	13.2708	33.6749	25.3123
46	12.7136	33.7466	25.4784

STATION US17289			
LATITUDE	42-11.0	N	
LONGITUDE	140-37.0	E	
DEPTH (m)	81		
Press.	Temp.	Salinity	Sigma-T
5	12.1581	31.6173	23.9339
10	12.1049	31.6169	23.9434
20	9.4637	31.8344	24.5677
30	6.5205	32.0681	25.172
40	4.6527	32.3576	25.6182
50	3.6348	32.5124	25.8427
75	3.2793	32.9316	26.2094
79	3.848	33.116	26.303

STATION US17292			
LATITUDE	42-14.1	N	
LONGITUDE	140-29.9	E	
DEPTH (m)	77		
Press.	Temp.	Salinity	Sigma-T
5	12.5949	31.2071	23.534
10	12.0578	31.2987	23.7053
20	8.3098	31.8503	24.7562
30	5.8522	32.156	25.3236
40	5.268	32.4504	25.6243
50	4.2382	32.4978	25.7723
74	4.0818	33.1272	26.2883

STATION US17295			
LATITUDE	42-31.1	N	
LONGITUDE	140-37.6	E	
DEPTH (m)	61		
Press.	Temp.	Salinity	Sigma-T
5	12.7647	31.0421	23.3739
10	11.1965	31.5832	24.0816
20	6.5196	32.0569	25.1633
30	5.1877	32.3129	25.5246
40	4.1802	32.4404	25.7325
50	3.674	32.5505	25.8694
57	3.6436	32.6457	25.948

STATION US17298			
LATITUDE	41-06.0	N	
LONGITUDE	140-51.1	E	
DEPTH (m)	52		
Press.	Temp.	Salinity	Sigma-T
5	16.7676	33.2359	24.215
10	16.226	33.281	24.3744
20	14.8003	33.4616	24.8292
30	13.7153	33.5423	25.1195
40	12.3226	33.5037	25.3657
48	10.2778	33.3805	25.6404

STATION US17301			
LATITUDE	40-57.5	N	
LONGITUDE	141-07.1	E	
DEPTH (m)	36		
Press.	Temp.	Salinity	Sigma-T
5	16.5136	32.954	24.0574
10	16.3288	32.9645	24.1078
20	14.2658	33.2871	24.8082
30	13.2584	33.5261	25.1996
32	13.3026	33.5654	25.2211

STATION US17304			
LATITUDE	41-05.0	N	
LONGITUDE	140-44.1	E	
DEPTH (m)	59		
Press.	Temp.	Salinity	Sigma-T
5	16.7261	33.2216	24.2137
10	16.4107	33.2599	24.3159
20	14.8275	33.5527	24.8936
30	14.5608	33.6503	25.026
40	12.0955	33.7118	25.5705
50	10.9743	33.8375	25.8749
54	10.7441	34.0631	26.0915

STATION US17305			
LATITUDE 41-08.8 N			
LONGITUDE 140-41.2 E			
DEPTH (m) 48			
Press.	Temp.	Salinity	Sigma-T
5	16.572	33.3209	24.3256
10	16.2763	33.3337	24.4034
20	14.777	33.6122	24.9503
30	13.2326	33.7464	25.3753
40	11.2143	33.7719	25.7806
45	11.0728	33.9758	25.9649

STATION US17308			
LATITUDE 41-11.6 N			
LONGITUDE 140-41.0 E			
DEPTH (m) 66			
Press.	Temp.	Salinity	Sigma-T
5	16.8915	33.2135	24.1689
10	16.4226	33.3306	24.3675
20	15.3913	33.5288	24.7522
30	14.6715	33.6256	24.9833
40	14.1371	33.6629	25.1253
50	13.2859	33.739	25.3589
62	11.237	33.9237	25.8946

STATION US17311			
LATITUDE 41-12.4 N			
LONGITUDE 140-44.1 E			
DEPTH (m) 70			
Press.	Temp.	Salinity	Sigma-T
5	16.4752	33.1093	24.1855
10	16.2899	33.1475	24.2572
20	15.2301	33.4859	24.7546
30	13.3948	33.6582	25.2744
40	11.8093	33.7599	25.6617
50	11.5133	33.9803	25.8881
66	10.7259	34.0792	26.1073

