



HOKKAIDO UNIVERSITY

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PART II

USHIO MARU CRUISE FROM JANUARY TO DECEMBER IN 2012

I . Crew's List

Captain :		Yoshihiko Kamei
Crew :	Chief Officer	Osamu Kimura
	Second Officer	Naoto Kobayashi
	Chief Engineer	Hideo Ito
		(Cruise 246 - 254)
		Fumio Fujimoto
		(Cruise 255 -)
	First Engineer	Senetsu Nakai
		(Cruise 246 - 254)
		Kazuya Sawanaka
		(Cruise 255 -)
	Second Engineer	Kazuya Sawanaka
		(Cruise 246 - 254)
		Senetsu Nakai
		(Cruise 255 -)
	Chief Radio Officer	Nagahide Yamane
	Boatswain	Sen Sunakoma
	Jr. Boatswain	Yukio Tabata
		(Cruise 246 - 254)
		Yoshihiro Onodera
		(Cruise 255 -)
	Quartermaster	Naoyuki Eda
	Sailor	Takahiro Kanazawa
	No.1 Oiler	Nobuyuki Sawada
	No.2 Oiler	Konichi Tomosugi
	Oiler	Keisuke Shindo
		(Cruise 246 - 263)
		Tohru Murakami
		(Cruise 264 -)
	Chief Steward	Kazuhiro Ikeda
	Head Steward	Kazuo Ishikawa

II . Particulars

Length (R.L.)	33.74 m
Length (O.L.)	39.39 m
Breadth (mid)	6.50 m
Depth (mid)	3.00 m
Gross Tonnage (Domestic)	179 tons
International Gross Tonnage	286 tons
Main engine	735 kw
Call Sign	JD2672

1

THE " USHIO MARU "

CRUISE 246

CRUISE 247

CRUISE 248

IN JANUARY 2012

1. Cruise Itinerary

Cruise 246

Departure from Hakodate	Jan.	8,	2012
Arrival at and departure from Usujiri		8	
Start hydrographic research (US12001)		8	
Sampling by frame trawl net		8	
Arrival at Usujiri		9	
Departure from Usujiri		10	
Arrival at Usujiri		10	
Departure from Usujiri		12	
Arrival at and departure from Usujiri		12	
Finish hydrographic research (US12022)		12	
Return to Hakodate		13	
Total coverage 390.5 miles			

Cruise 247

Departure from Hakodate	Jan.	17,	2012
Start hydrographic research (US12023)		17	
Arrival at Fukushima		17	
Departure from Fukushima		18	
Finish hydrographic research (US12051)		18	
Return to Hakodate		19	
Total coverage 132.2 miles			

Cruise 248

Departure from Hakodate	Jan.	24,	2012
Arrival at Muroran		24	
Departure from Muroran		25	
Hydrographic research (US12052 - US12065)		25	
Return to Hakodate		26	
Total coverage 200.5 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”.

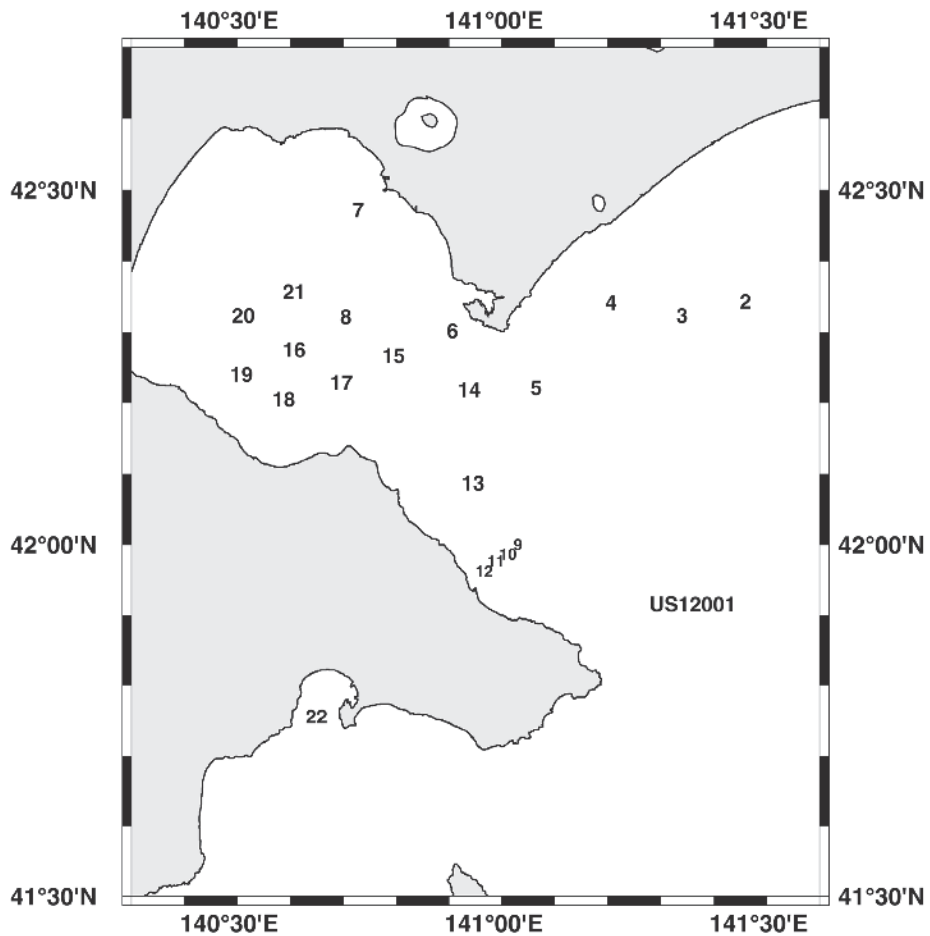


Figure 1. Oceanographic stations (Cruise 246)

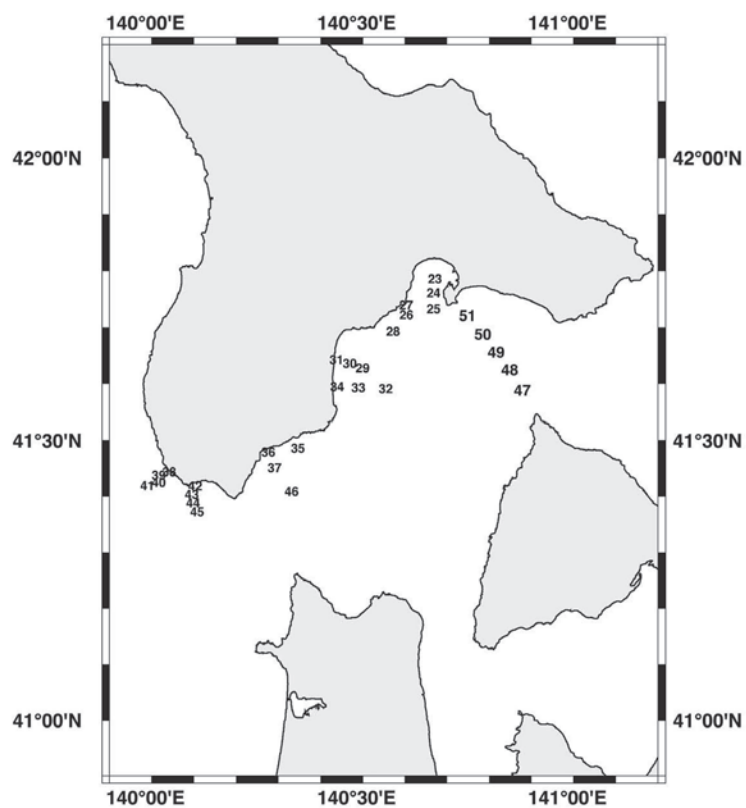


Figure 2. Oceanographic stations (Cruise 247)

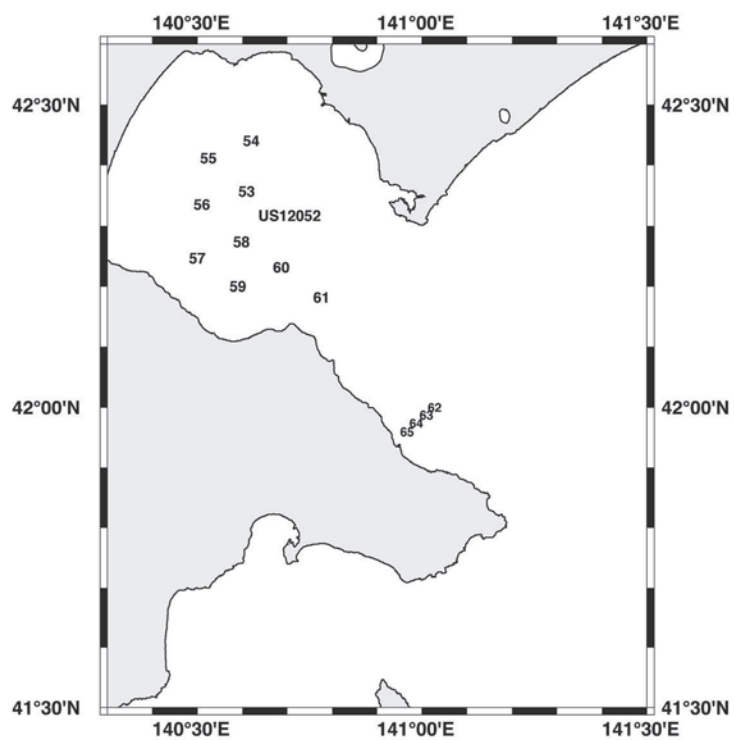


Figure 3. Oceanographic stations (Cruise 248)

Table 1. List of Oceanographic Station

Cruise 246												
Station	Lat. (N)*	Long. (E)*	Date	S.M.T.	Depth (m)	Wave	Swell	Wind	Air Temp.	Sea Temp.	Wr.	Bar. (hPa)
US12001	41-54.3	141-21.6	1/8	1755-1809	310	NW -2	NW -1	NW -5	0.1	6.0	bc	1025.2
US12002	42-20.0	141-27.6	1/9	0229-0248	425	WNW-2	WNW-1	WNW-5	-0.2	4.3	bc	1021.6
US12003	42-18.8	141-20.4	1/9	0406-0418	342	NW -2	NW -1	NW -4	-0.5	4.9	c	1021.2
US12004	42-19.9	141-12.4	1/9	0501-0506	85	West-2	NW -1	West-4	-0.6	4.5	c	1020.6
US12005	42-12.7	141-03.9	1/9	0644-0647	82	West-2	NW -2	West-5	-0.2	5.0	o	1020.6
US12006	42-17.5	140-54.4	1/9	0802-0805	56	WNW-2	NW -2	WNW-5	-0.1	5.5	o	1021.0
US12007	42-27.7	140-43.7	1/9	0936-0939	60	WNW-2	NW -1	WNW-4	0.1	5.8	bc	1021.6
US12008	42-18.7	140-42.3	1/9	1049-1053	69	West-3	West-1	West-5	0.2	5.8	bc	1021.2
US12009	41-59.4	141-01.8	1/9	1318-1322	101	NW -3	NW -1	NW -5	0.8	5.2	bc	1020.0
US12010	41-58.7	141-00.7	1/9	1330-1334	95	NW -3	NW -1	NW -5	0.9	5.2	bc	1019.4
US12011	41-58.1	140-59.5	1/9	1340-1344	87	NW -3	NW -1	NW -5	1.0	5.3	bc	1019.5
US12012	41-57.4	140-58.2	1/9	1351-1355	78	NW -4	NW -1	NW -6	0.9	4.6	bc	1019.6
US12013	42-04.6	140-56.7	1/10	0803-0810	85	West-3	NW -1	West-5	-1.2	4.8	bc	1021.0
US12014	42-12.5	140-56.3	1/10	0925-0929	70	WNW-3	NW -1	WNW-5	-1.5	4.9	bc	1021.1
US12015	42-15.4	140-47.7	1/10	1109-1113	71	NW -3	NW -1	NW -5	-1.9	5.1	c	1021.0
US12016	42-15.9	140-36.5	1/10	1223-1230	90	WNW-3	WNW-1	WNW-5	-2.1	5.7	bc	1020.1
US12017	42-13.1	140-41.8	1/12	0707-0711	90	WNW-3	WNW-1	WNW-5	-4.6	5.0	s	1020.2
US12018	42-11.7	140-35.3	1/12	0903-0907	83	West-3	WNW-1	West-5	-4.3	5.7	bc	1021.0
US12019	42-13.8	140-30.5	1/12	0953-0957	79	West-3	WNW-1	West-5	-4.8	5.4	bc	1021.1
US12020	42-18.8	140-30.7	1/12	1048-1052	93	West-3	West-1	West-5	-3.2	5.5	bc	1020.5
US12021	42-20.8	140-36.5	1/12	1148-1132	87	WNW-3	WNW-1	WNW-5	-3.0	5.5	bc	1019.6
US12022	41-44.8	140-39.0	1/12	2006-2009	51	West-1	South-1	West-3	-3.4	9.0	s	1018.1
Cruise 247												
Station	Lat. (N)*	Long. (E)*	Date	S.M.T.	Depth (m)	Wave	Swell	Wind	Air Temp.	Sea Temp.	Wr.	Bar. (hPa)
US12023	41-46.7	140-40.3	1/17	0822-0824	22	WNW-1	West-1	WNW-3	-3.5	6.7	bc	1020.7
US12024	41-45.2	140-40.1	1/17	0842-0844	45	West-1	West-1	West-3	-3.1	8.5	bc	1020.6
US12025	41-43.5	140-40.1	1/17	0903-0905	67	WNW-1	West-1	WNW-3	-3.0	8.7	bc	1020.6
US12026	41-43.6	140-36.2	1/17	0932-0934	26	NW -1	SSW-1	NW -3	-3.1	8.8	bc	1021.0
US12027	41-43.9	140-35.8	1/17	0938-0939	11	North-1	South-1	North-2	-2.7	7.9	bc	1021.1
US12028	41-41.1	140-34.3	1/17	1015-1018	42	NW -1	SSW-1	NW -2	-1.6	8.7	bc	1021.0
US12029	41-37.2	140-29.8	1/17	1054-1055	30	NW -1	SSW-1	NW -3	-2.7	8.9	bc	1020.9
US12030	41-37.7	140-28.2	1/17	1112-1114	21	NW -1	SSW-1	NW -2	-1.5	8.7	bc	1020.9
US12031	41-38.1	140-26.3	1/17	1130-1131	13	NW -1	SSE-1	NW -2	-2.2	6.5	s	1020.7
US12032	41-35.0	140-33.3	1/17	1218-1220	58	NW -1	SSE-1	NW -3	-1.3	8.8	bc	1020.6
US12033	41-35.1	140-29.4	1/17	1253-1255	33	NW -1	SSE-1	NW -3	-1.5	8.9	s	1020.0
US12034	41-35.2	140-26.4	1/17	1323-1325	13	NNW-1	SSE-1	NNW-2	-1.9	8.4	s	1020.0
US12035	41-28.7	140-20.8	1/17	1448-1451	62	West-2	SW -1	West-4	-0.8	8.9	c	1019.7
US12036	41-28.3	140-16.6	1/17	1526-1528	25	West-2	SW -1	West-4	-0.6	8.7	c	1020.0
US12037	41-26.6	140-17.5	1/18	0709-0713	64	WNW-1	SW -1	WNW-3	-0.4	8.6	bc	1022.6
US12038	41-26.2	140-02.5	1/18	0845-0847	34	NW -3	NW -1	NW -5	1.5	7.5	bc	1022.8
US12039	41-26.1	140-02.0	1/18	0901-0904	48	NW -3	NW -1	NW -5	1.7	7.7	bc	1023.0
US12040	41-25.8	140-01.4	1/18	0916-0920	82	NW -3	NW -1	NW -5	1.6	8.4	bc	1023.1
US12041	41-25.3	140-00.4	1/18	0935-0939	104	NW -3	NW -1	NW -5	1.6	9.1	bc	1023.5
US12042	41-24.5	140-06.2	1/18	1015-1017	54	NW -3	NW -1	NW -5	1.8	7.4	bc	1023.5
US12043	41-23.9	140-05.9	1/18	1030-1034	87	NW -3	NW -1	NW -5	1.8	7.9	bc	1023.0
US12044	41-23.3	140-06.1	1/18	1047-1051	99	WNW-3	NW-1	WNW-5	1.7	8.1	bc	1023.4
US12045	41-22.2	140-06.5	1/18	1107-1112	118	NW -2	NW -1	NW -4	1.8	8.6	bc	1023.5
US12046	41-24.1	140-19.9	1/18	1225-1229	95	NW -3	WSW-1	NW -5	2.7	8.1	bc	1023.0
US12047	41-34.7	140-52.7	1/18	1455-1458	35	NW -3	NW -1	NW -5	4.4	9.9	bc	1023.0
US12048	41-36.9	140-50.9	1/18	1514-1518	84	NW -3	NW -1	NW -5	2.5	9.9	bc	1023.0
US12049	41-38.8	140-49.0	1/18	1532-1545	345	NW -2	NW -1	NW -4	2.4	9.9	bc	1023.1
US12050	41-40.7	140-47.1	1/18	1604-1613	232	WNW-2	NW -1	WNW-4	2.2	9.6	bc	1023.2
US12051	41-42.7	140-44.9	1/18	1633-1637	86	NW -2	WNW-1	NW -4	1.4	9.7	bc	1023.6
Cruise 248												
Station	Lat. (N)*	Long. (E)*	Date	S.M.T.	Depth (m)	Wave	Swell	Wind	Air Temp.	Sea Temp.	Wr.	Bar. (hPa)
US12052	42-18.5	140-42.3	1/25	0717-0721	65	West-3	WNW -1	West-5	-4.7	3.2	c	1010.1
US12053	42-20.9	140-36.6	1/25	0809-0813	87	West-4	WNW -1	West-6	-5.0	3.7	bc	1010.5
US12054	42-25.9	140-37.2	1/25	0858-0902	83	West-3	West-1	West-5	-4.5	3.7	bc	1010.6
US12055	42-24.2	140-31.5	1/25	0943-0948	95	West-3	West-1	West-5	-5.1	4.1	bc	1011.0
US12056	42-19.6	140-30.6	1/25	1029-1033	93	West-3	West-1	West-5	-4.6	4.5	bc	1011.1
US12057	42-14.3	140-30.0	1/25	1127-1131	80	West-2	West-1	West-4	-4.4	4.2	bc	1010.7
US12058	42-15.9	140-35.9	1/25	1217-1221	91	West-2	West-1	West-5	-4.0	4.1	c	1010.7
US12059	42-11.5	140-35.4	1/25	1312-1316	82	WNW-2	WNW -1	WNW-4	-3.9	4.1	bc	1010.0
US12060	42-13.4	140-41.2	1/25	1407-1411	89	WNW-3	WNW-1	WNW-5	-4.0	3.2	bc	1010.1
US12061	42-10.4	140-46.6	1/25	1507-1512	95	WNW-3	WNW-1	WNW-5	-4.4	3.1	c	1010.1
US12062	41-59.4	141-01.7	1/25	1703-1707	101	West-2	NW -1	West-3	-4.6	2.4	bc	1011.1
US12063	41-58.8	141-00.6	1/25	1714-1718	94	NW -2	NW -1	NW -2	-4.5	2.4	bc	1011.1
US12064	41-58.1	140-59.4	1/25	1726-1730	86	West-2	NW -1	West-3	-4.5	2.3	bc	1011.1
US12065	41-57.4	140-58.2	1/25	1738-1742	79	NW -2	NW -1	NW -3	-4.6	2.7	bc	1011.5

(*): Fixed position by Global Positioning System

Table 2. Oceanographic data

STATION US12001			
LATITUDE	41-54.3	N	
LONGITUD	141-21.6	E	
DEPTH (m)	310		
Press.	Temp.	Salinity	Sigma-T
5	6.200	33.303	26.187
10	6.196	33.304	26.188
20	6.208	33.309	26.190
30	6.205	33.310	26.192
40	6.283	33.324	26.193
50	6.337	33.340	26.199
75	6.787	33.451	26.227
100	6.688	33.425	26.220
125	6.731	33.445	26.230
150	6.823	33.496	26.258
175	5.705	33.525	26.423
200	4.279	33.478	26.547
250	2.566	33.415	26.657
300	2.649	33.498	26.716

STATION US12002			
LATITUDE	42-20.0	N	
LONGITUD	141-27.6	E	
DEPTH (m)	425		
Press.	Temp.	Salinity	Sigma-T
5	4.392	32.933	26.102
10	4.393	32.934	26.103
20	4.772	33.020	26.131
30	4.942	33.045	26.132
40	5.099	33.076	26.139
50	5.637	33.175	26.155
75	5.424	33.168	26.174
100	5.328	33.198	26.209
125	5.133	33.200	26.233
150	4.829	33.205	26.271
175	4.776	33.207	26.279
200	4.676	33.216	26.297
250	4.355	33.248	26.357
300	4.322	33.382	26.466
400	2.656	33.521	26.734

STATION US12003			
LATITUDE	42-18.8	N	
LONGITUD	141-20.4	E	
DEPTH (m)	342		
Press.	Temp.	Salinity	Sigma-T
5	5.293	33.083	26.122
10	5.292	33.049	26.095
20	5.285	33.123	26.155
30	5.289	33.175	26.196
40	5.299	33.173	26.193
50	5.290	33.170	26.191
75	5.261	33.170	26.195
100	5.236	33.174	26.201
125	5.154	33.170	26.207
150	6.285	33.365	26.225
175	5.765	33.269	26.214
200	5.690	33.358	26.293
250	4.651	33.305	26.370
300	4.361	33.361	26.445

STATION US12004			
LATITUDE	42-19.9	N	
LONGITUD	141-12.4	E	
DEPTH (m)	85		
Press.	Temp.	Salinity	Sigma-T
5	4.922	33.112	26.188
10	4.927	33.111	26.186
20	4.927	33.111	26.186
30	4.927	33.111	26.186
40	4.969	33.116	26.185
50	4.998	33.120	26.185
75	5.808	33.357	26.278

STATION US12005			
LATITUDE	42-12.7	N	
LONGITUD	141-03.9	E	
DEPTH (m)	82		
Press.	Temp.	Salinity	Sigma-T
5	5.015	33.212	26.256
10	5.125	33.248	26.273
20	5.436	33.334	26.305
30	5.716	33.392	26.317
40	5.873	33.425	26.324
50	5.771	33.424	26.335

STATION US12006			
LATITUDE	42-17.5	N	
LONGITUD	140-54.4	E	
DEPTH (m)	56		
Press.	Temp.	Salinity	Sigma-T
5	5.895	33.512	26.390
10	5.898	33.511	26.389
20	5.903	33.512	26.389
30	5.896	33.509	26.388
40	5.913	33.511	26.387

STATION US12007			
LATITUDE	42-27.7	N	
LONGITUD	140-43.7	E	
DEPTH (m)	60		
Press.	Temp.	Salinity	Sigma-T
5	6.157	33.691	26.498
10	6.188	33.694	26.497
20	6.187	33.692	26.495
30	6.217	33.701	26.498
40	6.205	33.701	26.500
50	6.209	33.703	26.501

STATION US12008			
LATITUDE	42-18.7	N	
LONGITUD	140-42.3	E	
DEPTH (m)	69		
Press.	Temp.	Salinity	Sigma-T
5	6.215	33.678	26.481
10	6.234	33.681	26.481
20	6.238	33.681	26.481
30	6.235	33.680	26.480
40	6.263	33.691	26.485
50	6.270	33.691	26.484

STATION US12009			
LATITUDE	41-59.4	N	
LONGITUD	141-01.8	E	
DEPTH (m)	101		
Press.	Temp.	Salinity	Sigma-T
5	5.554	33.260	26.232
10	5.562	33.255	26.227
20	5.560	33.247	26.221
30	5.571	33.252	26.224
40	5.596	33.258	26.225
50	5.628	33.265	26.227
75	5.817	33.354	26.274

STATION US12010			
LATITUDE	41-58.7	N	
LONGITUD	141-00.7	E	
DEPTH (m)	95		
Press.	Temp.	Salinity	Sigma-T
5	5.660	33.263	26.222
10	5.670	33.269	26.225
20	5.723	33.294	26.239
30	5.718	33.298	26.242
40	5.716	33.300	26.244
50	5.757	33.311	26.248
75	5.789	33.320	26.251

STATION US12011			
LATITUDE	41-58.1	N	
LONGITUD	140-59.5	E	
DEPTH (m)	87		
Press.	Temp.	Salinity	Sigma-T
5	5.167	33.166	26.203
10	5.228	33.177	26.205
20	5.490	33.171	26.240
30	5.624	33.280	26.240
40	5.653	33.285	26.240
50	5.661	33.291	26.243
75	5.811	33.346	26.269

STATION US12012			
LATITUDE	41-57.4	N	
LONGITUD	140-58.2	E	
DEPTH (m)	78		
Press.	Temp.	Salinity	Sigma-T
5	4.856	33.108	26.192
10	4.855	33.109	26.192
20	4.911	33.119	26.194
30	5.604	33.269	26.233
40	5.617	33.268	26.231
50	5.721	33.308	26.250

STATION US12013			
LATITUDE	42-04.6	N	
LONGITUD	140-56.7	E	
DEPTH (m)	85		
Press.	Temp.	Salinity	Sigma-T
5	5.161	33.254	26.273
10	5.172	33.250	26.269
20	5.542	33.372	26.322
30	5.665	33.428	26.352
40	5.716	33.472	26.380
50	5.798	33.535	26.420
75	6.278	33.664	26.462

STATION US12014			
LATITUDE	42-12.5	N	
LONGITUD	140-56.3	E	
DEPTH (m)	70		
Press.	Temp.	Salinity	Sigma-T
5	5.259	33.306	26.303
10	5.264	33.307	26.303
20	5.279	33.308	26.302
30	5.303	33.314	26.304
40	5.368	33.337	26.315
50	5.383	33.352	26.325

STATION US12015			
LATITUDE	42-15.4	N	
LONGITUD	140-47.7	E	
DEPTH (m)	71		
Press.	Temp.	Salinity	Sigma-T
5	5.499	33.387	26.339
10	5.498	33.388	26.340
20	5.502	33.388	26.340
30	5.622	33.439	26.365
40	5.863	33.499	26.383
50	6.232	33.601	26.418

STATION US12016			
LATITUDE	42-15.9	N	
LONGITUD	140-36.5	E	
DEPTH (m)	90		
Press.	Temp.	Salinity	Sigma-T
5	5.826	6.309	58.632
10	5.902	6.843	55.252
20	5.918	6.788	39.713
30	5.930	6.782	15.498
40	5.932	6.787	6.490
50	5.945	6.752	2.973
75	6.063	6.691	0.925

STATION US12017			
LATITUDE	42-13.1	N	
LONGITUD	140-41.8	E	
DEPTH (m)	90		
Press.	Temp.	Salinity	Sigma-T
5	5.393	33.553	26.483
10	5.398	33.585	26.508
20	5.416	33.591	26.510
30	5.427	33.592	26.509
40	5.425	33.592	26.510
50	5.558	33.638	26.530
75	5.880	33.718	26.555

STATION US12018			
LATITUDE	42-11.7	N	
LONGITUD	140-35.3	E	
DEPTH (m)	83		
Press.	Temp.	Salinity	Sigma-T
5	6.071	33.763	26.566
10	6.082	33.760	26.563
20	6.083	33.760	26.562
30	6.085	33.759	26.561
40	6.084	33.757	26.560
50	6.082	33.757	26.560
75	6.071	33.757	26.562

STATION US12019			
LATITUDE	42-13.8	N	
LONGITUD	140-30.5	E	
DEPTH (m)	79		
Press.	Temp.	Salinity	Sigma-T
5	5.845	33.751	26.585
10	5.843	33.749	26.584
20	5.858	33.750	26.583
30	5.837	33.747	26.582
40	5.775	33.748	26.591
50	5.745	33.749	26.596
75	5.682	33.750	26.604

STATION US12020			
LATITUDE	42-18.8	N	
LONGITUD	140-30.7	E	
DEPTH (m)	93		
Press.	Temp.	Salinity	Sigma-T
5	5.875	33.704	26.544
10	5.883	33.705	26.544
20	5.885	33.704	26.543
30	5.880	33.703	26.543
40	5.882	33.705	26.544
50	5.884	33.703	26.542
75	5.918	33.713	26.546

STATION US12021			
LATITUDE	42-20.8	N	
LONGITUD	140-36.5	E	
DEPTH (m)	87		
Press.	Temp.	Salinity	Sigma-T
5	5.927	33.671	26.512
10	5.936	33.693	26.528
20	5.940	33.691	26.526
30	5.949	33.692	26.526
40	5.957	33.696	26.527
50	5.954	33.698	26.529
75	5.957	33.695	26.527

STATION US12022			
LATITUDE	41-44.8	N	
LONGITUD	140-39.0	E	
DEPTH (m)	51		
Press.	Temp.	Salinity	Sigma-T
5	9.273	34.057	26.336
10	9.265	34.064	26.343
20	9.268	34.059	26.339
30	9.198	34.061	26.351
40	9.201	34.055	26.346

STATION US12023			
LATITUDE	41-46.7	N	
LONGITUD	140-40.3	E	
DEPTH (m)	22		
Press.	Temp.	Salinity	Sigma-T
5	8.312	33.870	26.340
10	8.285	33.846	26.325

STATION US12024			
LATITUDE	41-45.2	N	
LONGITUD	140-40.1	E	
DEPTH (m)	45		
Press.	Temp.	Salinity	Sigma-T
5	8.834	33.967	26.335
10	8.832	33.963	26.332
20	8.604	33.926	26.339
30	8.382	33.902	26.354
40	8.847	34.010	26.367

STATION US12025			
LATITUDE	41-43.5	N	
LONGITUD	140-40.1	E	
DEPTH (m)	67		
Press.	Temp.	Salinity	Sigma-T
5	9.097	34.031	26.344
10	9.099	34.030	26.343
20	9.101	34.030	26.342
30	9.090	34.032	26.346
40	9.073	34.035	26.351
50	9.001	34.036	26.363

STATION US12026			
LATITUDE	41-43.6	N	
LONGITUD	140-36.2	E	
DEPTH (m)	26		
Press.	Temp.	Salinity	Sigma-T
5	9.089	34.009	26.328
10	9.082	34.010	26.330
20	9.004	33.997	26.332

STATION US12027			
LATITUDE	41-43.9	N	
LONGITUD	140-35.8	E	
DEPTH (m)	11		
Press.	Temp.	Salinity	Sigma-T
5	8.168	33.856	26.350

STATION US12028			
LATITUDE	41-41.1	N	
LONGITUD	140-34.3	E	
DEPTH (m)	42		
Press.	Temp.	Salinity	Sigma-T
5	9.078	34.010	26.330
10	9.078	34.010	26.330
20	9.042	34.000	26.328
30	8.746	33.985	26.363

STATION US12029			
LATITUDE	41-37.2	N	
LONGITUD	140-29.8	E	
DEPTH (m)	30		
Press.	Temp.	Salinity	Sigma-T
5	9.123	34.015	26.327
10	9.038	33.999	26.328
20	8.879	33.992	26.348

STATION US12030			
LATITUDE	41-37.7	N	
LONGITUD	140-28.2	E	
DEPTH (m)	21		
Press.	Temp.	Salinity	Sigma-T
5	8.822	33.971	26.340
10	8.292	33.946	26.402

STATION US12031			
LATITUDE	41-38.1	N	
LONGITUD	140-26.3	E	
DEPTH (m)	13		
Press.	Temp.	Salinity	Sigma-T
5	6.837	33.735	26.445

STATION US12032			
LATITUDE	41-35.0	N	
LONGITUD	140-33.3	E	
DEPTH (m)	58		
Press.	Temp.	Salinity	Sigma-T
5	9.167	34.036	26.336
10	9.181	34.036	26.334
20	9.178	34.036	26.335
30	9.170	34.036	26.336
40	8.996	34.015	26.347
50	8.920	34.009	26.354

STATION US12033			
LATITUDE	41-35.1	N	
LONGITUD	140-29.4	E	
DEPTH (m)	33		
Press.	Temp.	Salinity	Sigma-T
5	8.616	33.973	26.374
10	8.391	33.939	26.382
20	7.981	33.951	26.453

STATION US12034			
LATITUDE	41-35.2	N	
LONGITUD	140-26.4	E	
DEPTH (m)	13		
Press.	Temp.	Salinity	Sigma-T
5	8.361	33.953	26.398

STATION US12035			
LATITUDE	41-28.7	N	
LONGITUD	140-20.8	E	
DEPTH (m)	62		
Press.	Temp.	Salinity	Sigma-T
5	9.281	34.022	26.307
10	9.274	34.023	26.309
20	9.277	34.026	26.311
30	9.092	34.017	26.334
40	9.017	34.011	26.341
50	8.957	34.011	26.350

STATION US12036			
LATITUDE	41-28.3	N	
LONGITUD	140-16.6	E	
DEPTH (m)	25		
Press.	Temp.	Salinity	Sigma-T
5	8.927	34.016	26.359
10	8.934	34.016	26.358
20	8.720	33.998	26.377

STATION US12037			
LATITUDE	41-26.6	N	
LONGITUD	140-17.5	E	
DEPTH (m)	64		
Press.	Temp.	Salinity	Sigma-T
5	8.986	34.004	26.340
10	9.007	34.006	26.339
20	9.012	34.008	26.339
30	9.009	34.009	26.341
40	9.012	34.010	26.341
50	9.011	34.010	26.341

STATION US12038			
LATITUDE	41-26.2	N	
LONGITUD	140-02.5	E	
DEPTH (m)	34		
Press.	Temp.	Salinity	Sigma-T
5	7.978	34.056	26.535
10	7.837	34.044	26.547
20	7.710	34.047	26.568

STATION US12039			
LATITUDE	41-26.1	N	
LONGITUD	140-02.0	E	
DEPTH (m)	48		
Press.	Temp.	Salinity	Sigma-T
5	8.044	34.054	26.525
10	8.032	34.055	26.527
20	7.918	34.052	26.541
30	7.899	34.054	26.546
40	7.601	34.020	26.562

STATION US12040			
LATITUDE	41-25.8	N	
LONGITUD	140-01.4	E	
DEPTH (m)	82		
Press.	Temp.	Salinity	Sigma-T
5	8.287	34.041	26.478
10	8.256	34.051	26.490
20	8.249	34.055	26.494
30	8.247	34.057	26.497
40	8.233	34.057	26.498
50	7.793	34.034	26.545
75	7.182	34.063	26.655

STATION US12041			
LATITUDE	41-25.3	N	
LONGITUD	140-00.4	E	
DEPTH (m)	104		
Press.	Temp.	Salinity	Sigma-T
5	9.437	34.036	26.293
10	9.409	34.037	26.298
20	9.250	34.038	26.325
30	8.917	34.041	26.380
40	8.820	34.053	26.405
50	8.634	34.031	26.417
75	7.246	34.060	26.644

STATION US12042			
LATITUDE	41-24.5	N	
LONGITUD	140-06.2	E	
DEPTH (m)	54		
Press.	Temp.	Salinity	Sigma-T
5	7.694	34.071	26.590
10	7.318	34.050	26.626
20	7.129	34.061	26.662
30	7.064	34.062	26.671
40	6.956	34.059	26.683
50	6.936	34.061	26.688

STATION US12043			
LATITUDE	41-23.9	N	
LONGITUD	140-05.9	E	
DEPTH (m)	87		
Press.	Temp.	Salinity	Sigma-T
5	8.148	34.049	26.505
10	7.946	34.070	26.551
20	7.959	34.057	26.540
30	7.370	34.069	26.634
40	7.352	34.068	26.636
50	7.317	34.066	26.639
75	7.032	34.062	26.676

STATION US12044			
LATITUDE	41-23.3	N	
LONGITUD	140-06.1	E	
DEPTH (m)	99		
Press.	Temp.	Salinity	Sigma-T
5	8.335	34.062	26.487
10	8.320	34.061	26.489
20	7.762	34.040	26.555
30	7.579	34.064	26.600
40	7.421	34.072	26.629
50	7.377	34.072	26.635
75	7.217	34.068	26.655

STATION US12045			
LATITUDE	41-22.2	N	
LONGITUD	140-06.5	E	
DEPTH (m)	118		
Press.	Temp.	Salinity	Sigma-T
5	8.957	34.058	26.387
10	8.976	34.052	26.380
20	8.898	34.053	26.392
30	8.273	34.088	26.517
40	8.235	34.066	26.506
50	7.921	34.048	26.538
75	7.607	34.073	26.604
100	7.282	34.070	26.647

STATION US12046			
LATITUDE 41-24.1 N			
LONGITUD 140-19.9 E			
DEPTH (m) 95			
Press.	Temp.	Salinity	Sigma-T
5	8.342	34.040	26.469
10	8.257	34.047	26.487
20	8.188	34.049	26.499
30	8.160	34.052	26.505
40	8.115	34.052	26.512
50	8.047	34.049	26.520
75	7.836	34.063	26.562

STATION US12047			
LATITUDE 41-34.7 N			
LONGITUD 140-52.7 E			
DEPTH (m) 35			
Press.	Temp.	Salinity	Sigma-T
5	10.221	33.986	26.123
10	10.203	33.990	26.129
20	10.137	34.005	26.152
30	10.143	34.005	26.151

STATION US12048			
LATITUDE 41-36.9 N			
LONGITUD 140-50.9 E			
DEPTH (m) 84			
Press.	Temp.	Salinity	Sigma-T
5	10.262	33.987	26.117
10	10.253	33.988	26.118
20	10.145	34.005	26.150
30	10.060	34.014	26.172
40	9.920	34.008	26.191
50	9.774	34.030	26.233
75	9.478	34.046	26.294

STATION US12049			
LATITUDE 41-38.8 N			
LONGITUD 140-49.0 E			
DEPTH (m) 345			
Press.	Temp.	Salinity	Sigma-T
5	10.100	34.002	26.155
10	10.013	34.012	26.178
20	9.937	34.026	26.202
30	9.858	34.028	26.217
40	9.781	34.036	26.236
50	9.780	34.039	26.239
75	9.792	34.037	26.235
100	9.717	34.035	26.246
125	9.486	34.046	26.293
150	9.337	34.047	26.318
175	9.321	34.047	26.321
200	9.304	34.048	26.324
250	9.171	34.043	26.342
300	8.841	34.059	26.407

STATION US12050			
LATITUDE 41-40.7 N			
LONGITUD 140-47.1 E			
DEPTH (m) 232			
Press.	Temp.	Salinity	Sigma-T
5	9.951	34.026	26.200
10	9.950	34.026	26.200
20	9.910	34.027	26.208
30	9.805	34.035	26.231
40	9.802	34.040	26.236
50	9.805	34.045	26.239
75	9.830	34.040	26.231
100	9.434	34.031	26.289
125	9.176	34.036	26.335
150	9.155	34.040	26.341
175	8.858	34.037	26.387
200	8.630	34.044	26.428

STATION US12051			
LATITUDE 41-42.7 N			
LONGITUD 140-44.9 E			
DEPTH (m) 86			
Press.	Temp.	Salinity	Sigma-T
5	9.609	34.042	26.269
10	9.611	34.043	26.269
20	9.526	34.045	26.285
30	9.529	34.043	26.283
40	9.523	34.040	26.282
50	9.456	34.035	26.289
75	9.152	34.026	26.331

STATION US12052			
LATITUDE 42-18.5 N			
LONGITUD 140-42.3 E			
DEPTH (m) 65			
Press.	Temp.	Salinity	Sigma-T
5	3.582	33.110	26.324
10	3.585	33.128	26.338
20	3.626	33.175	26.371
30	5.095	33.704	26.637
40	5.110	33.699	26.631
50	5.138	33.702	26.630

