



HOKKAIDO UNIVERSITY

Title	1 THE "USHIO MARU" CRUISE 324, CRUISE 325, CRUISE 326 IN JANUARY -FEBRUARY 2015
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THE " USHIO MARU "

CRUISE 324

CRUISE 325

CRUISE 326

IN JANUARY 2015

IN FEBRUARY 2015

1.Cruise Itinerary

Cruise 324

Departure from Hakodate	Jan.	9, 2015
Start hydrographic research (US15001)		9
Arrival at Hakodate		9
Departure from Hakodate		10
Arrival at Hakodate		10
Departure from Hakodate		13
Finish hydrographic research (US15019)		13
Return to Hakodate		14
Total coverage 199.9 miles		

Cruise 325

Departure from Hakodate	Jan.	21, 2015
Start hydrographic research (US15020)		21
Arrival at Usujiri		21
Departure from Usujiri		22
Arrival at Muroran		22
Departure from Muroran		24
Anchorage at Muroran		24
Departure from Muroran		25
Finish hydrographic research (US15044)		25
Return to Hakodate		26
Total coverage 298.5 miles		

Cruise 326

Departure from Hakodate	Feb.	3, 2015
Start hydrographic research (US15045)		3
Arrival at and departure from Hakodate		6
Finish hydrographic research (US15075)		7
Return to Hakodate		7
Total coverage 420.6 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”.

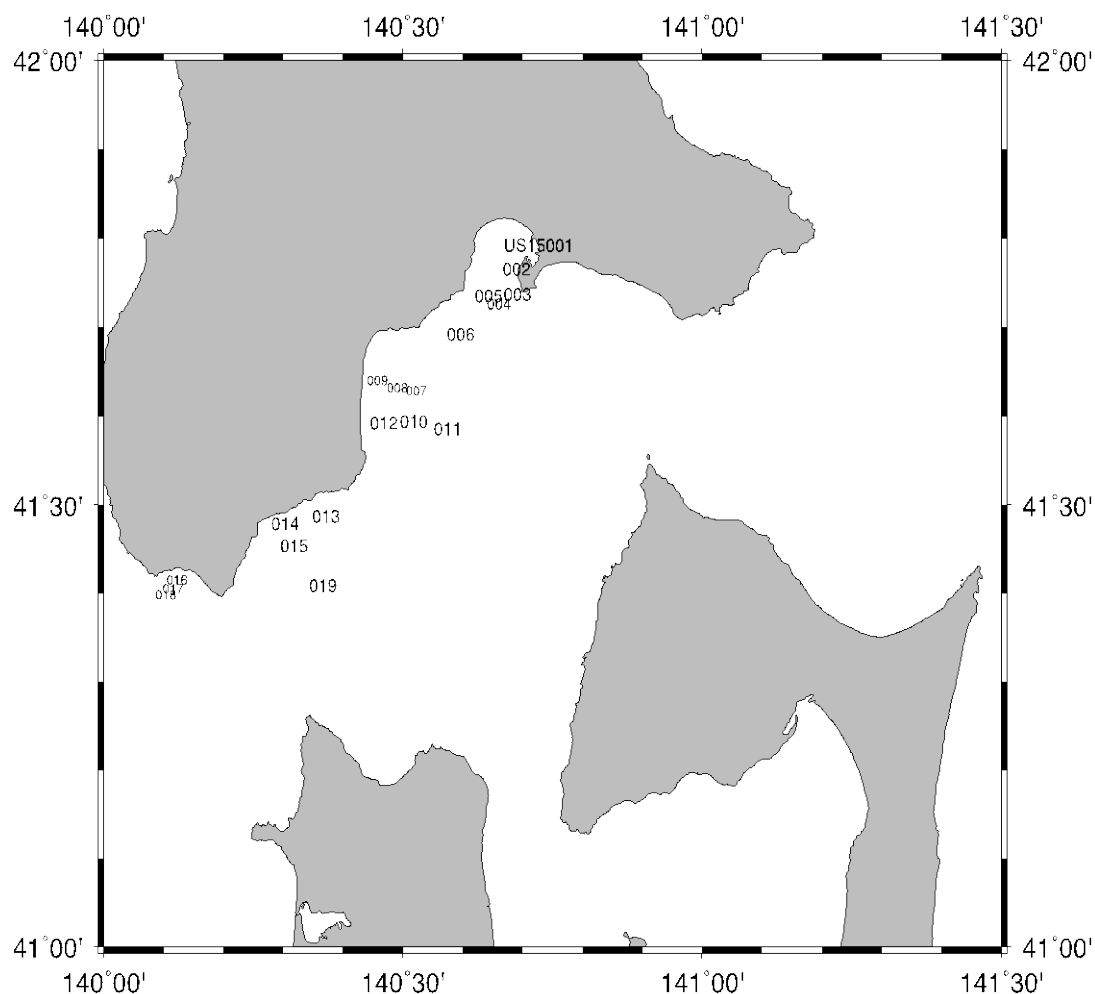


Figure 1. Oceanographic stations (Cruise 324)

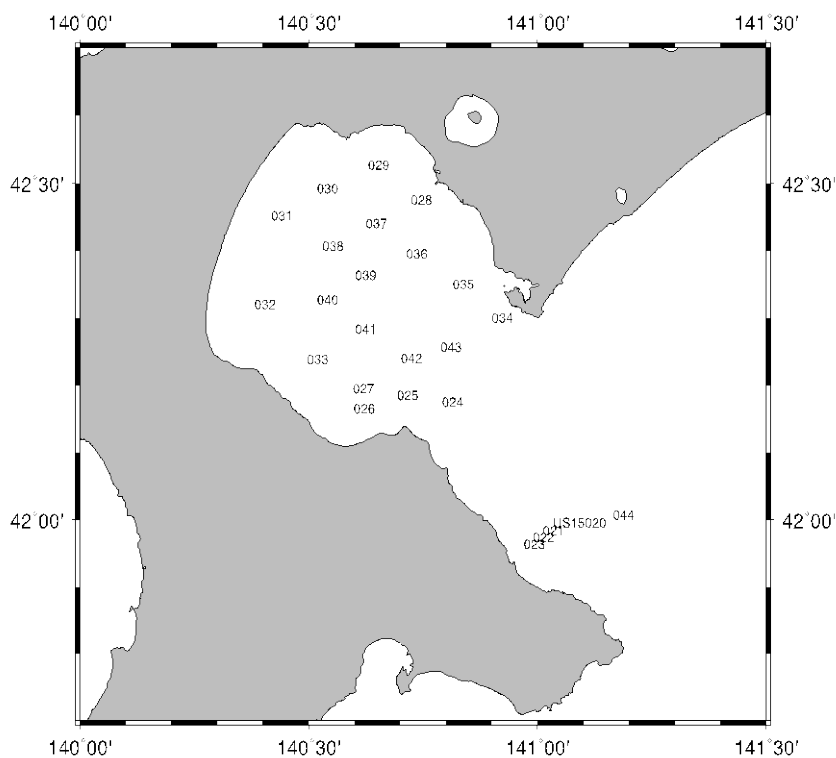


Figure 2. Oceanographic stations (Cruise 325)

