



HOKKAIDO UNIVERSITY

Title	8 THE "USHIO MARU" CRUISE 345, CRUISE 346, CRUISE 347 IN OCTOBER -NOVEMBER 2015
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THE " USHIO MARU "

CRUISE 345

CRUISE 346

CRUISE 347

IN OCTOBER 2015

IN NOVEMBER 2015

1.Cruise Itinerary

Cruise 345

Departure from Hakodate	Oct.	14, 2015
Set ARGOS buoys		14
Start marine mammals sighting research		15
Start and finish frame trawl net sampling		15
Start hydrographic research (US15425)		16
Finish hydrographic research (US15442)		16
Arrival at Kushiro		18
Departure from Kushiro		19
Finish marine mammals sighting research		19
Return to Hakodate		21
Total coverage 928.9 miles		

Cruise 346

Departure from Hakodate	Oct.	26, 2015
Start hydrographic research (US15443)		27
Retrieval mooring ADCP system		27
Set mooring ADCP system		27
Sampling by sledge net		27
Arrival at Muroran		27
Departure from Muroran		29
Start trawl net sampling		29
Arrival at Muroran		29
Departure from Muroran		30
Finish trawl net sampling and hydrographic research (US15465)		30
Return to Hakodate		31
Total coverage 323.2 miles		

Cruise 347

Departure from Hakodate	Nov.	9, 2015
Start hydrographic research (US15466)		9
Arrival at Ominato		9
Departure from Ominato		10
Arrival at Aomori		10
Departure from Aomori		11
Finish hydrographic research (US15482)		11
Return to Hakodate		12
Total coverage 187.3 miles		