STATION US12053			
LATITUDE 42-20.9 N			
LONGITUD 140-36.6 E			
DEPTH (m) 87			
Press.	Temp.	Salinity	Sigma-T
5	4.084	33.431	26.530
10	4.085	33.431	26.530
20	4.093	33.432	26.529
30	4.121	33.441	26.534
40	5.089	33.713	26.644
50	5.158	33.711	26.635
75	5.142	33.709	26.636

STATION US12054			
LATITUDE 42-25.9 N			
LONGITUD 140-37.2 E			
DEPTH (m) 83			
Press.	Temp.	Salinity	Sigma-T
5	4.082	33.424	26.524
10	4.072	33.423	26.524
20	4.096	33.423	26.522
30	4.113	33.427	26.523
40	4.107	33.424	26.522
50	4.440	33.515	26.560
75	5.158	33.704	26.630

STATION US12055			
LATITUDE 42-24.2 N			
LONGITUD 140-31.5 E			
DEPTH (m) 95			
Press.	Temp.	Salinity	Sigma-T
5	4.624	33.628	26.629
10	4.620	33.630	26.631
20	4.685	33.642	26.634
30	4.876	33.677	26.640
40	4.886	33.676	26.639
50	4.922	33.685	26.641
75	5.003	33.699	26.644

STATION US12056			
LATITUDE 42-19.6 N			
LONGITUD 140-30.6 E			
DEPTH (m) 93			
Press.	Temp.	Salinity	Sigma-T
5	4.861	33.704	26.664
10	4.866	33.704	26.663
20	4.870	33.704	26.662
30	4.863	33.704	26.663
40	4.870	33.705	26.663
50	4.872	33.703	26.662
75	4.867	33.702	26.661

STATION US12057			
LATITUDE 42-14.3 N			
LONGITUD 140-30.0 E			
DEPTH (m) 80			
Press.	Temp.	Salinity	Sigma-T
5	4.376	33.563	26.604
10	4.360	33.558	26.602
20	4.637	33.642	26.639
30	4.824	33.687	26.654
40	4.853	33.691	26.654
50	4.885	33.700	26.658
75	4.882	33.696	26.655

STATION US12058			
LATITUDE 42-15.9 N			
LONGITUD 140-35.9 E			
DEPTH (m) 91			
Press.	Temp.	Salinity	Sigma-T
5	4.504	33.608	26.626
10	4.529	33.609	26.624
20	4.576	33.630	26.636
30	4.596	33.636	26.639
40	4.747	33.695	26.669
50	4.783	33.700	26.669
75	4.783	33.701	26.670

STATION US12059			
LATITUDE 42-11.5 N			
LONGITUD 140-35.4 E			
DEPTH (m) 82			
Press.	Temp.	Salinity	Sigma-T
5	4.394	33.596	26.629
10	4.393	33.597	26.629
20	4.452	33.609	26.633
30	4.597	33.649	26.649
40	4.686	33.688	26.670
50	4.679	33.694	26.676
75	4.511	33.673	26.678

STATION US12060			
LATITUDE 42-13.4 N			
LONGITUD 140-41.2 E			
DEPTH (m) 89			
Press.	Temp.	Salinity	Sigma-T
5	3.533	33.224	26.419
10	3.546	33.235	26.427
20	4.586	33.678	26.673
30	4.765	33.704	26.674
40	4.792	33.701	26.669
50	4.811	33.703	26.668
75	4.811	33.704	26.669

STATION	US12061		
LATITUDE	42-10.4	N	
LONGITUD	140-46.6	E	
DEPTH (m)	95		
Press.	Temp.	Salinity	Sigma-T
5	3.516	33.253	26.443
10	3.523	33.258	26.447
20	4.693	33.674	26.659
30	4.937	33.699	26.651
40	4.974	33.702	26.649
50	4.977	33.701	26.648
75	4.951	33.697	26.648

STATION	US12062		
LATITUDE	41-59.4	N	
LONGITUD	141-01.7	E	
DEPTH (m)	101		
Press.	Temp.	Salinity	Sigma-T
5	2.836	32.882	26.209
10	2.839	32.791	26.135
20	2.914	32.785	26.125
30	3.537	32.927	26.182
40	3.700	33.026	26.245
50	3.777	33.031	26.242
75	3.934	33.107	26.287
100	3.802	33.138	26.325

STATION	US12063		
LATITUDE	41-58.8	N	
LONGITUD	141-00.6	E	
DEPTH (m)	94		
Press.	Temp.	Salinity	Sigma-T
5	2.776	32.773	26.126
10	2.781	32.771	26.125
20	2.980	32.860	26.178
30	3.243	32.919	26.202
40	3.435	32.987	26.239
50	3.911	33.078	26.266
75	4.249	33.212	26.338

STATION	US12064		
LATITUDE	41-58.1	N	
LONGITUD	140-59.4	E	
DEPTH (m)	86		
Press.	Temp.	Salinity	Sigma-T
5	2.739	32.801	26.152
10	2.985	32.872	26.188
20	3.453	32.977	26.230
30	3.564	33.039	26.268
40	3.927	33.118	26.296
50	4.050	33.145	26.306
75	4.164	33.260	26.385

STATION	US12065		
LATITUDE	41-57.4	N	
LONGITUD	140-58.2	E	
DEPTH (m)	79		
Press.	Temp.	Salinity	Sigma-T
5	3.165	32.906	26.200
10	3.318	32.944	26.216
20	3.593	33.028	26.257
30	3.677	33.074	26.286
40	3.680	33.082	26.292
50	3.967	33.201	26.358
75	4.908	33.649	26.615

THE " USHIO MARU "

CRUISE 249

CRUISE 250

CRUISE 251

IN FEBRUARY 2012

1. Cruise Itinerary

Cruise 249

Departure from Hakodate	Feb. 2, 2012
Start hydrographic research (US12066)	2
Finish hydrographic research (US12080)	3
Return to Hakodate	4
Total coverage 188.3 miles	

Cruise 250

Departure from Hakodate	Feb. 8, 2012
Arrival at Usujiri	8
Departure from Usujiri	11
Hydrographic research (US12081 - US12084)	11
Return to Hakodate	11
Total coverage 98.5 miles	

Cruise 251

Departure from Hakodate	Feb. 16, 2012
Start hydrographic research (US12085)	16
Arrival at Fukushima	16
Departure from Fukushima	17
Arrival at Hakodate	17
Departure from Hakodate	18
Finish hydrographic research (US12123)	19
Return to Hakodate	20
Total coverage 260.8 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”.

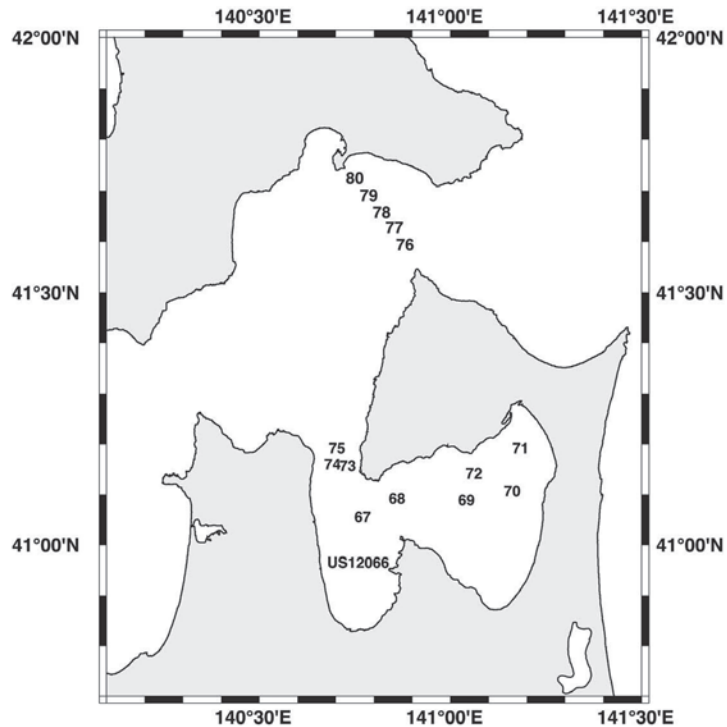


Figure 1. Oceanographic stations (Cruise 249)

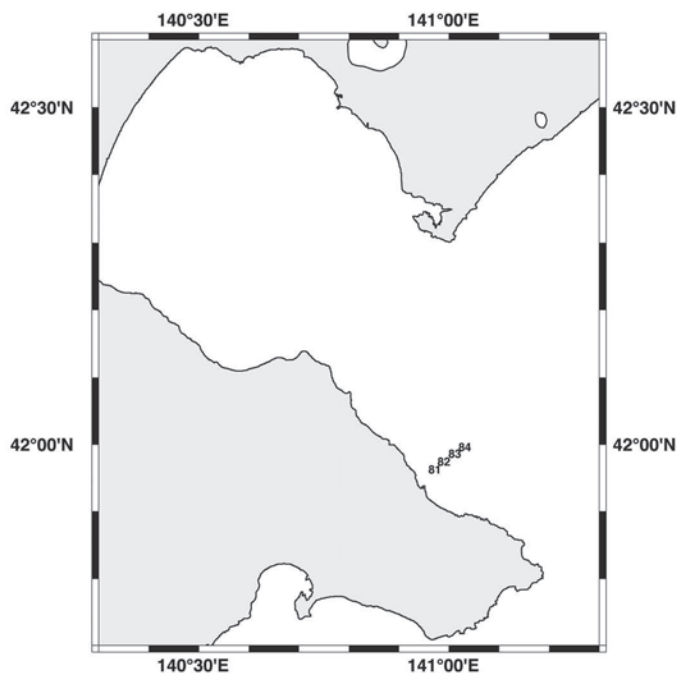


Figure 2. Oceanographic stations (Cruise 250)

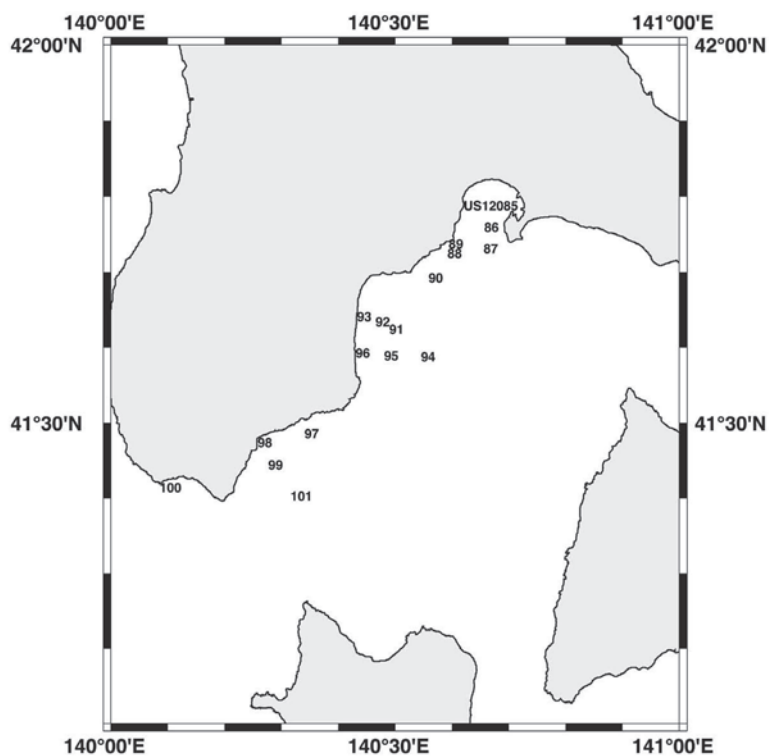


Figure 3. Oceanographic stations (Cruise 251-1)

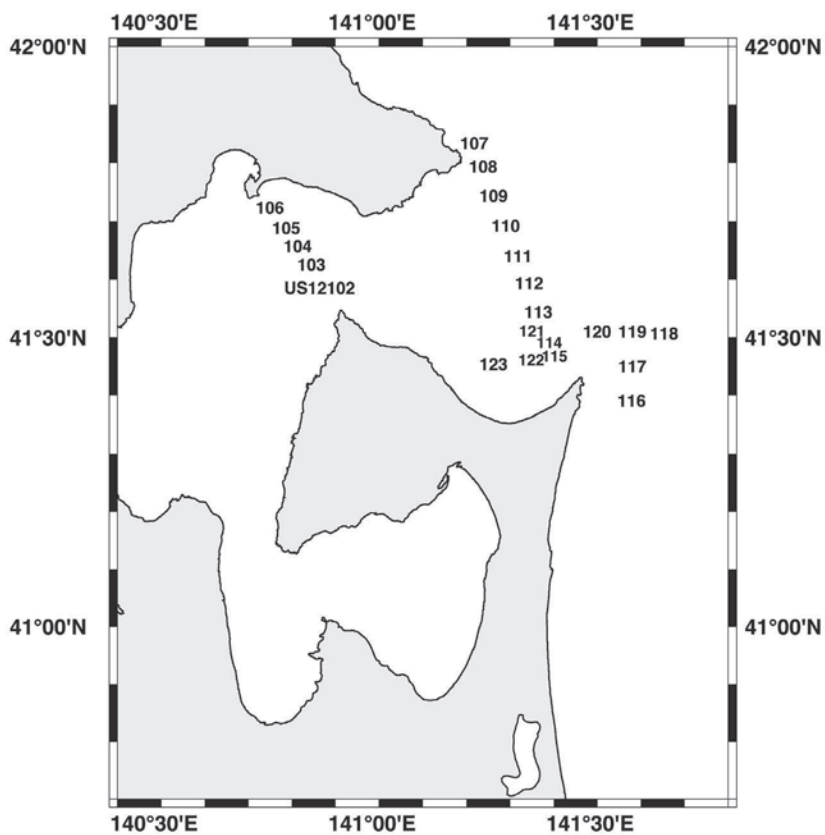


Figure 4. Oceanographic stations (Cruise 251-2)

Table 1. List of Oceanographic Station

Cruise 249												
Station	Lat. (N)*	Long. (E)*	Date	S.M.T.	Depth (m)	Wave	Swell	Wind	Air Temp.	Sea Temp.	Wr.	Bar. (hPa)
US12066	40-57.3	140-45.5	2/2	1642-1648	51	West-3	NW -1	West-5	-1.8	4.7	bc	1009.5
US12067	41-02.7	140-46.2	2/2	1824-1832	52	NW -3	NNW-1	NW -5	-2.7	5.2	bc	1010.6
US12068	41-04.9	140-51.6	2/2	1906-1912	54	NW -3	NW -1	NW -5	-2.3	3.5	c	1011.1
US12069	41-04.7	141-02.5	2/3	0651-0656	48	WNW-4	WNW-1	WNW-6	-2.3	2.5	o	1013.3
US12070	41-05.8	141-09.7	2/3	0814-0819	39	NW -3	WNW-1	NW -5	-3.0	2.2	s	1014.5
US12071	41-10.9	141-11.0	2/3	0852-0857	30	West-3	West-1	West-5	-2.8	2.3	c	1014.6
US12072	41-07.9	141-03.7	2/3	0936-0942	38	West-3	West-1	West-5	-3.1	1.9	c	1015.1
US12073	41-08.8	140-43.9	2/3	1116-1123	61	West-3	West-1	West-5	-3.5	3.2	s	1015.7
US12074	41-09.0	140-41.5	2/3	1140-1146	53	West-3	NW -1	West-5	-3.4	4.7	s	1015.6
US12075	41-10.9	140-42.2	2/3	1201-1206	75	WNW-3	NW -1	WNW-5	-2.6	8.4	s	1015.0
US12076	41-35.0	140-52.9	2/3	1550-1552	36	West-2	West-1	West-4	-1.5	8.4	bc	1014.4
US12077	41-37.0	140-51.2	2/3	1610-1614	95	West-3	East-1	West-5	-2.4	8.6	bc	1014.1
US12078	41-38.8	140-49.2	2/3	1631-1642	340	WNW-3	East-1	WNW-5	-2.6	8.6	bc	1014.2
US12079	41-40.8	140-47.2	2/3	1701-1709	228	NW -3	East-1	NW -5	-3.1	8.6	bc	1014.2
US12080	41-42.8	140-45.0	2/3	1726-1730	84	West-2	East-1	West-4	-2.5	8.1	bc	1014.2
Cruise 250												
Station	Lat. (N)*	Long. (E)*	Date	S.M.T.	Depth (m)	Wave	Swell	Wind	Air Temp.	Sea Temp.	Wr.	Bar. (hPa)
US12081	41-57.4	140-58.3	2/11	0952-0956	78	NW -2	NW -1	NW -4	-4.9	2.2	bc	1018.7
US12082	41-58.1	140-59.4	2/11	1005-1009	86	NW -2	NW -1	NW -4	-4.7	1.7	bc	1018.6
US12083	41-58.8	141-00.7	2/11	1017-1021	94	NW -2	NW -1	NW -4	-4.8	1.7	bc	1018.7
US12084	41-59.4	141-01.9	2/11	1029-1034	100	NW -3	NW -1	NW -5	-4.6	1.8	bc	1018.7
Cruise 251												
Station	Lat. (N)*	Long. (E)*	Date	S.M.T.	Depth (m)	Wave	Swell	Wind	Air Temp.	Sea Temp.	Wr.	Bar. (hPa)
US12085	41-46.9	140-40.1	2/16	0852-0854	20	WNW-2	SW -1	WNW-4	-5.4	4.9	bc	1015.6
US12086	41-45.2	140-40.2	2/16	0912-0914	45	West-2	SW -1	West-4	-5.0	6.0	s	1015.6
US12087	41-43.5	140-40.1	2/16	0934-0937	68	NW -2	SW -1	NW -4	-5.2	6.5	s	1015.7
US12088	41-43.7	140-36.3	2/16	1003-1005	31	WNW-2	SW -1	WNW-4	-5.5	7.0	s	1015.6
US12089	41-44.0	140-35.8	2/16	1010-1012	10	NW -2	SSW-1	NW -4	-5.3	7.1	s	1015.6
US12090	41-41.2	140-34.3	2/16	1048-1050	41	WNW-2	SSW-1	WNW-4	-4.5	7.1	s	1015.5
US12091	41-37.2	140-30.0	2/16	1129-1131	31	WNW-3	West-1	WNW-5	-3.7	6.2	bc	1014.6
US12092	41-37.7	140-28.7	2/16	1148-1151	21	West-3	South-1	West-5	-4.1	6.2	bc	1014.6
US12093	41-38.1	140-26.3	2/16	1208-1210	13	West-3	SSE-1	West-5	-4.2	6.0	s	1014.6
US12094	41-34.9	140-33.5	2/16	1257-1300	60	West-3	SW -1	West-5	-3.3	8.3	bc	1014.5
US12095	41-35.0	140-29.6	2/16	1336-1339	42	WNW-3	SW -1	WNW-5	-4.5	7.8	s	1014.6
US12096	41-35.2	140-26.3	2/16	1411-1412	13	West-3	South-1	West-5	-4.6	7.6	s	1014.2
US12097	41-28.8	140-21.2	2/16	1525-1529	65	West-3	SW -1	West-5	-4.5	8.1	s	1014.6
US12098	41-28.2	140-16.1	2/16	1611-1613	17	West-2	SSW-1	West-4	-4.8	7.9	s	1015.0
US12099	41-26.3	140-17.4	2/17	0650-0653	68	NW -1	South-1	NW -3	-5.4	8.0	o	1012.1
US12100	41-24.5	140-06.3	2/17	0753-0756	59	NW -3	West-1	NW -5	-4.5	7.0	s	1012.5
US12101	41-23.8	140-20.1	2/17	0915-0919	95	West-3	SW -2	West-5	-3.2	7.9	bc	1012.6
US12102	41-34.5	140-51.8	2/17	1149-1152	59	NW -3	West-2	NW -5	-3.2	5.8	bc	1011.1
US12103	41-36.9	140-50.7	2/17	1209-1213	84	West-4	West-2	NW -6	-2.8	8.5	s	1010.6
US12104	41-38.8	140-48.8	2/17	1229-1240	345	West-3	West-1	West-5	-3.9	8.5	s	1010.6
US12105	41-40.7	140-47.2	2/14	1256-1305	229	WNW-3	West-1	WNW-5	-4.3	8.5	s	1010.5
US12106	41-42.8	140-45.0	2/17	1323-1327	85	West-3	West-1	West-5	-3.9	8.3	bc	1010.1
US12107	41-49.4	141-13.1	2/18	1118-1132	170	NW -2	NE -1	NW -4	-2.2	3.0	bc	1011.9
US12108	41-47.0	141-14.3	2/18	1153-1200	196	West-1	NE -1	West-3	-2.2	2.9	bc	1012.1
US12109	41-44.0	141-15.7	2/18	1222-1230	228	NW -2	NNW -1	NW -4	-1.9	2.8	c	1012.0
US12110	41-40.9	141-17.4	2/18	1255-1301	232	NW -2	NNW-1	NW -4	-2.0	7.6	c	1012.0
US12111	41-37.8	141-19.1	2/18	1324-1332	217	NNW-3	NNW-1	NNW-5	-2.0	5.1	c	1012.0
US12112	41-35.0	141-20.6	2/18	1353-1404	316	NNW-3	NNW-1	NNW-5	-1.3	8.0	c	1012.0
US12113	41-32.0	141-21.9	2/18	1426-1446	258	NW -2	North-1	NW -4	-1.6	7.9	bc	1012.1
US12114	41-28.9	141-23.4	2/18	1509-1513	94	West-3	North-1	West-5	-2.0	7.8	bc	1012.7
US12115	41-27.5	141-24.1	2/18	1525-1528	52	WNW-3	NW -1	WNW-5	-0.7	7.3	s	1012.7
US12116	41-22.8	141-34.7	2/19	0605-0620	365	West-2	NNW-1	West-4	-2.3	7.8	s	1018.1
US12117	41-26.4	141-34.8	2/19	0650-0708	348	West-3	NW -1	West-5	-2.2	7.9	s	1018.6
US12118	41-29.8	141-39.2	2/19	0742-0802	594	NW -3	NW -1	NW -5	-2.2	7.8	s	1019.1
US12119	41-30.0	141-34.8	2/19	0824-0828	112	NNW-2	NW -1	NNW-4	-2.9	6.7	bc	1019.5
US12120	41-30.0	141-30.0	2/19	0853-0857	62	NNW-3	NW -1	NNW-5	-2.9	7.7	bc	1019.6
US12121	41-30.1	141-21.0	2/19	0942-0950	230	NW -2	NW -1	NW -4	-3.5	8.0	s	1019.6
US12122	41-27.1	141-20.9	2/19	1010-1014	86	West-2	NW -1	West-4	-3.0	7.9	s	1019.6
US12123	41-26.6	141-15.7	2/19	1042-1051	86	West-2	NW -1	West-4	-2.8	7.9	s	1019.6

(*): Fixed position by Global Positioning System

Table 2. Oceanographic data

STATION US12066				STATION US12067				STATION US12068			
LATITUDE 40-57.3 N				LATITUDE 41-02.7 N				LATITUDE 41-04.9 N			
LONGITUD 140-45.5 E				LONGITUD 140-46.2 E				LONGITUD 140-51.6 E			
DEPTH (m) 51				DEPTH (m) 52				DEPTH (m) 54			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	4.773	33.310	26.361	5	4.599	33.230	26.316	5	3.677	33.016	26.240
10	4.783	33.306	26.357	10	4.662	33.251	26.326	10	3.704	33.056	26.269
20	4.783	33.301	26.352	20	4.837	33.334	26.373	20	3.764	33.105	26.302
30	4.796	33.302	26.352	30	5.462	33.449	26.392	30	3.703	33.105	26.308
40	4.855	33.312	26.353	40	5.654	33.472	26.387	40	3.329	33.072	26.317
STATION US12069				STATION US12070				STATION US12071			
LATITUDE 41-04.7 N				LATITUDE 41-05.8 N				LATITUDE 41-10.9 N			
LONGITUD 141-02.5 E				LONGITUD 141-09.7 E				LONGITUD 141-11.0 E			
DEPTH (m) 48				DEPTH (m) 39				DEPTH (m) 30			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	2.757	33.029	26.333	5	2.253	32.868	26.244	5	2.516	32.914	26.261
10	2.753	33.032	26.335	10	2.281	32.900	26.268	10	2.571	33.008	26.331
20	2.762	33.037	26.339	20	2.362	32.959	26.309	20	2.602	33.011	26.331
30	2.794	33.043	26.341	30	2.398	32.963	26.310				
40	2.801	33.044	26.341								
STATION US12072				STATION US12073				STATION US12074			
LATITUDE 41-07.9 N				LATITUDE 41-08.8 N				LATITUDE 41-09.0 N			
LONGITUD 141-03.7 E				LONGITUD 140-43.9 E				LONGITUD 140-41.5 E			
DEPTH (m) 38				DEPTH (m) 61				DEPTH (m) 53			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	2.136	32.904	26.282	5	4.254	33.137	26.278	5	6.858	32.628	25.569
10	2.154	32.907	26.283	10	4.276	33.248	26.365	10	8.193	33.819	26.317
20	2.365	32.947	26.299	20	4.312	33.257	26.368	20	8.236	33.917	26.388
30	2.976	33.059	26.338	30	4.363	33.264	26.368	30	8.030	33.877	26.387
				40	4.369	33.259	26.364	40	8.014	33.882	26.394
				50	4.655	33.308	26.372				
STATION US12075				STATION US12076				STATION US12077			
LATITUDE 41-10.9 N				LATITUDE 41-35.0 N				LATITUDE 41-37.0 N			
LONGITUD 140-42.2 E				LONGITUD 140-52.9 E				LONGITUD 140-51.2 E			
DEPTH (m) 75				DEPTH (m) 36				DEPTH (m) 95			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	8.716	33.978	26.363	5	8.948	33.996	26.340	5	8.975	33.968	26.314
10	8.717	33.975	26.360	10	8.952	33.994	26.338	10	8.972	34.001	26.340
20	8.726	33.973	26.357	20	8.958	33.994	26.337	20	8.974	33.998	26.337
30	8.698	33.969	26.358	30	8.960	33.995	26.337	30	8.975	33.999	26.338
40	8.681	33.966	26.359					40	8.966	33.998	26.339
50	8.634	33.957	26.359					50	8.960	33.998	26.340
								75	8.965	33.998	26.339
STATION US12078				STATION US12079				STATION US12080			
LATITUDE 41-38.8 N				LATITUDE 41-40.8 N				LATITUDE 41-42.8 N			
LONGITUD 140-49.2 E				LONGITUD 140-47.2 E				LONGITUD 140-45.0 E			
DEPTH (m) 340				DEPTH (m) 228				DEPTH (m) 84			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	8.906	33.923	26.290	5	8.952	34.013	26.353	5	8.409	34.018	26.441
10	8.934	33.972	26.324	10	8.964	34.012	26.350	10	8.405	34.019	26.443
20	8.958	34.005	26.346	20	8.961	34.012	26.351	20	8.403	34.019	26.443
30	8.959	34.004	26.345	30	8.970	34.012	26.349	30	8.354	34.020	26.451
40	8.957	34.002	26.343	40	8.963	34.010	26.349	40	8.354	34.021	26.452
50	8.926	34.004	26.350	50	8.970	34.010	26.348	50	8.348	34.019	26.451
75	8.878	34.005	26.359	75	8.874	34.003	26.358	75	7.958	34.011	26.504
100	8.775	34.006	26.375	100	8.662	34.009	26.396				
125	8.730	34.005	26.382	125	8.352	34.017	26.449				
150	8.528	34.009	26.416	150	8.190	34.022	26.477				
175	8.230	34.018	26.468	175	8.072	34.024	26.497				
200	8.180	34.017	26.475	200	7.675	34.024	26.555				
250	8.063	34.025	26.499								
300	7.646	34.032	26.565								

STATION US12081			
LATITUDE	41-57.4	N	
LONGITUD	140-58.3	E	
DEPTH (m)	78		
Press.	Temp.	Salinity	Sigma-T
5	2.443	32.967	26.309
10	2.433	32.966	26.309
20	3.545	33.312	26.487
30	6.412	33.796	26.549
40	6.681	33.790	26.509
50	6.167	33.730	26.528
75	5.921	33.714	26.547

STATION US12084			
LATITUDE	41-59.4	N	
LONGITUD	141-01.9	E	
DEPTH (m)	100		
Press.	Temp.	Salinity	Sigma-T
5	2.228	32.888	26.263
10	2.232	32.892	26.266
20	5.502	33.699	26.586
30	6.827	33.764	26.468
40	7.000	33.784	26.461
50	7.157	33.821	26.468
75	7.136	33.824	26.474

STATION US12087			
LATITUDE	41-43.5	N	
LONGITUD	140-40.1	E	
DEPTH (m)	68		
Press.	Temp.	Salinity	Sigma-T
5	7.189	33.955	26.570
10	7.176	33.957	26.573
20	7.329	34.016	26.598
30	7.275	34.019	26.608
40	7.254	34.018	26.610
50	7.174	34.015	26.619

STATION US12090			
LATITUDE	41-41.2	N	
LONGITUD	140-34.3	E	
DEPTH (m)	41		
Press.	Temp.	Salinity	Sigma-T
5	7.461	33.965	26.539
10	7.470	34.001	26.566
20	7.473	34.029	26.587
30	7.479	34.029	26.587

STATION US12093			
LATITUDE	41-38.1	N	
LONGITUD	140-26.3	E	
DEPTH (m)	13		
Press.	Temp.	Salinity	Sigma-T
5	6.094	33.797	26.590
10	6.104	33.800	26.591

STATION US12096			
LATITUDE	41-35.2	N	
LONGITUD	140-26.3	E	
DEPTH (m)	13		
Press.	Temp.	Salinity	Sigma-T
5	7.171	33.924	26.547
10	7.191	33.923	26.544

STATION US12082			
LATITUDE	41-58.1	N	
LONGITUD	140-59.4	E	
DEPTH (m)	86		
Press.	Temp.	Salinity	Sigma-T
5	2.146	32.890	26.271
10	2.158	32.894	26.273
20	2.412	32.962	26.307
30	6.573	33.781	26.516
40	7.190	33.835	26.475
50	7.288	33.845	26.469
75	6.127	33.727	26.531

STATION US12085			
LATITUDE	41-46.9	N	
LONGITUD	140-40.1	E	
DEPTH (m)	20		
Press.	Temp.	Salinity	Sigma-T
5	6.535	33.800	26.536
10	6.589	33.811	26.537

STATION US12088			
LATITUDE	41-43.7	N	
LONGITUD	140-36.3	E	
DEPTH (m)	31		
Press.	Temp.	Salinity	Sigma-T
5	7.417	33.826	26.436
10	7.438	33.937	26.521
20	7.442	34.011	26.578

STATION US12091			
LATITUDE	41-37.2	N	
LONGITUD	140-30.0	E	
DEPTH (m)	31		
Press.	Temp.	Salinity	Sigma-T
5	6.648	33.955	26.643
10	6.650	33.953	26.641
20	6.656	33.953	26.640
30	6.669	33.953	26.639

STATION US12094			
LATITUDE	41-34.9	N	
LONGITUD	140-33.5	E	
DEPTH (m)	60		
Press.	Temp.	Salinity	Sigma-T
5	8.823	33.974	26.343
10	8.824	33.973	26.342
20	8.826	33.973	26.341
30	8.826	33.974	26.342
40	8.815	33.974	26.344
50	8.711	33.976	26.362

STATION US12097			
LATITUDE	41-28.8	N	
LONGITUD	140-21.2	E	
DEPTH (m)	65		
Press.	Temp.	Salinity	Sigma-T
5	8.448	33.939	26.373
10	8.470	34.019	26.433
20	8.479	34.027	26.437
30	8.484	34.025	26.435
40	8.488	34.026	26.435
50	8.481	34.028	26.438

STATION US12083			
LATITUDE	41-58.8	N	
LONGITUD	141-00.7	E	
DEPTH (m)	94		
Press.	Temp.	Salinity	Sigma-T
5	2.137	32.881	26.264
10	2.225	32.924	26.291
20	4.757	33.439	26.464
30	6.930	33.793	26.477
40	7.071	33.797	26.461
50	7.107	33.801	26.460
75	6.561	33.727	26.474

STATION US12086			
LATITUDE	41-45.2	N	
LONGITUD	140-40.2	E	
DEPTH (m)	45		
Press.	Temp.	Salinity	Sigma-T
5	6.589	33.719	26.465
10	6.594	33.782	26.514
20	7.287	33.979	26.574
30	7.365	33.994	26.575
40	7.390	34.005	26.581

STATION US12089			
LATITUDE	41-44.0	N	
LONGITUD	140-35.8	E	
DEPTH (m)	10		
Press.	Temp.	Salinity	Sigma-T
5	7.066	33.810	26.473
10	7.083	33.954	26.583

STATION US12092			
LATITUDE	41-37.7	N	
LONGITUD	140-28.7	E	
DEPTH (m)	21		
Press.	Temp.	Salinity	Sigma-T
5	6.341	33.899	26.639
10	6.336	33.900	26.641
20	6.350	33.902	26.640

STATION US12095			
LATITUDE	41-35.0	N	
LONGITUD	140-29.6	E	
DEPTH (m)	42		
Press.	Temp.	Salinity	Sigma-T
5	8.148	34.000	26.467
10	8.155	34.000	26.465
20	8.160	34.000	26.465
30	8.158	34.001	26.465
40	8.167	34.001	26.465

STATION US12098			
LATITUDE	41-28.2	N	
LONGITUD	140-16.1	E	
DEPTH (m)	17		
Press.	Temp.	Salinity	Sigma-T
5	7.655	33.770	26.358
10	7.675	33.857	26.424

STATION US12099			
LATITUDE	41-26.3	N	
LONGITUD	140-17.4	E	
DEPTH (m)	68		
Press.	Temp.	Salinity	Sigma-T
5	8.256	34.007	26.456
10	8.136	34.010	26.477
20	7.986	34.022	26.508
30	7.952	34.026	26.516
40	7.953	34.025	26.515
50	7.957	34.026	26.515

STATION US12100			
LATITUDE	41-24.5	N	
LONGITUD	140-06.3	E	
DEPTH (m)	59		
Press.	Temp.	Salinity	Sigma-T
5	7.165	34.023	26.626
10	6.830	34.031	26.679
20	6.592	34.059	26.733
30	6.411	34.054	26.752
40	6.302	34.061	26.772
50	6.252	34.066	26.783

STATION US12101			
LATITUDE	41-23.8	N	
LONGITUD	140-20.1	E	
DEPTH (m)	95		
Press.	Temp.	Salinity	Sigma-T
5	7.282	34.032	26.618
10	7.183	34.036	26.634
20	7.041	34.029	26.648
30	6.840	34.047	26.690
40	6.900	34.052	26.685
50	6.845	34.047	26.690
75	6.953	34.047	26.675

STATION US12102			
LATITUDE	41-34.5	N	
LONGITUD	140-51.8	E	
DEPTH (m)	59		
Press.	Temp.	Salinity	Sigma-T
5	8.765	33.985	26.360
10	8.769	33.984	26.359
20	8.777	33.986	26.359
30	8.780	33.986	26.359
40	8.779	33.987	26.360
50	8.786	33.988	26.360

STATION US12103			
LATITUDE	41-36.9	N	
LONGITUD	140-50.7	E	
DEPTH (m)	84		
Press.	Temp.	Salinity	Sigma-T
5	8.924	33.990	26.339
10	8.925	33.991	26.340
20	8.938	33.991	26.338
30	8.943	33.989	26.336
40	8.922	33.990	26.340
50	8.927	33.991	26.339
75	8.870	33.988	26.346

STATION US12104			
LATITUDE	41-38.8	N	
LONGITUD	140-48.8	E	
DEPTH (m)	345		
Press.	Temp.	Salinity	Sigma-T
5	8.891	33.993	26.347
10	8.902	33.989	26.342
20	8.900	33.989	26.342
30	8.898	33.990	26.343
40	8.868	33.989	26.348
50	8.841	33.991	26.353
75	8.721	33.990	26.371
100	8.688	33.991	26.377
125	8.596	33.995	26.394
150	8.594	33.994	26.394
175	8.484	33.997	26.413
200	8.476	33.998	26.415
250	8.450	33.997	26.418
300	8.337	33.993	26.432

STATION US12105			
LATITUDE	41-40.7	N	
LONGITUD	140-47.2	E	
DEPTH (m)	229		
Press.	Temp.	Salinity	Sigma-T
5	8.756	33.982	26.359
10	8.760	33.982	26.358
20	8.764	33.982	26.358
30	8.767	33.982	26.358
40	8.733	33.983	26.363
50	8.684	33.985	26.373
75	8.523	33.982	26.396
100	8.378	33.988	26.423
125	8.164	33.995	26.460
150	8.060	34.001	26.480
175	8.003	34.002	26.489
200	7.967	33.998	26.492

STATION US12106			
LATITUDE	41-42.8	N	
LONGITUD	140-45.0	E	
DEPTH (m)	85		
Press.	Temp.	Salinity	Sigma-T
5	8.458	33.982	26.406
10	8.477	33.984	26.404
20	8.480	33.981	26.402
30	8.480	33.983	26.403
40	8.434	33.992	26.417
50	8.223	33.988	26.446
75	8.018	33.981	26.471

STATION US12107			
LATITUDE	41-49.4	N	
LONGITUD	141-13.1	E	
DEPTH (m)	170		
Press.	Temp.	Salinity	Sigma-T
5	3.294	33.071	26.319
10	3.293	33.072	26.320
20	3.293	33.072	26.320
30	3.284	33.072	26.321
40	3.283	33.073	26.322
50	3.280	33.072	26.322
75	3.491	33.119	26.339
100	4.039	33.330	26.454
125	4.132	33.468	26.554
150	3.349	33.464	26.627

STATION US12108			
LATITUDE	41-47.0	N	
LONGITUD	141-14.3	E	
DEPTH (m)	196		
Press.	Temp.	Salinity	Sigma-T
5	3.256	33.062	26.315
10	3.255	33.064	26.317
20	3.241	33.063	26.318
30	3.241	33.065	26.319
40	3.234	33.064	26.319
50	3.232	33.066	26.321
75	3.348	33.090	26.329
100	3.739	33.187	26.370
125	5.094	33.539	26.507
150	4.458	33.436	26.495
175	3.560	33.456	26.601

STATION US12109			
LATITUDE	41-44.0	N	
LONGITUD	141-15.7	E	
DEPTH (m)	228		
Press.	Temp.	Salinity	Sigma-T
5	3.160	33.058	26.321
10	3.159	33.058	26.321
20	3.147	33.056	26.320
30	3.329	33.091	26.332
40	3.394	33.098	26.331
50	3.648	33.176	26.370
75	4.888	33.411	26.428
100	6.428	33.680	26.455
125	6.444	33.734	26.496
150	6.591	33.824	26.547
175	5.328	33.698	26.605
200	2.786	33.512	26.716

STATION US12110			
LATITUDE	41-40.9	N	
LONGITUD	141-17.4	E	
DEPTH (m)	232		
Press.	Temp.	Salinity	Sigma-T
5	7.730	33.873	26.428
10	7.798	33.892	26.433
20	7.795	33.888	26.431
30	7.709	33.860	26.421
40	7.570	33.854	26.436
50	7.611	33.858	26.434
75	7.214	33.844	26.479
100	7.112	33.825	26.478
125	6.684	33.794	26.511
150	5.754	33.724	26.575
175	4.692	33.693	26.673
200	2.889	33.665	26.829

STATION US12111			
LATITUDE	41-37.8	N	
LONGITUD	141-19.1	E	
DEPTH (m)	217		
Press.	Temp.	Salinity	Sigma-T
5	7.966	33.913	26.425
10	8.032	33.914	26.416
20	8.041	33.920	26.420
30	7.465	33.785	26.397
40	7.787	33.920	26.457
50	8.083	33.975	26.456
75	6.792	33.729	26.446
100	6.318	33.682	26.471
125	6.427	33.779	26.533
150	5.003	33.610	26.573
175	3.881	33.535	26.633
200	3.483	33.601	26.724