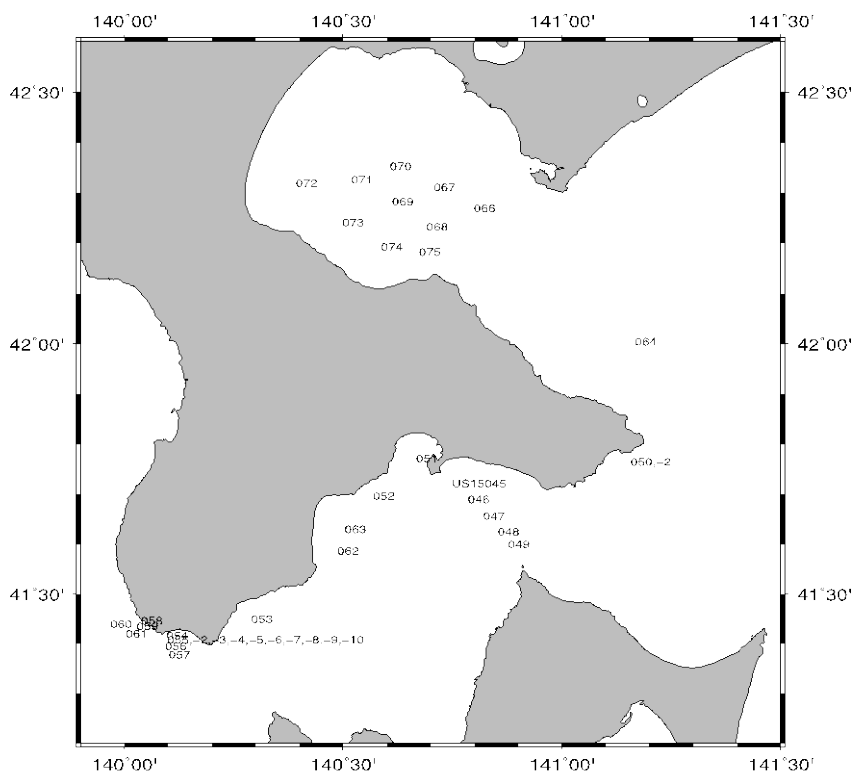


Figure 3. Oceanographic stations (Cruise 326)

Table 1. List of Oceanographic Station

Cruise 324												
Station	Lat. (N)*	Long. (E)*	Date	S.M.T.	Depth (m)	Wave	Swell	Wind	Air Temp.	Sea Temp.	Wr.	Bar. (hPa)
US15001	41-47.1	140-40.1	1/9	0721-0723	20	NNW-1	SSE-1	NNW-3	2.1	6.6	c	1009.3
US15002	41-45.5	140-40.0	1/9	0743-0746	39	NNW-1	SSE-1	NNW-2	2.2	9.6	c	1009.1
US15003	41-43.8	140-40.1	1/9	0819-0823	63	WNW-1	SSE-1	WNW-3	2.4	9.5	c	1009.0
US15004	41-43.6	140-38.1	1/9	0855-0859	55	WNW-1	SSE-1	WNW-3	2.5	9.9	c	1009.3
US15005	41-43.7	140-37.2	1/9	0908-0912	48	WNW-1	South-1	WNW-3	2.3	9.9	bc	1009.3
US15006	41-41.1	140-34.4	1/9	0953-0957	42	West-1	SSE-1	West-3	2.7	9.9	bc	1009.3
US15007	41-37.4	140-30.3	1/9	1044-1048	32	West-1	SW-1	West-3	2.5	10.3	c	1009.0
US15008	41-37.6	140-28.4	1/9	1112-1114	23	West-1	SW-1	West-4	2.8	10.1	c	1009.3
US15009	41-38.1	140-26.4	1/9	1127-1129	13	West-1	South-1	West-3	2.2	9.1	s	1009.0
US15010	41-35.2	140-29.7	1/9	1229-1232	42	West-1	SSE-1	West-4	1.3	10.3	s	1008.8
US15011	41-34.7	140-33.1	1/9	1310-1314	64	WNW-1	SSE-1	WNW-5	1.8	10.5	s	1008.5
US15012	41-35.1	140-26.7	1/9	1406-1410	11	NW-1	SSE-1	NW-3	1.2	9.3	c	1008.8
US15013	41-28.8	140-20.9	1/13	0809-0813	63	WNW-3	SSW-1	WNW-3	2.5	9.9	o	1027.0
US15014	41-28.3	140-16.8	1/13	0837-0840	31	West-3	SSW-1	West-5	2.4	9.8	o	1028.0
US15015	41-26.8	140-17.7	1/13	0909-0914	63	WNW-3	SSW-1	WNW-5	2.2	10.0	o	1027.4
US15016	41-24.6	140-06.3	1/13	1021-1026	49	WNW-3	SW-1	WNW-5	2.6	9.9	o	1027.9
US15017	41-24.0	140-05.9	1/13	1040-1045	75	WNW-4	SW-2	WNW-6	2.9	9.9	o	1027.5
US15018	41-23.6	140-05.2	1/13	1100-1104	101	WNW-4	SW-2	WNW-6	2.6	9.9	o	1027.6
US15019	41-24.1	140-20.6	1/13	1238-1244	95	West-3	SW-1	West-4	2.5	10.1	c	1027.0