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

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

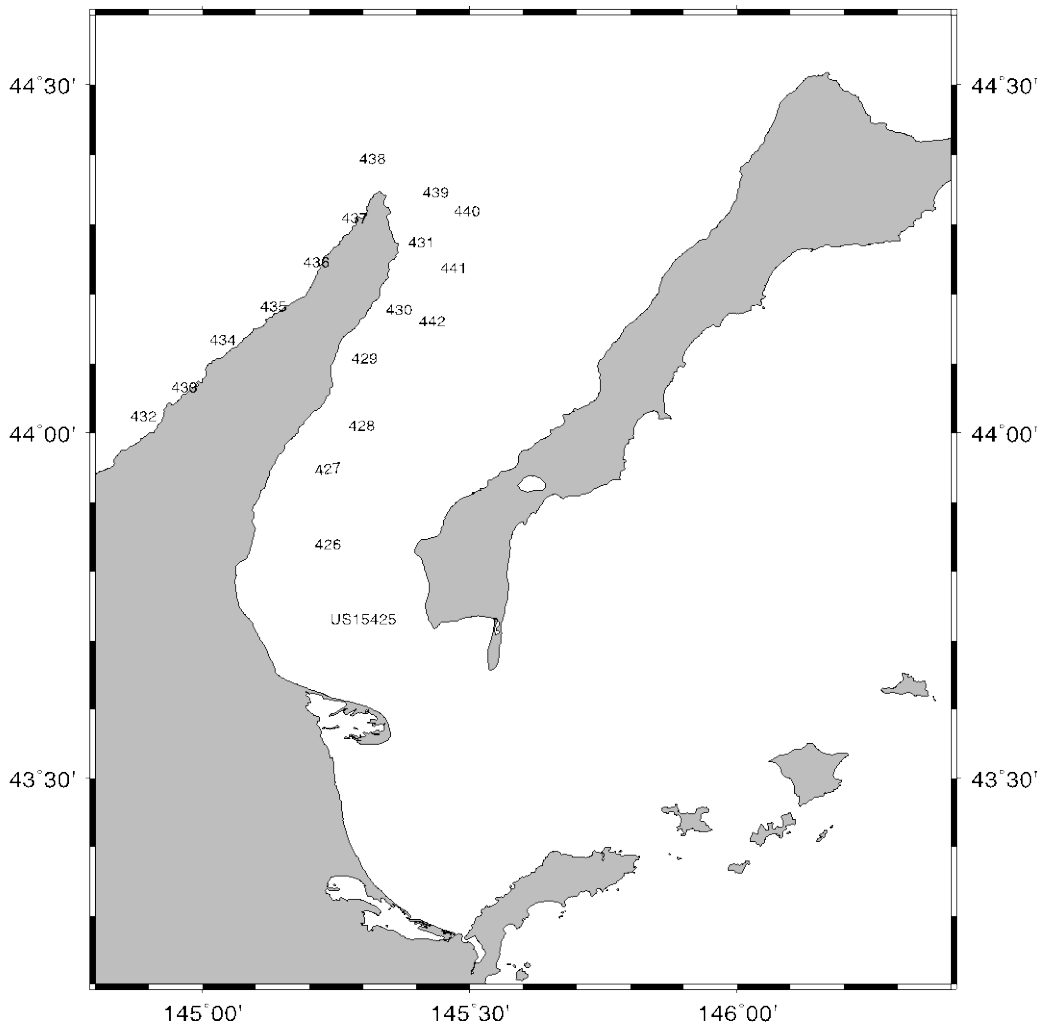


Figure 1. Oceanographic stations (Cruise 345)

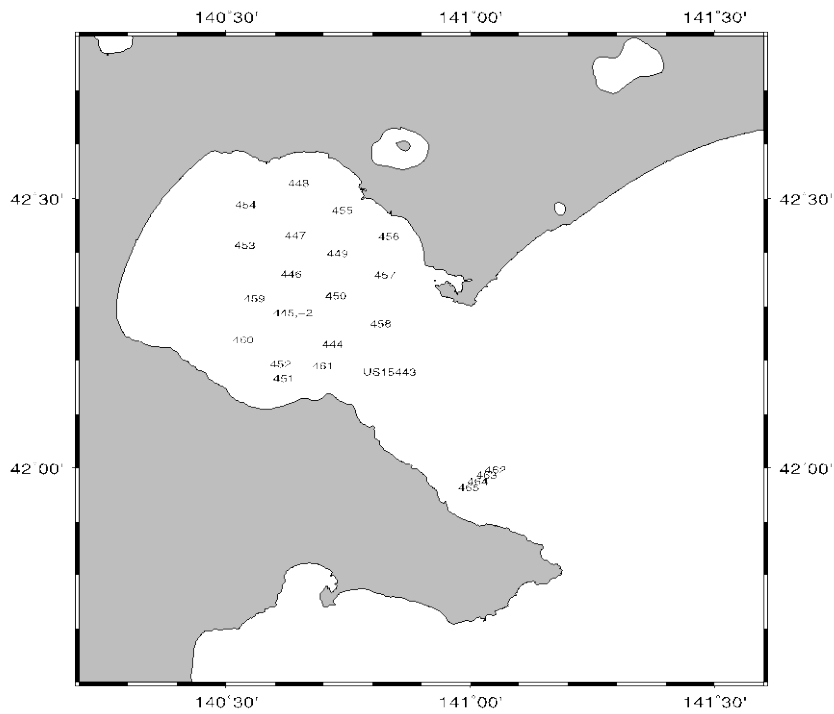


Figure 2. Oceanographic stations (Cruise 346)