STATION US12112			
LATITUDE	41-35.0	N	
LONGITUD	141-20.6	E	
DEPTH (m)	316		
Press.	Temp.	Salinity	Sigma-T
5	8.487	33.984	26.402
10	8.497	33.982	26.400
20	8.385	33.959	26.398
30	8.166	33.934	26.412
40	8.105	33.932	26.420
50	8.122	33.938	26.422
75	8.152	33.946	26.423
100	7.978	33.920	26.429
125	7.666	33.913	26.469
150	7.601	33.904	26.471
175	7.583	33.907	26.476
200	7.553	33.905	26.479
250	7.293	33.889	26.503
300	5.333	33.610	26.535

STATION US12113			
LATITUDE	41-32.0	N	
LONGITUD	141-21.9	E	
DEPTH (m)	258		
Press.	Temp.	Salinity	Sigma-T
5	8.252	33.976	26.432
10	8.255	33.976	26.432
20	8.240	33.975	26.433
30	8.233	33.975	26.434
40	8.213	33.974	26.436
50	8.202	33.974	26.438
75	8.172	33.978	26.445
100	8.166	33.979	26.447
125	8.155	33.980	26.450
150	8.121	33.982	26.456
175	8.129	33.981	26.455
200	8.126	33.982	26.455

STATION US12114			
LATITUDE	41-28.9	N	
LONGITUD	141-23.4	E	
DEPTH (m)	94		
Press.	Temp.	Salinity	Sigma-T
5	7.790	33.888	26.431
10	7.779	33.888	26.433
20	7.958	33.948	26.454
30	8.100	33.969	26.450
40	8.133	33.974	26.448
50	8.151	33.983	26.453
75	8.090	33.980	26.460

STATION US12115			
LATITUDE	41-27.5	N	
LONGITUD	141-24.1	E	
DEPTH (m)	52		
Press.	Temp.	Salinity	Sigma-T
5	8.199	33.582	26.131
10	8.215	33.929	26.401
20	8.184	33.905	26.387
30	7.737	33.835	26.397
40	7.660	33.834	26.408

STATION US12116			
LATITUDE	41-22.8	N	
LONGITUD	141-34.7	E	
DEPTH (m)	365		
Press.	Temp.	Salinity	Sigma-T
5	8.248	33.957	26.417
10	8.184	33.946	26.419
20	8.190	33.950	26.421
30	8.198	33.951	26.420
40	8.152	33.947	26.424
50	8.138	33.948	26.427
75	8.131	33.948	26.428
100	8.114	33.946	26.429
125	8.131	33.948	26.428
150	8.162	33.952	26.426
175	8.124	33.947	26.428
200	8.131	33.947	26.427
250	8.178	33.958	26.429
300	8.174	33.959	26.430

STATION US12117			
LATITUDE	41-26.4	N	
LONGITUD	141-34.8	E	
DEPTH (m)	348		
Press.	Temp.	Salinity	Sigma-T
5	8.289	33.964	26.417
10	8.302	33.964	26.415
20	8.304	33.964	26.415
30	8.274	33.962	26.418
40	8.280	33.965	26.419
50	8.248	33.961	26.421
75	8.238	33.961	26.422
100	8.164	33.964	26.436
125	8.191	33.966	26.433
150	8.201	33.960	26.427
175	8.191	33.964	26.431
200	8.165	33.966	26.437
250	8.160	33.967	26.439
300	8.160	33.969	26.440

STATION US12118			
LATITUDE	41-29.8	N	
LONGITUD	141-39.2	E	
DEPTH (m)	594		
Press.	Temp.	Salinity	Sigma-T
5	8.102	33.979	26.457
10	8.106	33.978	26.456
20	8.114	33.976	26.453
30	8.108	33.979	26.456
40	8.107	33.978	26.456
50	8.108	33.979	26.456
75	8.103	33.977	26.455
100	8.103	33.977	26.455
125	8.004	33.961	26.457
150	7.792	33.934	26.467
175	7.810	33.938	26.468
200	7.693	33.918	26.469
250	7.417	33.882	26.480
300	7.116	33.827	26.479
400	3.624	33.690	26.782
500	3.208	33.874	26.967

STATION US12119			
LATITUDE	41-30.0	N	
LONGITUD	141-34.8	E	
DEPTH (m)	112		
Press.	Temp.	Salinity	Sigma-T
5	7.392	33.780	26.404
10	7.395	33.858	26.465
20	7.400	33.862	26.467
30	7.401	33.862	26.467
40	7.405	33.862	26.466
50	7.390	33.859	26.466
75	7.355	33.853	26.466
100	7.338	33.849	26.465

STATION US12120			
LATITUDE 41-30.0 N			
LONGITUD 141-30.0 E			
DEPTH (m) 62			
Press.	Temp.	Salinity	Sigma-T
5	7.882	33.932	26.452
10	7.885	33.930	26.450
20	7.893	33.934	26.452
30	7.930	33.941	26.452
40	7.936	33.939	26.450
50	7.952	33.942	26.450

STATION US12121			
LATITUDE 41-30.1 N			
LONGITUD 141-21.0 E			
DEPTH (m) 230			
Press.	Temp.	Salinity	Sigma-T
5	8.268	33.858	26.337
10	8.181	33.960	26.430
20	8.069	33.954	26.442
30	8.069	33.951	26.440
40	8.075	33.967	26.452
50	8.083	33.977	26.458
75	8.061	33.992	26.473
100	8.007	33.984	26.475
125	7.892	33.991	26.497
150	7.864	33.997	26.506
175	7.878	33.994	26.502
200	7.752	33.993	26.519

STATION US12122			
LATITUDE 41-27.1 N			
LONGITUD 141-20.9 E			
DEPTH (m) 86			
Press.	Temp.	Salinity	Sigma-T
5	8.227	33.971	26.432
10	8.295	33.972	26.422
20	8.325	33.979	26.423
30	8.306	33.974	26.422
40	8.232	33.963	26.425
50	8.218	33.962	26.426
75	7.499	33.770	26.380

STATION US12123			
LATITUDE 41-26.6 N			
LONGITUD 141-15.7 E			
DEPTH (m) 86			
Press.	Temp.	Salinity	Sigma-T
5	8.288	33.975	26.426
10	8.306	33.975	26.423
20	8.272	33.975	26.428
30	8.219	33.976	26.437
40	8.174	33.978	26.446
50	8.175	33.979	26.446
75	8.085	33.981	26.461

THE " USHIO MARU "

CRUISE 252

CRUISE 253

CRUISE 254

IN MARCH 2012

1. Cruise Itinerary

Cruise 252

Cancellation of departure from Hakodate
(for stormy weather)

Cruise 253

Departure from Hakodate	Mar.	4,	2012
Arrival at and departure from Usujiri		4	
Start hydrographic research (US12124)		4	
Arrival at Usujiri		5	
Departure from and arrival at Usujiri		7	
Departure from Usujiri		8	
Sampling by frame trawl net		8	
Finish hydrographic research (US12158)		10	
Return to Hakodate		10	
Total coverage 403.5 miles			

Cruise 254

Departure from Hakodate	Mar.	19,	2012
Hydrographic research (US12159 - US12162)		19	
Return to Hakodate		20	
Total coverage 74.7 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”.

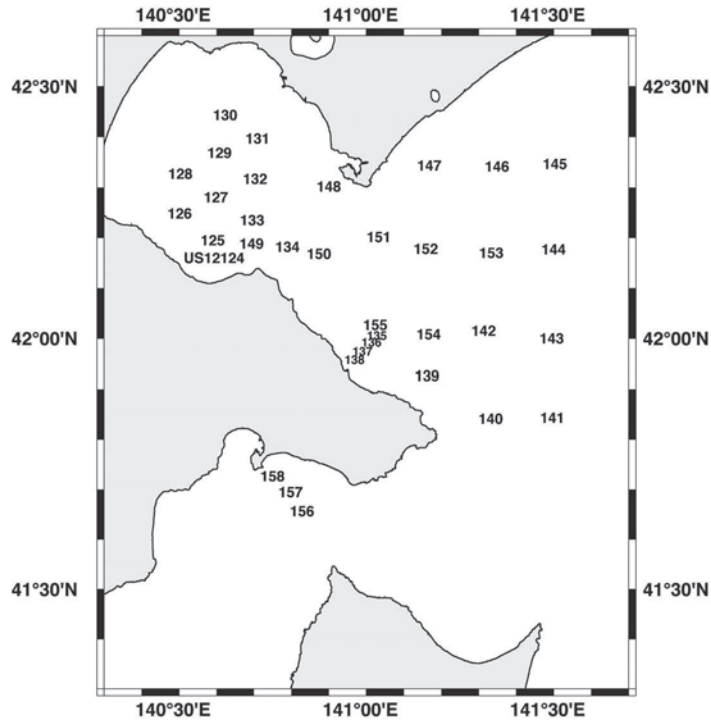


Figure 1. Oceanographic stations (Cruise 253)

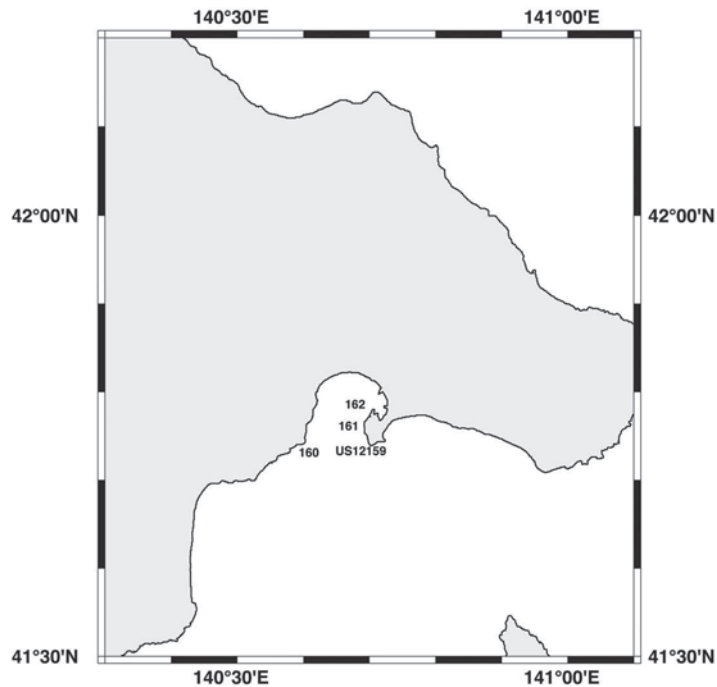


Figure 2. Oceanographic stations (Cruise 254)

Table 1. List of Oceanographic Station

Cruise 252 No data

Cruise 253

Station	Lat. (N)*	Long. (E)*	Date	S.M.T.	Depth (m)	Wave	Swell	Wind	Air Temp.	Sea Temp.	Wr.	Bar. (hPa)
US12124	42-09.0	140-35.6	3/4	1519-1524	66	North-1	NW -1	North-3	-0.9	2.2	bc	1031.6
US12125	42-11.1	140-35.4	3/4	1601-1605	80	North-1	NW -1	North-3	-1.0	2.1	bc	1031.7
US12126	42-14.3	140-30.1	3/4	1730-1734	80	North-1	NW -1	North-4	-1.7	2.1	bc	1031.6
US12127	42-16.2	140-35.9	3/4	1847-1854	91	North-2	NW -1	North-4	-1.7	1.9	bc	1031.7
US12128	42-19.0	140-30.2	3/4	2017-2021	91	NNW-1	NW -1	NNW-3	-2.5	1.3	bc	1031.9
US12129	42-21.5	140-36.5	3/4	2113-2117	88	NNE-1	NW -1	NNE-2	-2.2	2.0	bc	1031.9
US12130	42-26.0	140-37.4	3/4	2207-2214	83	North-1	NW -1	North-2	-2.6	2.0	bc	1032.0
US12131	42-23.2	140-42.6	3/4	2314-2318	61	North-1	NW -1	North-3	-2.3	2.0	c	1031.6
US12132	42-18.4	140-42.2	3/5	0530-0533	65	East-1	ESE-1	East-4	-2.9	1.8	bc	1029.8
US12133	42-13.5	140-41.7	3/5	0733-0737	89	East-2	ESE-1	East-5	-2.9	1.6	bc	1030.1
US12134	42-10.3	140-47.4	3/5	0848-0852	92	East-3	ESE-1	East-5	-2.0	1.3	c	1029.6
US12135	41-59.5	141-01.7	3/5	1043-1047	101	NE -1	East-1	NE -3	-1.9	0.4	o	1028.1
US12136	41-58.7	141-00.6	3/5	1054-1058	95	NE -1	East-1	NE -3	-1.4	0.5	s	1028.1
US12137	41-58.1	140-59.6	3/5	1105-1109	88	NE -1	East-1	NE -2	-1.4	0.6	o	1028.1
US12138	41-57.4	140-58.3	3/5	1117-1121	80	WSW-1	East-1	WSW-2	-2.0	0.6	o	1027.6
US12139	41-55.0	141-09.7	3/8	1028-1037	182	Calm	East-1	Calm	3.7	0.7	bc	1021.1
US12140	41-49.9	141-19.9	3/8	1204-1214	280	Calm	ESE-1	Calm	3.3	1.7	bc	1021.0
US12141	41-50.0	141-29.8	3/8	1338-1351	358	East-1	ESE-1	East-2	2.4	1.0	c	1020.5
US12142	42-00.3	141-18.8	3/8	1756-1806	286	North-1	SE -1	North-1	1.2	1.4	o	1020.7
US12143	41-59.4	141-29.7	3/9	0147-0205	462	NNE-2	SE -1	NNE-4	0.6	0.1	c	1021.6
US12144	42-10.0	141-30.0	3/9	0338-0357	553	NNE-2	SE -1	NNE-4	0.3	1.2	c	1021.9
US12145	42-20.2	141-30.2	3/9	0526-0541	430	NNE-2	SE -1	NNE-4	-0.2	0.6	c	1022.6
US12146	42-19.9	141-20.9	3/9	0655-0708	324	NNE-2	East-1	NNE-4	-0.6	0.3	bc	1023.0
US12147	42-20.0	141-10.1	3/9	0819-0823	74	NE -1	East-1	NE -3	0.2	0.5	c	1023.0
US12148	42-17.5	140-54.0	3/9	0948-0952	57	Calm	SE -1	Calm	2.0	1.1	bc	1023.2
US12149	42-10.7	140-41.6	3/9	1145-1149	87	ESE-1	SE -1	ESE-3	1.9	1.9	bc	1022.6
US12150	42-09.5	140-52.4	3/9	1259-1302	77	SE -1	East-1	SE -3	1.1	2.1	bc	1021.7
US12151	42-11.5	141-02.0	3/9	1406-1410	82	SE -1	ESE-1	SE -2	1.1	1.1	bc	1021.6
US12152	42-10.1	141-09.5	3/9	1452-1457	120	SE -1	ESE-1	SE -2	1.2	0.6	bc	1020.6
US12153	42-09.6	141-20.0	3/9	1607-1621	360	ESE-1	ESE-1	ESE-2	0.8	0.7	bc	1021.6
US12154	41-59.9	141-10.0	3/9	1752-1759	138	SE -1	ESE-1	SE -2	0.8	0.7	bc	1022.3
US12155	42-00.7	141-01.2	3/9	1905-1910	95	ESE-1	East-1	ESE-2	0.6	0.4	bc	1022.3
US12156	41-38.8	140-49.7	3/9	2311-2322	310	NE -3	East-1	NE -5	3.4	7.7	o	1021.1
US12157	41-41.1	140-47.9	3/9	2339-2347	217	NE -3	ESE-1	NE -5	3.1	7.7	o	1021.1
US12158	41-43.0	140-45.0	3/10	0006-0010	83	ENE-3	ESE-1	ENE-5	2.9	7.6	o	1021.1

Cruise 254

Station	Lat. (N)*	Long. (E)*	Date	S.M.T.	Depth (m)	Wave	Swell	Wind	Air Temp.	Sea Temp.	Wr.	Bar. (hPa)
US12159	41-43.7	140-41.2	3/19	1354-1358	71	West-4	WSW-1	West-6	-1.3	7.5	s	1007.0
US12160	41-43.6	140-36.5	3/19	1448-1451	34	West-3	WSW-1	West-5	-2.7	7.2	s	1007.1
US12161	41-45.4	140-40.1	3/19	1522-1525	40	West-3	SSW-1	West-5	-1.9	6.7	s	1007.1
US12162	41-46.9	140-40.7	3/19	1544-1546	20	West-3	SSW-1	West-5	-1.2	6.4	s	1007.1

(*): Fixed position by Global Positioning System

Table 2. Oceanographic data

STATION US12124				STATION US12125				STATION US12126			
LATITUDE		42-09.0	N	LATITUDE		42-11.1	N	LATITUDE		42-14.3	N
LONGITUD		140-35.6	E	LONGITUD		140-35.4	E	LONGITUD		140-30.1	E
DEPTH (m)		66		DEPTH (m)		80		DEPTH (m)		80	
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	2.537	33.292	26.561	5	2.548	33.290	26.559	5	2.415	33.243	26.532
10	2.513	33.290	26.562	10	2.548	33.304	26.570	10	2.347	33.262	26.552
20	2.411	33.286	26.566	20	2.409	33.291	26.571	20	2.349	33.281	26.568
30	2.414	33.287	26.567	30	2.369	33.297	26.579	30	2.340	33.285	26.571
40	2.408	33.288	26.569	40	2.351	33.294	26.578	40	2.348	33.287	26.573
50	2.410	33.291	26.571	50	2.341	33.297	26.581	50	2.357	33.290	26.574
				75	2.641	33.366	26.611	75	2.466	33.334	26.601
STATION US12127				STATION US12128				STATION US12129			
LATITUDE		42-16.2	N	LATITUDE		42-19.0	N	LATITUDE		42-21.5	N
LONGITUD		140-35.9	E	LONGITUD		140-30.2	E	LONGITUD		140-36.5	E
DEPTH (m)		91		DEPTH (m)		91		DEPTH (m)		88	
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	2.318	33.146	26.462	5	2.278	33.180	26.493	5	2.375	33.262	26.550
10	2.329	33.144	26.459	10	2.282	33.182	26.494	10	2.376	33.265	26.552
20	2.294	33.145	26.463	20	2.308	33.248	26.545	20	2.386	33.262	26.549
30	2.284	33.204	26.511	30	2.394	33.303	26.581	30	2.386	33.262	26.549
40	2.424	33.297	26.574	40	2.391	33.304	26.583	40	2.378	33.265	26.552
50	2.391	33.300	26.579	50	2.414	33.311	26.586	50	2.373	33.274	26.560
75	3.218	33.439	26.619	75	2.866	33.404	26.623	75	2.542	33.323	26.586
STATION US12130				STATION US12131				STATION US12132			
LATITUDE		42-26.0	N	LATITUDE		42-23.2	N	LATITUDE		42-18.4	N
LONGITUD		140-37.4	E	LONGITUD		140-42.6	E	LONGITUD		140-42.2	E
DEPTH (m)		83		DEPTH (m)		61		DEPTH (m)		65	
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	2.395	33.272	26.556	5	2.358	33.172	26.479	5	2.070	33.141	26.477
10	2.400	33.267	26.553	10	2.371	33.180	26.485	10	2.076	33.127	26.466
20	2.404	33.265	26.551	20	2.422	33.253	26.539	20	2.190	33.188	26.506
30	2.406	33.265	26.550	30	2.425	33.289	26.568	30	2.324	33.245	26.541
40	2.400	33.272	26.556	40	2.432	33.292	26.570	40	2.423	33.290	26.569
50	2.410	33.279	26.561	50	2.508	33.326	26.590	50	2.519	33.322	26.587
75	3.050	33.410	26.612								
STATION US12133				STATION US12134				STATION US12135			
LATITUDE		42-13.5	N	LATITUDE		42-10.3	N	LATITUDE		41-59.5	N
LONGITUD		140-41.7	E	LONGITUD		140-47.4	E	LONGITUD		141-01.7	E
DEPTH (m)		89		DEPTH (m)		92		DEPTH (m)		101	
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	1.780	33.059	26.433	5	1.741	33.056	26.433	5	0.792	32.829	26.313
10	1.818	33.089	26.454	10	1.744	33.057	26.434	10	0.786	32.738	26.239
20	2.337	33.289	26.575	20	2.206	33.263	26.564	20	0.897	32.777	26.265
30	2.303	33.293	26.581	30	2.247	33.286	26.580	30	1.154	32.809	26.274
40	2.382	33.307	26.586	40	2.354	33.314	26.594	40	1.294	32.833	26.285
50	2.431	33.320	26.592	50	2.413	33.328	26.600	50	1.595	32.880	26.302
75	3.154	33.489	26.665	75	2.532	33.350	26.608	75	1.887	32.928	26.320
								100	2.629	33.272	26.538
STATION US12136				STATION US12137				STATION US12138			
LATITUDE		41-58.7	N	LATITUDE		41-58.1	N	LATITUDE		41-57.4	N
LONGITUD		141-00.6	E	LONGITUD		140-59.6	E	LONGITUD		140-58.3	E
DEPTH (m)		95		DEPTH (m)		88		DEPTH (m)		80	
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	0.904	32.770	26.259	5	0.920	32.767	26.255	5	1.012	32.748	26.234
10	0.912	32.769	26.257	10	0.915	32.769	26.257	10	1.026	32.786	26.264
20	0.936	32.775	26.260	20	1.087	32.803	26.273	20	1.476	32.894	26.322
30	1.189	32.823	26.283	30	1.701	32.914	26.323	30	1.844	32.961	26.350
40	1.426	32.870	26.305	40	1.910	32.948	26.335	40	2.317	33.144	26.460
50	1.845	32.937	26.330	50	2.406	33.037	26.368	50	2.470	33.197	26.491
75	2.424	33.102	26.419	75	2.546	33.172	26.464	75	2.531	33.311	26.577

STATION US12139			
LATITUDE	41-55.0	N	
LONGITUD	141-09.7	E	
DEPTH (m)	182		
Press.	Temp.	Salinity	Sigma-T
5	0.934	32.719	26.216
10	0.897	32.721	26.219
20	0.951	32.742	26.233
30	0.966	32.745	26.234
40	1.029	32.762	26.244
50	1.120	32.787	26.259
75	2.028	32.970	26.343
100	2.392	33.128	26.442
125	2.155	33.185	26.506
150	2.536	33.325	26.588

STATION US12140			
LATITUDE	41-49.9	N	
LONGITUD	141-19.9	E	
DEPTH (m)	280		
Press.	Temp.	Salinity	Sigma-T
5	1.817	32.892	26.296
10	1.723	32.901	26.310
20	1.766	32.938	26.337
30	1.963	32.986	26.361
40	2.083	33.018	26.378
50	2.282	33.036	26.377
75	3.074	33.186	26.431
100	4.995	33.484	26.474
125	4.950	33.486	26.480
150	5.511	33.589	26.497
175	5.797	33.636	26.500
200	5.384	33.581	26.506
250	4.207	33.460	26.540

STATION US12141			
LATITUDE	41-50.0	N	
LONGITUD	141-29.8	E	
DEPTH (m)	358		
Press.	Temp.	Salinity	Sigma-T
5	1.124	32.675	26.169
10	0.567	32.678	26.203
20	0.486	32.682	26.211
30	0.549	32.738	26.253
40	0.862	32.795	26.280
50	1.047	32.835	26.302
75	1.559	32.916	26.334
100	3.085	33.172	26.419
125	4.802	33.477	26.490
150	4.810	33.467	26.481
175	5.318	33.588	26.519
200	6.012	33.718	26.539
250	3.884	33.472	26.583
300	3.464	33.489	26.637

STATION US12142			
LATITUDE	42-00.3	N	
LONGITUD	141-18.8	E	
DEPTH (m)	286		
Press.	Temp.	Salinity	Sigma-T
5	0.869	32.666	26.177
10	0.387	32.673	26.209
20	0.363	32.682	26.217
30	0.423	32.697	26.226
40	1.320	32.852	26.298
50	1.295	32.858	26.305
75	1.224	32.951	26.384
100	2.993	33.141	26.402
125	4.173	33.451	26.536
150	5.022	33.426	26.425
175	4.552	33.469	26.510
200	3.977	33.435	26.544
250	3.529	33.428	26.582

STATION US12143			
LATITUDE	41-59.4	N	
LONGITUD	141-29.7	E	
DEPTH (m)	462		
Press.	Temp.	Salinity	Sigma-T
5	0.660	32.703	26.219
10	0.760	32.800	26.291
20	1.144	32.837	26.297
30	1.212	32.839	26.294
40	1.315	32.864	26.308
50	1.241	32.891	26.334
75	2.742	33.133	26.417
100	4.241	33.388	26.479
125	4.625	33.435	26.476
150	5.478	33.579	26.493
175	5.567	33.598	26.497
200	5.209	33.510	26.471
250	4.692	33.500	26.521
300	3.632	33.431	26.574
400	2.726	33.536	26.741

STATION US12144			
LATITUDE	42-10.0	N	
LONGITUD	141-30.0	E	
DEPTH (m)	553		
Press.	Temp.	Salinity	Sigma-T
5	1.274	32.807	26.265
10	1.273	32.808	26.266
20	1.280	32.809	26.266
30	1.326	32.832	26.282
40	1.489	32.900	26.325
50	1.691	32.939	26.343
75	3.005	33.176	26.428
100	3.357	33.217	26.430
125	3.349	33.227	26.439
150	3.519	33.283	26.468
175	4.090	33.370	26.481
200	4.622	33.514	26.539
250	3.567	33.466	26.609
300	3.061	33.500	26.682
400	2.699	33.627	26.816

STATION US12145			
LATITUDE	42-20.2	N	
LONGITUD	141-30.2	E	
DEPTH (m)	430		
Press.	Temp.	Salinity	Sigma-T
5	0.486	32.694	26.220
10	0.481	32.692	26.219
20	0.480	32.693	26.220
30	0.700	32.742	26.247
40	0.734	32.792	26.286
50	1.447	32.959	26.376
75	2.100	33.015	26.374
100	3.046	33.163	26.415
125	2.587	33.121	26.420
150	4.629	33.453	26.490
175	5.243	33.559	26.505
200	4.619	33.459	26.495
250	4.531	33.514	26.549
300	3.492	33.420	26.579
400	2.704	33.592	26.787

STATION US12146			
LATITUDE	42-19.9	N	
LONGITUD	141-20.9	E	
DEPTH (m)	324		
Press.	Temp.	Salinity	Sigma-T
5	0.547	32.697	26.219
10	0.537	32.669	26.198
20	0.536	32.668	26.197
30	0.532	32.670	26.199
40	0.529	32.672	26.200
50	0.469	32.677	26.207
75	0.804	32.809	26.296
100	1.654	32.928	26.337
125	2.397	33.068	26.393
150	4.887	33.488	26.489
175	3.715	33.312	26.471
200	4.799	33.498	26.507
250	4.158	33.437	26.527

STATION US12147			
LATITUDE	42-20.0	N	
LONGITUD	141-10.1	E	
DEPTH (m)	74		
Press.	Temp.	Salinity	Sigma-T
5	0.995	32.696	26.193
10	0.977	32.696	26.195
20	0.925	32.703	26.203
30	1.065	32.755	26.237
40	1.103	32.811	26.279
50	1.374	32.884	26.321

STATION US12148			
LATITUDE	42-17.5	N	
LONGITUD	140-54.0	E	
DEPTH (m)	57		
Press.	Temp.	Salinity	Sigma-T
5	1.264	32.785	26.248
10	1.211	32.782	26.249
20	1.092	32.777	26.252
30	1.121	32.795	26.265
40	1.158	32.799	26.266
50	1.563	32.892	26.314

STATION US12149			
LATITUDE	42-10.7	N	
LONGITUD	140-41.6	E	
DEPTH (m)	87		
Press.	Temp.	Salinity	Sigma-T
5	2.213	33.003	26.356
10	2.191	33.118	26.450
20	2.306	33.175	26.486
30	2.322	33.179	26.488
40	2.338	33.184	26.491
50	2.397	33.282	26.564
75	3.375	33.506	26.659

STATION US12150			
LATITUDE	42-09.5	N	
LONGITUD	140-52.4	E	
DEPTH (m)	77		
Press.	Temp.	Salinity	Sigma-T
5	2.268	32.997	26.347
10	2.127	33.025	26.380
20	2.178	33.098	26.435
30	2.291	33.188	26.498
40	2.336	33.271	26.561
50	2.504	33.330	26.594

STATION US12151			
LATITUDE 42-11.5 N			
LONGITUD 141-02.0 E			
DEPTH (m) 82			
Press.	Temp.	Salinity	Sigma-T
5	1.407	32.723	26.189
10	1.063	32.722	26.210
20	1.240	32.794	26.256
30	1.152	32.787	26.257
40	1.164	32.800	26.266
50	1.531	32.896	26.320

STATION US12152			
LATITUDE 42-10.1 N			
LONGITUD 141-09.5 E			
DEPTH (m) 120			
Press.	Temp.	Salinity	Sigma-T
5	1.003	32.666	26.169
10	0.588	32.658	26.186
20	0.405	32.663	26.200
30	0.381	32.669	26.206
40	0.383	32.688	26.221
50	0.789	32.768	26.263
75	1.300	32.886	26.327
100	2.341	33.039	26.375

STATION US12153			
LATITUDE 42-09.6 N			
LONGITUD 141-20.0 E			
DEPTH (m) 360			
Press.	Temp.	Salinity	Sigma-T
5	1.029	32.668	26.168
10	1.015	32.665	26.167
20	0.725	32.661	26.181
30	0.648	32.681	26.201
40	0.493	32.682	26.211
50	0.438	32.687	26.217
75	0.561	32.757	26.267
100	0.814	32.858	26.335
125	1.383	32.962	26.382
150	2.796	33.195	26.462
175	4.096	33.375	26.484
200	4.989	33.504	26.491
250	4.461	33.445	26.501
300	3.618	33.433	26.578

STATION US12154			
LATITUDE 41-59.9 N			
LONGITUD 141-10.0 E			
DEPTH (m) 138			
Press.	Temp.	Salinity	Sigma-T
5	0.975	32.706	26.203
10	0.959	32.705	26.203
20	0.760	32.702	26.212
30	0.895	32.745	26.239
40	1.086	32.775	26.251
50	1.256	32.825	26.281
75	1.648	32.914	26.326
100	2.567	33.063	26.376
125	2.715	33.080	26.377

STATION US12155			
LATITUDE 42-00.7 N			
LONGITUD 141-01.2 E			
DEPTH (m) 95			
Press.	Temp.	Salinity	Sigma-T
5	0.894	32.847	26.321
10	0.796	32.669	26.183
20	0.620	32.695	26.214
30	0.690	32.716	26.227
40	1.003	32.781	26.261
50	1.514	32.884	26.311
75	2.120	33.004	26.364

STATION US12156			
LATITUDE 41-38.8 N			
LONGITUD 140-49.7 E			
DEPTH (m) 310			
Press.	Temp.	Salinity	Sigma-T
5	8.061	34.040	26.511
10	8.050	34.042	26.514
20	7.938	34.051	26.538
30	7.750	34.047	26.562
40	7.614	34.048	26.583
50	7.553	34.056	26.598
75	7.536	34.053	26.597
100	7.539	34.054	26.598
125	7.552	34.053	26.595
150	7.428	34.051	26.611
175	7.372	34.054	26.622
200	7.303	34.049	26.628
250	7.249	34.046	26.633

STATION US12157			
LATITUDE 41-41.1 N			
LONGITUD 140-47.9 E			
DEPTH (m) 217			
Press.	Temp.	Salinity	Sigma-T
5	7.966	34.034	26.520
10	7.965	34.034	26.520
20	7.961	34.034	26.521
30	7.960	34.034	26.521
40	7.947	34.035	26.524
50	7.920	34.034	26.527
75	7.922	34.033	26.526
100	7.870	34.034	26.534
125	7.846	34.035	26.539
150	7.664	34.052	26.579
175	7.237	34.039	26.629
200	6.933	34.057	26.685

STATION US12158			
LATITUDE 41-43.0 N			
LONGITUD 140-45.0 E			
DEPTH (m) 83			
Press.	Temp.	Salinity	Sigma-T
5	7.477	34.040	26.596
10	7.495	34.040	26.593
20	7.501	34.039	26.592
30	7.499	34.038	26.591
40	7.389	34.043	26.611
50	7.309	34.049	26.627
75	6.970	34.053	26.677

STATION US12159			
LATITUDE 41-43.7 N			
LONGITUD 140-41.2 E			
DEPTH (m) 71			
Press.	Temp.	Salinity	Sigma-T
5	7.803	34.021	26.534
10	7.812	34.025	26.536
20	7.825	34.030	26.538
30	7.814	34.037	26.545
40	7.764	34.038	26.553
50	7.686	34.041	26.566

STATION US12160			
LATITUDE 41-43.6 N			
LONGITUD 140-36.5 E			
DEPTH (m) 34			
Press.	Temp.	Salinity	Sigma-T
5	7.457	34.011	26.576
10	7.481	34.018	26.578
20	7.496	34.022	26.579
30	7.532	34.038	26.587

STATION US12161			
LATITUDE 41-45.4 N			
LONGITUD 140-40.1 E			
DEPTH (m) 40			
Press.	Temp.	Salinity	Sigma-T
5	7.475	33.889	26.477
10	7.485	33.809	26.413
20	7.476	33.892	26.480
30	7.423	34.023	26.590

STATION US12162			
LATITUDE 41-46.9 N			
LONGITUD 140-40.7 E			
DEPTH (m) 20			
Press.	Temp.	Salinity	Sigma-T
5	6.289	33.419	26.267
10	6.298	33.529	26.353

THE " USHIO MARU "

CRUISE 255

CRUISE 256

CRUISE 257

IN APRIL - MAY 2012

1. Cruise Itinerary

Cruise 255

Departure from Hakodate	Apr. 9, 2012
Arrival at Usujiri	9
Departure from Usujiri	10
Start hydrographic research (US12163)	10
Sampling by frame trawl net	10
Arrival at Usujiri	11
Departure from Usujiri	13
Retrieval mooring ADCP system	13
Set mooring ADCP system	14
Arrival at and departure from Usujiri	14
Finish hydrographic research (US12198)	14
Return to Hakodate	15
Total coverage 389.7 miles	

Cruise 256

Departure from Hakodate	Apr. 23, 2012
Start whales, dolphins and fur seals watching research	24
Start hydrographic research (US12199)	24
Arrival at Esashi	24
Departure from Esashi	25
Finish hydrographic research (US12205)	25
Finish whales, dolphins and fur seals watching research	26
Return to Hakodate	27
Total coverage 360.5 miles	

Cruise 257

Departure from Hakodate	May 7, 2012
Arrival at and departure from Usujiri	7
Start hydrographic research (US12206)	7
Arrival at and departure from Usujiri	8
Arrival at Usujiri	10
Departure from Usujiri	11
Arrival at Usujiri	12
Departure from Usujiri	13
Arrival at Usujiri	14
Departure from Usujiri	16
Arrival at and departure from Muroran	16
Arrival at Muroran	17
Departure from Muroran	18
Arrival at and departure from Usujiri	18
Arrival at Hakodate	18
Departure from Hakodate	19
Finish hydrographic research (US12276)	19
Return to Hakodate	20
Total coverage 944.7 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”.