Cruise 325												
Station	Lat. (N)*	Long. (E)*	Date	S.M.T.	Depth (m)	Wave	Swell	Wind	Air Temp.	Sea Temp.	Wr.	Bar. (hPa)
US15020	41-59.3	141-02.0	1/21	1530-1535	101	Calm	NW-1	Calm	2.6	7.0	c	1028.0
US15021	41-58.6	141-00.7	1/21	1545-1549	94	Calm	NW-1	Calm	2.7	6.9	c	1027.8
US15022	41-58.0	140-59.4	1/21	1558-1602	86	West-1	NW-1	West-3	2.7	6.9	c	1027.7
US15023	41-57.4	140-58.2	1/21	1611-1615	77	NW-2	NW-1	NW-3	2.6	6.8	c	1027.7
US15024	42-10.1	140-47.5	1/22	0759-0803	94	East-3	ENE-1	East-5	3.1	5.4	c	1022.0
US15025	42-10.7	140-41.6	1/22	0843-0848	87	East-3	ENE-1	East-5	2.4	5.0	s	1021.6
US15026	42-09.5	140-35.9	1/22	0828-0832	71	East-3	ENE-1	East-4	2.6	4.4	o	1021.9
US15027	42-11.3	140-35.8	1/22	0956-1000	81	East-4	ENE-1	East-5	2.6	4.9	o	1020.9
US15028	42-28.1	140-43.4	1/24	1222-1224	59	West-3	West-1	West-5	1.5	5.4	c	1020.5
US15029	42-31.2	140-37.8	1/24	1307-1311	60	West-3	West-1	West-5	1.5	5.4	s	1020.1
US15030	42-29.1	140-31.1	1/24	1355-1359	73	WNW-2	West-1	WNW-4	0.4	4.8	s	1021.1
US15031	42-26.7	140-25.1	1/24	1439-1442	60	NW-2	WNW-1	NW-4	0.5	4.5	s	1021.6
US15032	42-18.8	140-22.9	1/24	1548-1550	52	West-3	WNW-1	West-5	1.8	4.6	c	1022.9
US15033	42-13.9	140-29.8	1/24	1648-1652	76	West-3	WNW-1	West-5	1.5	5.0	c	1023.2
US15034	42-17.6	140-54.0	1/25	0703-0706	56	NNW-1	West-1	NNW-3	1.1	6.6	bc	1029.5
US15035	42-20.6	140-48.9	1/25	0746-0749	51	North-1	West-1	North-2	1.4	6.5	bc	1029.5
US15036	42-23.3	140-42.8	1/25	0830-0834	61	North-1	West-1	North-2	1.6	5.9	bc	1029.9
US15037	42-26.0	140-37.5	1/25	0912-0916	83	NW-1	SW-1	NW-2	2.8	5.1	bc	1030.0
US15038	42-24.0	140-31.8	1/25	0957-1002	95	SW-1	SW-1	SW-2	2.1	5.0	c	1030.7
US15039	42-21.4	140-36.1	1/25	1038-1043	88	SW-1	SW-1	SW-2	2.2	5.3	c	1030.8
US15040	42-19.2	140-31.1	1/25	1122-1127	93	Calm	ESE-1	Calm	3.8	5.1	c	1030.1
US15041	42-16.6	140-36.1	1/25	1224-1229	82	SSW-1	ESE-1	SSW-1	3.0	5.2	c	1029.9
US15042	42-14.0	140-42.1	1/25	1319-1324	85	Calm	ESE-1	Calm	3.0	5.2	c	1029.7
US15043	42-15.0	140-47.3	1/25	1406-1410	72	North-1	ESE-1	North-2	3.7	6.6	bc	1029.7
US15044	42-00.0	141-09.9	1/25	1812-1816	133	Calm	ESE-1	Calm	3.0	6.2	bc	1030.8

Cruise 326

Station	Lat. (N)*	Long. (E)*	Date	S.M.T.	Depth (m)	Wave	Swell	Wind	Air Temp.	Sea Temp.	Wr.	Bar. (hPa)
US15045	41-42.8	140-44.9	2/3	1342-1352	85	NNW-3	NNW-1	NNW-5	1.7	8.9	bc	1023.9
US15046	41-40.9	140-47.1	2/3	1413-1431	218	NNW-4	NNW-1	NNW-6	0.9	8.9	bc	1024.1
US15047	41-38.9	140-49.2	2/3	1451-1516	349	NNW-4	NNW-1	NNW-5	1.5	9.2	bc	1024.2
US15048	41-37.0	140-51.2	2/3	1540-1550	97	NW-3	NW-1	NW-5	0.9	9.2	bc	1024.1
US15049	41-35.5	140-52.6	2/3	1604-1609	39	NW-3	NW-1	NW-5	0.8	9.3	c	1024.1
US15050	41-45.4	141-09.0	2/4	0147-0156	104	NNE-3	NNE-1	NNE-4	-2.3	3.0	c	1023.8
US15050-2	41-45.4	141-08.9	2/4	0206-0215	101	NNE-3	NNE-1	NNE-4	-2.6	3.2	c	1023.8
US15051	41-45.8	140-42.0	2/4	1355-1359	31	NE-1	NW-1	NE-2	2.6	8.1	bc	1021.6
US15052	41-41.3	140-34.1	2/4	1500-1503	39	SSE-1	SE-1	SSE-2	1.7	8.8	bc	1021.6
US15053	41-26.5	140-17.4	2/5	0700-0703	64	NE-3	NE-1	NE-4	0.8	8.0	c	1019.8
US15054	41-24.5	140-05.8	2/5	0810-0814	53	ENE-2	East-1	ENE-3	0.6	7.6	c	1019.5
US15055	41-24.0	140-05.9	2/5	0828-0833	78	NE-1	ENE-1	NE-3	1.0	7.5	c	1019.6
US15056	41-23.7	140-05.6	2/5	0846-0852	97	East-2	ENE-1	East-4	1.4	7.9	c	1019.6
US15057	41-22.2	140-06.1	2/5	0928-0933	118	NE-3	ENE-1	NE-5	1.0	8.8	c	1019.5
US15058	41-26.3	140-02.3	2/5	1012-1015	33	ESE-1	ESE-1	ESE-3	1.6	7.7	c	1019.2
US15059	41-26.1	140-01.7	2/5	1032-1036	52	ESE-1	ESE-1	ESE-3	1.4	7.6	c	1019.1
US15060	41-25.9	140-01.1	2/5	1054-1100	88	ESE-1	ESE-1	ESE-3	2.1	7.5	c	1019.1
US15061	41-25.2	140-00.2	2/5	1117-1123	105	ESE-1	ESE-1	ESE-3	2.3	7.9	c	1018.6
US15055-2	41-24.2	140-05.4	2/5	1224-1228	67	NE-2	ENE-1	NE-4	2.3	7.7	c	1018.1
US15055-3	41-24.5	140-05.5	2/5	1505-1508	45	ENE-3	ENE-1	ENE-4	2.3	9.0	c	1016.3
US15055-4	41-25.9	140-01.1	2/5	1822-1827	85	ENE-2	ENE-1	NNE-3	1.6	8.1	bc	1016.2
US15055-5	41-25.8	140-01.1	2/5	2109-2113	87	ENE-1	ENE-1	ENE-3	1.2	8.1	bc	1016.1
US15055-6	41-25.5	140-02.0	2/6	0016-0021	81	East-3	ENE-1	East-5	1.2	8.6	c	1015.6
US15055-7	41-25.3	140-02.3	2/6	0305-0309	81	NE-1	ENE-1	NE-3	-0.8	8.1	s	1015.8
US15055-8	41-25.6	140-01.9	2/6	0609-0613	75	NE-3	SE-1	NE-3	0.5	8.1	o	1015.7
US15055-9	41-25.3	140-02.0	2/6	0923-0927	90	NNW-1	East-1	NNW-2	1.8	8.0	bc	1017.2
US15055-10	41-25.4	140-10.5	2/6	1205-1210	97	NNW-2	East-1	NNW-4	2.0	7.8	c	1017.7
US15062	41-34.7	140-29.2	2/6	1500-1504	34	NW-1	East-1	NW-3	2.8	8.4	c	1018.0
US15063	41-37.3	140-30.2	2/6	1553-1556	32	NW-2	SE-1	NW-4	3.0	8.5	c	1018.0
US15064	41-59.8	141-10.0	2/6	2055-2102	139	NW-3	NW-1	NW-4	1.1	1.8	bc	1020.5
US15065	42-17.6	140-54.1	2/7	0627-0631	57	NW-3	West-1	NW-2	1.1	1.9	o	1022.0
US15066	42-15.7	140-47.9	2/7	0719-0722	71	West-1	West-1	West-1	1.0	3.0	o	1022.0
US15067	42-18.2	140-42.4	2/7	0802-0806	63	West-1	West-1	West-2	1.6	3.0	s	1022.1
US15068	42-13.5	140-41.4	2/7	0849-0853	88	West-1	West-1	West-3	0.6	3.3	s	1022.2
US15069	42-16.5	140-36.7	2/7	0941-0945	90	WSW-1	West-1	WSW-2	2.3	4.3	bc	1022.5
US15070	42-20.7	140-36.4	2/7	1032-1037	87	West-1	West-1	West-2	2.8	3.4	bc	1022.3
US15071	42-19.1	140-31.1	2/7	1115-1119	94	West-1	NE-1	West-2	2.9	3.7	bc	1022.1
US15072	42-18.7	140-23.5	2/7	1216-1220	55	NNW-1	NE-1	NNW-2	2.3	5.0	bc	1021.9
US15073	42-14.0	140-29.9	2/7	1320-1324	76	ENE-2	ENE-1	ENE-3	2.9	4.8	c	1021.4
US15074	42-11.1	140-35.2	2/7	1412-1416	80	East-3	East-1	East-4	2.4	4.3	bc	1021.0
US15075	42-10.5	140-40.4	2/7	1511-1516	86	East-3	East-1	East-4	2.4	4.0	bc	1021.7