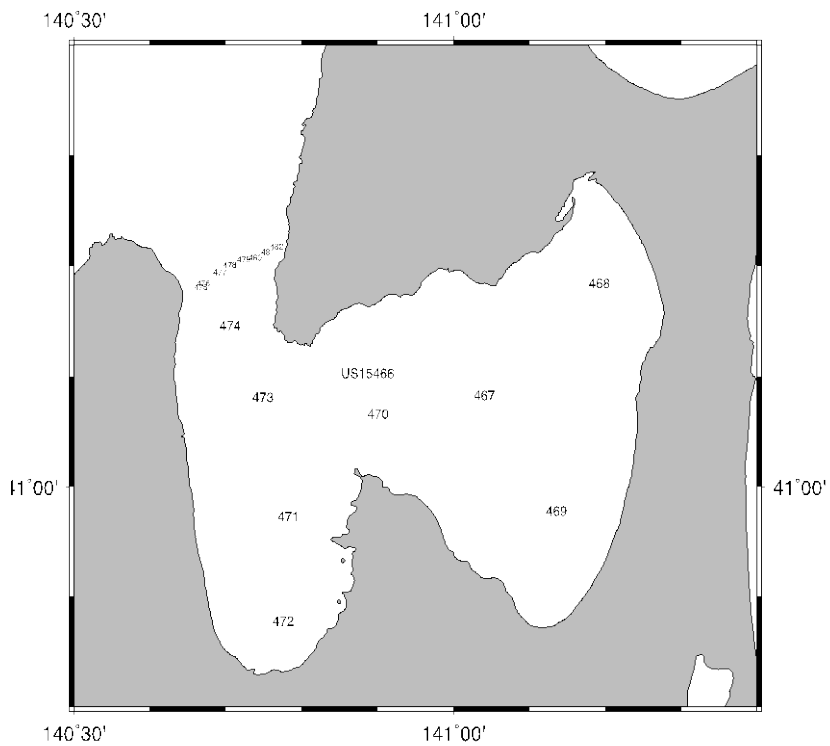


Table 1. List of Oceanographic Station

Cruise 345												
Station	Lat. (N) ^a	Long. (E) ^a	Date	S.M.T.	Depth (m)	Wave	Swell	Wind	Air Temp.	Sea Temp.	Wr.	Bar. (hPa)
US15425	43-43.4	145-14.3	10/16	0515-0519	17	West-3	North-1	West-4	8.9	14.3	b	1021.1
US15426	43-49.9	145-12.6	10/16	0558-0601	45	SW-2	NNE-1	SW-3	9.5	14.2	b	1021.0
US15427	43-56.3	145-12.7	10/16	0639-0646	82	West-2	NNE-1	West-3	10.0	14.4	b	1020.9
US15428	44-00.2	145-16.4	10/16	0716-0733	404	NW-1	NNE-1	NW-2	11.5	14.0	b	1021.0
US15429	44-06.0	145-16.7	10/16	0808-0820	380	SE-2	NNE-1	SE-3	12.3	14.0	b	1021.1
US15430	44-10.2	145-20.6	10/16	0850-0857	175	SSW-2	NNE-1	SSW-3	13.1	14.1	b	1021.1
US15431	44-16.0	145-23.1	10/16	0934-0939	81	ESE-2	NNE-1	ESE-3	13.9	14.2	bc	1020.6
US15432	44-01.0	144-51.9	10/16	1349-1353	43	SE-1	NNE-2	SE-2	14.9	13.1	b	1018.5
US15433	44-03.5	144-56.5	10/16	1419-1422	60	East-1	NNE-2	East-2	15.2	10.6	b	1018.1
US15434	44-07.6	145-00.8	10/16	1456-1501	110	calm	NNE-2	calm	14.2	11.9	b	1018.0
US15435	44-10.5	145-06.5	10/16	1531-1541	210	calm	NNE-2	calm	13.5	8.3	b	1018.1
US15436	44-14.3	145-11.3	10/16	1610-1616	136	SE-1	NNE-2	SE-3	12.4	8.0	b	1018.1
US15437	44-18.1	145-15.6	10/16	1646-1653	118	North-1	NNE-2	North-2	12.8	9.2	b	1018.0
US15438	44-23.2	145-17.6	10/16	1733-1752	749	ESE-1	NNE-1	ESE-2	11.6	8.1	b	1018.1
US15439	44-20.3	145-24.7	10/16	1833-1852	887	South-2	NNE-1	South-4	13.3	12.8	bc	1018.1
US15440	44-18.7	145-28.2	10/16	1915-1938	1533	South-2	NNE-1	South-4	13.3	12.8	bc	1018.1
US15441	44-13.8	145-26.7	10/16	2012-2029	1622	South-2	NNE-1	South-4	13.2	13.1	bc	1018.1
US15442	44-09.2	145-24.3	10/16	2102-2120	1499	South-1	NNE-1	South-3	13.0	14.1	bc	1018.1

Cruise 346												
Station	Lat. (N) ^a	Long. (E) ^a	Date	S.M.T.	Depth (m)	Wave	Swell	Wind	Air Temp.	Sea Temp.	Wr.	Bar. (hPa)
US15443	42-10.3	140-46.8	10/27	0300-0305	92	NNW-1	ESE-1	NNW-4	9.1	13.0	bc	1019.8
US15444	42-13.4	140-41.8	10/27	0357-0404	87	calm	SE-1	calm	9.6	12.8	c	1018.7
US15445	42-16.9	140-35.8	10/27	0605-0615	90	SE-1	SE-1	SE-2	98.0	12.8	bc	1018.0
US15445-2	42-17.1	140-35.8	10/27	0646-0650	90							
US15446	42-21.2	140-36.7	10/27	0724-0732	85	SE-1	NE-1	SE-2	10.3	13.2	bc	1018.1
US15447	42-25.5	140-37.2	10/27	0800-0806	83	SE-2	NE-1	SE-3	10.8	13.3	bc	1017.6
US15448	42-31.3	140-37.6	10/27	0851-0856	60	ESE-2		ESE-4	10.9	11.6	bc	1017.1
US15449	42-23.5	140-42.4	10/27	0951-0956	61	East-3	ESE-1	East-5	11.6	13.4	bc	1015.6
US15450	42-18.8	140-42.2	10/27	1027-1032	67	SE-3	ESE-1	SE-5	12.6	13.0	bc	1015.0
US15451	42-09.6	140-35.8	10/27	1208-1215	71	East-3	East-1	East-4	13.9	13.0	bc	1014.0
US15452	42-11.2	140-35.4	10/27	1405-1409	80	SSE-2	East-1	SSE-4	14.2	13.0	c	1012.0
US15453	42-24.4	140-31.0	10/29	0900-0907	93	West-1	SW-1	West-4	9.3	1		