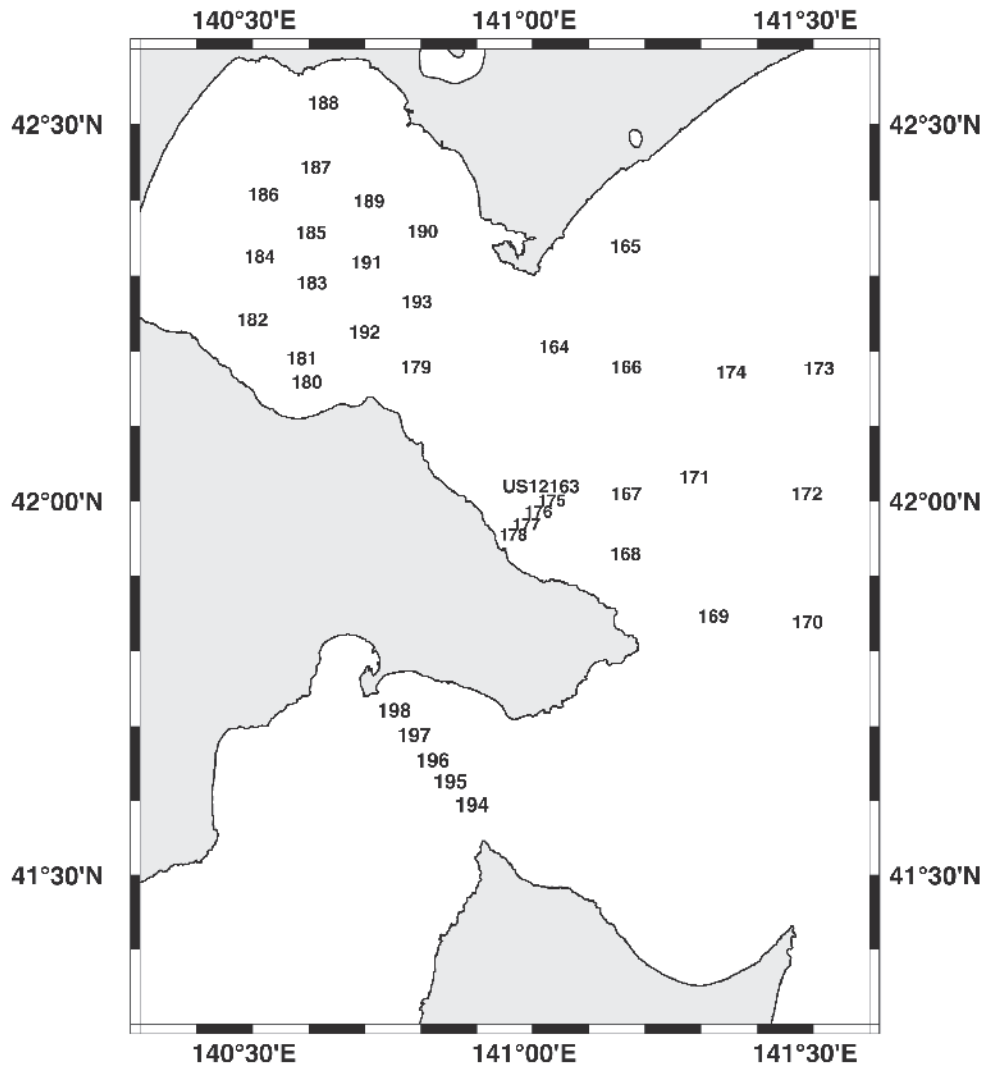


Figure 1. Oceanographic stations (Cruise 255)

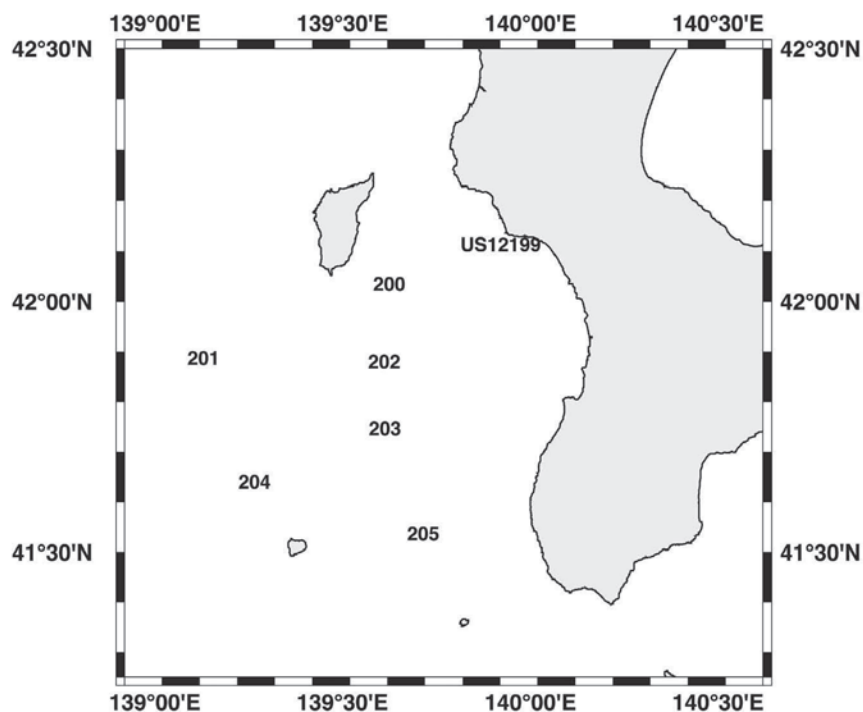


Figure 2. Oceanographic stations (Cruise 256)

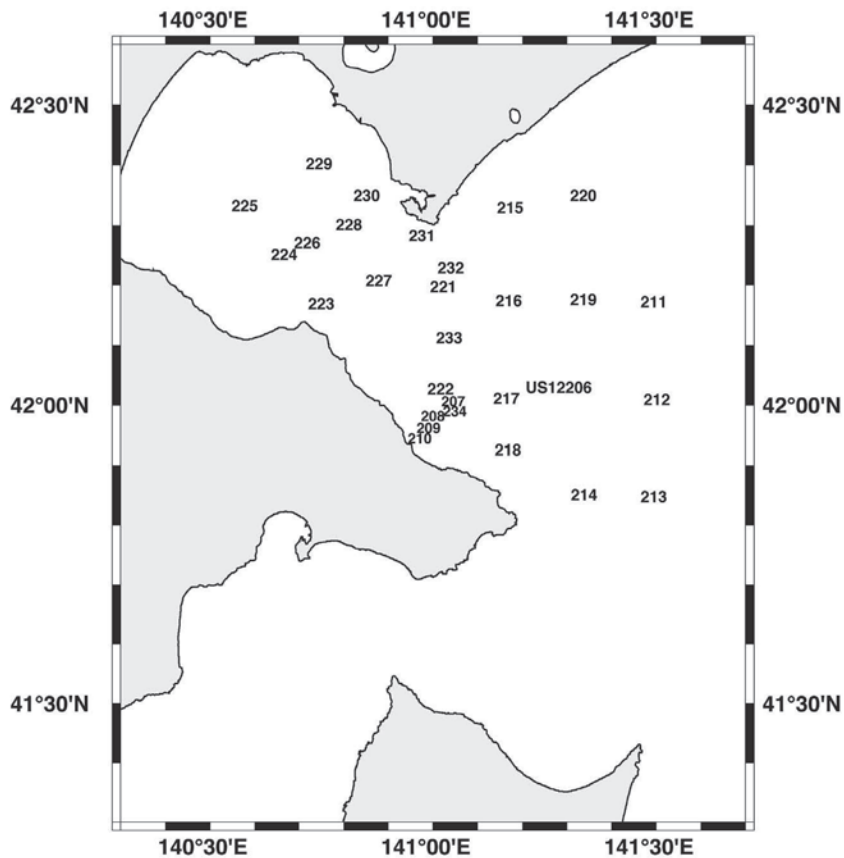


Figure 3. Oceanographic stations (Cruise 257-1)

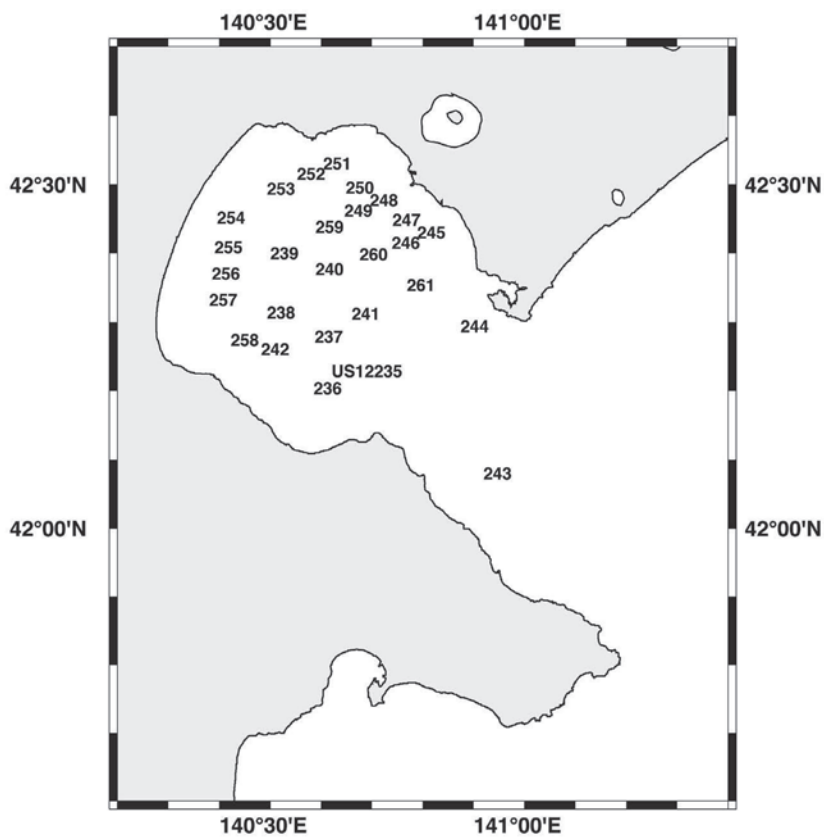


Figure 4. Oceanographic stations (Cruise 257-2)

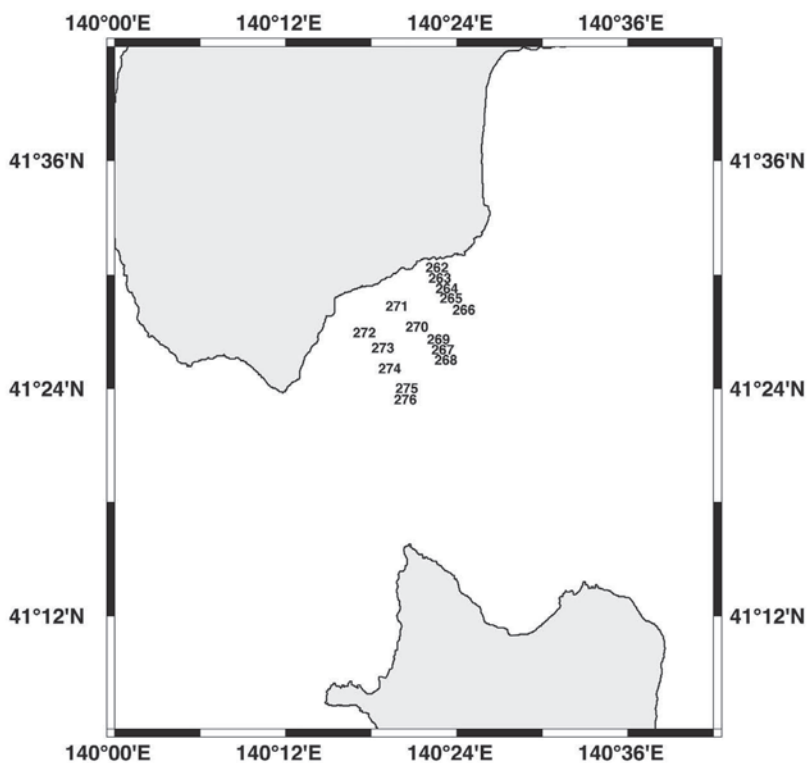


Figure 5. Oceanographic stations (Cruise 257-3)

Table 1. List of Oceanographic Station

Cruise 255												
Station	Lat. (N)*	Long. (E)*	Date	S.M.T.	Depth (m)	Wave	Swell	Wind	Air Temp.	Sea Temp.	Wr.	Bar. (hPa)
US12163	42-00.7	141-00.9	4/10	0350-0536	92	NE -1	NW -1	NE -3	3.2	2.4	bc	1021.5
US12164	42-11.8	141-02.3	4/10	0653-0657	81	WNW-1	NW -1	WNW-1	4.3	2.1	bc	1022.1
US12165	42-19.8	141-09.9	4/10	0805-0809	73	SW -1	SE -1	SW -3	5.7	2.1	bc	1022.0
US12166	42-10.2	141-10.0	4/10	0916-0921	121	NW -1	NW -1	NW -3	4.6	2.4	bc	1022.6
US12167	42-00.1	141-10.0	4/10	1028-1034	135	SE -1	NW -1	SE -2	7.3	2.9	bc	1022.2
US12168	41-55.3	141-09.9	4/10	1120-1127	181	East-1	NW -1	East-2	6.6	3.0	bc	1021.6
US12169	41-50.3	141-19.3	4/10	1230-1241	275	SW -2	SSW-1	SW -4	7.1	2.4	bc	1021.2
US12170	41-49.8	141-29.4	4/10	1350-1402	348	SW -3	SW -2	SW -5	5.8	1.8	bc	1021.6
US12171	42-01.4	141-17.3	4/10	1732-1742	252	SSE-1	SW -1	SSE-2	7.7	4.2	bc	1021.1
US12172	42-00.1	141-29.3	4/11	0204-0219	449	SE -1	South-1	SE -3	5.5	3.0	c	1014.6
US12173	42-10.1	141-30.6	4/11	0418-0437	570	SE -3	South-1	SE -3	4.6	3.5	o	1013.1
US12174	42-09.8	141-21.2	4/11	0627-0640	384	SE -2	SSE-1	SE -4	5.2	3.6	o	1010.5
US12175	41-59.3	141-01.8	4/11	0911-0916	101	Calm	ESE-1	Calm	7.3	2.4	o	1007.6
US12176	41-58.7	141-00.6	4/11	0936-0940	94	SW -1	East-1	SW -3	4.8	2.4	o	1006.7
US12177	41-58.0	140-59.5	4/11	0947-0951	87	South-1	East-1	South-3	7.6	3.0	c	1006.6
US12178	41-57.3	140-58.1	4/11	0959-1003	76	South-1	East-1	South-3	10.4	2.8	o	1006.3
US12179	42-10.2	140-47.5	4/13	0601-0606	94	ENE-1	ESE-1	ENE-3	3.9	3.3	bc	1003.5
US12180	42-09.0	140-35.8	4/13	0714-0721	68	NW -1	East-1	NW -2	4.5	3.8	c	1004.6
US12181	42-10.9	140-35.3	4/13	0748-0751	80	West-1	East-1	West-3	4.0	3.6	c	1005.6
US12182	42-14.0	140-30.0	4/13	0848-0852	79	West-1	ESE-1	West-3	4.9	3.6	bc	1007.0
US12183	42-16.9	140-36.4	4/13	1016-1023	91	NW -1	East-1	NW -3	7.1	3.1	bc	1007.6
US12184	42-19.0	140-30.8	4/13	1154-1158	94	West-3	East-1	West-5	7.9	3.3	bc	1009.5
US12185	42-20.9	140-36.3	4/13	1240-1244	89	WNW-2	East-1	WNW-4	7.2	3.2	bc	1010.6
US12186	42-23.9	140-31.2	4/13	1333-1337	96	West-2	ESE-1	West-4	8.5	3.2	bc	1010.9
US12187	42-26.1	140-36.8	4/13	1433-1438	84	NNW-3	NW -1	NNW-5	7.7	2.9	bc	1011.1
US12188	42-31.2	140-37.6	4/13	1550-1554	61	NW -3	NW -1	NW -5	7.4	3.4	bc	1012.1
US12189	42-23.4	140-42.5	4/13	1652-1655	62	NW -3	NW -1	NW -5	7.5	2.7	bc	1012.6
US12190	42-21.0	140-48.2	4/13	1741-1744	52	NW -3	NW -1	NW -5	6.4	2.9	bc	1013.0
US12191	42-18.5	140-42.2	4/14	0454-0458	65	Calm	ESE-1	Calm	2.5	3.4	bc	1016.0
US12192	42-13.0	140-42.0	4/14	0623-0628	91	Calm	ESE-1	Calm	2.9	2.6	bc	1016.1
US12193	42-15.4	140-47.6	4/14	0725-0729	72	Calm	ESE-1	Calm	3.7	3.5	bc	1016.5
US12194	41-35.1	140-53.5	4/14	1401-1403	43	ENE-3	East-1	ENE-5	8.7	8.5	bc	1014.6
US12195	41-37.0	140-51.2	4/14	1421-1425	96	ENE-2	East-1	ENE-4	7.0	8.4	bc	1014.6
US12196	41-38.7	140-49.3	4/14	1440-1452	345	ENE-3	East-1	ENE-5	7.0	8.6	bc	1014.2
US12197	41-40.7	140-47.3	4/14	1507-1515	223	East-3	East-1	East-5	6.8	8.6	bc	1014.1
US12198	41-42.7	140-45.2	4/14	1531-1535	86	East-2	East-1	East-4	6.9	8.7	bc	1014.1
Cruise 256												
Station	Lat. (N)*	Long. (E)*	Date	S.M.T.	Depth (m)	Wave	Swell	Wind	Air Temp.	Sea Temp.	Wr.	Bar. (hPa)
US12199	42-06.0	139-54.1	4/24	0513-0519	118	ENE-1	SW -1	ENE-3	9.5	9.3	o	1012.8
US12200	42-01.3	139-36.3	4/24	0658-0707	638	SSE-1	SW -1	SSE-3	10.1	9.3	f	1013.1
US12201	41-52.4	139-06.6	4/24	0949-0957	2274	West-1	SW -1	West-2	8.3	8.9	f	1013.3
US12202	41-52.0	139-35.5	4/24	1229-1237	461	Calm	SSW-1	Calm	10.1	9.9	o	1013.7
US12203	41-44.0	139-35.6	4/25	0817-0825	763	Calm	SW -1	Calm	9.0	10.0	o	1018.1
US12204	41-37.6	139-14.8	4/25	1014-1022	1655	SSE-1	SW -1	SSE-2	9.3	8.3	o	1017.6
US12205	41-31.4	139-41.7	4/25	1250-1257	1427	Calm	SW -1	Calm	9.9	10.2	o	1016.1
Cruise 257												
Station	Lat. (N)*	Long. (E)*	Date	S.M.T.	Depth (m)	Wave	Swell	Wind	Air Temp.	Sea Temp.	Wr.	Bar. (hPa)
US12206	42-01.2	141-16.9	5/7	1734-1744	248	SE -2	SE -1	SE -4	8.7	5.5	bc	1009.1
US12207	41-59.4	141-02.1	5/8	0543-0548	102	NE -1	ESE-1	NE -2	6.9	6.7	c	1011.1
US12208	41-58.7	141-00.6	5/8	0559-0603	94	NE -1	ESE-1	NE -2	7.3	7.4	c	1011.3
US12209	41-58.0	140-59.4	5/8	0612-0616	86	Calm	ESE-1	Calm	7.6	7.6	c	1011.4
US12210	41-57.4	140-58.2	5/8	0625-0629	79	Calm	ESE-1	Calm	7.6	7.7	c	1011.5
US12211	42-09.8	141-29.7	5/8	1748-1807	545	East-1	SE -1	East-3	7.3	5.4	o	1011.0
US12212	42-00.0	141-30.1	5/8	2115-2135	482	Calm	SE -1	Calm	7.2	5.6	o	1012.1
US12213	41-50.3	141-29.7	5/8	2255-2308	360	NE -1	SE -1	NE -3	7.1	7.4	o	1012.2
US12214	41-50.5	141-20.3	5/9	0006-0017	288	North-1	SE -1	North-2	7.8	7.6	o	1021.1
US12215	42-19.2	141-10.4	5/9	1307-1311	79	West-1	SE -1	West-3	11.1	7.2	bc	1015.0
US12216	42-09.9	141-10.2	5/9	1427-1432	124	South-1	SE -1	South-2	10.9	7.1	bc	1014.6
US12217	42-00.1	141-09.9	5/9	1556-1602	135	SE -2	SE -1	SE -4	9.6	6.1	bc	1014.4
US12218	41-55.0	141-10.1	5/9	1651-1658	183	SE -1	SE -1	SE -3	9.7	7.5	bc	1014.5
US12219	42-10.0	141-20.2	5/9	2200-2213	366	Calm	SE -1	Calm	7.3	6.5	f	1015.8
US12220	42-20.4	141-20.2	5/9	2335-2344	251	SSE-1	SE -1	SSE -2	7.6	6.7	o	1016.0
US12221	42-11.3	141-01.4	5/10	0239-0243	81	Calm	SE -1	Calm	7.0	6.4	f	1015.1
US12222	42-00.9	141-01.0	5/10	0402-0406	93	SE -1	SE -1	SE -3	7.9	7.8	o	1015.5
US12223	42-09.6	140-45.0	5/11	0807-0812	86	West-2	ESE-1	West-4	10.4	8.3	bc	1011.1
US12224	42-14.5	140-40.0	5/11	0853-0857	88	NW -2	ESE-1	NW -4	10.7	8.6	bc	1011.1

Cruise 257 (continued)

Station	Lat. (N)*	Long. (E)*	Date	S.M.T.	Depth (m)	Wave	Swell	Wind	Air Temp.	Sea Temp.	Wr.	Bar. (hPa)
US12225	42-19.4	140-34.7	5/11	0937-0941	93	NW -2	ESE-1	NW -4	11.7	9.3	bc	1011.1
US12226	42-15.7	140-43.1	5/11	1148-1152	78	NW -1	ESE-1	NW -3	14.1	9.9	bc	1010.1
US12227	42-11.9	140-52.7	5/11	1246-1249	67	SW -1	ESE-1	SW -1	13.7	8.6	bc	1009.5
US12228	42-17.5	140-48.7	5/11	1340-1343	64	NW -3	ESE-1	NW -5	12.8	9.5	bc	1008.7
US12229	42-23.6	140-44.7	5/11	1433-1436	51	NW -3	ESE-1	NW -5	11.9	10.5	bc	1008.5
US12230	42-20.4	140-51.1	5/11	1518-1522	45	NW -3	ESE-1	NW -5	12.7	9.5	bc	1008.2
US12231	42-16.4	140-58.5	5/11	1609-1613	62	NW -3	ESE-1	NW -5	11.4	8.0	bc	1008.0
US12232	42-13.2	141-02.4	5/12	0435-0442	79	WNW-4	WNW-1	WNW-6	7.3	8.3	o	1007.1
US12233	42-06.2	141-02.2	5/12	0525-0529	92	WNW-4	WNW-1	WNW-6	7.3	7.1	o	1007.2
US12234	41-58.7	141-02.1	5/12	0615-0620	104	WNW-4	WNW-1	WNW-6	6.7	5.8	r	1007.1
US12235	42-13.2	140-41.4	5/13	0745-0749	90	West-2	NW -1	West-4	8.4	6.0	bc	1011.6
US12236	42-11.7	140-36.8	5/13	0815-0819	85	West-2	NW -1	West-4	9.1	7.3	bc	1012.1
US12237	42-16.2	140-36.9	5/13	0930-0934	90	NW -2	NW -1	NW -4	9.9	6.6	bc	1011.7
US12238	42-18.3	140-31.3	5/13	1045-1049	94	WSW-1	NW -1	WSW-3	12.4	7.0	bc	1011.7
US12239	42-23.5	140-31.7	5/13	1154-1159	96	NW -2	NW -1	NW -4	12.7	7.9	bc	1011.7
US12240	42-22.1	140-37	5/13	1254-1259	86	NW -2	NW -1	NW -4	13.0	7.3	bc	1011.8
US12241	42-18.2	140-41.3	5/14	0532-0536	73	NW -1	NW -1	NW -3	8.0	6.9	bc	1018.0
US12242	42-15.1	140-30.6	5/14	1041-1045	86	Calm	NW -1	Calm	14.6	8.8	bc	1017.9
US12243	42-04.3	140-56.8	5/16	0653-0658	86	Calm	ESE-1	Calm	8.8	6.9	o	998.6
US12244	42-17.1	140-54.1	5/16	0845-0849	57	Calm	ESE-1	Calm	7.8	5.8	f	998.1
US12245	42-25.3	140-49.0	5/16	1108-1111	42	NW -1	SE -1	NW -2	9.3	7.1	r	998.0
US12246	42-24.4	140-46.0	5/16	1143-1146	50	North-1	SE -1	North-2	9.2	8.3	r	997.8
US12247	42-26.4	140-46.1	5/16	1208-1211	53	Calm	SE -1	Calm	9.7	8.6	r	997.6
US12248	42-28.1	140-43.4	5/16	1239-1243	60	NW -1	SE -1	NW -2	9.5	8.6	r	997.5
US12249	42-27.2	140-40.4	5/16	1304-1307	72	Calm	SE -1	Calm	10.0	8.3	o	997.3
US12250	42-29.2	140-40.6	5/16	1332-1335	65	Calm	SE -1	Calm	9.8	9.1	r	997.1
US12251	42-31.3	140-37.9	5/16	1407-1411	60	Calm	SE -1	Calm	9.7	8.1	r	997.1
US12252	42-30.4	140-34.8	5/16	1434-1438	68	SW -1	ESE-1	SW -3	9.7	8.3	r	997.1
US12253	42-29.1	140-31.3	5/16	1515-1519	74	Calm	ESE-1	Calm	10.1	9.1	r	997.5
US12254	42-26.6	140-25.4	5/16	1558-1602	43	Calm	ESE-1	Calm	10.6	9.4	r	997.6
US12255	42-24.0	140-25.1	5/16	1624-1628	69	NW -1	ESE-1	NW -2	10.8	8.7	c	998.0
US12256	42-21.7	140-24.8	5/16	1655-1700	68	West-1	SW -1	West-3	10.6	8.1	c	998.2
US12257	42-19.4	140-24.5	5/16	1720-1724	64	West-3	SW -1	West-5	10.1	7.8	c	998.6
US12258	42-15.9	140-27.0	5/16	1813-1817	67	West-2	West-1	West-4	9.7	7.5	c	999.5
US12259	42-25.8	140-37.0	5/16	2355-2359	85	West-2	NW -1	West-4	8.7	7.6	o	1002.6
US12260	42-23.4	140-42.2	5/17	0034-0038	64	West-2	NW -1	West-4	8.3	7.8	o	1002.2
US12261	42-20.7	140-47.8	5/17	0157-0201	53	NW -2	NW -1	NW -4	8.5	7.7	o	1002.6
US12262	41-29.9	140-22.6	5/19	0719-0722	73	Calm	SSW-1	Calm	12.4	9.8	bc	1015.7
US12263	41-29.5	140-22.9	5/19	0742-0746	87	Calm	SSW-1	Calm	13.0	9.8	bc	1015.8
US12264	41-29.2	140-23.1	5/19	0807-0811	97	Calm	SSW-1	Calm	13.6	10.1	bc	1016.5
US12265	41-28.6	140-23.6	5/19	0834-0840	116	Calm	SSW-1	Calm	13.6	8.6	bc	1016.5
US12266	41-27.9	140-24.5	5/19	0905-0912	159	ENE-1	SSW-1	ENE-2	13.8	8.4	bc	1016.5
US12267	41-25.8	140-23.0	5/19	0948-0957	161	SW -2	SSW-1	SW -4	14.1	10.5	bc	1016.5
US12268	41-25.9	140-22.9	5/19	1023-1029	120	SW -3	SW -1	SW -5	12.5	9.8	bc	1016.5
US12269	41-26.1	140-22.7	5/19	1107-1112	86	SW -3	SW -1	SW -5	11.9	9.5	bc	1016.5
US12270	41-27.0	140-21.2	5/19	1152-1156	76	SW -3	SW -1	SW -5	12.0	8.3	bc	1016.6
US12271	41-28.1	140-19.8	5/19	1220-1225	63	SW -2	SW -1	SW -5	12.2	8.7	bc	1016.2
US12272	41-26.7	140-17.5	5/19	1252-1255	63	SW -1	SW -1	SW -4	13.3	8.7	bc	1016.2
US12273	41-25.9	140-18.8	5/19	1322-1325	84	SW -1	SW -1	SW -4	11.1	8.9	bc	1016.8
US12274	41-24.8	140-19.3	5/19	1348-1354	91	SW -2	SW -1	SW -5	10.8	8.3	bc	1017.1
US12275	41-23.6	140-20.5	5/19	1426-1432	116	SW -2	SW -1	SW -6	11.2	11.6	bc	1017.2
US12276	41-23.4	140-20.4	5/19	1513-1521	152	SW -2	SW -1	SW -6	11.2	10.0	bc	1017.6

(*): Fixed position by Global Positioning System

Table 2. Oceanographic data

STATION US12163				STATION US12164				STATION US12165			
LATITUDE		42-00.7	N	LATITUDE		42-11.8	N	LATITUDE		42-19.8	N
LONGITUD		141-00.9	E	LONGITUD		141-02.3	E	LONGITUD		141-09.9	E
DEPTH (m)		92		DEPTH (m)		81		DEPTH (m)		73	
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	2.443	32.958	26.302	5	2.418	32.934	26.285	5	2.408	32.894	26.253
10	2.445	32.959	26.302	10	2.415	32.935	26.285	10	2.378	32.892	26.254
20	2.511	32.993	26.324	20	2.413	32.935	26.286	20	2.353	32.895	26.259
30	2.582	33.017	26.337	30	2.410	32.935	26.286	30	2.348	32.905	26.267
40	4.816	33.483	26.493	40	2.369	32.955	26.305	40	2.605	33.048	26.360
50	5.145	33.518	26.484	50	2.576	33.034	26.351	50	3.813	33.358	26.499
75	5.694	33.627	26.505								
STATION US12166				STATION US12167				STATION US12168			
LATITUDE		42-10.2	N	LATITUDE		42-00.1	N	LATITUDE		41-55.3	N
LONGITUD		141-10.0	E	LONGITUD		141-10.0	E	LONGITUD		141-09.9	E
DEPTH (m)		121		DEPTH (m)		135		DEPTH (m)		181	
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	2.584	32.942	26.277	5	2.716	32.979	26.296	5	2.688	32.965	26.287
10	2.461	32.939	26.285	10	2.658	32.990	26.310	10	2.514	32.972	26.307
20	2.463	32.945	26.290	20	2.643	33.004	26.322	20	2.385	32.968	26.314
30	2.461	32.948	26.292	30	2.870	33.048	26.338	30	2.379	32.970	26.316
40	2.454	32.949	26.293	40	2.631	33.037	26.350	40	2.618	33.041	26.354
50	2.340	32.949	26.302	50	3.532	33.217	26.413	50	2.780	33.088	26.378
75	3.864	33.372	26.505	75	4.700	33.435	26.468	75	3.658	33.289	26.459
100	4.502	33.522	26.558	100	4.360	33.404	26.480	100	4.594	33.471	26.508
								125	4.350	33.466	26.530
								150	4.444	33.539	26.578
STATION US12169				STATION US12170				STATION US12171			
LATITUDE		41-50.3	N	LATITUDE		41-49.8	N	LATITUDE		42-01.4	N
LONGITUD		141-19.3	E	LONGITUD		141-29.4	E	LONGITUD		141-17.3	E
DEPTH (m)		275		DEPTH (m)		348		DEPTH (m)		252	
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	2.103	32.890	26.274	5	2.182	32.842	26.230	5	3.488	33.108	26.331
10	2.095	32.891	26.275	10	2.371	32.900	26.261	10	3.379	33.123	26.353
20	1.956	32.893	26.287	20	5.736	33.581	26.464	20	3.378	33.134	26.361
30	1.959	32.900	26.292	30	6.684	33.719	26.452	30	3.390	33.139	26.365
40	3.082	33.141	26.394	40	6.742	33.707	26.435	40	3.644	33.213	26.400
50	3.321	33.177	26.401	50	7.223	33.806	26.448	50	3.866	33.276	26.428
75	3.536	33.236	26.428	75	7.327	33.818	26.443	75	4.344	33.367	26.452
100	4.323	33.406	26.485	100	7.329	33.825	26.448	100	4.541	33.408	26.463
125	4.729	33.482	26.502	125	7.210	33.816	26.457	125	4.845	33.471	26.480
150	4.566	33.462	26.504	150	7.235	33.840	26.473	150	6.296	33.756	26.532
175	4.858	33.526	26.522	175	6.762	33.829	26.529	175	5.509	33.671	26.562
200	5.236	33.603	26.541	200	5.224	33.634	26.566	200	5.252	33.656	26.581
250	5.134	33.698	26.628	250	4.280	33.609	26.651				
				300	3.115	33.579	26.741				
STATION US12172				STATION US12173				STATION US12174			
LATITUDE		42-00.1	N	LATITUDE		42-10.1	N	LATITUDE		42-09.8	N
LONGITUD		141-29.3	E	LONGITUD		141-30.6	E	LONGITUD		141-21.2	E
DEPTH (m)		449		DEPTH (m)		570		DEPTH (m)		384	
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	3.317	33.114	26.352	5	3.321	33.028	26.282	5	4.730	33.397	26.434
10	3.223	33.106	26.354	10	4.100	33.235	26.372	10	4.727	33.397	26.435
20	3.212	33.119	26.365	20	4.359	33.336	26.426	20	4.607	33.383	26.437
30	3.402	33.174	26.391	30	4.446	33.374	26.447	30	4.497	33.368	26.437
40	3.522	33.207	26.407	40	4.774	33.446	26.468	40	4.319	33.347	26.439
50	3.770	33.280	26.441	50	4.948	33.480	26.477	50	4.388	33.370	26.449
75	4.198	33.388	26.484	75	5.275	33.594	26.529	75	5.056	33.505	26.484
100	4.591	33.466	26.504	100	6.018	33.757	26.568	100	6.032	33.707	26.527
125	4.520	33.481	26.524	125	6.082	33.800	26.594	125	5.809	33.703	26.552
150	5.822	33.740	26.579	150	5.632	33.769	26.625	150	5.481	33.696	26.585
175	5.128	33.628	26.573	175	5.199	33.738	26.652	175	5.519	33.740	26.616
200	5.731	33.775	26.618	200	4.908	33.733	26.681	200	4.902	33.683	26.642
250	4.642	33.683	26.671	250	4.210	33.704	26.734	250	4.686	33.733	26.706
300	3.428	33.589	26.720	300	3.091	33.635	26.787	300	3.335	33.625	26.757
400	2.782	33.626	26.807	400	2.988	33.754	26.891				

STATION US12175			
LATITUDE 41-59.3 N			
LONGITUD 141-01.8 E			
DEPTH (m) 101			
Press.	Temp.	Salinity	Sigma-T
5	3.110	33.005	26.283
10	2.666	32.972	26.295
20	2.547	32.988	26.318
30	2.544	32.994	26.322
40	2.665	33.017	26.331
50	2.770	33.051	26.349
75	4.609	33.454	26.492

STATION US12178			
LATITUDE 41-57.3 N			
LONGITUD 140-58.1 E			
DEPTH (m) 76			
Press.	Temp.	Salinity	Sigma-T
5	3.817	33.014	26.225
10	3.540	33.014	26.251
20	3.044	33.024	26.304
30	3.047	33.048	26.323
40	3.233	33.114	26.359
50	4.139	33.339	26.451

STATION US12181			
LATITUDE 42-10.9 N			
LONGITUD 140-35.3 E			
DEPTH (m) 80			
Press.	Temp.	Salinity	Sigma-T
5	3.150	32.837	26.146
10	2.864	32.891	26.214
20	2.685	32.998	26.314
30	2.732	33.013	26.322
40	3.112	33.136	26.388
50	3.025	33.239	26.477
75	2.690	33.309	26.562

STATION US12184			
LATITUDE 42-19.0 N			
LONGITUD 140-30.8 E			
DEPTH (m) 94			
Press.	Temp.	Salinity	Sigma-T
5	3.438	32.809	26.097
10	2.639	32.884	26.227
20	2.474	32.938	26.283
30	2.320	32.945	26.301
40	2.447	33.014	26.346
50	2.391	33.181	26.484
75	2.786	33.335	26.574

STATION US12187			
LATITUDE 42-26.1 N			
LONGITUD 140-36.8 E			
DEPTH (m) 84			
Press.	Temp.	Salinity	Sigma-T
5	3.106	32.919	26.215
10	3.050	32.908	26.211
20	2.866	32.914	26.232
30	2.396	32.916	26.272
40	2.290	33.162	26.477
50	2.439	33.235	26.524
75	2.725	33.328	26.574

STATION US12176			
LATITUDE 41-58.7 N			
LONGITUD 141-00.6 E			
DEPTH (m) 94			
Press.	Temp.	Salinity	Sigma-T
5	2.983	32.982	26.276
10	2.614	32.986	26.310
20	2.657	33.010	26.326
30	2.712	33.051	26.354
40	3.152	33.171	26.412
50	3.519	33.248	26.439
75	5.386	33.610	26.529

STATION US12179			
LATITUDE 42-10.2 N			
LONGITUD 140-47.5 E			
DEPTH (m) 94			
Press.	Temp.	Salinity	Sigma-T
5	3.312	32.106	25.548
10	2.628	32.871	26.217
20	2.432	32.893	26.251
30	2.236	32.902	26.273
40	2.216	32.912	26.283
50	2.211	32.923	26.292
75	4.386	33.500	26.554

STATION US12182			
LATITUDE 42-14.0 N			
LONGITUD 140-30.0 E			
DEPTH (m) 79			
Press.	Temp.	Salinity	Sigma-T
5	3.321	32.699	26.020
10	3.053	32.851	26.165
20	2.291	32.893	26.262
30	2.212	32.929	26.296
40	2.625	33.239	26.512
50	2.691	33.310	26.562
75	2.776	33.330	26.572

STATION US12185			
LATITUDE 42-20.9 N			
LONGITUD 140-36.3 E			
DEPTH (m) 89			
Press.	Temp.	Salinity	Sigma-T
5	3.350	32.888	26.168
10	2.972	32.925	26.231
20	2.603	32.949	26.282
30	2.501	32.965	26.302
40	2.403	32.989	26.329
50	2.476	33.189	26.484
75	2.691	33.322	26.572

STATION US12188			
LATITUDE 42-31.2 N			
LONGITUD 140-37.6 E			
DEPTH (m) 61			
Press.	Temp.	Salinity	Sigma-T
5	3.975	32.255	25.606
10	2.975	32.886	26.200
20	2.711	32.947	26.271
30	2.513	32.990	26.321
40	2.526	33.176	26.470
50	2.749	33.264	26.521

STATION US12177			
LATITUDE 41-58.0 N			
LONGITUD 140-59.5 E			
DEPTH (m) 87			
Press.	Temp.	Salinity	Sigma-T
5	3.085	33.018	26.296
10	2.742	33.006	26.316
20	2.857	33.051	26.342
30	3.141	33.117	26.370
40	3.464	33.248	26.445
50	4.187	33.383	26.481
75	5.389	33.632	26.546

STATION US12180			
LATITUDE 42-09.0 N			
LONGITUD 140-35.8 E			
DEPTH (m) 68			
Press.	Temp.	Salinity	Sigma-T
5	3.242	32.732	26.054
10	2.906	32.745	26.093
20	2.481	32.942	26.286
30	2.453	32.993	26.329
40	2.971	33.270	26.507
50	2.878	33.262	26.509

STATION US12183			
LATITUDE 42-16.9 N			
LONGITUD 140-36.4 E			
DEPTH (m) 91			
Press.	Temp.	Salinity	Sigma-T
5	3.091	32.852	26.163
10	2.957	32.886	26.202
20	2.462	32.895	26.250
30	2.332	32.920	26.280
40	2.315	32.929	26.288
50	2.165	32.941	26.310
75	2.458	33.218	26.508

STATION US12186			
LATITUDE 42-23.9 N			
LONGITUD 140-31.2 E			
DEPTH (m) 96			
Press.	Temp.	Salinity	Sigma-T
5	3.492	32.861	26.134
10	2.879	32.863	26.190
20	2.410	32.895	26.254
30	2.282	32.939	26.299
40	2.364	33.042	26.375
50	2.472	33.164	26.464
75	2.681	33.320	26.572

STATION US12189			
LATITUDE 42-23.4 N			
LONGITUD 140-22.5 E			
DEPTH (m) 62			
Press.	Temp.	Salinity	Sigma-T
5	2.968	32.897	26.209
10	2.885	32.897	26.217
20	2.528	32.903	26.251
30	2.280	32.923	26.287
40	2.304	32.962	26.316
50	2.604	33.187	26.472

STATION US12190			
LATITUDE	42-21.0	N	
LONGITUD	140-48.2	E	
DEPTH (m)	52		
Press.	Temp.	Salinity	Sigma-T
5	3.256	32.885	26.174
10	3.250	32.887	26.176
20	2.921	32.919	26.231
30	2.695	32.943	26.269
40	2.925	33.194	26.450

STATION US12193			
LATITUDE	42-15.4	N	
LONGITUD	140-47.6	E	
DEPTH (m)	72		
Press.	Temp.	Salinity	Sigma-T
5	4.002	32.778	26.018
10	4.001	32.779	26.019
20	3.115	32.885	26.187
30	2.672	32.889	26.228
40	2.447	32.901	26.256
50	2.394	32.948	26.298

STATION US12196			
LATITUDE	41-38.7	N	
LONGITUD	140-49.3	E	
DEPTH (m)	345		
Press.	Temp.	Salinity	Sigma-T
5	8.820	33.619	26.065
10	8.819	33.619	26.065
20	8.667	33.704	26.156
30	8.659	33.728	26.176
40	8.666	33.746	26.189
50	8.669	33.752	26.193
75	8.659	33.798	26.230
100	8.675	33.811	26.238
125	8.669	33.814	26.241
150	8.666	33.816	26.244
175	8.664	33.826	26.252
200	8.666	33.830	26.254
250	8.666	33.862	26.279
300	8.690	33.936	26.334

STATION US12199			
LATITUDE	42-06.0	N	
LONGITUD	139-54.1	E	
DEPTH (m)	118		
Press.	Temp.	Salinity	Sigma-T
10	9.624	33.618	25.936
20	9.612	33.637	25.952
30	9.462	33.746	26.062
40	9.216	33.915	26.234
50	8.885	34.058	26.399
75	8.425	34.086	26.492
100	6.932	34.102	26.721

STATION US12191			
LATITUDE	42-18.5	N	
LONGITUD	140-42.2	E	
DEPTH (m)	65		
Press.	Temp.	Salinity	Sigma-T
5	3.287	32.915	26.195
10	3.287	32.915	26.195
20	2.977	32.920	26.226
30	2.694	32.934	26.262
40	2.586	32.964	26.295
50	2.490	33.013	26.342

STATION US12194			
LATITUDE	41-35.1	N	
LONGITUD	140-53.5	E	
DEPTH (m)	43		
Press.	Temp.	Salinity	Sigma-T
5	8.678	33.805	26.233
10	8.634	33.815	26.247
20	8.652	33.811	26.241
30	8.629	33.817	26.250
40	8.623	33.820	26.253

STATION US12197			
LATITUDE	41-40.7	N	
LONGITUD	140-47.3	E	
DEPTH (m)	223		
Press.	Temp.	Salinity	Sigma-T
5	8.875	33.610	26.049
10	8.875	33.609	26.049
20	8.809	33.629	26.075
30	8.779	33.688	26.126
40	8.756	33.742	26.172
50	8.700	33.786	26.214
75	8.653	33.875	26.292
100	8.649	33.876	26.293
125	8.655	33.877	26.293
150	8.698	33.921	26.320
175	8.680	33.950	26.346
200	8.661	33.955	26.353

STATION US12200			
LATITUDE	42-01.3	N	
LONGITUD	139-36.3	E	
DEPTH (m)	638		
Press.	Temp.	Salinity	Sigma-T
5	9.700	33.983	26.208
10	9.659	33.982	26.214
20	9.292	33.987	26.278
30	8.905	34.031	26.374
40	8.357	34.085	26.501
50	8.176	34.100	26.541
75	7.252	34.083	26.661
100	6.496	34.096	26.774
125	5.652	34.083	26.871
150	4.537	34.062	26.983
175	3.011	34.052	27.127