(*): Fixed position by Global Positioning System

Table 2. Oceanographic data

STATION		US15001	
LATITUDE		41-47.1	N
LONGITUDE		140-40.1	E
DEPTH (m)		20	
Press.	Temp.	Salinity	Sigma-T
5	9.155	33.754	26.118
10	9.886	33.022	26.208

STATION		US15002	
LATITUDE		41-45.5	N
LONGITUDE		140-40.0	E
DEPTH (m)		39	
Press.	Temp.	Salinity	Sigma-T
5	9.961	34.015	26.189
10	9.965	34.013	26.187
20	9.965	34.013	26.187
30	9.970	34.012	26.186

STATION		US15003	
LATITUDE		41-43.8	N
LONGITUDE		140-40.1	E
DEPTH (m)		63	
Press.	Temp.	Salinity	Sigma-T
5	9.839	33.985	26.187
10	9.853	33.986	26.185
20	9.839	33.982	26.184
30	9.827	33.978	26.183
40	9.832	33.984	26.187
50	9.868	33.998	26.192

STATION		US15004	
LATITUDE		41-43.6	N
LONGITUDE		140-38.4	E
DEPTH (m)		55	
Press.	Temp.	Salinity	Sigma-T
5	10.206	34.048	26.174
10	10.209	34.048	26.173
20	10.193	34.049	26.177
30	10.213	34.048	26.173
40	10.213	34.048	26.173
50	10.202	34.047	26.173

STATION		US15005	
LATITUDE		41-43.7	N
LONGITUDE		140-37.2	E
DEPTH (m)		48	
Press.	Temp.	Salinity	Sigma-T
5	10.269	34.055	26.168
10	10.256	34.054	26.197
20	10.270	34.054	26.167
30	10.272	34.054	26.167
40	10.272	34.054	26.167

STATION		US15006	
LATITUDE		41-41.1	N
LONGITUDE		140-34.4	E
DEPTH (m)		42	
Press.	Temp.	Salinity	Sigma-T
5	10.012	34.034	26.195
10	10.015	34.033	26.195
20	10.020	34.032	26.193
30	10.021	34.032	26.193
40	10.021	334.032	26.192

STATION		US15007	
LATITUDE		41-37.4	N
LONGITUDE		140-30.3	E
DEPTH (m)		32	
Press.	Temp.	Salinity	Sigma-T
5	10.593	34.059	26.115
10	10.594	34.059	26.115
20	10.606	34.058	26.112
30	10.606	34.058	26.112

STATION		US15008	
LATITUDE		41-37.6	N
LONGITUDE		140-28.4	E
DEPTH (m)		23	
Press.	Temp.	Salinity	Sigma-T
5	10.242	34.032	26.155
10	10.250	34.032	26.155
20	10.161	34.024	26.163

STATION		US15009	
LATITUDE		41-38.1	N
LONGITUDE		140-26.4	E
DEPTH (m)		13	
Press.	Temp.	Salinity	Sigma-T
5	9.001	33.846	26.215
10	8.856	33.820	26.212

STATION		US15010	
LATITUDE		41-35.2	N
LONGITUDE		140-29.7	E
DEPTH (m)		42	
Press.	Temp.	Salinity	Sigma-T
5	10.599	34.064	26.118
10	10.626	34.060	26.110
20	10.615	34.055	26.108
30	10.609	34.058	26.111
40	10.580	34.064	26.121

STATION		US15011	
LATITUDE		41-34.7	N
LONGITUDE		140-33.1	E
DEPTH (m)		64	
Press.	Temp.	Salinity	Sigma-T
5	10.783	34.060	26.082
10	10.796	34.059	26.079
20	10.797	34.059	26.079
30	10.744	34.059	26.088
40	10.654	34.062	26.106
50	10.501	34.064	26.135

STATION		US15012	
LATITUDE		41-35.1	N
LONGITUDE		140-26.7	E
DEPTH (m)		11	
Press.	Temp.	Salinity	Sigma-T
5	10.353	34.014	26.121

STATION US15013			
LATITUDE	41-28.8	N	
LONGITUDE	140-20.9	E	
DEPTH (m)	63		
Press.	Temp.	Salinity	Sigma-T
5	10.217	34.079	26.196
10	10.216	34.079	26.196
20	10.228	34.079	26.194
30	10.228	34.078	26.193
40	10.223	34.078	26.194
50	10.216	34.076	26.194

STATION US15016			
LATITUDE	41-24.6	N	
LONGITUDE	140-06.3	E	
DEPTH (m)	49		
Press.	Temp.	Salinity	Sigma-T
5	10.236	34.072	26.187
10	10.237	34.072	26.187
20	10.082	34.077	26.218
30	9.981	34.082	26.238
40	9.918	34.082	26.249

STATION US15019			
LATITUDE	41-24.1	N	
LONGITUDE	140-20.6	E	
DEPTH (m)	95		
Press.	Temp.	Salinity	Sigma-T
5	10.347	34.076	26.171
10	10.352	34.075	26.169
20	10.015	34.076	26.228
30	9.969	34.078	26.237
40	9.910	34.081	26.250
50	9.827	34.082	26.264
75	9.028	34.085	26.397

STATION US15022			
LATITUDE	41-58.0	N	
LONGITUDE	140-59.4	E	
DEPTH (m)	86		
Press.	Temp.	Salinity	Sigma-T
5	7.220	33.681	26.350
10	7.177	33.678	26.353
20	7.124	33.674	26.357
30	7.074	33.669	26.360
40	7.050	33.668	26.363
50	6.640	33.669	26.379
75	6.532	33.742	26.490

STATION US15014			
LATITUDE	41-28.3	N	
LONGITUDE	140-16.8	E	
DEPTH (m)	31		
Press.	Temp.	Salinity	Sigma-T
5	10.097	34.053	26.196
10	10.098	34.052	26.195
20	10.103	34.051	26.194
30	10.108	34.053	26.194