Cruise 347

Station	Lat. (N)*	Long. (E)*	Date	S.M.T.	Depth (m)	Wave	Swell	Wind	Air Temp.	Sea Temp.	Wt.	Bar. (hPa)
US15466	41-05.9	140-51.1	11/9	1256-1306	52	East-2	ESE-1	East-3	14.0	15.8	o	1011.7
US15467	41-04.7	141-01.6	11/9	1355-1402	47	East-2	ENE-1	East-3	13.3	15.5	o	1011.6
US15468	41-10.8	141-10.7	11/9	1544-1550	29	NNE-1	ENE-1	NNE-2	12.6	14.3	o	1013.1
US15469	40-58.4	141-07.3	11/10	0807-0813	39	South-2	SSE-1	South-3	12.1	14.9	r	1016.2
US15470	41-03.7	140-53.2	11/10	0925-0933	50	SW-2	SW-1	SW-4	12.9	15.3	o	1016.6
US15471	40-58.1	140-46.1	11/10	1023-1030	50	West-2	SW-1	West-4	12.2	16.2	c	1017.1
US15472	40-52.4	140-45.7	11/10	1138-1444	30	WSW-2	SW-1	WSW-4	12.7	16.0	c	1017.0
US15473	41-04.6	140-44.1	11/11	0818-0825	58	NW-3	NW-1	NW-5	10.1	15.5	bc	1027.0
US15474	41-08.5	140-41.5	11/11	0853-0900	48	NW-3	NW-1	NW-5	11.0	16.1	bc	1027.1
US15475	41-10.7	140-39.5	11/11	1018-1023	38	NW-3	NW-1	NW-5	10.7	16.2	bc	1027.7
US15476	41-10.9	140-39.7	11/11	1031-1036	53	NW-3	NW-1	NW-5	11.4	16.2	bc	1027.7
US15477	41-11.5	140-41.0	11/11	1044-1051	66	NW-3	NW-1	NW-5	12.1	16.4	bc	1027.9
US15478	41-11.9	140-41.8	11/11	1100-1107	73	NW-3	NW-1	NW-5	12.1	16.3	bc	1028.0
US15479	41-12.2	140-42.9	11/11	1114-1120	72	NW-3	NW-1	NW-5	12.1	16.4	bc	1028.0
US15480	41-12.3	140-43.8	11/11	1128-1134	71	NW-3	NW-1	NW-4	12.1	16.2	bc	1028.1
US15481	41-12.6	140-44.8	11/11	1143-1149	67	NW-3	NW-1	NW-4	11.6	16.2	bc	1028.1
US15482	41-12.9	140-45.5	11/11	1159-1204	64	NW-3	NW-1	NW-5	11.4	16.3	bc	1028.3

(*): Fixed position by Global Positioning System

Table 2. Oceanographic data

STATION US15425				STATION US15426				STATION US15427			
LATITUDE 43-43.4 N				LATITUDE 43-49.9 N				LATITUDE 43-56.3 N			
LONGITUDE 145-14.3 E				LONGITUDE 145-12.6 E				LONGITUDE 145-12.7 E			
DEPTH (m) 17				DEPTH (m) 45				DEPTH (m) 82			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	14.507	33.637	25.027	5	14.597	33.620	24.995	5	14.493	33.585	24.990
10	14.510	33.637	25.027	10	14.613	33.620	24.991	10	14.493	33.584	24.990
				20	14.612	33.619	24.991	20	14.487	33.584	24.991
				30	14.608	33.620	24.992	30	14.212	33.514	24.995
								40	13.304	33.561	25.218
								50	12.879	33.637	25.360
								75	12.300	33.722	25.539