STATION US17314			
LATITUDE 41-17.0 N			
LONGITUDE 140-41.6 E			
DEPTH (m) 147			
Press.	Temp.	Salinity	Sigma-T
5	17.1629	33.3095	24.1787
10	16.4425	33.3323	24.3642
20	15.768	33.5887	24.7145
30	14.2218	33.8326	25.2385
40	12.6641	34.0065	25.6895
50	11.9136	34.1484	25.944
75	11.2595	34.1256	26.0476
100	10.9121	34.1222	26.1077
125	10.5444	34.1132	26.1657
138	10.4191	34.1108	26.1856

STATION US17306			
LATITUDE 41-10.8 N			
LONGITUDE 140-39.4 E			
DEPTH (m) 39			
Press.	Temp.	Salinity	Sigma-T
5	15.706	33.5783	24.7203
10	15.4616	33.6058	24.7959
20	15.3549	33.623	24.8328
30	15.1057	33.6421	24.9021
34	14.9178	33.6566	24.9541

STATION US17309			
LATITUDE 41-11.9 N			
LONGITUDE 140-42.0 E			
DEPTH (m) 74			
Press.	Temp.	Salinity	Sigma-T
5	16.4449	33.1392	24.2153
10	16.203	33.1976	24.3156
20	16.1155	33.2855	24.4029
30	13.834	33.6076	25.1455
40	12.7135	33.6512	25.4044
50	11.4327	33.8007	25.7633
70	10.5825	34.0854	26.1374

STATION US17312			
LATITUDE 41-12.6 N			
LONGITUDE 140-44.8 E			
DEPTH (m) 67			
Press.	Temp.	Salinity	Sigma-T
5	16.7669	33.0891	24.1025
10	16.3132	33.1104	24.2234
20	15.3484	33.6455	24.8515
30	12.519	33.6353	25.43
40	11.6707	33.8219	25.7358
50	11.4704	33.8608	25.8031
63	10.7082	34.0801	26.1111

STATION US17315			
LATITUDE 41-16.7 N			
LONGITUDE 140-04.8 E			
DEPTH (m) 281			
Press.	Temp.	Salinity	Sigma-T
5	24.419	33.786	22.599
10	24.1848	33.8381	22.7074
20	22.4839	34.186	23.4635
30	18.9	34.5544	24.706
40	16.8607	34.6094	25.2474
50	15.9733	34.6271	25.4668
75	12.8206	34.4027	25.9658
100	12.0802	34.3414	26.0623
125	11.0582	34.2243	26.161
150	10.0818	34.1467	26.2717
175	10.0676	34.1464	26.2739
200	9.8511	34.1212	26.2908
250	7.9324	34.0667	26.5509
260	7.5551	34.0533	26.5952

STATION US17307			
LATITUDE 41-11.2 N			
LONGITUDE 140-40.0 E			
DEPTH (m) 54			
Press.	Temp.	Salinity	Sigma-T
5	15.8185	33.5795	24.6961
10	15.4631	33.6092	24.7982
20	14.5503	33.7299	25.0897
30	14.0201	33.7587	25.2237
40	12.6615	33.8054	25.5341
50	12.0123	33.9701	25.7871

STATION US17310			
LATITUDE 41-12.2 N			
LONGITUDE 140-43.1 E			
DEPTH (m) 72			
Press.	Temp.	Salinity	Sigma-T
5	16.5387	33.1132	24.1738
10	16.3289	33.1646	24.2615
20	15.1618	33.2923	24.6203
30	14.1645	33.5969	25.0685
40	12.4652	33.7202	25.5062
50	11.202	34.0353	25.9878
68	10.73	34.0797	26.107

STATION US17313			
LATITUDE 41-12.5 N			
LONGITUDE 140-45.7 E			
DEPTH (m) 55			
Press.	Temp.	Salinity	Sigma-T
5	16.452	33.1143	24.1946
10	16.294	33.1648	24.2695
20	14.8983	33.5803	24.8995
30	12.5839	33.655	25.4327
40	11.9709	33.713	25.595
50	10.7773	34.0583	26.0819
51	10.8223	34.062	26.0768

STATION US17316			
LATITUDE 41-18.3 N			
LONGITUDE 140-13.9 E			
DEPTH (m) 256			
Press.	Temp.	Salinity	Sigma-T
5	23.3348	34.199	23.2296
10	21.4468	34.3052	23.843
20	18.9776	34.4735	24.6245
30	18.4961	34.5134	24.7763
40	17.5694	34.5382	25.0234
50	15.4498	34.5387	25.5168
75	13.0775	34.3965	25.9098
100	11.2021	34.2397	26.1469
125	10.445	34.183	26.238
150	9.837	34.126	26.297
175	9.505	34.092	26.326
200	9.517	34.101	26.331
230	9.368	34.086	26.344