STATION US15017			
LATITUDE	41-24.0	N	
LONGITUDE	140-05.9	E	
DEPTH (m)	75		
Press.	Temp.	Salinity	Sigma-T
5	10.137	34.077	26.208
10	10.141	34.074	26.205
20	9.790	34.085	26.273
30	9.689	34.088	26.292
40	9.634	34.089	26.302
50	9.370	34.089	26.346
75	9.357	34.097	26.354

STATION US15020			
LATITUDE	41-59.3	N	
LONGITUDE	141-02.0	E	
DEPTH (m)	101		
Press.	Temp.	Salinity	Sigma-T
5	7.199	33.679	26.351
10	7.199	33.672	26.351
20	7.181	33.677	26.352
30	7.178	33.677	26.352
40	7.176	33.676	26.352
50	7.176	33.677	26.352
75	7.101	33.667	26.355

STATION US15023			
LATITUDE	41-57.4	N	
LONGITUDE	140-58.2	E	
DEPTH (m)	77		
Press.	Temp.	Salinity	Sigma-T
5	7.061	33.672	26.364
10	7.017	33.664	26.364
20	6.955	33.667	26.375
30	6.772	33.660	26.394
40	6.657	33.653	26.404
50	6.575	33.648	26.411

STATION US15015			
LATITUDE	41-26.8	N	
LONGITUDE	140-17.7	E	
DEPTH (m)	63		
Press.	Temp.	Salinity	Sigma-T
5	10.303	34.075	26.178
10	10.302	34.074	26.177
20	10.306	34.074	26.176
30	10.274	34.073	26.181
40	10.163	34.074	26.201
50	10.156	34.075	26.203

STATION US15018			
LATITUDE	41-23.6	N	
LONGITUDE	140-05.2	E	
DEPTH (m)	101		
Press.	Temp.	Salinity	Sigma-T
5	10.142	34.078	26.208
10	10.141	34.079	26.209
20	10.156	34.078	26.205
30	10.149	34.077	26.206
40	10.076	34.076	26.218
50	10.052	34.079	26.224
75	9.476	34.084	26.324
95	9.076	34.092	26.395

STATION US15021			
LATITUDE	41-58.6	N	
LONGITUDE	141-00.7	E	
DEPTH (m)	94		
Press.	Temp.	Salinity	Sigma-T
5	7.180	33.675	26.351
10	7.153	33.673	26.352
20	7.132	33.673	26.355
30	7.127	33.673	26.356
40	7.123	33.673	26.356
50	7.116	33.672	26.357
75	6.987	33.666	26.370
90	5.976	33.799	26.606

STATION US15024			
LATITUDE	41-10.1	N	
LONGITUDE	140-47.5	E	
DEPTH (m)	94		
Press.	Temp.	Salinity	Sigma-T
5	5.753	33.596	26.474
10	5.748	33.596	26.474
20	5.608	33.634	26.521
30	5.669	33.726	26.587
40	5.691	33.771	26.620
50	5.837	33.826	26.645
75	5.673	33.822	26.662
90	5.664	33.823	26.664

STATION US15025			
LATITUDE 42-10.7 N			
LONGITUDE 140-41.6 E			
DEPTH (m) 87			
Press.	Temp.	Salinity	Sigma-T
5	5.306	33.906	25.971
10	5.306	33.905	25.968
20	5.284	33.899	25.975
30	5.212	33.906	25.987
40	5.152	33.907	25.999
50	5.161	33.923	26.046
75	5.169	33.815	26.717

STATION US15026			
LATITUDE 42-09.5 N			
LONGITUDE 140-35.9 E			
DEPTH (m) 71			
Press.	Temp.	Salinity	Sigma-T
5	4.814	33.749	26.704
10	4.809	33.749	26.705
20	4.747	33.755	26.716
30	4.876	33.779	26.721
40	4.947	33.789	26.721
50	4.952	33.788	26.721

STATION US15027			
LATITUDE 42-11.3 N			
LONGITUDE 140-35.8 E			
DEPTH (m) 81			
Press.	Temp.	Salinity	Sigma-T
5	5.263	33.825	26.713
10	5.263	33.825	26.713
20	5.263	33.825	26.713
30	5.270	33.824	26.712
40	5.263	33.825	26.713
50	5.275	33.825	26.712
75	5.224	33.819	26.714

STATION US15028			
LATITUDE 42-28.1 N			
LONGITUDE 140-43.4 E			
DEPTH (m) 59			
Press.	Temp.	Salinity	Sigma-T
5	5.819	33.731	26.572
10	5.829	33.739	26.577
20	5.831	33.751	26.587
30	5.834	33.762	26.595
40	5.580	33.802	26.657
50	5.494	33.808	26.673
55	5.488	33.809	26.674

STATION US15029			
LATITUDE 42-31.2 N			
LONGITUDE 140-37.8 E			
DEPTH (m) 60			
Press.	Temp.	Salinity	Sigma-T
5	5.576	33.705	26.581
10	5.580	33.706	26.582
20	5.412	33.790	26.668
30	5.402	33.807	26.683
40	5.384	33.813	26.683
50	5.389	33.815	26.691

STATION US15030			
LATITUDE 42-29.1 N			
LONGITUDE 140-31.1 E			
DEPTH (m) 73			
Press.	Temp.	Salinity	Sigma-T
5	5.179	33.805	26.707
10	5.196	33.807	26.707
20	5.218	33.809	26.706
30	5.234	33.812	26.707
40	5.250	33.815	26.707
50	5.253	33.815	26.707

STATION US15031			
LATITUDE 42-26.7 N			
LONGITUDE 140-25.1 E			
DEPTH (m) 60			
Press.	Temp.	Salinity	Sigma-T
5	4.916	33.751	26.695
10	4.979	33.769	26.702
20	5.048	33.785	26.706
30	5.043	33.784	26.706
40	4.981	33.775	26.706
50	5.013	33.784	26.710

STATION US15032			
LATITUDE 42-18.8 N			
LONGITUDE 140-22.9 E			
DEPTH (m) 52			
Press.	Temp.	Salinity	Sigma-T
5	4.787	33.560	26.558
10	4.827	33.732	26.689
20	4.865	33.779	26.723
30	4.864	33.803	26.742
40	4.869	33.803	26.741
50	4.822	33.798	26.743

STATION US15033			
LATITUDE 42-13.9 N			
LONGITUDE 140-29.8 E			
DEPTH (m) 76			
Press.	Temp.	Salinity	Sigma-T
5	5.284	33.835	26.719
10	5.292	33.834	26.717
20	5.296	33.836	26.716
30	5.294	33.833	26.716
40	5.296	33.833	26.716
50	5.295	33.833	26.716

STATION US15034			
LATITUDE 42-17.6 N			
LONGITUDE 140-54.0 E			
DEPTH (m) 56			
Press.	Temp.	Salinity	Sigma-T
5	7.123	33.537	26.250
10	7.148	33.682	26.360
20	7.032	33.630	26.335
30	7.021	33.635	26.341
40	6.999	33.618	26.331
50	6.501	33.574	26.362