STATION		US15428	
LATITUDE		44-00.2	N
LONGITUDE		145-16.4	E
DEPTH (m)		404	
Press.	Temp.	Salinity	Sigma-T
5	14.288	33.591	25.038
10	14.282	33.593	25.041
20	14.218	33.602	25.062
30	14.119	33.608	25.087
40	14.113	33.614	25.093
50	14.115	33.629	25.104
75	12.112	33.777	25.618
100	11.672	33.865	25.769
125	11.182	33.861	25.855
150	9.963	33.802	26.023
175	7.709	33.675	26.276
200	6.225	33.597	26.416
250	4.107	33.497	26.558
300	3.154	33.414	26.605

STATION		US15431	
LATITUDE		44-16.0	N
LONGITUDE		145-23.1	E
DEPTH (m)		81	
Press.	Temp.	Salinity	Sigma-T
5	13.784	33.552	25.113
10	12.915	33.506	25.252
20	12.814	33.526	25.288
30	12.777	33.525	25.294
40	12.639	33.509	25.309
50	12.456	33.503	25.339

STATION		US15434	
LATITUDE		44-07.6	N
LONGITUDE		145-00.8	E
DEPTH (m)		110	
Press.	Temp.	Salinity	Sigma-T
5	11.458	33.150	25.253
10	11.866	33.429	25.254
20	11.338	33.046	25.194
30	10.292	32.933	25.289
40	10.515	33.045	25.338
50	10.680	33.113	25.362
75	10.535	33.221	25.472
100	10.553	33.241	25.484

STATION		US15429	
LATITUDE		44-06.0	N
LONGITUDE		145-16.7	E
DEPTH (m)		380	
Press.	Temp.	Salinity	Sigma-T
5	14.393	33.542	24.978
10	14.368	33.556	24.994
20	14.209	33.602	25.064
30	14.110	33.606	25.087
40	14.068	33.604	25.094
50	14.055	33.606	25.099
75	12.846	33.615	25.351
100	11.735	33.707	25.635
125	10.967	33.730	25.792
150	9.850	33.695	25.958
175	9.208	33.731	26.092
200	7.492	33.646	26.284
250	5.116	33.560	26.520
300	3.566	33.434	26.583

STATION		US15432	
LATITUDE		44-01.0	N
LONGITUDE		144-51.9	E
DEPTH (m)		43	
Press.	Temp.	Salinity	Sigma-T
5	12.157	33.385	25.305
10	12.218	33.382	25.291
20	10.506	32.852	25.189
30	11.262	33.111	25.258
40	11.289	33.115	25.256

STATION		US15435	
LATITUDE		44-10.5	N
LONGITUDE		145-06.5	E
DEPTH (m)		210	
Press.	Temp.	Salinity	Sigma-T
5	9.137	32.634	25.245
10	11.176	33.200	25.342
20	11.992	33.256	25.236
30	11.985	33.248	25.231
40	11.969	33.244	25.231
50	11.689	33.199	25.249
75	10.610	33.328	25.542
100	10.257	33.326	25.601
125	9.805	33.258	25.624
150	6.061	33.329	26.224
175	5.363	33.423	26.384

STATION		US15430	
LATITUDE		44-10.2	N

STATION		US15437	
LATITUDE		44-18.1	N
LONGITUDE		145-15.6	E
DEPTH (m)		118	
Press.	Temp.	Salinity	Sigma-T
5	11.642	33.184	25.245
10	11.653	33.158	25.223
20	11.594	33.136	25.217
30	11.589	33.139	25.220
40	11.548	33.129	25.220
50	11.554	33.134	25.223
75	11.471	33.121	25.228
100	10.122	33.203	25.529

STATION		US15438	
LATITUDE		44-23.2	N
LONGITUDE		145-17.6	E
DEPTH (m)		749	
Press.	Temp.	Salinity	Sigma-T
5	10.797	33.171	25.387
10	11.405	33.171	25.279
20	11.634	33.174	25.239
30	11.196	33.051	25.223
40	10.921	33.009	25.239
50	10.952	33.030	25.250
75	10.055	33.120	25.475
100	9.594	33.517	25.861
125	8.944	33.459	25.920
150	6.658	33.429	26.227
175	1.729	33.052	26.431
200	1.484	33.185	26.554
250	0.639	33.187	26.609
300	0.570	33.225	26.643
400	0.853	33.297	26.685