STATION US12192			
LATITUDE	42-13.0	N	
LONGITUD	140-42.0	E	
DEPTH (m)	91		
Press.	Temp.	Salinity	Sigma-T
5	2.940	32.892	26.208
10	2.927	32.892	26.209
20	2.368	32.887	26.251
30	2.199	32.898	26.273
40	2.183	32.903	26.278
50	2.171	32.906	26.281
75	3.175	33.279	26.495

STATION US12195			
LATITUDE	41-37.0	N	
LONGITUD	140-51.2	E	
DEPTH (m)	96		
Press.	Temp.	Salinity	Sigma-T
5	8.802	33.651	26.093
10	8.801	33.651	26.093
20	8.704	33.644	26.103
30	8.688	33.722	26.166
40	8.670	33.770	26.206
50	8.658	33.784	26.219
75	8.622	33.783	26.224

STATION US12198			
LATITUDE	41-42.7	N	
LONGITUD	140-45.2	E	
DEPTH (m)	86		
Press.	Temp.	Salinity	Sigma-T
5	8.888	33.777	26.178
10	8.865	33.784	26.187
20	8.702	33.811	26.234
30	8.655	33.860	26.280
40	8.604	33.888	26.310
50	8.560	33.914	26.337
75	8.531	33.916	26.343

STATION US12201			
LATITUDE	41-52.4	N	
LONGITUD	139-06.6	E	
DEPTH (m)	2274		
Press.	Temp.	Salinity	Sigma-T
5	9.199	33.989	26.295
10	9.190	33.991	26.298
20	8.939	34.043	26.378
30	8.084	34.078	26.537
40	7.692	34.087	26.602
50	7.234	34.110	26.685
75	6.363	34.107	26.800
100	5.500	34.098	26.902
125	4.346	34.068	27.009
150	3.572	34.057	27.079
175	3.022	34.059	27.132
200	2.161	34.055	27.202

STATION US12202			
LATITUDE 41-52.0 N			
LONGITUD 139-35.5 E			
DEPTH (m) 461			
Press.	Temp.	Salinity	Sigma-T
5	10.022	33.896	26.086
10	9.860	33.894	26.112
20	9.650	33.925	26.171
30	9.433	33.980	26.250
40	8.736	34.059	26.423
50	8.129	34.080	26.532
75	7.318	34.085	26.654
100	6.983	34.088	26.703
125	5.983	34.086	26.832
150	5.110	34.079	26.933
175	4.044	34.058	27.032
200	3.438	34.060	27.094

STATION US12203			
LATITUDE 41-44.0 N			
LONGITUD 139-35.6 E			
DEPTH (m) 763			
Press.	Temp.	Salinity	Sigma-T
5	10.199	33.893	26.054
10	10.188	33.894	26.056
20	9.639	34.052	26.272
30	8.633	34.168	26.524
40	8.290	34.177	26.584
50	7.355	34.122	26.677
75	5.984	34.083	26.830
100	4.959	34.075	26.946
125	4.054	34.073	27.044
150	3.377	34.062	27.101
175	2.730	34.051	27.151
200	2.074	34.054	27.208

STATION US12204			
LATITUDE 41-37.6 N			
LONGITUD 139-14.8 E			
DEPTH (m) 1655			
Press.	Temp.	Salinity	Sigma-T
5	8.052	34.028	26.503
10	7.485	34.050	26.602
20	7.301	34.078	26.650
30	6.599	34.082	26.750
40	5.304	34.073	26.905
50	4.808	34.074	26.963
75	3.923	34.066	27.051
100	3.390	34.060	27.099
125	2.886	34.052	27.139
150	2.121	34.047	27.199
175	1.757	34.055	27.233
200	1.368	34.058	27.263

STATION US12205			
LATITUDE 41-31.4 N			
LONGITUD 139-41.7 E			
DEPTH (m) 1427			
Press.	Temp.	Salinity	Sigma-T
5	10.230	33.632	25.844
10	10.153	33.651	25.873
20	9.413	34.013	26.279
30	9.043	34.064	26.379
40	9.087	34.102	26.401
50	8.749	34.081	26.438
75	8.466	34.096	26.494
100	8.163	34.091	26.535
125	7.348	34.087	26.651
150	6.351	34.081	26.781
175	5.238	34.073	26.913
200	4.186	34.066	27.024

STATION US12206			
LATITUDE 42-01.2 N			
LONGITUD 141-16.9 E			
DEPTH (m) 248			
Press.	Temp.	Salinity	Sigma-T
5	5.537	32.362	25.523
10	4.691	32.701	25.886
20	4.761	32.890	26.029
30	4.077	33.115	26.279
40	3.690	33.175	26.365
50	3.587	33.243	26.429
75	4.080	33.359	26.473
100	5.068	33.547	26.516
125	5.411	33.665	26.569
150	5.360	33.689	26.594
175	5.216	33.690	26.612
200	5.083	33.699	26.635

STATION US12207			
LATITUDE 41-59.4 N			
LONGITUD 141-02.1 E			
DEPTH (m) 102			
Press.	Temp.	Salinity	Sigma-T
5	6.294	31.255	24.559
10	5.587	32.602	25.708
20	4.577	32.664	25.869
30	3.656	32.688	25.980
40	3.434	32.775	26.070
50	2.422	32.734	26.124
75	3.737	33.383	26.526

STATION US12208			
LATITUDE 41-58.7 N			
LONGITUD 141-00.6 E			
DEPTH (m) 94			
Press.	Temp.	Salinity	Sigma-T
5	6.564	31.409	24.647
10	5.545	32.006	25.241
20	4.851	32.664	25.840
30	3.062	32.591	25.957
40	3.130	32.689	26.029
50	3.382	32.873	26.153
75	4.841	33.566	26.556

STATION US12209			
LATITUDE 41-58.0 N			
LONGITUD 140-59.4 E			
DEPTH (m) 86			
Press.	Temp.	Salinity	Sigma-T
5	7.165	31.027	24.269
10	6.029	31.802	25.023
20	5.368	32.140	25.368
30	4.405	32.489	25.748
40	2.725	32.589	25.984
50	2.841	32.791	26.136
75	4.879	33.578	26.562

STATION US12210			
LATITUDE 41-57.4 N			
LONGITUD 140-58.2 E			
DEPTH (m) 79			
Press.	Temp.	Salinity	Sigma-T
5	7.334	30.952	24.188
10	6.173	31.690	24.917
20	5.359	32.091	25.329
30	4.967	32.280	25.523
40	3.271	32.496	25.863
50	2.499	32.663	26.061
75	4.097	33.486	26.572

STATION US12211			
LATITUDE 42-09.8 N			
LONGITUD 141-29.7 E			
DEPTH (m) 545			
Press.	Temp.	Salinity	Sigma-T
5	5.535	32.347	25.512
10	5.315	32.524	25.678
20	5.058	32.737	25.875
30	4.495	32.931	26.090
40	4.021	33.080	26.257
50	3.484	33.126	26.346
75	3.356	33.303	26.498
100	3.978	33.418	26.530
125	4.809	33.569	26.562
150	4.459	33.539	26.576
175	3.847	33.469	26.583
200	3.338	33.438	26.607
250	3.601	33.540	26.664
300	2.624	33.478	26.702
400	2.826	33.673	26.841

STATION US12212			
LATITUDE 42-00.0 N			
LONGITUD 141-30.1 E			
DEPTH (m) 482			
Press.	Temp.	Salinity	Sigma-T
5	5.556	32.608	25.716
10	4.976	32.626	25.796
20	4.620	32.726	25.914
30	3.677	32.947	26.185
40	1.740	32.940	26.340
50	2.950	33.229	26.476
75	2.736	33.235	26.499
100	4.328	33.477	26.541
125	5.412	33.659	26.564
150	4.755	33.579	26.576
175	3.770	33.471	26.593
200	4.106	33.545	26.618
250	2.592	33.398	26.641
300	2.611	33.460	26.689
400	2.638	33.621	26.816

STATION US12213			
LATITUDE 41-50.3 N			
LONGITUD 141-29.7 E			
DEPTH (m) 360			
Press.	Temp.	Salinity	Sigma-T
5	7.878	33.290	25.949
10	7.965	33.342	25.977
20	6.663	33.161	26.014
30	6.357	33.327	26.186
40	2.739	33.041	26.343
50	3.400	33.240	26.444
75	3.398	33.304	26.495
100	4.822	33.533	26.532
125	4.784	33.570	26.566
150	4.879	33.601	26.580
175	4.523	33.575	26.598
200	3.949	33.522	26.615
250	2.352	33.443	26.697
300	2.444	33.543	26.770

STATION US12214			
LATITUDE 41-50.5 N			
LONGITUD 141-20.3 E			
DEPTH (m) 288			
Press.	Temp.	Salinity	Sigma-T
5	7.523	33.189	25.920
10	7.424	33.228	25.965
20	6.968	33.358	26.130
30	7.245	33.714	26.372
40	5.954	33.570	26.428
50	5.329	33.526	26.469
75	5.394	33.596	26.517
100	5.637	33.657	26.536
125	5.716	33.688	26.551
150	5.487	33.676	26.569
175	4.927	33.608	26.580
200	4.299	33.545	26.598
250	4.108	33.631	26.686

STATION US12215			
LATITUDE 42-19.2 N			
LONGITUD 141-10.4 E			
DEPTH (m) 79			
Press.	Temp.	Salinity	Sigma-T
5	5.347	32.436	25.604
10	4.163	32.539	25.813
20	4.652	32.815	25.981
30	4.476	32.816	26.001
40	4.497	32.888	26.055
50	3.785	32.886	26.126

STATION US12216			
LATITUDE 42-09.9 N			
LONGITUD 141-10.2 E			
DEPTH (m) 124			
Press.	Temp.	Salinity	Sigma-T
5	6.743	32.808	25.726
10	6.116	32.867	25.853
20	5.816	32.997	25.993
30	4.357	32.977	26.141
40	1.966	32.918	26.307
50	2.250	33.034	26.378
75	4.057	33.392	26.501
100	4.650	33.474	26.505

STATION US12217			
LATITUDE 42-00.1 N			
LONGITUD 141-09.9 E			
DEPTH (m) 135			
Press.	Temp.	Salinity	Sigma-T
5	5.083	32.549	25.723
10	4.002	32.658	25.923
20	1.899	32.653	26.099
30	1.839	32.713	26.151
40	2.071	32.824	26.223
50	2.488	32.980	26.315
75	3.327	33.187	26.409
100	5.374	33.622	26.540

STATION US12218			
LATITUDE 41-55.0 N			
LONGITUD 141-10.1 E			
DEPTH (m) 183			
Press.	Temp.	Salinity	Sigma-T
5	4.684	32.322	25.587
10	4.301	32.499	25.767
20	5.351	32.876	25.952
30	7.157	33.505	26.220
40	6.676	33.549	26.320
50	7.525	33.836	26.428
75	7.687	33.986	26.523
100	7.846	34.057	26.556
125	7.680	34.048	26.573
150	4.782	33.593	26.585

STATION US12219			
LATITUDE 42-10.0 N			
LONGITUD 141-20.2 E			
DEPTH (m) 366			
Press.	Temp.	Salinity	Sigma-T
5	5.929	32.494	25.581
10	4.818	32.596	25.789
20	3.984	32.783	26.024
30	2.351	32.925	26.282
40	2.806	33.090	26.377
50	2.953	33.152	26.414
75	4.545	33.439	26.488
100	4.825	33.504	26.509
125	5.609	33.668	26.548
150	5.458	33.677	26.573
175	5.322	33.684	26.595
200	5.028	33.680	26.626
250	4.241	33.635	26.676
300	3.598	33.618	26.727

STATION US12220			
LATITUDE 42-20.4 N			
LONGITUD 141-20.2 E			
DEPTH (m) 251			
Press.	Temp.	Salinity	Sigma-T
5	5.823	32.589	25.669
10	5.005	32.585	25.760
20	4.619	32.699	25.892
30	4.205	32.784	26.003
40	3.827	33.039	26.243
50	3.555	33.157	26.363
75	4.452	33.426	26.488
100	3.903	33.400	26.523
125	4.008	33.432	26.538
150	4.567	33.559	26.581
175	4.536	33.572	26.595
200	4.210	33.546	26.608

STATION US12221			
LATITUDE 42-11.3 N			
LONGITUD 141-01.4 E			
DEPTH (m) 81			
Press.	Temp.	Salinity	Sigma-T
5	6.901	31.720	24.848
10	5.295	32.272	25.480
20	3.540	32.524	25.861
30	3.242	32.598	25.946
40	2.175	32.647	26.073
50	2.012	32.740	26.161

STATION US12222			
LATITUDE 42-00.9 N			
LONGITUD 141-01.0 E			
DEPTH (m) 93			
Press.	Temp.	Salinity	Sigma-T
5	5.214	31.900	25.195
10	4.945	32.205	25.466
20	4.187	32.523	25.798
30	3.444	32.615	25.942
40	2.054	32.725	26.145
50	2.047	32.802	26.207
75	5.239	33.577	26.520

STATION US12223			
LATITUDE 42-09.6 N			
LONGITUD 140-45.0 E			
DEPTH (m) 86			
Press.	Temp.	Salinity	Sigma-T
5	7.019	31.102	24.347
10	5.892	31.490	24.793
20	4.605	32.197	25.496
30	4.586	32.438	25.689
40	4.255	32.525	25.792
50	4.495	32.742	25.939
75	2.649	33.191	26.471

STATION US12224			
LATITUDE 42-14.5 N			
LONGITUD 140-40.0 E			
DEPTH (m) 88			
Press.	Temp.	Salinity	Sigma-T
5	6.972	31.250	24.470
10	5.598	31.702	24.995
20	4.776	32.232	25.505
30	4.270	32.509	25.778
40	3.982	32.610	25.887
50	3.427	32.745	26.047
75	2.675	33.095	26.392

STATION US12225			
LATITUDE 42-19.4 N			
LONGITUD 140-34.7 E			
DEPTH (m) 93			
Press.	Temp.	Salinity	Sigma-T
5	9.481	30.447	23.481
10	6.905	31.619	24.769
20	5.590	32.173	25.368
30	4.087	32.557	25.835
40	3.880	32.780	26.032
50	3.278	32.881	26.169
75	2.630	33.181	26.465

STATION US12226			
LATITUDE 42-15.7 N			
LONGITUD 140-43.1 E			
DEPTH (m) 78			
Press.	Temp.	Salinity	Sigma-T
5	8.578	30.641	23.770
10	5.468	31.835	25.115
20	5.024	32.146	25.410
30	4.262	32.456	25.736
40	3.940	32.576	25.864
50	2.956	32.608	25.980

STATION US12229			
LATITUDE 42-23.6 N			
LONGITUD 140-44.7 E			
DEPTH (m) 51			
Press.	Temp.	Salinity	Sigma-T
5	7.251	30.977	24.219
10	6.722	31.368	24.595
20	4.946	31.923	25.242
30	4.284	32.350	25.651
40	3.872	32.661	25.939

STATION US12232			
LATITUDE 42-13.2 N			
LONGITUD 141-02.4 E			
DEPTH (m) 79			
Press.	Temp.	Salinity	Sigma-T
5	5.196	32.538	25.702
10	3.254	32.478	25.850
20	4.697	32.850	26.004
30	4.569	32.844	26.013
40	4.658	32.933	26.074
50	3.079	32.848	26.161
75	3.423	33.207	26.416

STATION US12235			
LATITUDE 42-13.2 N			
LONGITUD 140-41.4 E			
DEPTH (m) 90			
Press.	Temp.	Salinity	Sigma-T
5	6.216	31.445	24.719
10	6.141	31.480	24.755
20	5.033	32.024	25.313
30	4.665	32.357	25.616
40	4.522	32.492	25.738
50	3.672	32.568	25.883
75	2.209	32.823	26.212

STATION US12238			
LATITUDE 42-18.3 N			
LONGITUD 140-31.3 E			
DEPTH (m) 94			
Press.	Temp.	Salinity	Sigma-T
5	6.887	31.254	24.484
10	6.653	31.276	24.531
20	6.418	31.396	24.655
30	4.572	32.276	25.562
40	4.261	32.554	25.815
50	3.396	32.710	26.022
75	2.597	32.980	26.307

STATION US12227			
LATITUDE 42-11.9 N			
LONGITUD 140-52.7 E			
DEPTH (m) 67			
Press.	Temp.	Salinity	Sigma-T
5	7.204	31.204	24.403
10	5.852	31.828	25.065
20	4.405	32.351	25.639
30	3.580	32.568	25.892
40	3.974	32.734	25.986
50	2.817	32.679	26.048

STATION US12230			
LATITUDE 42-20.4 N			
LONGITUD 140-51.1 E			
DEPTH (m) 45			
Press.	Temp.	Salinity	Sigma-T
5	8.774	30.396	23.549
10	5.581	31.476	24.818
20	4.282	32.365	25.663
30	2.902	32.582	25.964
40	2.928	32.765	26.108

STATION US12233			
LATITUDE 42-06.2 N			
LONGITUD 141-02.2 E			
DEPTH (m) 92			
Press.	Temp.	Salinity	Sigma-T
5	5.922	32.639	25.697
10	4.662	32.634	25.836
20	2.949	32.651	26.015
30	1.913	32.700	26.136
40	2.106	32.802	26.203
50	3.268	33.081	26.330
75	3.940	33.337	26.470

STATION US12236			
LATITUDE 42-11.7 N			
LONGITUD 140-36.8 E			
DEPTH (m) 85			
Press.	Temp.	Salinity	Sigma-T
5	7.363	31.272	24.436
10	7.270	31.316	24.482
20	7.079	31.404	24.577
30	5.137	32.008	25.289
40	4.583	32.434	25.686
50	4.263	32.668	25.905
75	2.633	33.238	26.510

STATION US12239			
LATITUDE 42-23.5 N			
LONGITUD 140-31.7 E			
DEPTH (m) 96			
Press.	Temp.	Salinity	Sigma-T
5	8.086	31.056	24.166
10	7.711	31.087	24.243
20	7.032	31.319	24.516
30	4.502	32.256	25.553
40	3.623	32.616	25.926
50	3.647	32.780	26.055
75	2.781	33.061	26.356

STATION US12228			
LATITUDE 42-17.5 N			
LONGITUD 140-48.7 E			
DEPTH (m) 64			
Press.	Temp.	Salinity	Sigma-T
5	7.374	31.061	24.268
10	5.675	31.774	25.043
20	4.483	32.243	25.545
30	3.924	32.587	25.875
40	2.947	32.620	25.990
50	2.638	32.690	26.072

STATION US12231			
LATITUDE 42-16.4 N			
LONGITUD 140-58.5 E			
DEPTH (m) 62			
Press.	Temp.	Salinity	Sigma-T
5	8.057	30.276	23.558
10	5.232	31.699	25.034
20	4.440	32.206	25.521
30	4.335	32.544	25.799
40	4.480	32.693	25.902
50	2.396	32.655	26.063

STATION US12234			
LATITUDE 41-58.7 N			
LONGITUD 141-02.1 E			
DEPTH (m) 104			
Press.	Temp.	Salinity	Sigma-T
5	6.872	31.142	24.398
10	6.937	31.250	24.474
20	4.914	32.565	25.755
30	3.739	32.585	25.891
40	3.013	32.697	26.046
50	7.072	33.556	26.272
75	6.103	33.800	26.591

STATION US12237			
LATITUDE 42-16.2 N			
LONGITUD 140-36.9 E			
DEPTH (m) 90			
Press.	Temp.	Salinity	Sigma-T
5	6.769	31.285	24.523
10	6.620	31.283	24.541
20	6.162	31.614	24.859
30	4.937	32.278	25.525
40	4.277	32.498	25.769
50	3.890	32.639	25.919
75	2.922	32.913	26.226

STATION US12240			
LATITUDE 42-22.1 N			
LONGITUD 140-37 E			
DEPTH (m) 86			
Press.	Temp.	Salinity	Sigma-T
5	7.491	31.213	24.372
10	7.172	31.249	24.443
20	5.747	31.684	24.963
30	4.240	32.444	25.729
40	3.835	32.593	25.888
50	3.627	32.749	26.032
75	2.674	33.164	26.448

STATION US12241			
LATITUDE 42-18.2 N			
LONGITUD 140-41.3 E			
DEPTH (m) 73			
Press.	Temp.	Salinity	Sigma-T
5	7.203	31.257	24.445
10	6.678	31.434	24.652
20	4.896	31.976	25.289
30	4.439	32.269	25.570
40	3.951	32.498	25.801
50	3.887	32.745	26.003

STATION US12244			
LATITUDE 42-17.1 N			
LONGITUD 140-54.1 E			
DEPTH (m) 57			
Press.	Temp.	Salinity	Sigma-T
5	5.962	32.277	25.406
10	5.964	32.280	25.408
20	6.175	32.399	25.476
30	4.381	32.500	25.760
40	4.459	32.695	25.906
50	3.766	32.782	26.045

STATION US12247			
LATITUDE 42-26.4 N			
LONGITUD 140-46.1 E			
DEPTH (m) 53			
Press.	Temp.	Salinity	Sigma-T
5	8.322	31.106	24.171
10	8.070	31.183	24.267
20	5.159	32.046	25.316
30	3.291	32.553	25.906
40	3.040	32.674	26.025

STATION US12250			
LATITUDE 42-29.2 N			
LONGITUD 140-40.6 E			
DEPTH (m) 65			
Press.	Temp.	Salinity	Sigma-T
5	9.056	30.826	23.843
10	7.830	31.230	24.339
20	5.083	31.975	25.269
30	4.157	32.513	25.793
40	3.868	32.659	25.938
50	3.568	32.762	26.048

STATION US12253			
LATITUDE 42-29.1 N			
LONGITUD 140-31.3 E			
DEPTH (m) 74			
Press.	Temp.	Salinity	Sigma-T
5	8.923	30.851	23.883
10	8.041	31.179	24.268
20	5.516	32.071	25.296
30	4.043	32.508	25.800
40	3.630	32.739	26.024
50	2.674	32.700	26.076

STATION US12242			
LATITUDE 42-15.1 N			
LONGITUD 140-30.6 E			
DEPTH (m) 86			
Press.	Temp.	Salinity	Sigma-T
5	8.147	31.078	24.174
10	7.994	31.131	24.237
20	5.955	31.590	24.864
30	4.580	32.466	25.712
40	3.543	32.594	25.916
50	2.665	32.706	26.083
75	2.605	33.132	26.427

STATION US12245			
LATITUDE 42-25.3 N			
LONGITUD 140-49.0 E			
DEPTH (m) 42			
Press.	Temp.	Salinity	Sigma-T
5	7.168	31.517	24.654
10	6.270	31.824	25.011
20	5.273	32.127	25.368
30	4.189	32.550	25.819

STATION US12248			
LATITUDE 42-28.1 N			
LONGITUD 140-43.4 E			
DEPTH (m) 60			
Press.	Temp.	Salinity	Sigma-T
5	8.165	31.197	24.265
10	7.973	31.185	24.283
20	5.500	31.912	25.172
30	4.221	32.503	25.778
40	3.240	32.578	25.931
50	3.056	32.768	26.099

STATION US12251			
LATITUDE 42-31.3 N			
LONGITUD 140-37.9 E			
DEPTH (m) 60			
Press.	Temp.	Salinity	Sigma-T
5	8.156	31.175	24.249
10	7.028	31.395	24.577
20	4.650	32.222	25.511
30	4.018	32.601	25.877
40	3.907	32.713	25.976
50	3.465	32.811	26.096

STATION US12254			
LATITUDE 42-26.6 N			
LONGITUD 140-25.4 E			
DEPTH (m) 43			
Press.	Temp.	Salinity	Sigma-T
5	8.283	31.041	24.126
10	7.121	31.313	24.500
20	4.392	32.388	25.670
30	3.781	32.676	25.959
40	3.389	32.760	26.063

STATION US12243			
LATITUDE 42-04.3 N			
LONGITUD 140-56.8 E			
DEPTH (m) 86			
Press.	Temp.	Salinity	Sigma-T
5	6.185	31.832	25.028
10	5.446	32.108	25.333
20	4.918	32.408	25.630
30	4.966	32.719	25.871
40	2.987	32.713	26.060
50	2.559	32.824	26.186
75	3.635	33.256	26.435

STATION US12246			
LATITUDE 42-24.4 N			
LONGITUD 140-46.0 E			
DEPTH (m) 50			
Press.	Temp.	Salinity	Sigma-T
5	8.267	31.136	24.202
10	7.814	31.262	24.365
20	6.254	31.818	25.008
30	4.135	32.482	25.770
40	3.578	32.652	25.959

STATION US12249			
LATITUDE 42-27.2 N			
LONGITUD 140-40.4 E			
DEPTH (m) 72			
Press.	Temp.	Salinity	Sigma-T
5	7.819	31.204	24.319
10	7.698	31.265	24.384
20	5.632	31.796	25.065
30	4.245	32.396	25.690
40	3.868	32.666	25.942
50	3.503	32.734	26.031

STATION US12252			
LATITUDE 42-30.4 N			
LONGITUD 140-34.8 E			
DEPTH (m) 68			
Press.	Temp.	Salinity	Sigma-T
5	8.738	30.705	23.796
10	7.723	31.196	24.326
20	4.942	32.094	25.378
30	4.185	32.431	25.725
40	3.796	32.751	26.017
50	3.506	32.812	26.093

STATION US12255			
LATITUDE 42-24.0 N			
LONGITUD 140-25.1 E			
DEPTH (m) 69			
Press.	Temp.	Salinity	Sigma-T
5	7.958	31.113	24.229
10	7.298	31.311	24.475
20	4.751	32.242	25.516
30	3.918	32.630	25.909
40	3.576	32.760	26.046
50	3.269	32.870	26.161

STATION US12256			
LATITUDE	42-21.7	N	
LONGITUD	140-24.8	E	
DEPTH (m)	68		
Press.	Temp.	Salinity	Sigma-T
5	8.310	31.080	24.153
10	7.106	31.388	24.561
20	4.941	32.278	25.524
30	3.817	32.700	25.975
40	3.451	32.808	26.096
50	3.112	32.913	26.209

STATION US12259			
LATITUDE	42-25.8	N	
LONGITUD	140-37.0	E	
DEPTH (m)	85		
Press.	Temp.	Salinity	Sigma-T
5	7.871	31.158	24.276
10	7.837	31.167	24.288
20	6.796	31.370	24.587
30	4.769	32.290	25.552
40	3.863	32.599	25.890
50	3.692	32.779	26.050
75	2.671	33.027	26.338

STATION US12262			
LATITUDE	41-29.9	N	
LONGITUD	140-22.6	E	
DEPTH (m)	73		
Press.	Temp.	Salinity	Sigma-T
5	9.415	33.879	26.174
10	9.233	33.936	26.248
20	8.651	34.051	26.430
30	8.584	34.058	26.446
40	7.372	34.075	26.638
50	7.245	34.119	26.691

STATION US12265			
LATITUDE	41-28.6	N	
LONGITUD	140-23.6	E	
DEPTH (m)	116		
Press.	Temp.	Salinity	Sigma-T
5	8.364	34.057	26.478
10	8.333	34.059	26.485
20	8.297	34.061	26.492
30	7.318	34.091	26.658
40	7.052	34.118	26.717
50	7.038	34.123	26.722
75	6.852	34.113	26.740
100	6.708	34.107	26.755

STATION US12268			
LATITUDE	41-25.9	N	
LONGITUD	140-22.9	E	
DEPTH (m)	120		
Press.	Temp.	Salinity	Sigma-T
5	9.382	34.127	26.373
10	9.278	34.147	26.406
20	8.708	34.160	26.506
30	8.383	34.156	26.554
40	8.362	34.157	26.557
50	8.315	34.154	26.562
75	7.924	34.124	26.597
100	6.442	34.099	26.784
125	6.242	34.100	26.810

STATION US12257			
LATITUDE	42-19.4	N	
LONGITUD	140-24.5	E	
DEPTH (m)	64		
Press.	Temp.	Salinity	Sigma-T
5	7.497	31.197	24.358
10	6.707	31.502	24.702
20	4.944	32.241	25.494
30	3.618	32.739	26.025
40	3.281	32.871	26.161
50	3.163	32.950	26.235

STATION US12260			
LATITUDE	42-23.4	N	
LONGITUD	140-42.2	E	
DEPTH (m)	64		
Press.	Temp.	Salinity	Sigma-T
5	7.983	31.132	24.240
10	7.867	31.172	24.288
20	6.330	31.592	24.820
30	4.388	32.383	25.666
40	3.672	32.573	25.887
50	3.604	32.741	26.028

STATION US12263			
LATITUDE	41-29.5	N	
LONGITUD	140-22.9	E	
DEPTH (m)	87		
Press.	Temp.	Salinity	Sigma-T
5	9.994	33.748	25.975
10	9.450	33.913	26.195
20	8.683	34.039	26.415
30	8.584	34.056	26.444
40	7.419	34.085	26.640
50	7.107	34.104	26.698
75	6.915	34.105	26.725

STATION US12266			
LATITUDE	41-27.9	N	
LONGITUD	140-24.5	E	
DEPTH (m)	159		
Press.	Temp.	Salinity	Sigma-T
5	8.238	34.057	26.498
10	8.214	34.061	26.504
20	7.505	34.109	26.646
30	7.493	34.128	26.663
40	7.449	34.135	26.675
50	7.321	34.135	26.693
75	7.297	34.137	26.698
100	7.243	34.135	26.703
125	7.082	34.126	26.719
150	6.982	34.123	26.730

STATION US12269			
LATITUDE	41-26.1	N	
LONGITUD	140-22.7	E	
DEPTH (m)	86		
Press.	Temp.	Salinity	Sigma-T
5	9.025	34.144	26.444
10	8.800	34.150	26.484
20	7.773	34.139	26.631
30	7.697	34.150	26.650
40	7.504	34.143	26.673
50	7.305	34.140	26.699
75	7.263	34.141	26.705

STATION US12258			
LATITUDE	42-15.9	N	
LONGITUD	140-27.0	E	
DEPTH (m)	67		
Press.	Temp.	Salinity	Sigma-T
5	7.650	31.249	24.378
10	7.585	31.236	24.377
20	4.747	32.262	25.532
30	4.279	32.653	25.892
40	3.311	32.756	26.067
50	3.214	32.909	26.197

STATION US12261			
LATITUDE	42-20.7	N	
LONGITUD	140-47.8	E	
DEPTH (m)	53		
Press.	Temp.	Salinity	Sigma-T
5	7.870	31.259	24.355
10	7.647	31.348	24.456
20	4.483	32.199	25.510
30	4.002	32.551	25.838
40	3.690	32.755	26.030

STATION US12264			
LATITUDE	41-29.2	N	
LONGITUD	140-23.1	E	
DEPTH (m)	97		
Press.	Temp.	Salinity	Sigma-T
5	9.552	33.880	26.152
10	8.820	33.993	26.358
20	8.525	34.053	26.451
30	8.470	34.057	26.463
40	7.641	34.080	26.604
50	7.008	34.106	26.713
75	6.823	34.107	26.740

STATION US12267			
LATITUDE	41-25.8	N	
LONGITUD	140-23.0	E	
DEPTH (m)	161		
Press.	Temp.	Salinity	Sigma-T
5	10.879	34.022	26.036
10	9.742	33.970	26.191
20	8.904	33.971	26.327
30	8.876	33.976	26.336
40	8.890	33.975	26.333
50	8.854	33.971	26.335
75	8.657	33.979	26.373
100	8.614	33.986	26.385
125	7.880	34.017	26.519

STATION US12270			
LATITUDE	41-27.0	N	
LONGITUD	140-21.2	E	
DEPTH (m)	76		
Press.	Temp.	Salinity	Sigma-T
5	8.393	34.132	26.533
10	7.873	34.125	26.605
20	7.599	34.135	26.653
30	7.343	34.133	26.688
40	7.344	34.136	26.690
50	7.299	34.136	26.697

STATION US12271			
LATITUDE	41-28.1	N	
LONGITUDE	140-19.8	E	
DEPTH (m)	63		
Press.	Temp.	Salinity	Sigma-T
5	9.061	34.022	26.343
10	8.736	34.040	26.408
20	8.379	34.060	26.479
30	7.670	34.113	26.626
40	7.530	34.124	26.655
50	7.430	34.127	26.671

STATION US12274			
LATITUDE	41-24.8	N	
LONGITUDE	140-19.3	E	
DEPTH (m)	91		
Press.	Temp.	Salinity	Sigma-T
5	8.215	34.111	26.543
10	7.964	34.106	26.577
20	7.748	34.102	26.606
30	7.252	34.091	26.667
40	6.117	34.072	26.804
50	5.737	34.074	26.853
75	5.237	34.080	26.919

STATION US12272			
LATITUDE	41-26.7	N	
LONGITUDE	140-17.5	E	
DEPTH (m)	63		
Press.	Temp.	Salinity	Sigma-T
5	8.872	34.123	26.452
10	8.148	34.110	26.552
20	7.709	34.120	26.625
30	7.510	34.124	26.657
40	7.514	34.126	26.659
50	7.489	34.127	26.662

STATION US12275			
LATITUDE	41-23.6	N	
LONGITUDE	140-20.5	E	
DEPTH (m)	116		
Press.	Temp.	Salinity	Sigma-T
5	11.189	33.973	25.942
10	9.950	34.019	26.194
20	9.394	34.041	26.304
30	7.427	34.040	26.603
40	5.595	34.073	26.870
50	5.701	34.084	26.866
75	5.548	34.091	26.890
100	5.579	34.093	26.888
125	5.644	34.093	26.880

STATION US12273			
LATITUDE	41-25.9	N	
LONGITUDE	140-18.8	E	
DEPTH (m)	84		
Press.	Temp.	Salinity	Sigma-T
5	8.390	34.115	26.520
10	7.925	34.114	26.589
20	7.896	34.125	26.602
30	7.496	34.110	26.648
40	7.403	34.113	26.664
50	7.393	34.115	26.667
75	6.094	34.087	26.819

STATION US12276			
LATITUDE	41-23.4	N	
LONGITUDE	140-20.4	E	
DEPTH (m)	152		
Press.	Temp.	Salinity	Sigma-T
5	8.922	34.067	26.400
10	8.699	34.071	26.438
20	8.409	34.082	26.491
30	5.898	34.055	26.819
40	5.782	34.082	26.854
50	5.661	34.085	26.872
75	5.665	34.091	26.876
100	5.668	34.093	26.877
125	5.679	34.092	26.875
150	5.698	34.092	26.873

THE " USHIO MARU "

CRUISE 258

CRUISE 259

CRUISE 260

IN MAY - JUNE 2012

1. Cruise Itinerary

Cruise 258

Departure from Hakodate	May	24,	2012
Start hydrographic research (US12277)		24	
Arrival at Aomori		24	
Departure from Aomori		25	
Finish hydrographic research (US12304)		25	
Return to Hakodate		26	
Total coverage 221.7 miles			

Cruise 259

Departure from Hakodate	May	30,	2012
Arrival at Usujiri		30	
Departure from Usujiri		31	
Sampling by bottom long-line		31	
Start hydrographic research (US12305)		31	
Arrival at and departure from		31	
Retrieval mooring ADCP system		31	
Arrival at Mori		31	
Departure from Mori	Jun.	1	
Set mooring ADCP system		1	
Finish hydrographic research (US12320)		1	
Arrival at and departure from Mori		1	
Return to Hakodate		2	
Total coverage 249.8 miles			

Cruise 260

Departure from Hakodate	Jun.	6,	2012
Start hydrographic research (US12321) and trawl net research		6	
Arrival at Aomori		6	
Departure from Aomori		7	
Arrival at and departure from Noheji		7	
Finish trawl net research		8	
Arrival at Hakodate		9	
Departure from Hakodate		11	
Arrival at and departure from Usujiri		11	
Start frame trawl net sampling		11	
Arrival at Usujiri		12	
Departure from Usujiri		14	
Finish frame trawl net sampling		15	
Arrival at Usujiri		16	
Departure from Usujiri		17	
Arrival at Muroran (anchorage)		17	
Departure from Muroran		18	
Finish hydrographic research (US12395)		19	
Return to Hakodate		19	
Total coverage 942.8 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”.