STATION US15035			
LATITUDE 42-20.6 N			
LONGITUDE 140-48.9 E			
DEPTH (m) 51			
Press.	Temp.	Salinity	Sigma-T
5	6.877	33.619	26.348
10	6.877	33.619	26.348
20	6.884	33.612	26.347
30	6.878	33.619	26.348
40	6.610	33.621	26.385

STATION US15036			
LATITUDE 42-23.3 N			
LONGITUDE 140-42.8 E			
DEPTH (m) 61			
Press.	Temp.	Salinity	Sigma-T
5	6.070	33.618	26.452
10	6.065	33.619	26.453
20	5.715	33.665	26.533
30	5.713	33.753	26.605
40	5.696	33.759	26.610
50	5.712	33.775	26.620

STATION		US15037	
LATITUDE		42-26.0	N
LONGITUDE		140-37.5	E
DEPTH (m)		83	
Press.	Temp.	Salinity	Sigma-T
5	5.492	33.811	26.684
10	5.419	33.812	26.684
20	5.413	33.812	26.685
30	5.408	33.812	26.686
40	5.381	33.818	26.694
50	5.364	33.818	26.696
75	5.371	33.829	26.704

STATION		US15038	
LATITUDE		42-24.0	N
LONGITUDE		140-31.8	E
DEPTH (m)		95	
Press.	Temp.	Salinity	Sigma-T
5	5.258	33.823	26.712
10	5.256	33.823	26.713
20	5.256	33.824	26.713
30	5.256	33.824	26.713
40	5.256	33.824	26.713
50	5.256	33.824	26.713
75	5.258	33.824	26.713

STATION		US15039	
LATITUDE		42-21.4	N
LONGITUDE		140-36.1	E
DEPTH (m)		88	
Press.	Temp.	Salinity	Sigma-T
5	5.579	33.769	26.631
10	5.572	33.770	26.633
20	5.426	33.796	26.671
30	5.364	33.807	26.688
40	5.367	33.815	26.693
50	5.365	33.822	26.699
75	5.308	33.821	26.705

STATION		US15040	
LATITUDE		42-19.2	N
LONGITUDE		140-31.1	E
DEPTH (m)		93	
Press.	Temp.	Salinity	Sigma-T
5	5.416	33.819	26.690
10	5.404	33.820	26.693
20	5.400	33.821	26.694
30	5.398	33.822	26.695
40	5.398	33.822	26.695
50	5.397	33.823	26.696
75	5.361	33.824	26.702
90	5.273	33.820	26.708

STATION		US15041	
LATITUDE		42-16.6	N
LONGITUDE		140-36.1	E
DEPTH (m)		82	
Press.	Temp.	Salinity	Sigma-T
5	5.440	33.722	26.611
10	5.419	33.724	26.614
20	5.404	33.727	26.619
30	5.504	33.831	26.689
40	5.439	33.829	26.696
50	5.413	33.831	26.700
75	5.202	33.816	26.714

STATION		US15042	
LATITUDE		42-14.0	N
LONGITUDE		140-42.1	E
DEPTH (m)		85	
Press.	Temp.	Salinity	Sigma-T
5	5.439	33.707	26.599
10	5.413	33.707	26.602
20	5.372	33.739	26.632
30	5.284	33.822	26.709
40	5.285	33.825	26.711
50	5.274	33.825	26.712
75	5.222	33.821	26.715

STATION		US15043	
LATITUDE		42-15.0	N
LONGITUDE		140-47.3	E
DEPTH (m)		72	
Press.	Temp.	Salinity	Sigma-T
5	6.855	33.626	26.356
10	6.756	33.624	26.367
20	6.291	33.602	26.411
30	5.827	33.642	26.501
40	5.225	33.794	26.694
50	5.195	33.813	26.712

STATION		US15044	
LATITUDE		42-00.0	N
LONGITUDE		141-09.9	E
DEPTH (m)		133	
Press.	Temp.	Salinity	Sigma-T
5	6.598	33.563	26.340
10	6.730	33.548	26.311
20	6.812	33.536	26.291
30	6.882	33.543	26.287
40	6.914	33.551	26.289
50	6.370	33.458	26.287
75	6.769	33.551	26.309
100	7.765	33.757	26.332
125	6.594	33.564	26.342
130	6.561	33.565	26.347

STATION		US15045	
LATITUDE		41-42.8	N
LONGITUDE		140-44.9	E
DEPTH (m)		85	
Press.	Temp.	Salinity	Sigma-T
5	9.225	34.074	26.358
10	9.219	34.074	26.358
20	9.211	34.074	26.359
30	9.002	34.068	26.388
40	8.774	34.074	26.429
50	8.772	34.076	26.431
75	8.761	34.077	26.433

STATION		US15046	
LATITUDE		41-40.8	N
LONGITUDE		140-47.1	E
DEPTH (m)		219	
Press.	Temp.	Salinity	Sigma-T
5	9.513	34.061	26.300
10	9.506	34.061	26.301
20	9.495	34.061	26.303
30	9.399	34.065	26.322
40	9.391	34.066	26.324
50	9.383	34.067	26.326
75	9.289	34.070	26.344
100	9.067	34.071	26.381
125	8.988	34.070	26.392
150	8.651	34.075	26.449
175	8.595	34.076	26.458
200	8.536	34.078	26.469

STATION		US15047	
LATITUDE		41-38.9	N
LONGITUDE		140-49.2	E
DEPTH (m)		349	
Press.	Temp.	Salinity	Sigma-T
5	9.561	34.062	26.293
10	9.555	34.062	26.294
20	9.563	34.061	26.292
30	9.547	34.060	26.293
40	9.429	34.054	26.308
50	9.342	34.059	26.326
75	9.204	34.067	26.355
100	9.158	34.069	26.364
125	9.085	34.071	26.377
150	9.052	34.072	26.383
175	8.995	34.073	26.393
200	8.701	34.077	26.443
250	8.670	34.078	26.448
300	8.624	34.078	26.456
310	8.582	34.079	26.462

STATION		US15048	
LATITUDE		41-37.0	N
LONGITUDE		140-51.2	E
DEPTH (m)		97	
Press.	Temp.	Salinity	Sigma-T
5	9.573	34.066	26.294
10	9.579	34.063	26.291
20	9.584	34.062	26.289
30	9.560	34.060	26.291
40	9.542	34.060	26.295
50	9.564	34.062	26.292
75	9.507	34.060	26.300

STATION		US15049	
LATITUDE		41-35.5	N
LONGITUDE		140-52.6	E
DEPTH (m)		39	
Press.	Temp.	Salinity	Sigma-T
5	9.502	34.063	26.303
10	9.516	34.062	26.301
20	9.518	34.062	26.300
30	9.516	34.062	26.300

STATION		US15050	
LATITUDE		41-45.4	N
LONGITUDE		141-09.4	E
DEPTH (m)		104	
Press.	Temp.	Salinity	Sigma-T
5	3.459	33.036	26.276
10	3.460	33.036	26.276
20	3.466	33.036	26.275
30	3.310	33.041	26.275
40	3.510	33.041	26.275
50	3.513	33.042	26.276
75	3.588	33.053	26.278