STATION		US15439	
LATITUDE		44-20.3	N
LONGITUDE		145-24.7	E
DEPTH (m)		887	
Press.	Temp.	Salinity	Sigma-T
5	13.022	33.522	25.244
10	12.984	33.505	25.238
20	12.593	33.455	25.276
30	12.191	33.395	25.306
40	11.855	33.332	25.321
50	11.512	33.288	25.350
75	11.481	33.298	25.364
100	11.845	33.429	25.398
125	11.540	33.711	25.674
150	9.759	33.804	26.058
175	8.809	33.770	26.185
200	7.007	33.654	26.358
250	2.554	33.291	26.559
300	2.077	33.324	26.623
400	1.503	33.386	26.715

STATION		US15440	
LATITUDE		44-18.7	N
LONGITUDE		145-28.2	E
DEPTH (m)		1533	
Press.	Temp.	Salinity	Sigma-T
5	13.070	33.447	25.176
10	12.305	33.272	25.189
20	11.262	33.031	25.196
30	10.712	33.003	25.271
40	11.377	33.246	25.342
50	11.422	33.258	25.343
75	11.448	33.293	25.365
100	10.961	33.208	25.388
125	11.828	33.741	25.643
150	9.865	33.800	26.038
175	8.326	33.751	26.245
200	6.392	33.670	26.452
250	3.356	33.456	26.620
300	2.166	33.346	26.634
400	1.406	33.398	26.731
495	1.477	33.531	26.833

STATION		US15441	
LATITUDE		44-13.8	N
LONGITUDE		145-26.7	E
DEPTH (m)		1622	
Press.	Temp.	Salinity	Sigma-T
5	13.305	33.494	25.165
10	13.172	33.466	25.170
20	12.955	33.433	25.188
30	12.917	33.441	25.202
40	12.815	33.431	25.214
50	12.365	33.348	25.237
75	12.223	33.422	25.321
100	11.798	33.772	25.674
125	11.117	33.819	25.835
150	8.196	33.604	26.148
175	6.889		

STATION US15443			
LATITUDE 42-10.3 N			
LONGITUDE 140-46.8 E			
DEPTH (m) 92			
Press.	Temp.	Salinity	Sigma-T
5	12.790	33.814	25.516
10	12.792	33.818	25.518
20	12.785	33.821	25.523
30	12.784	33.822	25.523
40	12.802	33.830	25.525
50	12.817	33.835	25.526
75	9.091	33.704	26.089

STATION US15445-2			
LATITUDE 42-17.1 N			
LONGITUDE 140-35.8 E			
DEPTH (m) 90			
Press.	Temp.	Salinity	Sigma-T
5	12.844	33.552	25.302
10	12.880	33.587	25.322
20	12.906	33.615	25.339
30	12.835	33.614	25.352
40	11.046	33.542	25.632
50	10.344	33.706	25.883
75	8.534	33.737	26.202

STATION US15448			
LATITUDE 42-31.3 N			
LONGITUDE 140-37.6 E			
DEPTH (m) 59			
Press.	Temp.	Salinity	Sigma-T
5	12.594	33.537	25.339
10	12.273	33.545	25.407
20	11.198	33.620	25.666
30	10.295	33.885	26.031
40	9.334	33.818	26.139
50	8.332	33.703	26.206
55	7.215	33.609	26.293

STATION US15451			
LATITUDE 42-09.6 N			
LONGITUDE 140-35.8 E			
DEPTH (m) 71			
Press.	Temp.	Salinity	Sigma-T
5	13.249	33.580	25.243
10	13.240	33.579	25.245
20	13.195	33.578	25.253
30	13.175	33.574	25.254
40	11.631	33.589	25.562
50	9.957	33.708	25.950
60	9.690	33.811	26.075

STATION US15444			
LATITUDE 42-13.4 N			
LONGITUDE 140-41.8 E			
DEPTH (m) 87			
Press.	Temp.	Salinity	Sigma-T
5	12.956	33.741	25.426
10	12.954	33.741	25.426
20	12.962	33.742	25.426
30	13.028	33.769	25.433
40	13.109	33.843	25.475
50	13.120	33.885	25.505
75	9.946	33.852	26.065

STATION US15446			
LATITUDE 42-21.2 N			
LONGITUDE 140-36.7 E			
DEPTH (m) 85			
Press.	Temp.	Salinity	Sigma-T
5	13.439	33.634	25.247
10	13.441	33.633	25.246
20	13.444	33.634	25.246
30	13.441	33.638	25.250
40	13.398	33.654	25.271
50	11.233	33.725	25.741
75	8.406	33.743	26.226