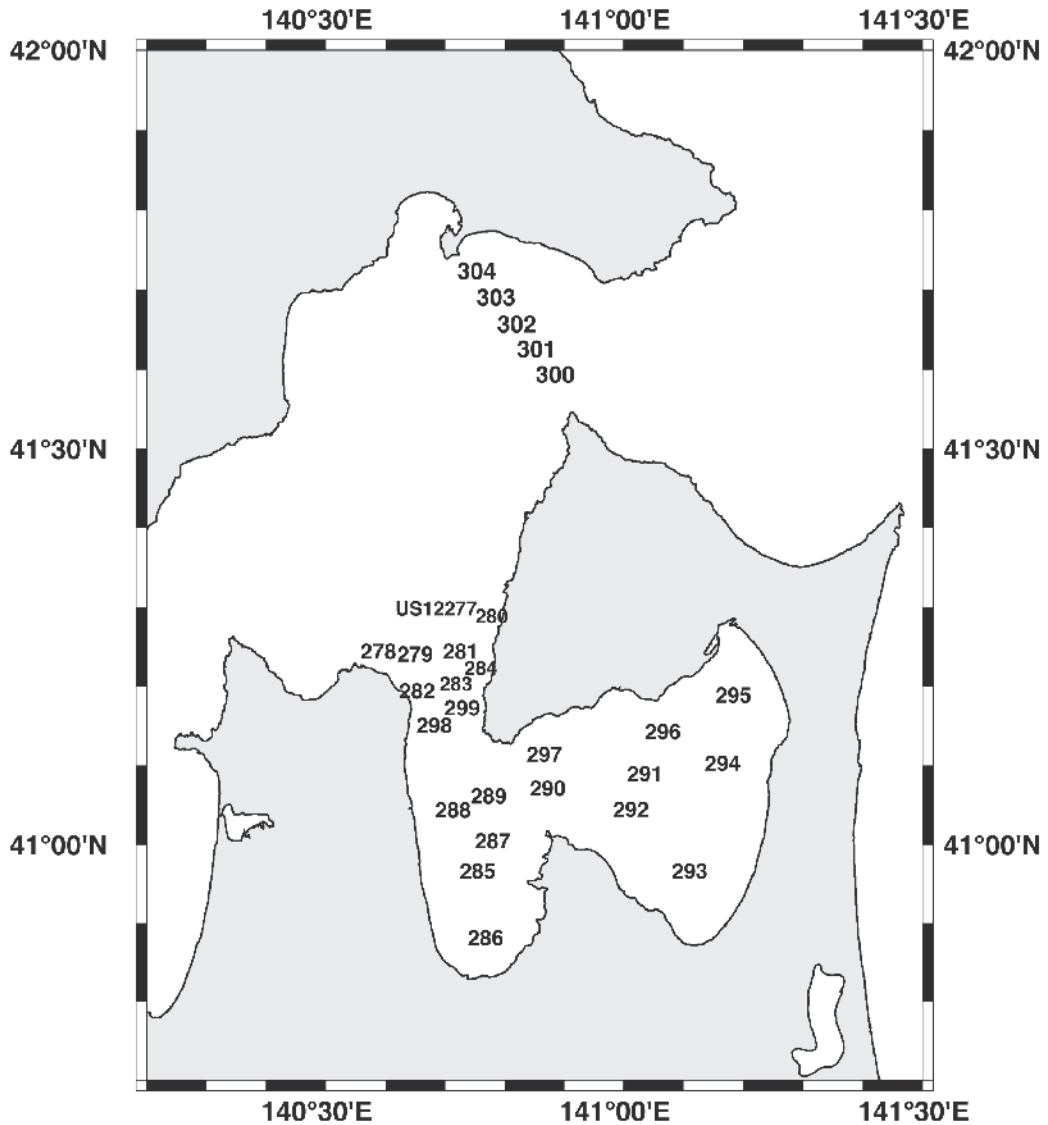


Figure 1. Oceanographic stations (Cruise 258)

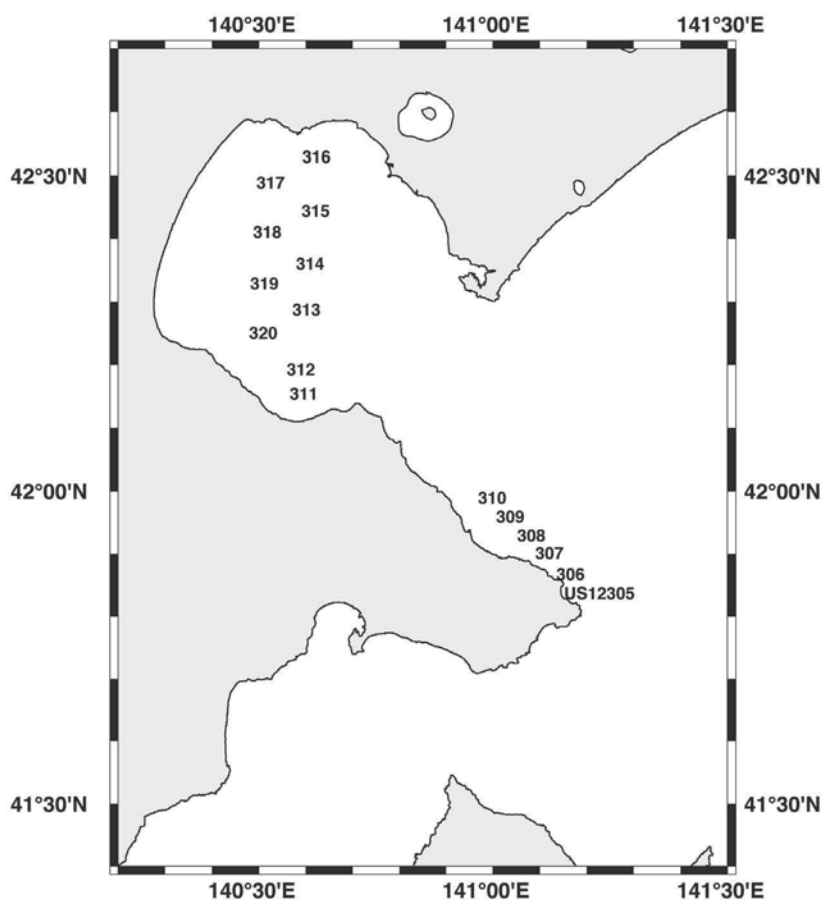


Figure 2. Oceanographic stations (Cruise 259)

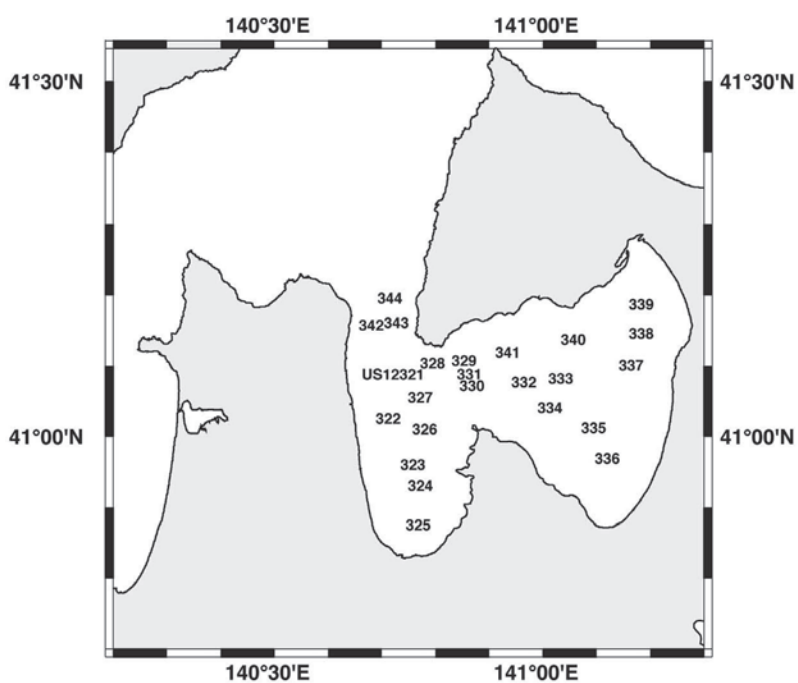


Figure 3. Oceanographic stations (Cruise 260-1)

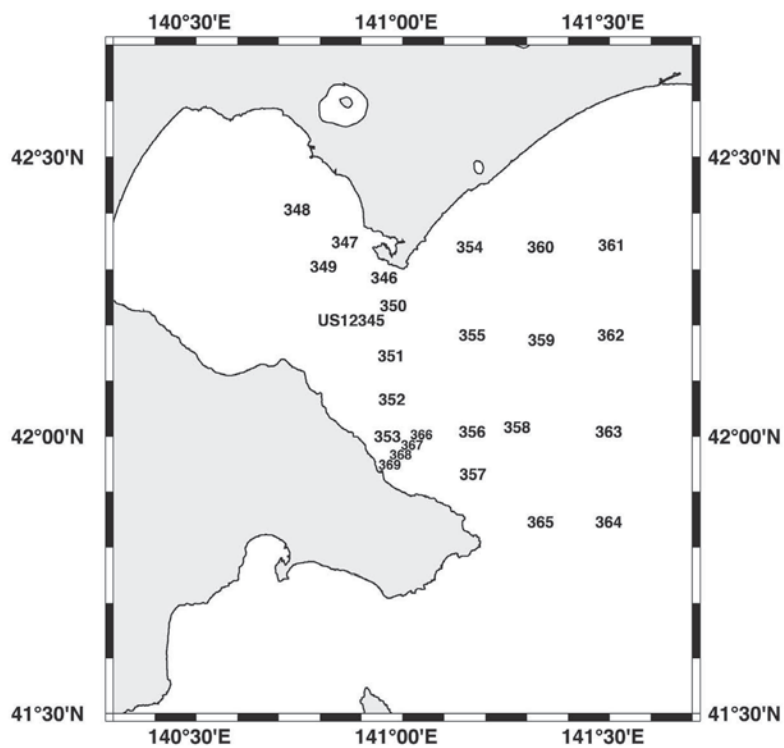


Figure 4. Oceanographic stations (Cruise 260-2)

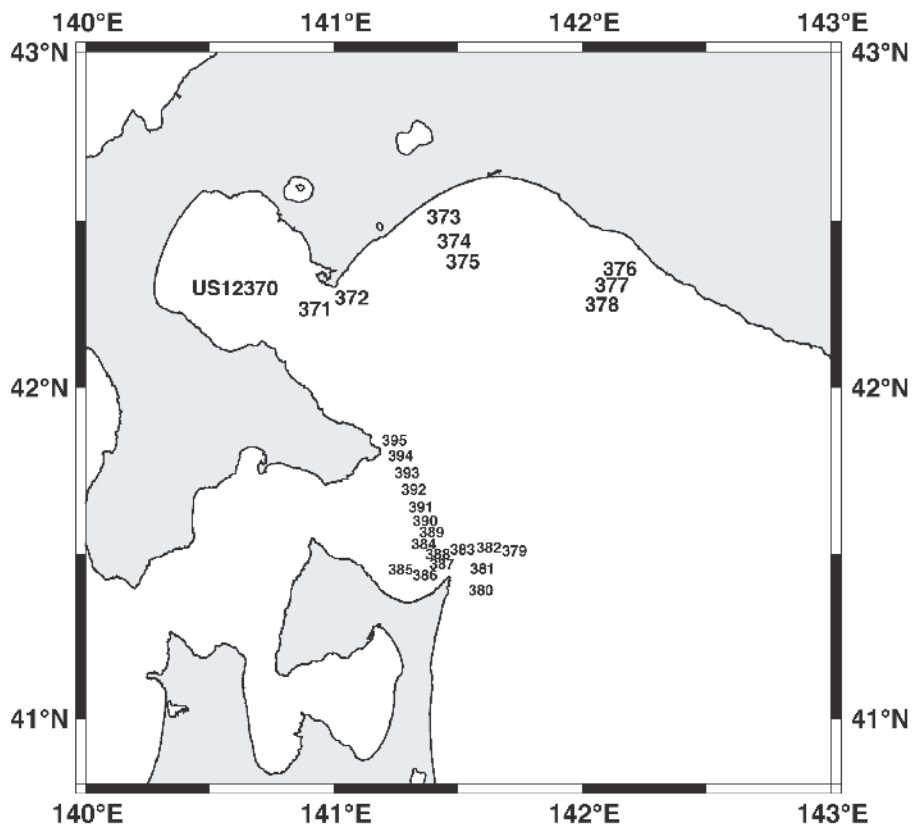


Figure 5. Oceanographic stations (Cruise 260-3)

Table 1. List of Oceanographic Station

Cruise 258												
Station	Lat. (N) ^a	Long. (E) ^a	Date	S.M.T.	Depth (m)	Wave	Swell	Wind	Air Temp.	Sea Temp.	Wr.	Bar. (hPa)
US12277	41-17.1	140-41.5	5/24	1109-1123	151	SW -1	West-1	SW -3	16.6	13.3	bc	1010.6
US12278	41-14.1	140-35.5	5/24	1154-1201	68	West-3	West-1	West-5	14.4	12.0	bc	1010.0
US12279	41-13.9	140-39.0	5/24	1222-1231	88	West-2	West-1	West-4	16.0	12.2	bc	1010.0
US12280	41-16.8	140-46.7	5/24	1314-1319	55	West-3	West-1	West-5	16.3	11.9	bc	1010.1
US12281	41-14.1	140-43.6	5/24	1350-1357	81	WNW-3	West-1	WNW-5	14.0	11.9	bc	1009.7
US12282	41-11.1	140-39.2	5/24	1429-1433	35	NW -3	NW -1	NW -5	14.5	12.4	bc	1009.5
US12283	41-12.3	140-43.1	5/24	1453-1459	74	NW -3	NW -1	NW -5	15.5	11.6	c	1009.1
US12284	41-12.9	140-45.6	5/24	1522-1530	65	North-3	NW -1	North-5	15.1	11.6	c	1009.6
US12285	40-57.4	140-45.3	5/24	1721-1729	51	West-3	NW -1	West-5	15.5	11.9	bc	1010.1
US12286	40-52.3	140-46.1	5/25	0609-0616	30	Calm	North-1	Calm	14.9	13.2	c	1010.6
US12287	40-59.7	140-46.8	5/25	0705-0711	51	Calm	North-1	Calm	14.6	12.0	c	1010.6
US12288	41-02.2	140-43.2	5/25	0734-0741	57	Calm	North-1	Calm	14.2	11.5	f	1010.6
US12289	41-02.8	140-46.0	5/25	0755-0803	52	NW -1	North-1	NW -3	14.9	11.6	o	1010.6
US12290	41-03.7	140-52.3	5/25	0837-0844	50	Calm	WNW-1	Calm	15.4	11.5	m	1010.4
US12291	41-04.8	141-02.1	5/25	0929-0935	47	Calm	WNW-1	Calm	15.3	11.8	m	1010.1
US12292	41-02.1	141-00.7	5/25	1044-1050	48	Calm	WNW-1	Calm	19.0	11.9	m	1010.0
US12293	40-57.4	141-06.6	5/25	1129-1133	37	Calm	West-1	Calm	18.1	12.5	c	1009.6
US12294	41-05.6	141-09.9	5/25	1234-1240	38	Calm	West-1	Calm	19.2	12.3	c	1009.6
US12295	41-10.8	141-11.0	5/25	1314-1317	31	Calm	South-1	Calm	20.5	13.0	o	1008.6
US12296	41-08.0	141-03.9	5/25	1403-1407	37	Calm	WSW-1	Calm	19.7	13.4	o	1008.3
US12297	41-06.3	140-52.0	5/25	1504-1510	51	Calm	WSW-1	Calm	16.2	12.0	o	1008.2
US12298	41-08.8	140-41.1	5/25	1607-1612	46	Calm	North-1	Calm	15.6	12.2	o	1008.1
US12299	41-09.2	140-43.7	5/25	1630-1636	58	Calm	North-1	Calm	14.8	11.3	o	1008.1
US12300	41-35.0	140-53.1	5/25	1923-1925	38	SSW-2	SW -1	SSW-4	14.2	12.0	o	1008.6
US12301	41-36.9	140-51.2	5/25	1946-1950	88	SW -2	ESE-1	SW -4	13.9	12.3	r	1008.6
US12302	41-38.8	140-49.2	5/25	20008-2021	341	SSW-1	ESE-1	SSW-3	13.9	11.9	r	1008.6
US12303	41-40.8	140-47.1	5/25	2040-2048	220	SSW-2	ESE-1	SSW-4	13.5	11.6	r	1008.6
US12304	41-42.8	140-45.2	5/25	2104-2108	85	SSW -3	ESE-1	SSW-5	13.3	11.5	r	1008.5
Cruise 259												
Station	Lat. (N) ^a	Long. (E) ^a	Date	S.M.T.	Depth (m)	Wave	Swell	Wind	Air Temp.	Sea Temp.	Wr.	Bar. (hPa)
US12305	41-49.5	141-13.2	5/31	0746-0753	178	NW -1	East-1	NW -2	13.5	9.6	bc	1021.1
US12306	41-51.5	141-09.9	5/31	0815-0820	105	NW -1	East-1	NW -3	11.9	10.9	bc	1021.1
US12307	41-53.5	141-07.2	5/31	0839-0843	95	NW -1	East-1	NW -2	12.1	10.6	bc	1021.1
US12308	41-55.2	141-04.9	5/31	1122-1128	111	Calm	East-1	Calm	14.1	10.5	bc	1020.5
US12309	41-57.0	141-02.2	5/31	1148-1153	105	Calm	East-1	Calm	15.8	10.6	bc	1020.2
US12310	41-58.8	140-59.9	5/31	1211-1215	87	Calm	East-1	Calm	16.3	10.1	bc	1019.8
US12311	42-08.7	140-35.8	6/1	0608-0613	63	Calm	NW -1	Calm	12.7	12.7	bc	1018.1
US12312	42-11.0	140-35.4	6/1	0641-0645	79	Calm	NW -1	Calm	13.1	10.8	bc	1018.1
US12313	42-16.7	140-36.1	6/1	0724-0730	90	West-1	ESE-1	West-3	13.7	10.8	bc	1018.0
US12314	42-21.1	140-36.6	6/1	0828-0831	87	Calm	ESE-1	Calm	13.0	10.9	c	1017.7
US12315	42-26.1	140-37.3	6/1	0905-0910	82	Calm	ESE-1	Calm	14.1	10.9	c	1017.5
US12316	42-31.2	140-37.4	6/1	1007-1010	61	Calm	SE -1	Calm	15.6	10.8	bc	1017.1
US12317	42-28.8	140-31.5	6/1	1041-1044	75	Calm	ESE-1	Calm	15.5	11.5	bc	1016.7
US12318	42-24.1	140-31.1	6/1	1115-1119	95	Calm	SE -1	Calm	17.0	11.8	bc	1016.6
US12319	42-19.2	140-30.7	6/1	1150-1154	93	Calm	SE -1	Calm	16.1	11.9	bc	1016.6
US12320	42-14.5	140-30.6	6/1	1224-1228	82	Calm	ESE-1	Calm	17.4	12.0	bc	1016.2

Cruise 260

Station	Lat. (N)*	Long. (E)*	Date	S.M.T.	Depth (m)	Wave	Swell	Wind	Air Temp.	Sea Temp.	Wr.	Bar. (hPa)
US12321	41-05.1	140-43.6	6/6	1219-1224	60	Calm	SE -1	Calm	15.9	15.0	o	1005.2
US12322	41-01.1	140-42.7	6/6	1401-1408	56	Calm	NE -1	Calm	16.6	15.3	r	1005.1
US12323	40-57.2	140-45.5	6/6	1443-1448	50	Calm	NE -1	Calm	16.4	15.1	r	1005.1
US12324	40-55.4	140-46.3	6/6	1603-1607	42	Calm	NE -1	Calm	16.0	15.2	r	1005.1
US12325	40-52.1	140-46.1	6/7	0606-0610	28	NE -1	NE -1	NE -3	15.8	16.2	o	1007.1
US12326	41-00.2	140-46.8	6/7	0746-0754	51	East-1	NE -1	East-2	15.3	15.7	o	1007.6
US12327	41-02.9	140-46.3	6/7	0942-0948	52	NE -1	NE -1	NE -2	15.2	14.9	o	1008.2
US12328	41-05.8	140-47.7	6/7	1011-1020	48	Calm	NE -1	Calm	15.6	14.5	m	1008.0
US12329	41-06.0	140-51.2	6/7	1042-1047	52	ESE-1	East-1	ESE-2	16.6	14.0	m	1008.0
US12330	41-03.9	140-52.1	6/7	1103-1113	50	Calm	East-1	Calm	17.4	14.3	bc	1008.0
US12331	41-04.6	140-51.8	6/7	1123-1132	52	Calm	East-1	Calm	17.2	14.4	bc	1008.0
US12332	41-04.2	140-57.9	6/7	1306-1310	49	Calm	East-1	Calm	18.3	15.9	bc	1007.7
US12333	41-04.5	141-02.0	6/7	1351-1356	47	Calm	East-1	Calm	19.1	15.8	bc	1007.6
US12334	41-02.0	141-00.8	6/7	1609-1615	48	Calm	East-1	Calm	20.7	16.3	bc	1007.6
US12335	41-00.3	141-05.7	6/7	1707-1711	44	SE -3	ESE-1	SE -5	17.0	16.5	bc	1007.7
US12336	40-57.7	141-07.2	6/7	1912-1917	38	ESE-1	ESE-1	ESE-3	16.9	16.5	bc	1008.2
US12337	41-05.6	141-09.9	6/8	0440-0447	38	SE -1	SE -1	SE -3	14.8	16.5	bc	1009.6
US12338	41-08.3	141-11.0	6/8	0524-0528	35	Calm	SE -1	Calm	15.6	15.5	bc	1009.5
US12339	41-10.8	141-11.0	6/8	0613-0618	30	NNE -2	North-1	NNE -4	14.4	16.2	f	1009.6
US12340	41-07.8	141-03.4	6/8	0716-0721	37	NE -2	NE -1	NE -4	15.4	15.3	o	1010.0
US12341	41-06.7	140-56.1	6/8	0809-0816	46	ENE-1	NE -1	ENE-2	16.4	15.9	o	1010.1
US12342	41-09.0	140-41.0	6/8	0931-0937	45	SE -1	NW -1	SE -2	17.2	15.6	c	1010.0
US12343	41-09.2	140-43.5	6/8	0953-1000	59	SE -1	NW -1	SE -2	16.4	15.6	o	1010.0
US12344	41-11.3	140-42.9	6/8	1039-1047	67	North-1	North-1	North-3	15.6	15.6	o	1010.0
US12345	42-11.9	140-52.5	6/11	1540-1544	68	South-1	ESE-1	South-3	19.7	14.7	bc	1006.7
US12346	42-16.5	140-57.3	6/11	1703-1706	59	ESE-1	ESE-1	ESE-3	15.9	13.4	bc	1007.4
US12347	42-20.3	140-51.6	6/11	1803-1806	43	ESE-1	ESE-1	ESE-3	15.6	14.5	bc	1007.7
US12348	42-23.8	140-44.7	6/11	1846-1850	51	ESE-1	ESE-1	ESE-4	16.0	14.7	bc	1008.5
US12349	42-17.7	140-48.5	6/11	1945-1948	65	East-1	East-1	East-5	14.1	14.2	o	1009.0
US12350	42-13.5	140-58.6	6/12	0023-0027	69	East-3	ESE-1	East-5	12.7	12.8	o	1011.1
US12351	42-08.1	140-58.3	6/12	0119-0126	84	East-3	ESE-1	East-5	12.5	13.5	o	1010.5
US12352	42-03.4	140-58.4	6/12	0200-0204	84	ESE-3	ESE-1	ESE-6	12.1	11.0	o	1010.4
US12353	41-58.9	140-58.4	6/12	0249-0255	82	ESE-3	ESE-1	ESE-5	12.4	12.0	o	1010.1
US12354	42-19.8	141-09.7	6/14	0919-0923	72	SE -2	ESE-1	SE -4	10.4	10.3	o	1019.8
US12355	42-10.3	141-10.1	6/14	1028-1033	121	SE -2	ESE-1	SE -4	10.9	10.5	o	1020.1
US12356	41-59.9	141-10.1	6/14	1144-1149	137	ESE-2	ESE-1	ESE-4	11.4	11.4	o	1019.8
US12357	41-55.3	141-10.2	6/14	1230-1237	186	SE -1	ESE-1	SE -3	11.3	10.5	o	1020.0
US12358	42-00.4	141-16.6	6/14	1430-1440	247	ESE-1	ESE-1	ESE-3	11.8	11.1	o	1019.8
US12359	42-09.8	141-20.1	6/15	0051-0104	360	East-1	ESE-1	East-3	11.0	11.6	bc	1020.6
US12360	42-19.8	141-20.0	6/15	0235-0244	253	Calm	ESE-1	Calm	10.6	10.3	c	1020.2
US12361	42-20.0	141-30.3	6/15	0410-0427	437	ESE-1	ESE-1	ESE-2	10.6	11.7	bc	1020.6
US12362	42-10.3	141-30.2	6/15	2202-2220	559	ESE-1	ESE-1	ESE-2	12.5	11.8	bc	1090.0
US12363	41-59.9	141-29.9	6/16	0013-0030	474	East-1	ESE-1	East-3	12.4	11.5	bc	1019.1
US12364	41-50.1	141-29.9	6/16	0210-0224	360	East-1	ESE-1	East-3	12.4	11.0	o	1017.3
US12365	41-50.1	141-20.0	6/16	0344-0354	282	East-1	ESE-1	East-3	12.4	11.5	o	1017.1
US12366	41-59.2	141-02.1	6/16	0637-0642	102	East-2	ESE-1	East-4	12.5	12.3	o	1016.6
US12367	41-58.7	141-00.7	6/16	0652-0656	93	SE -2	ESE-1	SE -3	12.8	12.4	o	1016.8
US12368	41-58.0	140-59.5	6/16	0705-0709	86	SE -2	ESE-1	SE -3	12.9	12.4	o	1016.7
US12369	41-57.4	140-58.3	6/16	0719-0723	78	ESE-2	ESE-1	ESE-3	12.9	11.0	o	1016.8
US12370	42-16.6	140-36.0	6/17	0919-0932	90	ENE-1	East-1	ENE-3	12.8	12.5	r	1007.6
US12371	42-12.9	140-55.4	6/17	1221-1225	68	NE -2	East-1	NE -4	13.8	12.4	o	1006.5
US12372	42-14.9	141-04.3	6/17	1342-1347	78	NE -2	East-1	NE -4	13.7	11.4	c	1005.6
US12373	42-29.4	141-26.5	6/18	0720-0730	78	South-1	SE -1	South-3	13.2	10.6	c	1009.5
US12374	42-25.0	141-29.0	6/18	0917-0924	192	South-1	SE -1	South-2	14.0	11.7	bc	1009.6
US12375	42-21.4	141-31.1	6/18	0955-1009	409	SW -2	SE -1	SW -4	14.1	12.1	bc	1010.0
US12376	42-20.1	142-09.0	6/18	1320-1330	70	West-2	SE -1	West-4	14.7	10.9	bc	1009.6
US12377	42-17.2	142-07.1	6/18	1432-1437	125	West-2	SE -1	West-4	14.0	10.8	bc	1009.2
US12378	42-13.7	142-04.7	6/18	1519-1539	615	West-2	SE -1	West-4	14.2	12.4	bc	1009.1
US12379	41-30.0	141-39.7	6/18	2023-2100	619	Wast-1	SE -1	Weat-4	14.1	11.0	bc	1012.6
US12380	41-22.6	141-34.2	6/18	2147-2201	202	Wast-1	SE -1	Weat-2	14.9	11.8	bc	1013.4
US12381	41-26.3	141-34.6	6/18	2233-2251	244	NW -1	SE -1	NW -2	15.8	12.9	bc	1013.2
US12382	41-29.9	141-34.7	6/18	2318-2327	114	North-1	SE -1	North-2	14.7	12.8	bc	1013.6
US12383	41-29.9	141-30.0	6/18	2356-0003	61	Calm	SE -1	Calm	14.8	12.0	bc	1013.6
US12384	41-30.2	141-21.2	6/19	0049-0104	228	Calm	SE -1	Calm	14.7	11.6	bc	1013.6
US12385	41-26.5	141-15.9	6/19	0140-0148	86	SSE-1	ENE-1	SSE-2	14.0	11.9	bc	1013.5
US12386	41-26.5	141-21.0	6/19	0217-0224	70	South-1	East-1	South-2	13.9	12.1	bc	1013.6
US12387	41-27.4	141-24.0	6/19	0243-0250	51	East-1	East-1	East-2	13.7	12.1	c	1013.6
US12388	41-28.8	141-23.5	6/19	0303-0312	89	East-1	East-1	East-2	13.7	12.5	c	1013.6
US12389	41-31.9	141-22.1	6/19	0336-0352	252	East-1	East-1	East-2	12.9	11.4	bc	1013.6
US12390	41-35.1	141-20.6	6/19	0418-0438	313	ESE-1	East-1	ESE-3	12.9	11.4	bc	1014.0
US12391	41-37.8	141-19.2	6/19	0459-0514	217	ESE-1	East-1	ESE-3	13.1	11.1	o	1014.0
US12392	41-40.8	141-17.6	6/19	0538-0554	230	ESE-1	East-1	ESE-3	13.1	11.8	o	1014.1
US12393	41-44.0	141-16.1	6/19	0619-0636	230	ESE-1	East-1	ESE-3	13.1	12.2	f	1014.2
US12394	41-46.9	141-14.6	6/19	0658-0713	200	ESE-1	East-1	ESE-3	13.0	12.6	f	1014.3
US12395	41-49.5	141-13.2	6/19	0734-0750	176	ESE-1	East-1	ESE-4	12.8	12.2	f	1014.6

(*): Fixed position by Global Positioning System

Table 2. Oceanographic data

STATION US12277			
LATITUDE 41-17.1 N			
LONGITUD 140-41.5 E			
DEPTH (m) 151			
Press.	Temp.	Salinity	Sigma-T
5	13.327	33.145	24.891
10	12.455	33.758	25.537
20	11.036	33.566	25.653
30	10.630	33.845	25.942
40	10.236	33.985	26.119
50	10.173	34.002	26.143
75	9.968	34.042	26.209
100	9.295	34.116	26.379
125	9.171	34.117	26.399
150	9.069	34.119	26.417

STATION US12280			
LATITUDE 41-16.8 N			
LONGITUD 140-46.7 E			
DEPTH (m) 55			
Press.	Temp.	Salinity	Sigma-T
5	11.040	32.507	24.828
10	11.019	32.593	24.899
20	11.208	32.951	25.143
30	11.192	33.134	25.288
40	10.639	33.312	25.524
50	8.587	33.795	26.239

STATION US12283			
LATITUDE 41-12.3 N			
LONGITUD 140-43.1 E			
DEPTH (m) 74			
Press.	Temp.	Salinity	Sigma-T
5	11.505	32.546	24.775
10	11.003	32.615	24.918
20	11.166	33.259	25.390
30	11.128	33.527	25.605
40	10.923	33.596	25.696
50	9.960	33.884	26.087

STATION US12286			
LATITUDE 40-52.3 N			
LONGITUD 140-46.1 E			
DEPTH (m) 30			
Press.	Temp.	Salinity	Sigma-T
5	12.770	32.568	24.554
10	12.364	32.756	24.778
20	10.908	33.449	25.584

STATION US12289			
LATITUDE 41-02.8 N			
LONGITUD 140-46.0 E			
DEPTH (m) 52			
Press.	Temp.	Salinity	Sigma-T
5	11.769	32.419	24.628
10	11.329	33.192	25.309
20	9.748	33.367	25.719
30	9.381	33.539	25.914
40	8.744	33.652	26.102

STATION US12278			
LATITUDE 41-14.1 N			
LONGITUD 140-35.5 E			
DEPTH (m) 68			
Press.	Temp.	Salinity	Sigma-T
5	12.262	33.333	25.245
10	11.442	33.549	25.566
20	10.992	33.741	25.796
30	10.813	33.798	25.873
40	10.237	33.949	26.091
50	9.948	34.010	26.187

STATION US12281			
LATITUDE 41-14.1 N			
LONGITUD 140-43.6 E			
DEPTH (m) 81			
Press.	Temp.	Salinity	Sigma-T
5	11.872	32.852	24.945
10	11.560	32.944	25.074
20	11.481	33.115	25.221
30	11.233	33.416	25.501
40	10.933	33.593	25.692
50	9.766	33.962	26.181
75	9.047	34.130	26.429

STATION US12284			
LATITUDE 41-12.9 N			
LONGITUD 140-45.6 E			
DEPTH (m) 65			
Press.	Temp.	Salinity	Sigma-T
5	11.634	32.449	24.676
10	10.907	32.537	24.874
20	10.563	32.807	25.144
30	9.984	33.380	25.690
40	8.554	33.553	26.054
50	8.867	33.896	26.275

STATION US12287			
LATITUDE 40-59.7 N			
LONGITUD 140-46.8 E			
DEPTH (m) 51			
Press.	Temp.	Salinity	Sigma-T
5	12.297	32.894	24.898
10	12.215	32.951	24.957
20	8.558	32.938	25.572
30	10.180	33.601	25.829
40	9.248	33.639	26.013

STATION US12290			
LATITUDE 41-03.7 N			
LONGITUD 140-52.3 E			
DEPTH (m) 50			
Press.	Temp.	Salinity	Sigma-T
5	10.874	32.500	24.852
10	10.417	32.989	25.311
20	10.426	33.342	25.585
30	10.262	33.582	25.800
40	9.307	33.518	25.909

STATION US12279			
LATITUDE 41-13.9 N			
LONGITUD 140-39.0 E			
DEPTH (m) 88			
Press.	Temp.	Salinity	Sigma-T
5	12.497	33.407	25.257
10	11.957	33.737	25.616
20	11.102	33.667	25.719
30	10.766	33.788	25.873
40	10.132	33.950	26.110
50	9.809	34.024	26.222
75	9.093	34.116	26.411

STATION US12282			
LATITUDE 41-11.1 N			
LONGITUD 140-39.2 E			
DEPTH (m) 35			
Press.	Temp.	Salinity	Sigma-T
5	13.177	32.967	24.783
10	12.450	33.052	24.991
20	11.986	33.231	25.218

STATION US12285			
LATITUDE 40-57.4 N			
LONGITUD 140-45.3 E			
DEPTH (m) 51			
Press.	Temp.	Salinity	Sigma-T
5	12.387	33.256	25.161
10	12.010	33.521	25.438
20	10.536	33.464	25.661
30	10.018	33.541	25.810
40	9.172	33.744	26.107

STATION US12288			
LATITUDE 41-02.2 N			
LONGITUD 140-43.2 E			
DEPTH (m) 57			
Press.	Temp.	Salinity	Sigma-T
5	11.547	32.232	24.523
10	10.890	32.831	25.106
20	9.445	33.177	25.620
30	9.933	33.574	25.850
40	8.384	33.549	26.077
50	8.234	33.696	26.215

STATION US12291			
LATITUDE 41-04.8 N			
LONGITUD 141-02.1 E			
DEPTH (m) 47			
Press.	Temp.	Salinity	Sigma-T
5	12.019	32.371	24.545
10	11.699	32.035	24.342
20	10.068	32.973	25.358
30	5.811	32.859	25.884
40	5.659	33.260	26.219

STATION US12292			
LATITUDE 41-02.1 N			
LONGITUD 141-00.7 E			
DEPTH (m) 48			
Press.	Temp.	Salinity	Sigma-T
5	12.047	32.720	24.810
10	11.828	32.802	24.915
20	8.269	32.662	25.398
30	10.117	33.522	25.778
40	8.752	33.534	26.009

STATION US12295			
LATITUDE 41-10.8 N			
LONGITUD 141-11.0 E			
DEPTH (m) 31			
Press.	Temp.	Salinity	Sigma-T
5	11.962	32.333	24.525
10	11.421	32.519	24.769
20	5.926	32.779	25.807

STATION US12298			
LATITUDE 41-08.8 N			
LONGITUD 140-41.1 E			
DEPTH (m) 46			
Press.	Temp.	Salinity	Sigma-T
5	12.226	32.873	24.895
10	12.104	33.093	25.088
20	11.886	33.304	25.294
30	11.311	33.480	25.536
40	10.982	33.658	25.734

STATION US12301			
LATITUDE 41-36.9 N			
LONGITUD 140-51.2 E			
DEPTH (m) 88			
Press.	Temp.	Salinity	Sigma-T
5	11.212	33.656	25.691
10	11.039	33.719	25.771
20	10.337	33.932	26.061
30	9.884	34.048	26.228
40	9.688	34.062	26.272
50	9.593	34.087	26.307
75	9.541	34.094	26.321

STATION US12304			
LATITUDE 41-42.8 N			
LONGITUD 140-45.2 E			
DEPTH (m) 85			
Press.	Temp.	Salinity	Sigma-T
5	10.601	33.880	25.974
10	10.153	33.959	26.113
20	9.643	34.034	26.257
30	9.258	34.048	26.332
40	9.102	34.065	26.370
50	8.867	34.084	26.422
75	8.370	34.106	26.516

STATION US12293			
LATITUDE 40-57.4 N			
LONGITUD 141-06.6 E			
DEPTH (m) 37			
Press.	Temp.	Salinity	Sigma-T
5	12.263	32.397	24.519
10	11.647	32.021	24.341
20	8.237	32.565	25.327
30	9.183	33.550	25.954

STATION US12296			
LATITUDE 41-08.0 N			
LONGITUD 141-03.9 E			
DEPTH (m) 37			
Press.	Temp.	Salinity	Sigma-T
5	12.536	32.637	24.653
10	11.835	32.639	24.787
20	9.979	33.006	25.399
30	5.599	33.003	26.023

STATION US12299			
LATITUDE 41-09.2 N			
LONGITUD 140-43.7 E			
DEPTH (m) 58			
Press.	Temp.	Salinity	Sigma-T
5	11.251	32.479	24.769
10	11.587	32.291	24.562
20	11.571	33.399	25.426
30	11.003	33.431	25.553
40	10.312	33.792	25.956
50	10.009	34.105	26.251

STATION US12302			
LATITUDE 41-38.8 N			
LONGITUD 140-49.2 E			
DEPTH (m) 341			
Press.	Temp.	Salinity	Sigma-T
5	11.392	33.592	25.608
10	11.266	33.613	25.648
20	10.935	33.696	25.772
30	10.757	33.754	25.849
40	10.418	33.829	25.966
50	9.849	33.940	26.149
75	9.267	34.076	26.352
100	9.318	34.112	26.372
125	9.242	34.118	26.389
150	9.103	34.123	26.415
175	9.069	34.125	26.422
200	9.062	34.126	26.424
250	8.846	34.128	26.460
300	8.684	34.130	26.487

STATION US12305			
LATITUDE 41-49.5 N			
LONGITUD 141-13.2 E			
DEPTH (m) 178			
Press.	Temp.	Salinity	Sigma-T
5	9.702	31.690	24.417
10	7.190	31.896	24.949
20	6.385	32.390	25.443
30	5.501	32.547	25.674
40	4.389	32.601	25.839
50	3.861	32.632	25.917
75	2.775	32.874	26.207
100	3.174	33.176	26.414
125	3.556	33.267	26.451
150	3.846	33.339	26.480

STATION US12294			
LATITUDE 41-05.6 N			
LONGITUD 141-09.9 E			
DEPTH (m) 38			
Press.	Temp.	Salinity	Sigma-T
5	12.208	32.410	24.539
10	11.792	32.531	24.711
20	7.639	32.668	25.494
30	5.238	33.049	26.102

STATION US12297			
LATITUDE 41-06.3 N			
LONGITUD 140-52.0 E			
DEPTH (m) 51			
Press.	Temp.	Salinity	Sigma-T
5	11.173	32.438	24.750
10	10.508	32.779	25.132
20	10.391	33.453	25.677
30	9.789	33.517	25.829
40	7.858	33.475	26.097

STATION US12300			
LATITUDE 41-35.0 N			
LONGITUD 140-53.1 E			
DEPTH (m) 38			
Press.	Temp.	Salinity	Sigma-T
5	10.995	33.739	25.794
10	10.688	33.833	25.922
20	10.632	33.858	25.951
30	10.625	33.861	25.955

STATION US12303			
LATITUDE 41-40.8 N			
LONGITUD 140-47.1 E			
DEPTH (m) 220			
Press.	Temp.	Salinity	Sigma-T
5	11.660	33.707	25.649
10	11.547	33.750	25.703
20	10.686	33.871	25.952
30	9.889	33.959	26.158
40	9.336	34.031	26.305
50	9.023	34.067	26.384
75	8.661	34.107	26.473
100	8.639	34.109	26.477
125	8.441	34.114	26.511
150	8.235	34.119	26.547
175	8.073	34.126	26.577
200	7.866	34.128	26.608

STATION US12306			
LATITUDE 41-51.5 N			
LONGITUD 141-09.9 E			
DEPTH (m) 105			
Press.	Temp.	Salinity	Sigma-T
5	10.082	31.518	24.221
10	8.397	31.828	24.726
20	6.459	32.419	25.456
30	4.767	32.546	25.756
40	3.890	32.676	25.949
50	3.491	32.756	26.050
75	2.910	32.991	26.289

STATION US12307			
LATITUDE	41-53.5	N	
LONGITUD	141-07.2	E	
DEPTH (m)	95		
Press.	Temp.	Salinity	Sigma-T
5	10.549	31.514	24.140
10	9.979	31.526	24.244
20	5.676	32.094	25.295
30	5.043	32.571	25.745
40	4.260	32.649	25.890
50	3.642	32.696	25.988
75	2.855	33.074	26.361

STATION US12310			
LATITUDE	41-58.8	N	
LONGITUD	140-59.9	E	
DEPTH (m)	87		
Press.	Temp.	Salinity	Sigma-T
5	9.692	31.518	24.285
10	9.588	31.561	24.335
20	5.380	32.229	25.436
30	4.901	32.479	25.688
40	4.292	32.584	25.836
50	3.421	32.715	26.024
75	2.842	33.112	26.392

STATION US12313			
LATITUDE	42-16.7	N	
LONGITUD	140-36.1	E	
DEPTH (m)	90		
Press.	Temp.	Salinity	Sigma-T
5	11.563	31.813	24.195
10	11.176	31.384	23.930
20	7.002	31.991	25.049
30	5.409	32.238	25.440
40	4.178	32.584	25.847
50	3.471	32.724	26.027
75	2.817	33.005	26.309

STATION US12316			
LATITUDE	42-31.2	N	
LONGITUD	140-37.4	E	
DEPTH (m)	61		
Press.	Temp.	Salinity	Sigma-T
5	10.757	31.393	24.010
10	10.197	31.497	24.186
20	8.109	31.794	24.741
30	4.826	32.280	25.538
40	3.804	32.625	25.917
50	3.329	32.780	26.084

STATION US12319			
LATITUDE	42-19.2	N	
LONGITUD	140-30.7	E	
DEPTH (m)	93		
Press.	Temp.	Salinity	Sigma-T
5	11.508	31.290	23.799
10	10.491	31.345	24.018
20	6.616	32.034	25.133
30	4.800	32.358	25.602
40	4.057	32.568	25.847
50	3.714	32.712	25.994
75	2.810	33.074	26.364