STATION		US14050-2	
LATITUDE		41-45.4	N
LONGITUDE		141-08.9	E
DEPTH (m)		101	
Press.	Temp.	Salinity	Sigma-T
5	3.441	33.036	26.278
10	3.448	33.035	26.276
20	3.455	33.034	26.275
30	3.458	33.034	26.275
40	3.462	33.035	26.275
50	3.463	33.035	26.275
75	3.577	33.051	26.277
90	3.566	33.051	26.278

STATION		US15051	
LATITUDE		41-45.8	N
LONGITUDE		140-40.4	E
DEPTH (m)		31	
Press.	Temp.	Salinity	Sigma-T
5	8.515	33.998	26.409
10	8.560	34.014	26.415
20	8.625	34.036	26.423
30	8.738	34.071	26.432

STATION		US15052	
LATITUDE		41-41.3	N
LONGITUDE		140-34.1	E
DEPTH (m)		39	
Press.	Temp.	Salinity	Sigma-T
5	9.054	34.082	26.391
10	9.022	34.080	26.394
20	8.995	34.080	26.398
30	8.918	34.078	26.409

STATION		US15053	
LATITUDE		41-26.4	N
LONGITUDE		140-17.4	E
DEPTH (m)		64	
Press.	Temp.	Salinity	Sigma-T
5	8.326	34.063	26.489
10	8.331	34.062	26.488
20	8.312	34.058	26.488
30	8.200	34.056	26.502
40	8.101	34.060	26.519
50	7.997	34.066	26.541

STATION		US15054	
LATITUDE	41-24.5	N	
LONGITUDE	140-05.8	E	
DEPTH (m)	53		
Press.	Temp.	Salinity	Sigma-T
5	7.757	34.083	26.589
10	7.648	34.074	26.598
20	7.503	34.079	26.622
30	7.058	34.061	26.671
40	6.320	34.066	26.774
50	5.891	34.050	26.815

STATION		US15055	
LATITUDE	41-24.0	N	
LONGITUDE	140-05.9	E	
DEPTH (m)	78		
Press.	Temp.	Salinity	Sigma-T
5	8.206	34.092	26.530
10	7.899	34.071	26.559
20	7.510	34.063	26.609
30	7.463	34.068	26.620
40	7.213	34.063	26.651
50	6.759	34.062	26.713

STATION		US15055-2	
LATITUDE	41-24.2	N	
LONGITUDE	140-05.4	E	
DEPTH (m)	67		
Press.	Temp.	Salinity	Sigma-T
5	8.013	34.090	26.558
10	8.020	34.090	26.556
20	7.889	34.083	26.570
30	7.616	34.073	26.602
40	6.916	34.057	26.687
50	6.679	34.065	26.726

STATION		US15055-3	
LATITUDE	41-24.5	N	
LONGITUDE	140-05.5	E	
DEPTH (m)	45		
Press.	Temp.	Salinity	Sigma-T
5	8.003	34.096	26.564
10	8.909	34.115	26.439
20	7.959	34.061	26.542
30	7.779	34.078	26.582
40	7.491	34.073	26.620

STATION		US15055-4	
LATITUDE	41-25.9	N	
LONGITUDE	140-01.1	E	
DEPTH (m)	85		
Press.	Temp.	Salinity	Sigma-T
5	8.303	34.097	26.519
10	8.295	34.096	26.522
20	8.203	34.091	26.530
30	8.177	34.090	26.533
40	8.143	34.090	26.538
50	8.110	34.089	26.542
75	6.118	34.044	26.782

STATION		US15055-5	
LATITUDE	41-25.8	N	
LONGITUDE	140-01.1	E	
DEPTH (m)	87		
Press.	Temp.	Salinity	Sigma-T
5	8.540	34.099	26.484
10	8.443	34.091	26.493
20	8.414	34.093	26.499
30	8.403	34.093	26.501
40	8.417	34.094	26.499
50	8.415	34.093	26.499
75	7.746	34.066	26.577
85	6.843	34.056	26.697

STATION		US15055-6	
LATITUDE	41-25.5	N	
LONGITUDE	140-02.0	E	
DEPTH (m)	81		
Press.	Temp.	Salinity	Sigma-T
5	8.754	34.104	26.455
10	8.707	34.100	26.460
20	8.542	34.096	26.482
30	8.430	34.092	26.496
40	8.331	34.090	26.510
50	8.238	34.089	26.523
75	7.956	34.082	26.559

STATION		US15055-7	
LATITUDE	41-25.3	N	
LONGITUDE	140-02.3	E	
DEPTH (m)	81		
Press.	Temp.	Salinity	Sigma-T
5	8.269	34.092	26.521
10	8.270	34.094	26.521
20	8.214	34.090	26.527
30	8.213	34.091	26.528
40	8.214	34.091	26.528
50	8.187	34.088	26.530
75	7.809	34.082	26.581

STATION		US15055-8	
LATITUDE	41-25.6	N	
LONGITUDE	140-01.9	E	
DEPTH (m)	75		
Press.	Temp.	Salinity	Sigma-T
5	8.423	34.101	26.504
10	8.428	34.101	26.503
20	8.307	34.091	26.514
30	8.206	34.090	26.528
40	8.224	34.092	26.527
50	8.107	34.088	26.541

STATION		US15055-9	
LATITUDE	41-25.3	N	
LONGITUDE	140-02.0	E	
DEPTH (m)	90		
Press.	Temp.	Salinity	Sigma-T
5	8.274	34.086	26.515
10	8.271	34.088	26.517
20	8.286	34.087	26.514
30	8.325	34.090	26.510
40	8.325	34.089	26.509
50	8.312	34.088	26.511
75	7.144	34.050	26.651

STATION		JS15055-10	
LATITUDE	41-25.4	N	
LONGITUDE	140-01.5	E	
DEPTH (m)	97		
Press.	Temp.	Salinity	Sigma-T
5	8.104	34.092	26.545
10	7.954	34.080	26.558
20	7.869	34.086	26.575
30	7.341	34.074	26.642
40	7.199	34.076	26.664
50	7.095	34.077	26.679
75	7.138	34.079	26.674

STATION		US15056	
LATITUDE	41-23.7	N	
LONGITUDE	140-05.6	E	
DEPTH (m)	97		
Press.	Temp.	Salinity	Sigma-T
5	8.105	34.088	26.542
10	8.035	34.086	26.551
20	8.048	34.088	26.550
30	7.590	34.060	26.595
40	7.058	34.062	26.672
50	6.674	34.062	26.724
75	5.527	34.056	26.865
95	5.376	34.061	26.887

STATION		US15057	
LATITUDE		41-22.2	N
LONGITUDE		140-06.1	E
DEPTH (m)		118	
Press.	Temp.	Salinity	Sigma-T
5	9.205	34.102	26.382
10	9.157	34.098	26.387
20	8.877	34.094	26.428
30	8.674	34.092	26.459
40	8.334	34.086	26.506
50	8.291	34.089	26.515
75	7.276	34.060	26.640
100	5.685	34.058	26.847

STATION		US15058	
LATITUDE		41-26.3	N
LONGITUDE		140-02.3	E
DEPTH (m)		33	
Press.	Temp.	Salinity	Sigma-T
5	7.805	34.073	26.575
10	7.807	34.073	26.574
20	7.754	34.074	26.583
30	7.674	34.073	26.594