STATION US17317			
LATITUDE 41-22.6 N			
LONGITUDE 140-25.9 E			
DEPTH (m) 251			
Press.	Temp.	Salinity	Sigma-T
5	24.2342	33.8783	22.7232
10	23.0087	34.0849	23.2372
20	20.8837	34.264	23.9651
30	18.109	34.4493	24.8234
40	15.4364	34.4037	25.4159
50	14.4109	34.4425	25.6693
75	13.8026	34.401	25.7653
100	12.835	34.339	25.913
125	12.563	34.311	25.945
150	12.302	34.294	25.983
175	11.762	34.251	26.052
200	11.369	34.234	26.112
230	11.191	34.236	26.146

STATION US17320			
LATITUDE 40-37.0 N			
LONGITUDE 139-14.9 E			
DEPTH (m) 2785			
Press.	Temp.	Salinity	Sigma-T
5	24.9546	32.8484	21.7298
10	24.5361	33.5394	22.3771
20	21.0097	34.408	24.0406
30	19.212	34.5476	24.6212
40	17.2228	34.5654	25.1276
50	15.287	34.5253	25.5427
75	13.7858	34.5244	25.8642
100	12.1458	34.3577	26.0624
125	10.8464	34.1446	26.1369
150	10.3355	34.0763	26.1732
175	10.0616	34.0714	26.2164
200	8.9713	34.0464	26.3759
250	4.2705	33.9794	26.9461
300	2.6328	34.0025	27.121

STATION US17323			
LATITUDE 41-44.5 N			
LONGITUDE 140-45.2 E			
DEPTH (m) 56			
Press.	Temp.	Salinity	Sigma-T
5	22.5168	33.8383	23.1904
10	22.4886	33.8734	23.2249
20	21.556	33.9006	23.5055
30	16.6083	34.2099	24.9998
40	14.9933	34.2697	25.4104
50	14.198	34.2979	25.6029
51	14.1505	34.3005	25.615

STATION US17318			
LATITUDE 41-28.2 N			
LONGITUDE 140-19.8 E			
DEPTH (m) 62			
Press.	Temp.	Salinity	Sigma-T
5	19.9887	34.226	24.1744
10	19.601	34.209	24.2625
20	18.5754	34.2222	24.5338
30	16.3037	34.2151	25.0744
40	13.8533	34.2079	25.6055
50	11.5478	34.1789	26.0361
55	11.2004	34.1844	26.1041

STATION US17321			
LATITUDE 40-37.1 N			
LONGITUDE 139-49.9 E			
DEPTH (m) 115			
Press.	Temp.	Salinity	Sigma-T
5	24.5205	33.2532	22.1655
10	23.9922	33.5777	22.5672
20	22.1785	34.0706	23.4619
30	20.9677	34.2235	23.9117
40	18.9316	34.3984	24.5787
50	18.5316	34.4227	24.6982
75	17.3764	34.3901	24.9564
100	12.6841	34.2632	25.8846
106	12.2841	34.2789	25.9746

STATION US17319			
LATITUDE 40-37.0 N			
LONGITUDE 138-39.8 E			
DEPTH (m) 3267			
Press.	Temp.	Salinity	Sigma-T
5	25.8345	33.992	22.3243
10	25.5034	33.94	22.3871
20	22.2186	33.7401	23.1995
30	15.8998	33.8046	24.8508
40	11.9009	33.894	25.7488
50	10.2939	34.0538	26.1628
75	6.8898	34.0079	26.6522
100	4.9473	33.9838	26.8756
125	3.0671	33.9655	27.0532
150	2.4507	33.9955	27.1308
175	1.9333	34.0072	27.1814
200	1.6346	34.0236	27.2168
250	1.2443	34.0354	27.2536
300	1.0098	34.0457	27.2774
301	0.9972	34.0455	27.2781

STATION US17322			
LATITUDE 41-44.8 N			
LONGITUDE 140-40.3 E			
DEPTH (m) 54			
Press.	Temp.	Salinity	Sigma-T
5	22.5681	33.6685	23.047
10	22.5199	33.744	23.1179
20	21.7568	33.8227	23.3909
30	18.6388	34.1016	24.4257
40	16.2486	34.18	25.0601
50	13.9638	34.2487	25.6141
50	13.9638	34.2487	25.6141