STATION US12308			
LATITUDE	41-55.2	N	
LONGITUD	141-04.9	E	
DEPTH (m)	111		
Press.	Temp.	Salinity	Sigma-T
5	10.135	31.585	24.265
10	9.815	31.623	24.347
20	5.742	32.088	25.283
30	5.164	32.543	25.709
40	4.329	32.682	25.910
50	3.309	32.772	26.079
75	2.243	32.974	26.330
100	3.574	33.285	26.464

STATION US12311			
LATITUDE	42-08.7	N	
LONGITUD	140-35.8	E	
DEPTH (m)	63		
Press.	Temp.	Salinity	Sigma-T
5	10.934	31.409	23.992
10	10.796	31.394	24.004
20	7.841	31.672	24.684
30	5.056	32.360	25.576
40	4.351	32.623	25.860
50	3.594	32.761	26.044

STATION US12314			
LATITUDE	42-21.1	N	
LONGITUD	140-36.6	E	
DEPTH (m)	87		
Press.	Temp.	Salinity	Sigma-T
5	10.948	31.271	23.882
10	10.774	31.273	23.914
20	9.714	31.345	24.146
30	6.033	32.071	25.235
40	4.393	32.497	25.756
50	3.595	32.709	26.003
75	2.826	33.069	26.359

STATION US12317			
LATITUDE	42-28.8	N	
LONGITUD	140-31.5	E	
DEPTH (m)	75		
Press.	Temp.	Salinity	Sigma-T
5	10.912	31.365	23.962
10	10.244	31.463	24.151
20	7.216	31.758	24.836
30	4.645	32.373	25.631
40	4.045	32.628	25.895
50	3.196	32.780	26.096

STATION US12320			
LATITUDE	42-14.5	N	
LONGITUD	140-30.6	E	
DEPTH (m)	82		
Press.	Temp.	Salinity	Sigma-T
5	11.151	31.231	23.816
10	9.721	31.509	24.272
20	6.011	32.121	25.277
30	4.538	32.369	25.640
40	4.157	32.577	25.843
50	3.404	32.717	26.027
75	2.795	33.033	26.333

STATION US12309			
LATITUDE	41-57.0	N	
LONGITUD	141-02.2	E	
DEPTH (m)	105		
Press.	Temp.	Salinity	Sigma-T
5	9.845	31.552	24.286
10	9.630	31.610	24.366
20	5.977	32.086	25.253
30	5.074	32.374	25.586
40	4.716	32.644	25.839
50	3.628	32.703	25.995
75	2.272	32.934	26.296
100	3.465	33.257	26.451

STATION US12312			
LATITUDE	42-11.0	N	
LONGITUD	140-35.4	E	
DEPTH (m)	79		
Press.	Temp.	Salinity	Sigma-T
5	10.754	31.442	24.048
10	9.959	31.594	24.300
20	4.979	32.257	25.503
30	4.618	32.496	25.731
40	4.336	32.680	25.907
50	3.678	32.761	26.036
75	2.745	33.132	26.416

STATION US12315			
LATITUDE	42-26.1	N	
LONGITUD	140-37.3	E	
DEPTH (m)	82		
Press.	Temp.	Salinity	Sigma-T
5	11.081	31.440	23.991
10	10.352	31.359	24.052
20	9.661	31.611	24.362
30	6.140	32.132	25.270
40	4.347	32.508	25.769
50	3.674	32.660	25.956
75	2.828	33.197	26.461

STATION US12318			
LATITUDE	42-24.1	N	
LONGITUD	140-31.1	E	
DEPTH (m)	95		
Press.	Temp.	Salinity	Sigma-T
5	11.419	31.290	23.814
10	10.433	31.331	24.017
20	7.495	31.924	24.930
30	4.775	32.298	25.558
40	3.928	32.653	25.927
50	3.415	32.755	26.056
75	2.733	33.178	26.454

STATION US12321			
LATITUDE	41-05.1	N	
LONGITUD	140-43.6	E	
DEPTH (m)	60		
Press.	Temp.	Salinity	Sigma-T
5	14.899	32.482	24.053
10	14.103	32.656	24.355
20	12.367	33.275	25.180
30	11.086	33.545	25.627
40	10.404	33.776	25.927
50	7.157	33.405	26.141

STATION US12322			
LATITUDE 41-01.1 N			
LONGITUD 140-42.7 E			
DEPTH (m) 56			
Press.	Temp.	Salinity	Sigma-T
5	15.061	32.619	24.124
10	14.217	32.646	24.324
20	12.338	32.978	24.955
30	11.494	33.414	25.451
40	10.631	33.663	25.800
50	9.004	33.675	26.080

STATION US12325			
LATITUDE 40-52.1 N			
LONGITUD 140-46.1 E			
DEPTH (m) 28			
Press.	Temp.	Salinity	Sigma-T
5	15.186	32.498	24.004
10	13.908	32.817	24.519
20	11.757	33.051	25.120

STATION US12328			
LATITUDE 41-05.8 N			
LONGITUD 140-47.7 E			
DEPTH (m) 48			
Press.	Temp.	Salinity	Sigma-T
5	14.102	32.227	24.024
10	13.314	32.531	24.419
20	11.769	33.160	25.204
30	10.430	33.491	25.700
40	8.027	33.273	25.914

STATION US12331			
LATITUDE 41-04.6 N			
LONGITUD 140-51.8 E			
DEPTH (m) 52			
Press.	Temp.	Salinity	Sigma-T
5	14.390	32.577	24.235
10	13.029	32.684	24.594
20	11.950	33.058	25.091
30	11.108	33.315	25.444
40	6.945	33.099	25.929
50	6.048	33.274	26.183

STATION US12334			
LATITUDE 41-02.0 N			
LONGITUD 141-00.8 E			
DEPTH (m) 48			
Press.	Temp.	Salinity	Sigma-T
5	16.325	33.046	24.171
10	14.186	32.489	24.209
20	11.897	32.786	24.889
30	9.015	32.902	25.473
40	8.065	33.366	25.981

STATION US12337			
LATITUDE 41-05.6 N			
LONGITUD 141-09.9 E			
DEPTH (m) 38			
Press.	Temp.	Salinity	Sigma-T
5	15.603	32.086	23.595
10	14.313	32.656	24.311
20	10.502	32.576	24.975
30	9.574	33.279	25.679

STATION US12323			
LATITUDE 40-57.2 N			
LONGITUD 140-45.5 E			
DEPTH (m) 50			
Press.	Temp.	Salinity	Sigma-T
5	14.850	32.487	24.068
10	13.671	32.983	24.696
20	12.409	33.194	25.109
30	10.569	33.522	25.701
40	9.139	33.577	25.981

STATION US12326			
LATITUDE 41-00.2 N			
LONGITUD 140-46.8 E			
DEPTH (m) 51			
Press.	Temp.	Salinity	Sigma-T
5	15.015	32.558	24.087
10	14.047	33.073	24.689
20	12.349	33.203	25.127
30	10.859	33.437	25.584
40	9.707	33.519	25.845

STATION US12329			
LATITUDE 41-06.0 N			
LONGITUD 140-51.2 E			
DEPTH (m) 52			
Press.	Temp.	Salinity	Sigma-T
5	14.429	32.233	23.961
10	13.258	32.411	24.337
20	12.664	33.060	24.956
30	11.139	33.245	25.384
40	6.698	33.148	26.000
50	6.026	33.224	26.146

STATION US12332			
LATITUDE 41-04.2 N			
LONGITUD 140-57.9 E			
DEPTH (m) 49			
Press.	Temp.	Salinity	Sigma-T
5	15.874	32.282	23.686
10	14.616	32.556	24.170
20	12.266	33.102	25.065
30	10.756	33.267	25.469
40	7.609	33.319	26.010

STATION US12335			
LATITUDE 41-00.3 N			
LONGITUD 141-05.7 E			
DEPTH (m) 44			
Press.	Temp.	Salinity	Sigma-T
5	15.673	32.186	23.657
10	13.483	32.120	24.067
20	12.145	32.665	24.749
30	10.107	33.310	25.614
40	8.004	33.330	25.961

STATION US12338			
LATITUDE 41-08.3 N			
LONGITUD 141-11.0 E			
DEPTH (m) 35			
Press.	Temp.	Salinity	Sigma-T
5	15.506	31.771	23.375
10	14.968	32.214	23.832
20	11.311	32.905	25.089
30	7.929	32.736	25.506

STATION US12324			
LATITUDE 40-55.4 N			
LONGITUD 140-46.3 E			
DEPTH (m) 42			
Press.	Temp.	Salinity	Sigma-T
5	15.257	32.463	23.961
10	13.500	33.175	24.879
20	12.304	33.265	25.184
30	10.379	33.530	25.740

STATION US12327			
LATITUDE 41-02.9 N			
LONGITUD 140-46.3 E			
DEPTH (m) 52			
Press.	Temp.	Salinity	Sigma-T
5	14.713	32.708	24.267
10	13.202	33.081	24.866
20	12.021	33.327	25.286
30	10.308	33.496	25.725
40	8.025	33.273	25.914

STATION US12330			
LATITUDE 41-03.9 N			
LONGITUD 140-52.1 E			
DEPTH (m) 50			
Press.	Temp.	Salinity	Sigma-T
5	14.267	32.465	24.173
10	12.605	32.593	24.606
20	11.731	33.067	25.138
30	11.030	33.366	25.498
40	8.046	33.184	25.841

STATION US12333			
LATITUDE 41-04.5 N			
LONGITUD 141-02.0 E			
DEPTH (m) 47			
Press.	Temp.	Salinity	Sigma-T
5	15.288	32.712	24.146
10	14.548	32.382	24.051
20	11.959	32.870	24.943
30	9.801	33.024	25.442
40	7.768	33.324	25.991

STATION US12336			
LATITUDE 40-57.7 N			
LONGITUD 141-07.2 E			
DEPTH (m) 38			
Press.	Temp.	Salinity	Sigma-T
5	15.457	32.110	23.646
10	13.808	32.500	24.295
20	10.622	32.654	25.014
30	9.887	33.378	25.704

STATION US12339			
LATITUDE 41-10.8 N			
LONGITUD 141-11.0 E			
DEPTH (m) 30			
Press.	Temp.	Salinity	Sigma-T
5	15.918	31.637	23.181
10	14.912	32.449	24.024
20	10.704	32.770	25.091

STATION US12340			
LATITUDE 41-07.8 N			
LONGITUD 141-03.4 E			
DEPTH (m) 37			
Press.	Temp.	Salinity	Sigma-T
5	15.459	31.476	23.158
10	15.065	32.139	23.753
20	10.384	32.571	24.991
30	6.885	32.837	25.731

STATION US12343			
LATITUDE 41-09.2 N			
LONGITUD 140-43.5 E			
DEPTH (m) 59			
Press.	Temp.	Salinity	Sigma-T
5	15.527	32.053	23.587
10	14.556	32.489	24.131
20	13.097	33.215	24.991
30	12.403	33.830	25.603
40	10.753	33.971	26.018
50	8.462	33.666	26.157

STATION US12346			
LATITUDE 42-16.5 N			
LONGITUD 140-57.3 E			
DEPTH (m) 59			
Press.	Temp.	Salinity	Sigma-T
5	11.114	31.564	24.081
10	11.296	32.283	24.608
20	8.213	32.005	24.892
30	7.281	32.185	25.165
40	6.462	32.394	25.436
50	6.141	32.571	25.617

STATION US12349			
LATITUDE 42-17.7 N			
LONGITUD 140-48.5 E			
DEPTH (m) 65			
Press.	Temp.	Salinity	Sigma-T
5	13.407	31.294	23.444
10	11.460	31.534	23.997
20	10.904	31.762	24.272
30	8.087	32.199	25.062
40	5.146	32.431	25.623
50	4.802	32.864	26.004

STATION US12352			
LATITUDE 42-03.4 N			
LONGITUD 140-58.4 E			
DEPTH (m) 84			
Press.	Temp.	Salinity	Sigma-T
5	10.683	31.511	24.114
10	9.624	31.617	24.372
20	7.740	32.334	25.217
30	6.400	32.699	25.684
40	4.510	32.869	26.039
50	3.316	32.972	26.238
75	3.042	33.123	26.383

STATION US12341			
LATITUDE 41-06.7 N			
LONGITUD 140-56.1 E			
DEPTH (m) 46			
Press.	Temp.	Salinity	Sigma-T
5	15.050	32.364	23.930
10	13.853	32.535	24.313
20	12.577	33.112	25.013
30	10.820	33.346	25.520
40	7.419	33.217	25.957

STATION US12344			
LATITUDE 41-11.3 N			
LONGITUD 140-42.9 E			
DEPTH (m) 67			
Press.	Temp.	Salinity	Sigma-T
5	15.053	32.325	23.899
10	14.677	32.472	24.092
20	13.279	33.222	24.960
30	12.096	33.857	25.683
40	11.524	34.106	25.984
50	11.190	34.144	26.075

STATION US12347			
LATITUDE 42-20.3 N			
LONGITUD 140-51.6 E			
DEPTH (m) 43			
Press.	Temp.	Salinity	Sigma-T
5	14.598	31.227	23.150
10	12.378	31.446	23.760
20	10.571	31.707	24.286
30	6.641	32.431	25.443

STATION US12350			
LATITUDE 42-13.5 N			
LONGITUD 140-58.6 E			
DEPTH (m) 69			
Press.	Temp.	Salinity	Sigma-T
5	12.377	32.144	24.301
10	11.290	32.268	24.597
20	9.121	32.577	25.202
30	9.001	32.986	25.541
40	5.221	32.766	25.880
50	5.177	32.830	25.935

STATION US12353			
LATITUDE 41-58.9 N			
LONGITUD 140-58.4 E			
DEPTH (m) 82			
Press.	Temp.	Salinity	Sigma-T
5	11.165	31.611	24.108
10	10.448	32.173	24.670
20	5.735	32.131	25.318
30	4.286	32.520	25.785
40	3.667	32.673	25.968
50	3.364	32.762	26.066
75	2.785	32.986	26.296

STATION US12342			
LATITUDE 41-09.0 N			
LONGITUD 140-41.0 E			
DEPTH (m) 45			
Press.	Temp.	Salinity	Sigma-T
5	15.993	32.663	23.952
10	15.215	33.212	24.547
20	13.070	33.702	25.373
30	12.854	33.771	25.470
40	12.806	33.780	25.486

STATION US12345			
LATITUDE 42-11.9 N			
LONGITUD 140-52.5 E			
DEPTH (m) 68			
Press.	Temp.	Salinity	Sigma-T
5	12.914	30.924	23.254
10	11.287	31.475	23.981
20	10.306	32.138	24.667
30	6.030	32.420	25.511
40	4.923	32.559	25.749
50	4.176	32.775	25.999

STATION US12348			
LATITUDE 42-23.8 N			
LONGITUD 140-44.7 E			
DEPTH (m) 51			
Press.	Temp.	Salinity	Sigma-T
5	13.622	31.351	23.445
10	12.206	31.362	23.727
20	11.368	31.375	23.890
30	7.359	31.802	24.853
40	4.266	32.498	25.770

STATION US12351			
LATITUDE 42-08.1 N			
LONGITUD 140-58.3 E			
DEPTH (m) 84			
Press.	Temp.	Salinity	Sigma-T
5	12.079	31.672	23.991
10	11.052	32.291	24.658
20	8.523	32.790	25.461
30	5.335	32.647	25.773
40	4.417	32.766	25.967
50	4.177	32.875	26.079
75	3.521	32.983	26.228

STATION US12354			
LATITUDE 42-19.8 N			
LONGITUD 141-09.7 E			
DEPTH (m) 72			
Press.	Temp.	Salinity	Sigma-T
5	11.157	32.554	24.843
10	11.136	32.553	24.847
20	10.289	32.872	25.242
30	9.859	33.026	25.434
40	8.578	33.141	25.727
50	7.191	32.996	25.815

STATION US12355			
LATITUDE 42-10.3 N			
LONGITUD 141-10.1 E			
DEPTH (m) 121			
Press.	Temp.	Salinity	Sigma-T
5	10.641	32.467	24.866
10	10.624	32.467	24.869
20	9.638	32.508	25.066
30	9.034	33.341	25.814
40	4.339	32.901	26.082
50	3.629	33.039	26.263
75	3.751	33.291	26.451
100	4.455	33.448	26.504

STATION US12356			
LATITUDE 41-59.9 N			
LONGITUD 141-10.1 E			
DEPTH (m) 137			
Press.	Temp.	Salinity	Sigma-T
5	11.660	32.191	24.471
10	11.616	32.195	24.482
20	7.987	32.721	25.486
30	5.888	32.763	25.799
40	4.351	32.916	26.093
50	4.595	33.106	26.218
75	5.480	33.562	26.480
100	5.138	33.560	26.518
125	4.480	33.503	26.545

STATION US12357			
LATITUDE 41-55.3 N			
LONGITUD 141-10.2 E			
DEPTH (m) 186			
Press.	Temp.	Salinity	Sigma-T
5	10.737	32.050	24.525
10	10.504	32.067	24.578
20	8.517	32.795	25.466
30	4.968	32.625	25.796
40	4.224	32.855	26.058
50	3.092	32.843	26.155
75	3.055	33.105	26.368
100	6.099	33.670	26.489
125	5.805	33.662	26.519
150	4.999	33.574	26.545

STATION US12358			
LATITUDE 42-00.4 N			
LONGITUD 141-16.6 E			
DEPTH (m) 247			
Press.	Temp.	Salinity	Sigma-T
5	11.020	31.978	24.419
10	10.932	31.987	24.442
20	8.720	33.101	25.674
30	6.644	33.149	26.008
40	5.261	33.187	26.208
50	5.292	33.304	26.297
75	6.543	33.691	26.449
100	5.176	33.538	26.496
125	4.951	33.538	26.521
150	4.565	33.533	26.560
175	4.443	33.541	26.579
200	4.315	33.566	26.613

STATION US12359			
LATITUDE 42-09.8 N			
LONGITUD 141-20.1 E			
DEPTH (m) 360			
Press.	Temp.	Salinity	Sigma-T
5	11.722	32.062	24.360
10	11.719	32.065	24.362
20	9.314	33.104	25.584
30	8.941	33.445	25.910
40	7.935	33.527	26.126
50	7.114	33.599	26.299
75	6.046	33.578	26.423
100	5.166	33.529	26.490
125	4.797	33.518	26.523
150	4.426	33.507	26.554
175	4.096	33.489	26.574
200	3.567	33.444	26.591
250	3.489	33.495	26.639
300	2.696	33.475	26.694

STATION US12360			
LATITUDE 42-19.8 N			
LONGITUD 141-20.0 E			
DEPTH (m) 253			
Press.	Temp.	Salinity	Sigma-T
5	10.437	32.766	25.134
10	10.135	32.766	25.185
20	9.489	32.735	25.268
30	8.535	32.831	25.491
40	6.337	32.990	25.923
50	4.737	33.089	26.189
75	4.942	33.465	26.465
100	5.316	33.564	26.500
125	4.573	33.518	26.548
150	4.405	33.528	26.573
175	4.149	33.513	26.588
200	3.889	33.502	26.606

STATION US12361			
LATITUDE 42-20.0 N			
LONGITUD 141-30.3 E			
DEPTH (m) 437			
Press.	Temp.	Salinity	Sigma-T
5	11.618	32.531	24.743
10	11.279	32.584	24.845
20	9.218	33.002	25.519
30	6.756	32.898	25.796
40	7.782	33.535	26.155
50	7.154	33.553	26.258
75	7.935	33.907	26.425
100	6.753	33.766	26.480
125	5.370	33.606	26.528
150	4.905	33.632	26.602
175	4.224	33.512	26.580
200	4.071	33.502	26.587
250	3.146	33.449	26.634
300	2.829	33.474	26.682
400	2.894	33.749	26.896

STATION US12362			
LATITUDE 42-10.3 N			
LONGITUD 141-30.2 E			
DEPTH (m) 559			
Press.	Temp.	Salinity	Sigma-T
5	11.683	32.564	24.757
10	11.368	32.590	24.834
20	10.249	32.800	25.193
30	7.807	33.535	26.152
40	7.885	33.742	26.303
50	8.004	33.814	26.342
75	7.845	33.857	26.399
100	7.816	33.895	26.433
125	7.669	33.895	26.455
150	6.438	33.740	26.501
175	4.976	33.576	26.549
200	4.331	33.520	26.575
250	3.426	33.448	26.608
300	3.059	33.476	26.663
400	2.612	33.575	26.781
500	3.197	33.885	26.977

STATION US12363			
LATITUDE 41-59.9 N			
LONGITUD 141-29.9 E			
DEPTH (m) 474			
Press.	Temp.	Salinity	Sigma-T
5	11.699	32.539	24.734
10	11.141	32.610	24.890
20	9.985	32.710	25.166
30	6.673	33.044	25.922
40	7.165	33.450	26.175
50	6.929	33.533	26.273
75	7.287	33.806	26.438
100	6.510	33.703	26.463
125	4.884	33.524	26.518
150	4.132	33.478	26.562
175	3.841	33.469	26.584
200	3.449	33.445	26.603
250	3.048	33.442	26.637
300	2.140	33.388	26.670
400	2.510	33.553	26.772

STATION US12364			
LATITUDE 41-50.1 N			
LONGITUD 141-29.9 E			
DEPTH (m) 360			
Press.	Temp.	Salinity	Sigma-T
5	10.491	32.184	24.672
10	9.257	32.482	25.107
20	6.512	32.982	25.894
30	4.857	33.104	26.188
40	8.212	33.892	26.372
50	7.896	33.881	26.410
75	6.328	33.687	26.473
100	4.714	33.485	26.506
125	4.022	33.460	26.559
150	4.144	33.505	26.583
175	3.711	33.471	26.599
200	3.391	33.468	26.627
250	2.616	33.465	26.693
300	2.477	33.567	26.786

STATION US12365			
LATITUDE 41-50.1 N			
LONGITUD 141-20.0 E			
DEPTH (m) 282			
Press.	Temp.	Salinity	Sigma-T
5	11.752	32.093	24.378
10	9.830	32.740	25.216
20	8.156	33.282	25.902
30	4.309	32.835	26.033
40	3.974	33.085	26.266
50	8.230	33.956	26.419
75	8.323	33.981	26.425
100	6.484	33.721	26.480
125	6.002	33.692	26.519
150	6.469	33.808	26.551
175	4.982	33.631	26.592
200	4.400	33.594	26.627
250	3.331	33.566	26.710

STATION US12366			
LATITUDE 41-59.2 N			
LONGITUD 141-02.1 E			
DEPTH (m) 102			
Press.	Temp.	Salinity	Sigma-T
5	12.461	32.162	24.299
10	12.580	32.539	24.569
20	10.538	33.032	25.324
30	9.739	33.159	25.558
40	5.815	32.736	25.787
50	4.563	32.866	26.031
75	3.511	33.004	26.246

STATION US12367			
LATITUDE 41-58.7 N			
LONGITUD 141-00.7 E			
DEPTH (m) 93			
Press.	Temp.	Salinity	Sigma-T
5	12.634	32.083	24.205
10	12.572	32.366	24.436
20	10.797	32.677	25.003
30	10.515	33.132	25.406
40	10.155	33.273	25.577
50	6.397	32.780	25.749
75	3.531	32.958	26.207

STATION US12368			
LATITUDE 41-58.0 N			
LONGITUD 140-59.5 E			
DEPTH (m) 86			
Press.	Temp.	Salinity	Sigma-T
5	12.543	32.284	24.378
10	11.765	32.461	24.661
20	7.811	32.118	25.038
30	6.525	32.332	25.379
40	5.743	32.493	25.603
50	4.833	32.583	25.777
75	2.893	32.903	26.221

STATION US12369			
LATITUDE 41-57.4 N			
LONGITUD 140-58.3 E			
DEPTH (m) 78			
Press.	Temp.	Salinity	Sigma-T
5	10.387	31.644	24.268
10	10.726	32.003	24.490
20	9.758	32.111	24.737
30	7.437	32.239	25.186
40	5.842	32.470	25.573
50	4.188	32.590	25.850
75	2.914	32.867	26.190

STATION US12370			
LATITUDE 42-16.6 N			
LONGITUD 140-36.0 E			
DEPTH (m) 90			
Press.	Temp.	Salinity	Sigma-T
5	12.629	31.413	23.687
10	12.277	31.582	23.884
20	11.657	31.660	24.059
30	7.267	31.926	24.962
40	4.495	32.444	25.703
50	3.867	32.654	25.933
75	2.878	33.015	26.311

STATION US12371			
LATITUDE 42-12.9 N			
LONGITUD 140-55.4 E			
DEPTH (m) 68			
Press.	Temp.	Salinity	Sigma-T
5	11.605	31.737	24.128
10	10.379	31.903	24.472
20	10.569	32.302	24.750
30	8.960	32.266	24.984
40	5.536	32.302	25.476
50	4.744	32.582	25.786

STATION US12372			
LATITUDE 42-14.9 N			
LONGITUD 141-04.3 E			
DEPTH (m) 78			
Press.	Temp.	Salinity	Sigma-T
5	11.396	32.561	24.806
10	11.331	32.557	24.815
20	10.255	32.564	25.007
30	8.983	32.969	25.531
40	7.773	32.939	25.688
50	6.230	32.981	25.929

STATION US12373			
LATITUDE 42-29.4 N			
LONGITUD 141-26.5 E			
DEPTH (m) 78			
Press.	Temp.	Salinity	Sigma-T
5	10.811	32.246	24.665
10	10.487	32.317	24.776
20	10.243	32.457	24.926
30	9.978	32.581	25.067
40	9.829	32.715	25.196
50	9.660	33.157	25.570

STATION US12374			
LATITUDE 42-25.0 N			
LONGITUD 141-29.0 E			
DEPTH (m) 192			
Press.	Temp.	Salinity	Sigma-T
5	11.569	32.617	24.818
10	11.435	32.649	24.868
20	9.131	32.785	25.364
30	9.406	33.192	25.638
40	5.646	32.872	25.914
50	4.810	32.876	26.012
75	5.161	33.430	26.412
100	5.830	33.615	26.480
125	5.444	33.590	26.506
150	5.212	33.570	26.517
175	4.619	33.520	26.544

STATION US12375			
LATITUDE 42-21.4 N			
LONGITUD 141-31.1 E			
DEPTH (m) 409			
Press.	Temp.	Salinity	Sigma-T
5	11.891	32.390	24.583
10	11.748	32.457	24.661
20	9.752	33.112	25.519
30	8.113	33.190	25.836
40	8.447	33.556	26.073
50	8.615	33.751	26.200
75	6.524	33.615	26.391
100	7.193	33.874	26.505
125	6.000	33.709	26.533
150	4.720	33.546	26.554
175	4.169	33.505	26.580
200	3.958	33.498	26.596
250	3.415	33.476	26.631
300	3.116	33.515	26.689
400	2.767	33.691	26.861

STATION US12376			
LATITUDE	42-20.1	N	
LONGITUD	142-09.0	E	
DEPTH (m)	70		
Press.	Temp.	Salinity	Sigma-T
5	10.692	31.862	24.386
10	10.266	32.697	25.109
20	10.406	32.921	25.260
30	9.076	32.976	25.522
40	6.948	33.170	25.984
50	7.017	33.498	26.233

STATION US12377			
LATITUDE	42-17.2	N	
LONGITUD	142-07.1	E	
DEPTH (m)	125		
Press.	Temp.	Salinity	Sigma-T
5	11.087	32.785	25.036
10	10.787	32.818	25.114
20	11.142	33.270	25.403
30	8.209	33.064	25.723
40	6.312	33.122	26.029
50	3.918	33.031	26.228
75	7.222	33.849	26.482
100	4.487	33.485	26.530

STATION US12378			
LATITUDE	42-13.7	N	
LONGITUD	142-04.7	E	
DEPTH (m)	615		
Press.	Temp.	Salinity	Sigma-T
5	12.437	32.588	24.634
10	11.857	32.609	24.759
20	10.422	33.161	25.445
30	8.667	33.086	25.671
40	6.659	33.152	26.009
50	9.588	34.021	26.257
75	8.036	33.812	26.336
100	7.206	33.787	26.435
125	5.432	33.607	26.521
150	4.098	33.443	26.538
175	3.939	33.466	26.572
200	3.772	33.478	26.598
250	3.174	33.460	26.640
300	2.664	33.485	26.705
400	3.042	33.714	26.855
500	3.089	33.831	26.944

STATION US12379			
LATITUDE	41-30.0	N	
LONGITUD	141-39.7	E	
DEPTH (m)	619		
Press.	Temp.	Salinity	Sigma-T
5	10.775	33.389	25.561
10	11.183	33.518	25.589
20	12.095	33.802	25.640
30	12.058	33.825	25.666
40	11.399	33.794	25.764
50	10.998	33.865	25.892
75	11.029	34.009	25.999
100	10.665	34.007	26.062
125	10.512	34.044	26.117
150	10.280	34.066	26.175
175	10.188	34.104	26.220
200	10.062	34.100	26.239
250	9.716	34.062	26.267
300	8.443	33.983	26.408
400	2.829	33.615	26.795
500	3.225	33.895	26.982
600	3.324	34.005	27.061

STATION US12380			
LATITUDE	41-22.6	N	
LONGITUD	141-34.2	E	
DEPTH (m)	202		
Press.	Temp.	Salinity	Sigma-T
5	11.858	33.477	25.433
10	11.820	33.517	25.471
20	11.715	33.568	25.531
30	11.646	33.629	25.590
40	11.867	33.711	25.613
50	11.492	33.914	25.840
75	10.984	34.007	26.005
100	11.004	34.028	26.018
125	10.668	34.025	26.075
150	10.652	34.040	26.090

STATION US12381			
LATITUDE	41-26.3	N	
LONGITUD	141-34.6	E	
DEPTH (m)	244		
Press.	Temp.	Salinity	Sigma-T
5	13.203	33.804	25.426
10	12.168	34.091	25.851
20	11.874	33.926	25.779
30	11.658	33.883	25.786
40	11.680	33.889	25.786
50	11.626	33.879	25.789
75	10.974	33.879	25.907
100	10.987	33.995	25.995
125	10.871	34.031	26.044
150	10.764	34.056	26.083
175	10.665	34.061	26.104
200	10.579	34.057	26.116

STATION US12382			
LATITUDE	41-29.9	N	
LONGITUD	141-34.7	E	
DEPTH (m)	114		
Press.	Temp.	Salinity	Sigma-T
5	12.381	33.797	25.582
10	12.321	33.832	25.621
20	11.821	33.951	25.808
30	11.652	33.974	25.858
40	11.657	33.975	25.858
50	11.537	33.993	25.893
75	11.086	34.027	26.003
100	10.567	34.037	26.102

STATION US12383			
LATITUDE	41-29.9	N	
LONGITUD	141-30.0	E	
DEPTH (m)	61		
Press.	Temp.	Salinity	Sigma-T
5	11.840	33.304	25.302
10	11.824	33.336	25.329
20	11.003	34.030	26.020
30	10.981	34.040	26.032
40	10.937	34.044	26.042
50	10.933	34.045	26.044

STATION US12384			
LATITUDE	41-30.2	N	
LONGITUD	141-21.2	E	
DEPTH (m)	228		
Press.	Temp.	Salinity	Sigma-T
5	11.807	33.694	25.611
10	11.414	33.878	25.827
20	11.132	34.004	25.976
30	10.871	34.083	26.084
40	10.790	34.092	26.106
50	10.733	34.095	26.118
75	10.615	34.099	26.142
100	10.540	34.105	26.160
125	10.466	34.103	26.171
150	10.355	34.105	26.192
175	10.270	34.106	26.208
200	10.234	34.109	26.216

STATION US12385			
LATITUDE 41-26.5 N			
LONGITUD 141-15.9 E			
DEPTH (m) 86			
Press.	Temp.	Salinity	Sigma-T
5	12.046	33.781	25.634
10	11.933	33.833	25.695
20	11.577	33.908	25.820
30	11.271	34.001	25.949
40	10.786	34.054	26.077
50	10.637	34.065	26.112
75	10.255	34.095	26.202

STATION US12388			
LATITUDE 41-28.8 N			
LONGITUD 141-23.5 E			
DEPTH (m) 89			
Press.	Temp.	Salinity	Sigma-T
5	11.648	33.799	25.722
10	11.533	34.008	25.906
20	11.235	34.061	26.002
30	11.117	34.063	26.025
40	11.082	34.060	26.029
50	11.025	34.052	26.033
75	10.907	34.042	26.046

STATION US12391			
LATITUDE 41-37.8 N			
LONGITUD 141-19.2 E			
DEPTH (m) 217			
Press.	Temp.	Salinity	Sigma-T
5	10.775	33.504	25.651
10	10.234	33.535	25.769
20	9.968	33.758	25.988
30	9.829	33.779	26.028
40	9.482	33.819	26.116
50	8.847	33.866	26.255
75	9.259	34.053	26.335
100	9.328	34.101	26.362
125	9.312	34.107	26.369
150	8.590	34.008	26.405
175	6.514	33.831	26.563
200	2.684	33.479	26.698

STATION US12394			
LATITUDE 41-46.9 N			
LONGITUD 141-14.6 E			
DEPTH (m) 200			
Press.	Temp.	Salinity	Sigma-T
5	12.362	32.340	24.456
10	11.641	32.516	24.727
20	9.567	32.859	25.352
30	8.639	33.095	25.682
40	5.953	32.924	25.918
50	4.066	32.897	26.107
75	5.261	33.514	26.467
100	5.970	33.661	26.498
125	5.477	33.622	26.527
150	4.765	33.569	26.567
175	3.898	33.493	26.597

STATION US12386			
LATITUDE 41-26.5 N			
LONGITUD 141-21.0 E			
DEPTH (m) 70			
Press.	Temp.	Salinity	Sigma-T
5	12.108	33.702	25.561
10	11.966	33.840	25.695
20	11.709	33.880	25.774
30	11.689	33.974	25.851
40	11.492	33.978	25.890
50	11.384	33.971	25.904

STATION US12389			
LATITUDE 41-31.9 N			
LONGITUD 141-22.1 E			
DEPTH (m) 252			
Press.	Temp.	Salinity	Sigma-T
5	11.379	33.867	25.825
10	11.183	34.038	25.994
20	10.776	34.082	26.100
30	10.531	34.098	26.156
40	10.215	34.114	26.224
50	10.199	34.120	26.231
75	10.180	34.123	26.237
100	10.183	34.123	26.236
125	10.186	34.123	26.236
150	10.181	34.121	26.234
175	10.142	34.116	26.238
200	10.099	34.115	26.244

STATION US12392			
LATITUDE 41-40.8 N			
LONGITUD 141-17.6 E			
DEPTH (m) 230			
Press.	Temp.	Salinity	Sigma-T
5	12.206	32.305	24.458
10	11.082	32.456	24.780
20	9.912	33.370	25.694
30	9.149	33.775	26.135
40	9.714	33.950	26.180
50	9.522	34.090	26.321
75	9.443	34.117	26.355
100	8.494	33.995	26.410
125	7.315	33.876	26.490
150	4.955	33.579	26.554
175	4.612	33.619	26.624
200	3.364	33.533	26.681

STATION US12395			
LATITUDE 41-49.5 N			
LONGITUD 141-13.2 E			
DEPTH (m) 176			
Press.	Temp.	Salinity	Sigma-T
5	11.989	32.341	24.527
10	11.690	32.544	24.739
20	10.406	32.747	25.124
30	7.334	32.977	25.780
40	5.479	32.803	25.879
50	3.911	32.865	26.097
75	3.697	33.180	26.369
100	5.866	33.662	26.512
125	4.846	33.553	26.546
150	4.291	33.506	26.568

STATION US12387			
LATITUDE 41-27.4 N			
LONGITUD 141-24.0 E			
DEPTH (m) 51			
Press.	Temp.	Salinity	Sigma-T
5	12.221	33.589	25.452
10	11.980	33.843	25.694
20	11.742	33.880	25.768
30	11.428	33.962	25.890
40	10.868	34.043	26.054

STATION US12390			
LATITUDE 41-35.1 N			
LONGITUD 141-20.6 E			
DEPTH (m) 313			
Press.	Temp.	Salinity	Sigma-T
5	11.580	33.876	25.795
10	11.423	33.976	25.902
20	11.344	33.994	25.930
30	11.283	34.005	25.949
40	11.272	34.006	25.952
50	11.179	34.007	25.970
75	10.833	34.037	26.056
100	9.974	34.048	26.213
125	9.563	34.111	26.331
150	9.586	34.132	26.343
175	9.524	34.125	26.348
200	9.517	34.127	26.351
250	7.273	33.869	26.490

STATION US12393			
LATITUDE 41-44.0 N			
LONGITUD 141-16.1 E			
DEPTH (m) 230			
Press.	Temp.	Salinity	Sigma-T
5	12.385	32.274	24.400
10	10.555	32.535	24.934
20	9.069	32.754	25.349
30	7.031	32.959	25.807
40	6.025	33.176	26.108
50	5.516	33.263	26.238
75	6.369	33.721	26.495
100	5.459	33.614	26.523
125	5.482	33.643	26.543
150	5.489	33.678	26.570
175	4.138	33.524	26.598
200	3.710	33.528	26.644

THE " USHIO MARU "

CRUISE 261

CRUISE 262

CRUISE 263

IN JULY - AUGUST 2012

1. Cruise Itinerary

Cruise 261

Departure from Hakodate	Jul. 20, 2012
Arrival at Shiraoi	20
Departure from Shiraoi	21
Start hydrographic research (US12396)	22
Arrival at and departure from Shiraoi	24
Finish hydrographic research (US12421)	24
Return to Hakodate	25
Total coverage 743.2 miles	

Cruise 262

Departure from Hakodate	Jul. 29, 2012
Start hydrographic research (US12422)	29
Finish hydrographic research (US12482)	31
Return to Hakodate	Aug. 1
Total coverage 574.8 miles	

Cruise 263

Departure from Hakodate	Aug. 4, 2012
Start hydrographic research (US12483) and trawl net research	4
Arrival at Aomori	4
Departure from Aomori	5
Finish trawl net research	5
Arrival at Hakodate	6
Departure from Hakodate	7
Finish hydrographic research (US12518)	9
Return to Hakodate	10
Total coverage 439.3 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”.