STATION		US15059	
LATITUDE		42-26.1	N
LONGITUDE		140-01.7	E
DEPTH (m)		52	
Press.	Temp.	Salinity	Sigma-T
5	7.980	34.089	26.561
10	7.979	34.088	26.560
20	7.908	34.085	26.569
30	7.839	34.081	26.576
40	7.759	34.080	26.587
50	7.709	34.080	26.594

STATION		US15060	
LATITUDE		41-25.9	N
LONGITUDE		140-01.1	E
DEPTH (m)		88	
Press.	Temp.	Salinity	Sigma-T
5	8.051	34.087	26.549
10	8.037	34.086	26.551
20	8.010	34.085	26.553
30	7.980	34.084	26.558
40	7.985	34.086	26.558
50	7.772	34.079	26.584
75	6.057	34.047	26.792
85	5.862	34.062	26.829

STATION		US15061	
LATITUDE		41-25.2	N
LONGITUDE		140-00.2	E
DEPTH (m)		105	
Press.	Temp.	Salinity	Sigma-T
5	8.176	34.094	26.536
10	8.148	34.090	26.537
20	8.059	34.083	26.545
30	8.052	34.083	26.546
40	7.934	34.083	26.563
50	7.892	34.083	26.570
75	7.096	34.066	26.670
100	4.855	34.052	26.940

STATION		US15062	
LATITUDE		41-34.7	N
LONGITUDE		140-29.2	E
DEPTH (m)		34	
Press.	Temp.	Salinity	Sigma-T
5	8.703	34.086	26.449
10	8.693	34.085	26.450
20	8.525	34.083	26.474
30	8.355	34.087	26.503

STATION		US15063	
LATITUDE		41-37.3	N
LONGITUDE		140-30.2	E
DEPTH (m)		32	
Press.	Temp.	Salinity	Sigma-T
5	8.763	34.090	26.442
10	8.771	34.090	26.441
20	8.750	34.086	26.442
30	8.738	34.087	26.444

STATION		US15064	
LATITUDE		41-59.8	N
LONGITUDE		141-10.1	E
DEPTH (m)		139	
Press.	Temp.	Salinity	Sigma-T
5	2.155	32.780	26.182
10	2.154	32.782	26.183
20	2.148	32.785	26.186
30	2.145	32.791	26.186
40	2.147	32.795	26.191
50	2.160	32.840	26.194
75	2.388	33.008	26.212
100	3.290	33.005	26.269
125	3.311	33.007	26.265

STATION		US15065	
LATITUDE		42-17.6	N
LONGITUDE		140-54.1	E
DEPTH (m)		57	
Press.	Temp.	Salinity	Sigma-T
5	2.273	32.811	26.197
10	2.266	32.811	26.198
20	2.215	32.802	26.195
30	2.184	32.805	26.200
40	2.404	32.866	26.231
50	2.679	32.907	26.241

STATION US15066			
LATITUDE 42-15.7 N			
LONGITUDE 140-47.9 E			
DEPTH (m) 71			
Press.	Temp.	Salinity	Sigma-T
5	3.389	33.043	26.298
10	3.098	33.007	26.286
20	3.326	33.050	26.300
30	3.329	33.048	26.298
40	4.878	33.363	26.391
50	4.976	33.780	26.711

STATION US15067			
LATITUDE 42-18.2 N			
LONGITUDE 140-42.4 E			
DEPTH (m) 63			
Press.	Temp.	Salinity	Sigma-T
5	3.369	33.175	26.395
10	3.460	33.194	26.402
20	5.056	33.756	26.683
30	4.868	33.756	26.704
40	4.962	33.798	26.727
50	4.896	33.804	26.739

STATION US15068			
LATITUDE 42-13.5 N			
LONGITUDE 140-41.4 E			
DEPTH (m) 88			
Press.	Temp.	Salinity	Sigma-T
5	3.733	33.260	26.429
10	3.901	33.338	26.474
20	4.397	33.514	26.563
30	4.979	33.730	26.671
40	4.942	33.788	26.721
50	4.933	33.803	26.734
75	4.970	33.811	26.736

STATION US15069			
LATITUDE 42-16.5 N			
LONGITUDE 140-36.7 E			
DEPTH (m) 90			
Press.	Temp.	Salinity	Sigma-T
5	4.941	33.707	26.657
10	4.929	33.706	26.657
20	4.887	33.701	26.658
30	4.888	33.704	26.661
40	4.951	33.759	26.697
50	5.000	33.794	26.719
75	5.036	33.814	26.731

STATION US15070			
LATITUDE 42-20.7 N			
LONGITUDE 140-36.4 E			
DEPTH (m) 87			
Press.	Temp.	Salinity	Sigma-T
5	3.695	33.246	26.421
10	4.598	33.577	26.591
20	4.859	33.054	26.628
30	5.179	33.658	26.718
40	5.168	33.822	26.722
50	5.158	33.826	26.726
75	4.897	33.798	26.734
85	4.915	33.807	26.739

STATION US15071			
LATITUDE 42-19.1 N			
LONGITUDE 140-31.1 E			
DEPTH (m) 94			
Press.	Temp.	Salinity	Sigma-T
5	5.021	33.646	26.600
10	4.974	33.646	26.605
20	5.098	33.669	26.609
30	5.124	33.677	26.612
40	4.936	33.770	26.708
50	5.210	33.828	26.722
75	5.150	33.823	26.725
90	5.068	33.813	26.727

STATION US15072			
LATITUDE 42-18.7 N			
LONGITUDE 140-23.5 E			
DEPTH (m) 55			
Press.	Temp.	Salinity	Sigma-T
5	5.116	33.701	26.632
10	5.118	33.700	26.631
20	5.017	33.711	26.652
30	4.981	33.719	26.662
40	4.911	33.721	26.671
50	4.940	33.739	26.681

STATION US15073			
LATITUDE 42-14.0 N			
LONGITUDE 140-29.9 E			
DEPTH (m) 76			
Press.	Temp.	Salinity	Sigma-T
5	5.064	33.685	26.625
10	5.034	33.687	26.630
20	5.009	33.686	26.633
30	4.989	33.689	26.637
40	5.000	33.714	26.656
50	5.028	33.741	26.674

STATION US15074			
LATITUDE 42-11.1 N			
LONGITUDE 140-35.2 E			
DEPTH (m) 80			
Press.	Temp.	Salinity	Sigma-T
5	4.501	33.520	26.557
10	4.427	33.518	26.563
20	4.413	33.564	26.601
30	4.602	33.655	26.653
40	4.728	33.684	26.663
50	4.922	33.740	26.685
75	4.976	33.773	26.705

STATION US15075			
LATITUDE 42-10.5 N			
LONGITUDE 140-40.4 E			
DEPTH (m) 86			
Press.	Temp.	Salinity	Sigma-T
5	4.273	33.472	26.543
10	4.221	33.474	26.550
20	4.403	33.584	26.618
30	4.841	33.738	26.692
40	4.970	33.772	26.705
50	4.959	33.776	26.709
75	4.968	33.806	26.732