STATION US15449			
LATITUDE 42-23.5 N			
LONGITUDE 140-42.4 E			
DEPTH (m) 61			
Press.	Temp.	Salinity	Sigma-T
5	13.637	33.595	25.176
10	13.635	33.594	25.176
20	13.636	33.594	25.176
30	13.637	33.594	25.175
40	13.612	33.611	25.193
50	12.223	33.767	25.589

STATION US15452			
LATITUDE 42-11.2 N			
LONGITUDE 140-35.4 E			

STATION	US15454		
LATITUDE	42-28.9	N	
LONGITUDE	140-31.1	E	
DEPTH (m)	74		
Press.	Temp.	Salinity	Sigma-T
5	12.519	33.505	25.329
10	12.495	33.505	25.333
20	12.482	33.503	25.335
30	11.326	33.601	25.627
40	10.785	33.752	25.842
50	10.229	33.794	25.972
70	8.592	33.734	26.190

STATION	US15457		
LATITUDE	42-21.1	N	
LONGITUDE	140-48.2	E	
DEPTH (m)	50		
Press.	Temp.	Salinity	Sigma-T
5	12.924	33.580	25.308
10	12.925	33.578	25.306
20	12.942	33.586	25.309
30	12.930	33.587	25.312
40	12.893	33.594	25.325

STATION	US15460		
LATITUDE	42-13.9	N	
LONGITUDE	140-30.8	E	
DEPTH (m)	80		
Press.	Temp.	Salinity	Sigma-T
5	12.880	33.606	25.336
10	12.880	33.606	25.336
20	12.882	33.609	25.339
30	12.873	33.623	25.371
40	10.922	33.682	25.763
50	10.040	33.680	25.914
75	8.201	33.654	26.187

STATION	US15463		
LATITUDE	41-58.8	N	
LONGITUDE	141-00.7	E	
DEPTH (m)	93		
Press.	Temp.	Salinity	Sigma-T
5	14.050	33.863	25.298
10	14.051	33.861	25.296
20	13.960	33.839	25.298
30	13.542	33.813	25.364
40	13.502	33.844	25.396
50	13.485	33.844	25.400
75	11.662	33.922	25.816

STATION	US15455		
LATITUDE	42-28.3	N	
LONGITUDE	140-43.0	E	
DEPTH (m)	59		
Press.	Temp.	Salinity	Sigma-T
5	12.763	33.497	25.276
10	12.747	33.495	25.277
20	12.730	33.495	25.281
30	12.727	33.496	25.281
40	12.597	33.707	25.471
50	11.429	33.840	25.795

STATION	US15458		
LATITUDE	42-15.5	N	
LONGITUDE	140-47.7	E	
DEPTH (m)	71		
Press.	Temp.	Salinity	Sigma-T
5	13.043	33.618	25.314
10	13.058	33.622	25.314
20	13.121	33.654	25.327
30	13.284	33.709	25.336
40	13.305	33.752	25.365
50	12.547	33.777	25.534

STATION	US15461		
LATITUDE	42-11.0	N	
LONGITUDE	140-40.6	E	
DEPTH (m)	87		
Press.	Temp.	Salinity	Sigma-T
5	12.874	33.713	25.421
10	12.888	33.714	25.419
20	12.796	33.694	25.421
30	12.735	33.739	25.468
40	12.749	33.787	25.503
50	10.111	33.672	25.897
75	8.149	33.690	26.223

STATION	US15464		
LATITUDE	41-58.1	N	
LONGITUDE	140-59.6	E	
DEPTH (m)	86		
Press.	Temp.	Salinity	Sigma-T
5	13.630	33.828	25.358
10	13.580	33.829	25.369
20	13.551	33.830	25.375
30	13.479	33.823	25.385
40	13.294	33.798	25.403
50	13.264	33.807	25.416
75	11.002	33.884	25.907

STATION	US15456		
LATITUDE	42-25.4	N	
LONGITUDE	140-48.7	E	
DEPTH (m)	43		
Press.	Temp.	Salinity	Sigma-T
5	13.145		

STATION US15466			
LATITUDE 41-05.9 N			
LONGITUDE 140-51.1 E			
DEPTH (m) 52			
Press.	Temp.	Salinity	Sigma-T
5	16.041	33.621	24.678
10	15.978	33.613	24.686
20	15.960	33.612	24.689
30	15.951	33.640	24.713
40	15.824	33.660	24.756

STATION US15469			
LATITUDE 40-58.4 N			
LONGITUDE 141-07.3 E			
DEPTH (m) 39			
Press.	Temp.	Salinity	Sigma-T
5	15.178	33.609	24.861
10	15.188	33.613	24.862
20	15.017	33.601	24.890
30	14.647	33.600	24.969
35	14.602	33.605	24.983

STATION US15472			
LATITUDE 40-52.4 N			
LONGITUDE 140-45.7 E			
DEPTH (m) 30			
Press.	Temp.	Salinity	Sigma-T
5	15.820	33.165	24.377
10	16.227	33.613	24.629
20	16.229	33.618	24.633
25	16.213	33.616	24.635

STATION US15475			
LATITUDE 41-10.7 N			
LONGITUDE 140-39.5 E			
DEPTH (m) 38			
Press.	Temp.	Salinity	Sigma-T
5	16.394	33.635	24.608
10	16.402	33.633	24.605
20	16.413	33.633	24.602
30	16.416	33.634	24.602

STATION US15467			
LATITUDE 41-04.7 N			
LONGITUDE 141-01.6 E			
DEPTH (m) 47			
Press.	Temp.	Salinity	Sigma-T
5	15.083	33.636	24.903
10	15.069	33.633	24.904
20	14.919	33.621	24.927
30	14.897	33.621	24.931
40	14.886	33.621	24.933

STATION US15470			
LATITUDE 41-03.7 N			
LONGITUDE 140-53.2 E			
DEPTH (m) 50			
Press.	Temp.	Salinity	Sigma-T
5	15.609	33.620	24.774
10	15.532	33.614	24.787
20	15.307	33.600	24.826
30	14.818	33.618	24.946
40	14.811	33.621	24.950

STATION US15473			
LATITUDE 41-04.6 N			
LONGITUDE 140-44.1 E			
DEPTH (m) 58			
Press.	Temp.	Salinity	Sigma-T
5	15.692	33.617	24.753
10	15.691	33.615	24.752
20	15.659	33.616	24.760
30	15.640	33.617	24.765
40	15.530	33.624	24.794
50	15.203	33.635	24.875

STATION US15476			
LATITUDE 41-10.9 N			
LONGITUDE 140-39.7 E			
DEPTH (m) 53			
Press.	Temp.	Salinity	Sigma-T
5	16.525	33.644	24.585
10	16.534	33.646	24.584
20	16.519	33.642	24.584
30	16.523	33.642	24.583
40	16.559	33.668	24.595

STATION US15468			
LATITUDE 41-10.8 N			
LONGITUDE 141-10.7 E			
DEPTH (m) 29			

STATION		US15478		
LATITUDE		41-11.9	N	
LONGITUDE		140-41.9	E	
DEPTH (m)		73		
Press.	Temp.	Salinity	Sigma-T	
5	16.500	33.683	24.620	
10	16.500	33.682	24.619	
20	16.506	33.681	24.617	
30	16.507	33.680	24.617	
40	16.509	33.680	24.616	
50	16.513	33.681	24.615	
70	16.237	33.711	24.702	

STATION		US15481		
LATITUDE		41-12.6	N	
LONGITUDE		140-44.8	E	
DEPTH (m)		67		
Press.	Temp.	Salinity	Sigma-T	
5	16.479	33.647	24.597	
10	16.479	33.645	24.596	
20	16.483	33.645	24.595	
30	16.484	33.644	24.594	
40	16.426	33.647	24.610	
50	16.445	33.674	24.626	

STATION		US15479		
LATITUDE		41-12.2	N	
LONGITUDE		140-42.9	E	
DEPTH (m)		72		
Press.	Temp.	Salinity	Sigma-T	
5	16.438	33.691	24.641	
10	16.442	33.690	24.639	
20	16.445	33.689	24.638	
30	16.444	33.689	24.638	
40	16.440	33.689	24.639	
50	16.440	33.689	24.639	

STATION		US15482		
LATITUDE		41-12.9	N	
LONGITUDE		140-45.5	E	
DEPTH (m)		64		
Press.	Temp.	Salinity	Sigma-T	
5	16.482	33.650	24.599	
10	16.483	33.648	24.598	
20	16.487	33.648	24.596	
30	16.478	33.652	24.602	
40	16.393	33.647	24.617	
50	15.867	33.658	24.746	

STATION		US15480		
LATITUDE		41-12.4	N	
LONGITUDE		140-43.8	E	
DEPTH (m)		71		
Press.	Temp.	Salinity	Sigma-T	
5	16.443	33.656	24.612	
10	16.446	33.665	24.619	
20	16.445	33.675	24.627	
30	16.440	33.678	24.630	
40	16.437	33.679	24.632	
50	16.420	33.683	24.639	