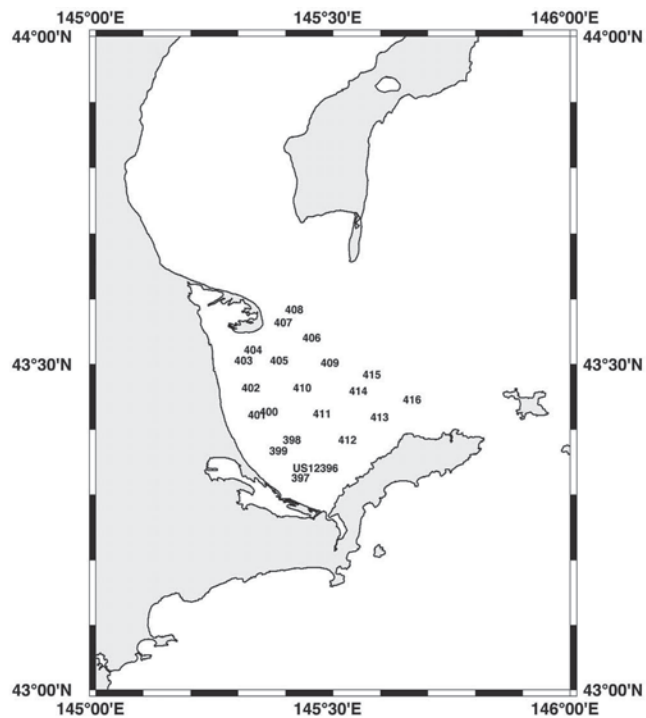


Figure 1. Oceanographic stations (Cruise 261-1)

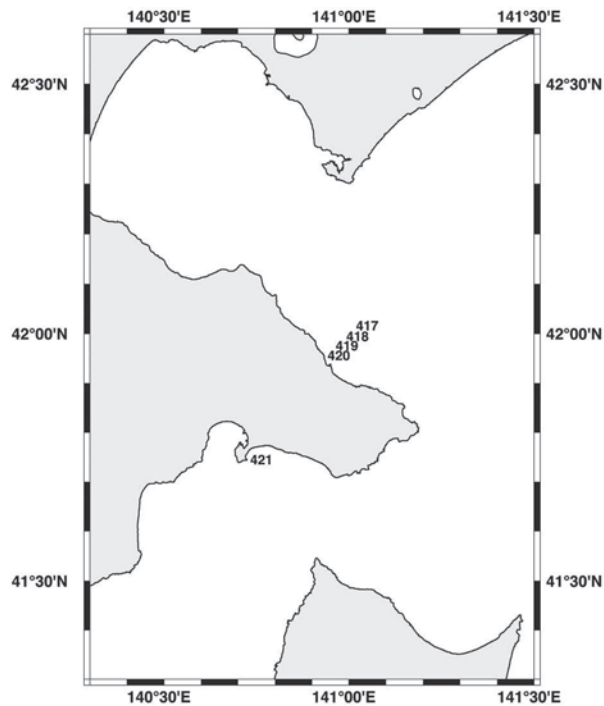


Figure 2. Oceanographic stations (Cruise 261-2)

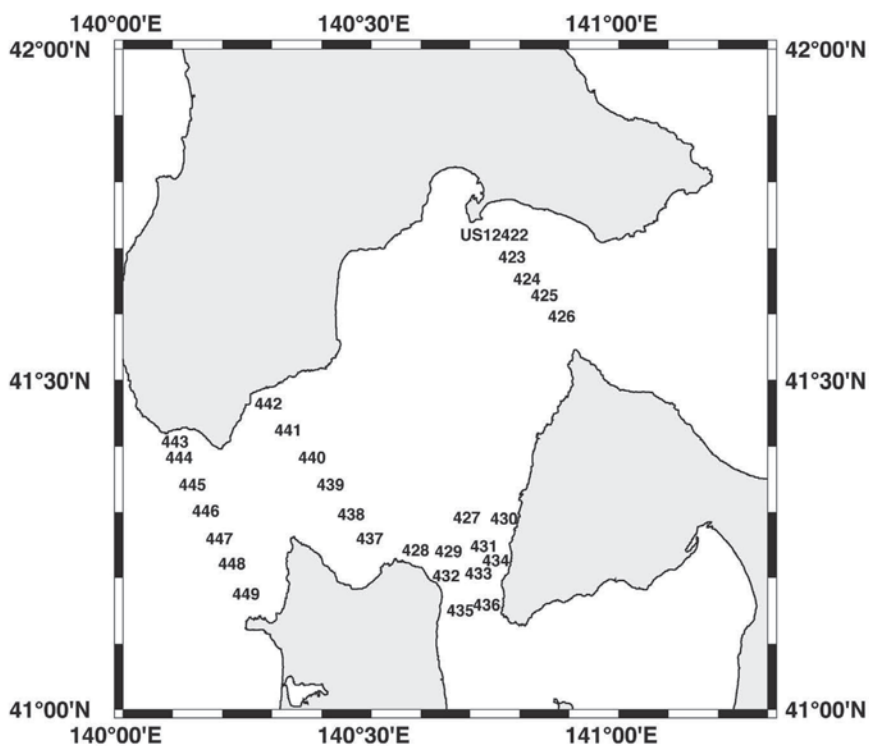


Figure 3. Oceanographic stations (Cruise 262-1)

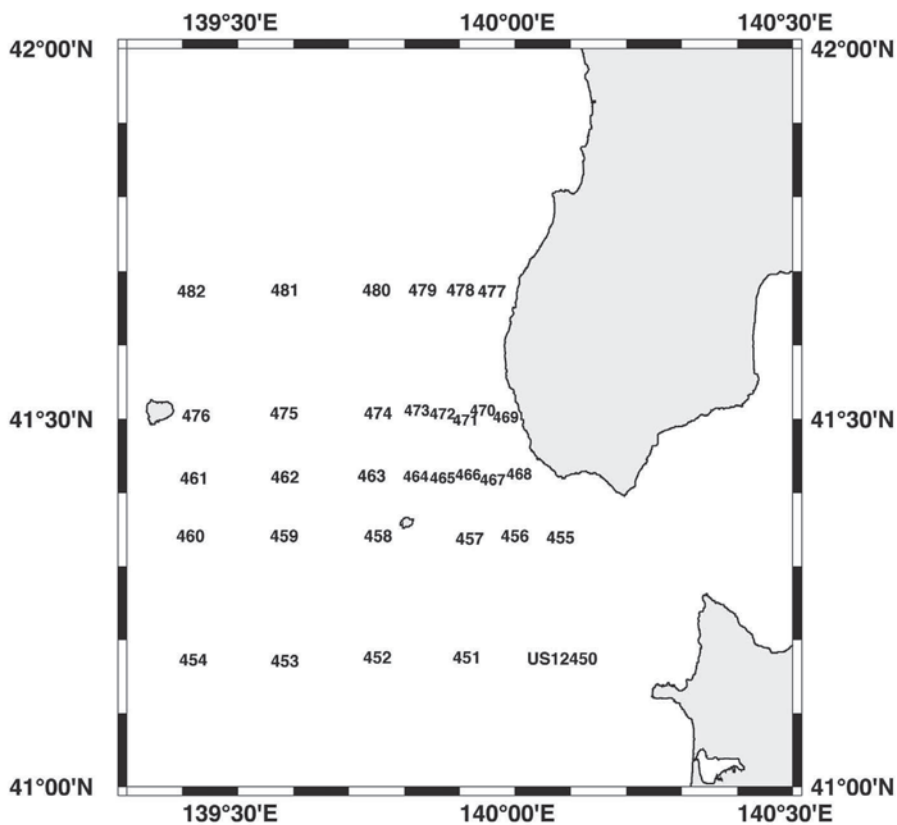


Figure 4. Oceanographic stations (Cruise 262-2)

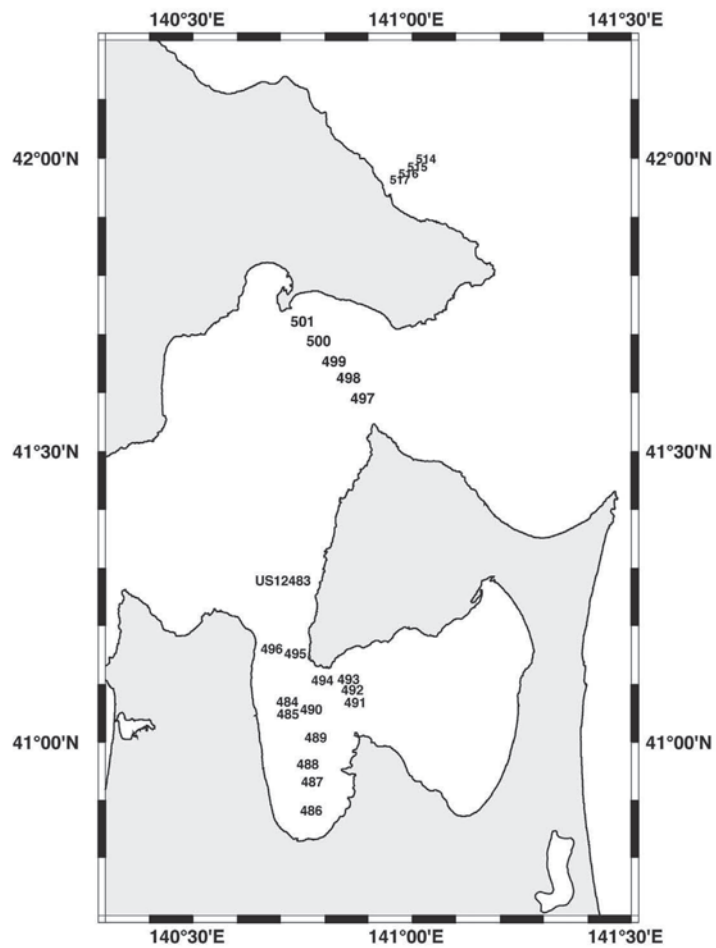


Figure 5. Oceanographic stations (Cruise 263-1)

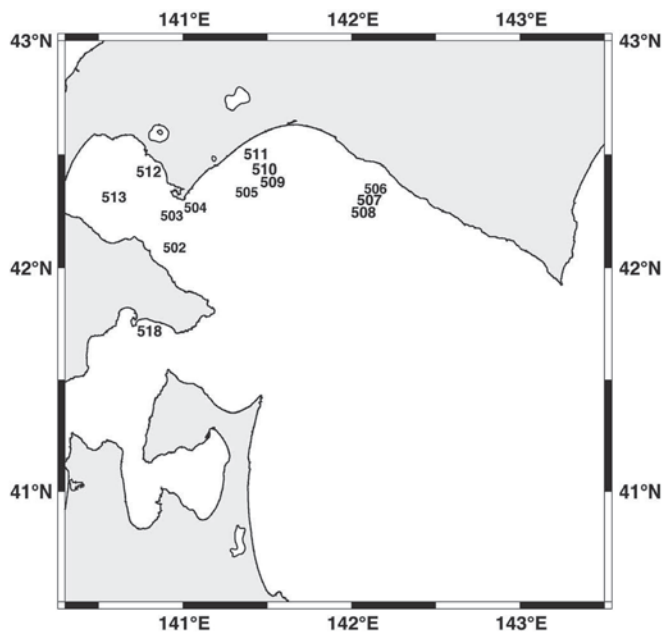


Figure 6. Oceanographic stations (Cruise 263-2)

Table 1. List of Oceanographic Station

Cruise 261												
Station	Lat. (N) [*]	Long. (E) [*]	Date	S.M.T.	Depth (m)	Wave	Swell	Wind	Air Temp.	Sea Temp.	Wr.	Bar. (hPa)
US12396	43-20.1	145-27.8	7/22	1251-1253	14	NW -1	North-1	NW -2	14.9	13.6	c	1015.6
US12397	43-19.2	145-25.9	7/22	1310-1312	10	NNE-1	North-1	NNE-3	15.5	13.5	c	1015.6
US12398	43-22.7	145-24.8	7/22	1350-1352	13	North-1	North-1	North-2	14.8	14.2	c	1015.1
US12399	43-21.7	145-23.1	7/22	1406-1407	9	NW -1	North-1	NW -2	14.8	14.2	c	1015.1
US12400	43-25.3	145-21.9	7/22	1437-1438	10	NW -2	North-1	NW -4	14.1	14.8	c	1015.0
US12401	43-25.0	145-20.4	7/22	1451-1452	8	NW -1	North-1	NW -3	13.7	12.6	c	1014.9
US12402	43-27.5	145-19.6	7/22	1513-1514	8	North-1	North-1	North-3	13.9	12.3	bc	1015.1
US12403	43-30.0	145-18.7	7/22	1538-1539	7	NNE-1	North-1	NNE-2	14.2	12.2	bc	1015.1
US12404	43-31.0	145-19.9	7/22	1555-1557	6	Calm	North-1	Calm	15.6	11.8	bc	1015.1
US12405	43-30.0	145-23.2	7/22	1620-1621	11	Calm	NNE-1	Calm	15.6	12.1	bc	1015.1
US12406	43-32.1	145-27.3	7/22	1652-1654	18	Calm	NNE-1	Calm	14.4	12.4	bc	1015.1
US12407	43-33.5	145-23.7	7/22	1720-1721	11	SE -1	North-1	SE -2	14.8	13.4	bc	1015.1
US12408	43-34.7	145-25.1	7/22	1737-1739	10	SE -1	North-1	SE -2	14.0	13.3	bc	1015.2
US12409	43-29.8	145-29.6	7/22	1820-1822	23	SE -1	North-1	SE -2	13.9	12.1	bc	1015.5
US12410	43-27.5	145-26.1	7/22	1852-1854	19	Calm	North-1	Calm	13.4	11.9	c	1015.6
US12411	43-25.1	145-28.6	7/22	1924-1926	18	SSW-1	North-1	SSW-1	13.3	12.6	c	1015.6
US12412	43-22.7	145-31.8	7/22	1952-1954	18	Calm	NW -1	Calm	13.6	14.0	c	1016.1
US12413	43-24.8	145-35.9	7/22	2022-2024	25	East-1	NW -1	East-1	13.3	13.3	c	1016.0
US12414	43-27.2	145-33.2	7/22	2048-2051	27	SE -1	NW -1	SE -2	13.5	14.0	o	1016.1
US12415	43-28.7	145-34.9	7/22	2111-2113	28	Calm	NW -1	Calm	13.3	11.9	c	1016.1
US12416	43-26.4	145-40.0	7/22	2145-2147	29	South-1	NW -1	South-2	13.2	13.4	c	1016.1
US12417	41-59.3	141-02.0	7/24	1406-1410	100	Calm	East-1	Calm	19.0	17.5	r	1015.5
US12418	41-58.7	141-00.6	7/24	1418-1422	93	Calm	East-1	Calm	20.4	17.6	r	1015.4
US12419	41-58.1	140-59.4	7/24	1430-1434	85	Calm	East-1	Calm	19.6	17.1	r	1015.5
US12420	41-57.2	140-58.1	7/24	1443-1447	74	West-1	East-1	West-2	18.8	15.6	r	1015.5
US12421	41-44.4	140-45.0	7/24	1825-1829	62	Calm	SE -1	Calm	20.8	19.6	o	1014.5
Cruise 262												
Station	Lat. (N) [*]	Long. (E) [*]	Date	S.M.T.	Depth (m)	Wave	Swell	Wind	Air Temp.	Sea Temp.	Wr.	Bar. (hPa)
US12422	41-42.7	140-44.9	7/29	0826-0831	85	West-1	SE -1	West-2	24.5	21.0	bc	1009.0
US12423	41-40.7	140-47.1	7/29	0848-0856	226	Calm	SE -1	Calm	24.3	18.8	bc	1009.0
US12424	41-38.7	140-48.9	7/29	0912-0925	334	SE -1	ESE-1	SE -1	26.5	23.0	bc	1009.1
US12425	41-37.2	140-51.0	7/29	0937-0941	99	Calm	ESE-1	Calm	28.1	22.8	bc	1009.1
US12426	41-35.3	140-53.1	7/29	0958-1000	39	SW -1	East-1	SW -3	25.8	21.5	bc	1009.1
US12427	41-17.0	140-41.6	7/29	1211-1217	147	West-1	NW -1	West-1	26.7	21.6	m	1009.1
US12428	41-14.0	140-35.4	7/29	1250-1254	60	NW -2	NW -1	NW -4	24.0	21.2	m	1008.7
US12429	41-13.9	140-39.4	7/29	1316-1319	89	NW -1	NW -1	NW -3	26.9	21.6	m	1009.1
US12430	41-16.9	140-46.9	7/29	1400-1402	45	NW -1	NW -1	NW -2	26.8	21.2	m	1009.1
US12431	41-14.1	140-43.7	7/29	1430-1433	80	NNW -2	NW -1	NNW-4	24.7	21.5	c	1009.1
US12432	41-11.1	140-39.1	7/29	1508-1510	32	North-2	NW -1	North-4	26.3	21.9	c	1009.0
US12433	41-12.2	140-43.0	7/29	1532-1536	72	North-2	NW -1	North-4	24.8	20.9	c	1009.1
US12434	41-13.1	140-45.7	7/29	1552-1555	63	North-2	NW -1	North-4	25.1	20.9	c	1009.1
US12435	41-08.8	140-41.4	7/29	1643-1646	49	NNW -2	NW -1	NNW-3	24.8	21.2	bc	1009.1
US12436	41-09.0	140-44.0	7/29	1701-1704	60	North-2	NW -1	North-4	24.6	21.0	bc	1009.0
US12437	41-15.1	140-29.9	7/29	1846-1850	89	NW -2	NW -1	NW -4	24.0	20.8	bc	1009.1
US12438	41-17.3	140-27.6	7/29	1906-1912	146	West-2	NW -1	Wet-4	24.0	20.7	bc	1009.0
US12439	41-20.0	140-25.1	7/29	1929-1940	216	WSW-1	NW -1	WSW-2	24.8	21.4	bc	1009.1
US12440	41-22.5	140-22.9	7/29	1958-2007	246	West-1	NW -1	West-2	25.0	23.3	bc	1009.6
US12441	41-25.0	140-20.0	7/29	2030-2033	93	West-1	West-1	West-2	24.8	22.6	bc	1009.5
US12442	41-27.4	140-17.6	7/29	2054-2056	55	WNW-1	SW -1	WNW-1	23.0	17.4	bc	1009.6
US12443	41-24.4	140-05.9	7/29	2323-2326	56	North-1	SW -1	North-2	24.0	23.4	bc	1009.1
US12444	41-22.8	140-06.8	7/29	2339-2343	104	NE -1	WSW-1	NE -3	24.4	23.3	c	1009.1
US12445	41-20.0	140-08.4	7/30	0006-0015	260	Calm	SW -1	Calm	25.3	23.4	c	1009.1
US12446	41-17.6	140-10.0	7/30	0033-0039	150	Calm	SW -1	Calm	25.5	23.6	c	1009.1
US12447	41-15.1	140-11.7	7/30	0100-0105	138	Calm	SW -1	Calm	25.6	23.5	bc	1009.1
US12448	41-12.8	140-13.2	7/30	0127-0131	113	Calm	SW -1	Calm	25.3	23.3	bc	1009.1
US12449	41-10.0	140-14.9	7/30	0151-0155	67	Calm	SW -1	Calm	25.0	23.4	bc	1009.0
US12450	41-10.0	140-05.1	7/30	0244-0249	165	Calm	WSW-1	Calm	26.0	24.3	bc	1009.0
US12451	41-10.1	139-54.8	7/30	0340-0350	260	SSW -1	WSW-1	SSW -2	26.0	24.3	c	1009.1
US12452	41-10.1	139-45.1	7/30	0438-0452	1804	South-1	WSW-1	South-3	25.5	23.6	o	1009.1
US12453	41-09.8	139-35.1	7/30	0540-0553	1940	South-1	WSW-1	South-3	24.7	22.2	o	1009.3
US12454	41-09.9	139-25.2	7/30	0640-0651	2735	South-1	WSW-1	South-3	24.7	21.9	o	1009.2
US12455	41-19.9	140-04.9	7/30	1026-1036	273	SSW-1	WSW-1	SSW-3	29.6	24.2	bc	1009.6
US12456	41-20.0	140-00.0	7/30	1106-1114	237	SSW-1	WSW-1	SSW -3	18.8	24.3	bc	1009.6
US12457	41-19.8	139-55.1	7/30	1143-1147	131	SSW-1	WSW-1	SSW-3	18.5	24.0	bc	1009.6
US12458	41-20.0	139-45.2	7/30	1233-1246	485	SSW-1	South-1	SSW-3	27.5	23.0	bc	1009.5
US12459	41-20.0	139-35.0	7/30	1335-1347	809	SSW-1	South-1	SSW-3	27.3	23.2	bc	1009.6
US12460	41-20.0	139-24.9	7/30	1435-1446	2550	South-1	South-1	South-3	27.4	23.4	bc	1009.6
US12461	41-24.7	139-25.3	7/30	1515-1527	2206	South-1	South-1	South-3	30.9	23.4	bc	1009.6

Cruise 262 (continued)

Station	Lat. (N)*	Long. (E)*	Date	S.M.T.	Depth (m)	Wave	Swell	Wind	Air Temp.	Sea Temp.	Wr.	Bar. (hPa)
US12462	41-24.8	139-35.1	7/30	1611-1623	1249	South-1	South-1	South-3	25.3	23.2	bc	1009.3
US12463	41-24.9	139-44.5	7/30	1705-1716	1184	South-1	South-1	South-3	25.1	22.9	bc	1009.1
US12464	41-24.9	139-50.0	7/30	1744-1756	973	South-1	South-1	South-3	25.0	23.0	bc	1009.0
US12465	41-24.9	139-52.5	7/30	1812-1826	449	South-1	South-1	South-3	25.2	23.8	bc	1009.3
US12466	41-24.9	139-54.9	7/30	1842-1848	138	South-1	South-1	South-3	25.1	23.6	bc	1009.5
US12467	41-24.9	139-57.4	7/30	1902-1907	121	South-1	South-1	South-3	25.3	23.7	bc	1009.6
US12468	41-25.1	139-59.9	7/30	1921-1926	107	SSW-1	South-1	SSW-3	25.5	24.0	bc	1009.8
US12469	41-30.0	139-58.8	7/30	1953-1957	106	SSE-1	South-1	SSE-2	26.4	24.9	bc	1010.0
US12470	41-30.0	139-57.4	7/30	2008-2012	123	SSE-1	South-1	SSE-2	26.1	23.8	bc	1010.5
US12471	41-29.9	139-55.0	7/30	2027-2035	208	South-1	South-1	South-2	26.1	24.1	bc	1010.6
US12472	41-30.0	139-52.7	7/30	2047-2100	868	SSE-1	South-1	SSE-3	25.7	23.8	bc	1010.2
US12473	41-30.0	139-50.3	7/30	2113-2126	1327	SSW-2	South-1	SSW-4	25.5	23.3	bc	1010.5
US12474	41-30.0	139-45.2	7/30	2150-2203	1430	SSW-1	South-1	SSW-3	24.9	23.0	bc	1010.5
US12475	41-30.0	139-35.0	7/30	2250-2302	1427	South-2	South-1	South-3	24.6	22.6	c	1010.1
US12476	41-29.8	139-25.5	7/30	2343-2356	1221	South-2	South-1	South-4	24.5	23.2	f	1009.6
US12477	41-39.9	139-57.5	7/31	0310-0314	121	South-2	South-1	South-4	25.9	23.5	c	1009.6
US12478	41-40.0	139-55.0	7/31	0338-0350	991	South-2	South-1	South-4	25.5	23.5	c	1009.6
US12479	41-40.0	139-50.0	7/31	0419-0431	1433	South-2	South-1	South-4	25.1	22.8	o	1009.6
US12480	41-40.0	139-45.0	7/31	0459-0511	1438	South-1	South-1	South-3	24.8	23.4	f	1009.7
US12481	41-40.0	139-35.1	7/31	0600-0612	880	South-1	SSW-1	South-3	24.5	23.5	f	1009.7
US12482	41-39.9	139-25.0	7/31	0658-0711	2084	SSW-1	SW -1	SSW-3	24.8	22.1	o	1010.1

Cruise 263

Station	Lat. (N)*	Long. (E)*	Date	S.M.T.	Depth (m)	Wave	Swell	Wind	Air Temp.	Sea Temp.	Wr.	Bar. (hPa)
US12483	41-16.2	140-42.3	8/4	1125-1135	128	South-1	NE -1	South-2	24.3	22.7	c	1012.5
US12484	41-03.7	140-42.9	8/4	1426-1431	60	NE -2	ESE-1	NE -5	23.7	23.0	c	1016.6
US12485	41-02.4	140-43.0	8/4	1500-1503	57	East-3	ESE-1	East-5	23.9	23.0	c	1016.1
US12486	40-52.4	140-46.2	8/4	1608-1611	29	ENE-2	ENE-1	ENE-5	23.9	23.2	bc	1015.0
US12487	40-55.4	140-46.3	8/5	0656-0659	41	Calm	NNE-1	Calm	24.1	23.7	o	1012.1
US12488	40-57.2	140-45.7	8/5	0732-0734	49	Calm	NNE-1	Calm	23.6	23.2	o	1012.1
US12489	41-00.0	140-46.8	8/5	0820-0823	51	Calm	South-1	Calm	24.7	22.8	f	1012.0
US12490	41-02.9	140-46.2	8/5	0901-0904	51	Calm	South-1	Calm	26.0	23.3	o	1011.6
US12491	41-03.6	140-52.2	8/5	1039-1041	50	SW -1	NW -1	SW -2	24.9	23.2	c	1011.1
US12492	41-04.9	140-51.8	8/5	1055-1058	51	SW -1	NW -1	SW -3	26.1	23.3	c	1010.9
US12493	41-06.0	140-51.3	8/5	1132-1136	51	SW -1	WNW-1	SW -3	24.3	22.9	c	1010.6
US12494	41-05.9	140-47.7	8/5	1214-1218	50	NW -1	WNW-1	NW -3	26.8	23.8	bc	1010.1
US12495	41-09.0	140-44.0	8/5	1252-1254	60	North-2	North-1	North-4	26.3	23.5	bc	1010.0
US12496	41-09.0	140-41.2	8/5	1313-1316	49	North-2	North-1	North-4	25.3	23.5	bc	1009.8
US12497	41-34.9	140-53.2	8/5	1556-1559	33	Calm	NE -1	Calm	28.8	20.4	bc	1008.7
US12498	41-37.0	140-51.3	8/5	1619-1624	96	Calm	NE -1	Calm	26.2	22.6	bc	1008.6
US12499	41-38.7	140-49.3	8/5	1645-1657	313	NE -2	East-1	NE -2	26.1	22.7	c	1008.5
US12500	41-40.8	140-47.2	8/5	1721-1730	215	Calm	SE -1	Calm	26.6	25.0	c	1008.6
US12501	41-42.8	140-45.0	8/5	1748-1754	83	SE -1	SE -1	SE -2	26.7	23.0	m	1008.1
US12502	42-04.2	140-57.0	8/7	1258-1308	84	SE -1	NE -1	SE -3	21.7	20.8	bc	1008.9
US12503	42-12.7	140-56.0	8/7	1440-1445	69	South-1	East-1	South-2	24.2	24.2	bc	1009.0
US12504	42-14.8	141-04.4	8/7	1450-1454	77	SSE-1	East-1	SSE-3	20.6	20.6	bc	1008.7
US12505	42-18.9	141-22.7	8/7	1732-1742	425	South-1	SE -1	South-3	18.9	17.8	bc	1008.8
US12506	42-19.8	142-08.6	8/8	0515-0525	74	NNW-1	SE -1	NNW-3	18.4	19.7	bc	1009.6
US12507	42-16.7	142-06.3	8/8	0702-0711	246	NNW-1	SE -1	NNW-3	19.1	19.6	bc	1009.7
US12508	42-13.4	142-04.2	8/8	0753-0801	627	NNW-1	SE -1	NNW-3	21.1	19.4	bc	1009.6
US12509	42-21.5	141-31.9	8/8	1043-1059	407	SW -1	SE -1	SW -3	21.5	19.1	bc	1009.6
US12510	42-24.8	141-29.0	8/8	1210-1220	236	SW -1	SE -1	SW -3	21.1	20.0	bc	1008.7
US12511	42-28.7	141-26.1	8/8	1311-1315	81	SW -1	SE -1	SW -3	21.6	20.5	bc	1008.3
US12512	42-24.2	140-47.8	8/9	0316-0319	46	SE -3	SE -1	SE -5	20.9	22.1	o	1009.2
US12513	42-17.5	140-35.4	8/9	0521-0530	91	SE -2	SE -1	SE -4	21.1	21.5	o	1009.4
US12514	41-59.5	141-01.9	8/9	0854-0858	99	SE -3	SE -1	SE -5	21.7	20.8	o	1010.5
US12515	41-58.7	141-00.7	8/9	0908-0912	93	SE -3	SE -1	SE -5	21.1	20.8	c	1010.6
US12516	41-58.0	140-59.5	8/9	0920-0924	86	SE -3	SE -1	SE -5	21.5	20.7	c	1010.5
US12517	41-57.4	140-58.3	8/9	0932-0935	78	SE -2	SE -1	SE -4	21.4	20.4	o	1010.6
US12518	41-44.3	140-46.6	8/9	1303-1306	57	East-3	ESE-1	East-5	23.1	22.0	bc	1010.7

(*) : Fixed position by Global Positioning System

Table 2. Oceanographic data

STATION US12396			
LATITUDE	43-20.1	N	
LONGITUD	145-27.8	E	
DEPTH (m)	14		
Press.	Temp.	Salinity	Sigma-T
5	13.337	31.569	23.670
10	12.647	31.641	23.860

STATION US12399			
LATITUDE	43-21.7	N	
LONGITUD	145-23.1	E	
DEPTH (m)	9		
Press.	Temp.	Salinity	Sigma-T
5	13.809	31.033	23.162

STATION US12402			
LATITUDE	43-27.5	N	
LONGITUD	145-19.6	E	
DEPTH (m)	8		
Press.	Temp.	Salinity	Sigma-T
5	12.373	31.890	24.105

STATION US12405			
LATITUDE	43-30.0	N	
LONGITUD	145-23.2	E	
DEPTH (m)	11		
Press.	Temp.	Salinity	Sigma-T
5	12.452	32.012	24.185

STATION US12408			
LATITUDE	43-34.7	N	
LONGITUD	145-25.1	E	
DEPTH (m)	10		
Press.	Temp.	Salinity	Sigma-T
5	12.842	32.051	24.140

STATION US12411			
LATITUDE	43-25.1	N	
LONGITUD	145-28.6	E	
DEPTH (m)	18		
Press.	Temp.	Salinity	Sigma-T
5	11.801	31.960	24.266
10	11.031	32.058	24.480

STATION US12414			
LATITUDE	43-27.2	N	
LONGITUD	145-33.2	E	
DEPTH (m)	27		
Press.	Temp.	Salinity	Sigma-T
5	10.947	32.143	24.561
10	10.525	32.190	24.670
20	8.596	32.303	25.069

STATION US12397			
LATITUDE	43-19.2	N	
LONGITUD	145-25.9	E	
DEPTH (m)	10		
Press.	Temp.	Salinity	Sigma-T
5	13.626	31.218	23.342

STATION US12400			
LATITUDE	43-25.3	N	
LONGITUD	145-21.9	E	
DEPTH (m)	10		
Press.	Temp.	Salinity	Sigma-T
5	12.638	31.805	23.989

STATION US12403			
LATITUDE	43-30.0	N	
LONGITUD	145-18.7	E	
DEPTH (m)	7		
Press.	Temp.	Salinity	Sigma-T
5	12.455	31.949	24.135

STATION US12406			
LATITUDE	43-32.1	N	
LONGITUD	145-27.3	E	
DEPTH (m)	18		
Press.	Temp.	Salinity	Sigma-T
5	12.145	32.094	24.306
10	11.988	32.110	24.348

STATION US12409			
LATITUDE	43-29.8	N	
LONGITUD	145-29.6	E	
DEPTH (m)	23		
Press.	Temp.	Salinity	Sigma-T
5	10.653	32.187	24.646
10	10.515	32.211	24.689
20	10.111	32.250	24.787

STATION US12412			
LATITUDE	43-22.7	N	
LONGITUD	145-31.8	E	
DEPTH (m)	18		
Press.	Temp.	Salinity	Sigma-T
5	13.673	31.452	23.513
10	12.586	31.762	23.965

STATION US12415			
LATITUDE	43-28.7	N	
LONGITUD	145-34.9	E	
DEPTH (m)	28		
Press.	Temp.	Salinity	Sigma-T
5	11.419	32.117	24.457
10	10.317	32.201	24.714
20	7.282	32.355	25.298

STATION US12398			
LATITUDE	43-22.7	N	
LONGITUD	145-24.8	E	
DEPTH (m)	13		
Press.	Temp.	Salinity	Sigma-T
5	13.932	30.962	23.083
10	12.326	31.767	24.019

STATION US12401			
LATITUDE	43-25.0	N	
LONGITUD	145-20.4	E	
DEPTH (m)	8		
Press.	Temp.	Salinity	Sigma-T
5	12.923	31.675	23.833

STATION US12404			
LATITUDE	43-31.0	N	
LONGITUD	145-19.9	E	
DEPTH (m)	6		
Press.	Temp.	Salinity	Sigma-T
5	12.209	32.008	24.228

STATION US12407			
LATITUDE	43-33.5	N	
LONGITUD	145-23.7	E	
DEPTH (m)	11		
Press.	Temp.	Salinity	Sigma-T
5	13.958	31.964	23.850

STATION US12410			
LATITUDE	43-27.5	N	
LONGITUD	145-26.1	E	
DEPTH (m)	19		
Press.	Temp.	Salinity	Sigma-T
5	12.002	32.073	24.317
10	11.315	32.101	24.463

STATION US12413			
LATITUDE	43-24.8	N	
LONGITUD	145-35.9	E	
DEPTH (m)	25		
Press.	Temp.	Salinity	Sigma-T
5	12.861	31.754	23.906
10	11.896	31.922	24.219
20	9.564	32.185	24.826

STATION US12416			
LATITUDE	43-26.4	N	
LONGITUD	145-40.0	E	
DEPTH (m)	29		
Press.	Temp.	Salinity	Sigma-T
5	12.532	31.861	24.052
10	10.311	32.165	24.687
20	9.064	32.269	24.970

STATION US12417			
LATITUDE 41-59.3 N			
LONGITUD 141-02.0 E			
DEPTH (m) 100			
Press.	Temp.	Salinity	Sigma-T
5	17.461	32.679	23.625
10	15.462	33.050	24.368
20	10.744	32.720	25.046
30	10.160	33.401	25.676
40	9.747	33.704	25.982
50	9.245	33.847	26.176
75	7.920	33.830	26.367

STATION US12420			
LATITUDE 41-57.2 N			
LONGITUD 140-58.1 E			
DEPTH (m) 74			
Press.	Temp.	Salinity	Sigma-T
5	15.229	32.175	23.746
10	14.474	32.516	24.170
20	11.435	32.328	24.618
30	11.838	33.005	25.070
40	9.495	33.217	25.643
50	5.367	32.912	25.978

STATION US12423			
LATITUDE 41-40.7 N			
LONGITUD 140-47.1 E			
DEPTH (m) 226			
Press.	Temp.	Salinity	Sigma-T
5	18.914	33.956	24.245
10	18.838	33.965	24.271
20	17.406	34.026	24.670
30	15.720	34.095	25.115
40	14.717	34.142	25.372
50	13.984	34.183	25.559
75	11.922	34.224	26.001
100	9.988	34.214	26.340
125	9.855	34.250	26.391
150	9.821	34.250	26.396
175	9.819	34.251	26.397
200	9.837	34.252	26.396

STATION US12426			
LATITUDE 41-35.3 N			
LONGITUD 140-53.1 E			
DEPTH (m) 39			
Press.	Temp.	Salinity	Sigma-T
5	20.672	33.927	23.766
10	19.801	33.945	24.009
20	15.234	34.177	25.286
30	15.098	34.219	25.348

STATION US12418			
LATITUDE 41-58.7 N			
LONGITUD 141-00.6 E			
DEPTH (m) 93			
Press.	Temp.	Salinity	Sigma-T
5	17.540	32.462	23.440
10	16.014	32.745	24.010
20	8.626	32.347	25.098
30	7.811	32.720	25.511
40	8.369	33.306	25.889
50	5.318	33.019	26.068
75	7.231	33.703	26.365

STATION US12421			
LATITUDE 41-44.4 N			
LONGITUD 140-45.0 E			
DEPTH (m) 62			
Press.	Temp.	Salinity	Sigma-T
5	19.514	33.690	23.889
10	17.250	33.838	24.564
20	14.111	33.989	25.383
30	13.193	34.163	25.706
40	11.731	34.220	26.034
50	11.474	34.244	26.100

STATION US12424			
LATITUDE 41-38.7 N			
LONGITUD 140-48.9 E			
DEPTH (m) 334			
Press.	Temp.	Salinity	Sigma-T
5	20.911	33.843	23.637
10	19.972	33.900	23.931
20	19.805	33.971	24.028
30	18.615	34.070	24.407
40	17.578	34.130	24.708
50	16.144	34.143	25.056
75	14.594	34.248	25.480
100	11.175	34.220	26.137
125	9.891	34.210	26.353
150	8.651	34.198	26.545
175	8.122	34.167	26.602
200	8.027	34.180	26.626
250	7.839	34.175	26.650
300	7.821	34.176	26.653

STATION US12427			
LATITUDE 41-17.0 N			
LONGITUD 140-41.6 E			
DEPTH (m) 147			
Press.	Temp.	Salinity	Sigma-T
5	20.760	33.958	23.765
10	20.688	33.974	23.797
20	20.355	33.951	23.869
30	19.899	33.962	23.996
40	19.329	33.984	24.161
50	18.140	34.084	24.537
75	12.898	34.280	25.855
100	12.225	34.299	26.001
125	11.497	34.288	26.130

STATION US12419			
LATITUDE 41-58.1 N			
LONGITUD 140-59.4 E			
DEPTH (m) 85			
Press.	Temp.	Salinity	Sigma-T
5	15.603	32.126	23.626
10	14.676	32.609	24.198
20	11.073	32.907	25.133
30	10.866	33.183	25.385
40	7.388	33.041	25.823
50	5.124	32.884	25.984
75	6.510	33.668	26.435

STATION US12422			
LATITUDE 41-42.7 N			
LONGITUD 140-44.9 E			
DEPTH (m) 85			
Press.	Temp.	Salinity	Sigma-T
5	19.957	34.051	24.049
10	19.662	34.081	24.149
20	17.885	34.059	24.579
30	14.641	34.201	25.433
40	13.006	34.236	25.800
50	11.581	34.208	26.053
75	9.204	34.223	26.477

STATION US12425			
LATITUDE 41-37.2 N			
LONGITUD 140-51.0 E			
DEPTH (m) 99			
Press.	Temp.	Salinity	Sigma-T
5	20.988	33.820	23.599
10	19.779	33.899	23.980
20	17.762	34.017	24.577
30	15.497	34.165	25.218
40	13.481	34.261	25.723
50	12.016	34.270	26.019
75	11.703	34.280	26.086

STATION US12428			
LATITUDE 41-14.0 N			
LONGITUD 140-35.4 E			
DEPTH (m) 60			
Press.	Temp.	Salinity	Sigma-T
5	21.542	33.752	23.396
10	21.546	33.752	23.395
20	21.500	33.756	23.411
30	21.402	33.764	23.444
40	14.081	34.116	25.487
50	13.291	34.203	25.717

STATION US12429			
LATITUDE 41-13.9 N			
LONGITUD 140-39.4 E			
DEPTH (m) 89			
Press.	Temp.	Salinity	Sigma-T
5	21.163	33.782	23.523
10	20.804	33.816	23.646
20	20.586	33.866	23.742
30	20.514	33.913	23.797
40	20.082	33.969	23.954
50	15.552	33.927	25.023
75	14.276	34.033	25.382

STATION US12432			
LATITUDE 41-11.1 N			
LONGITUD 140-39.1 E			
DEPTH (m) 32			
Press.	Temp.	Salinity	Sigma-T
5	22.079	33.703	23.210
10	21.944	33.705	23.250
20	20.788	33.816	23.650

STATION US12435			
LATITUDE 41-08.8 N			
LONGITUD 140-41.4 E			
DEPTH (m) 49			
Press.	Temp.	Salinity	Sigma-T
5	21.339	33.768	23.464
10	21.063	33.799	23.563
20	21.002	33.820	23.595
30	20.839	33.867	23.675
40	20.253	33.928	23.877

STATION US12438			
LATITUDE 41-17.3 N			
LONGITUD 140-27.6 E			
DEPTH (m) 146			
Press.	Temp.	Salinity	Sigma-T
5	20.829	33.871	23.681
10	20.122	33.926	23.911
20	18.959	33.977	24.250
30	16.276	34.060	24.961
40	15.639	34.101	25.138
50	15.527	34.122	25.179
75	12.857	34.256	25.845
100	11.935	34.302	26.059
125	11.782	34.310	26.094

STATION US12441			
LATITUDE 41-25.0 N			
LONGITUD 140-20.0 E			
DEPTH (m) 93			
Press.	Temp.	Salinity	Sigma-T
5	19.660	33.949	24.049
10	18.730	34.027	24.346
20	17.235	34.096	24.765
30	16.479	34.129	24.967
40	14.967	34.156	25.329
50	13.139	34.180	25.730
75	9.211	34.186	26.447

STATION US12430			
LATITUDE 41-16.9 N			
LONGITUD 140-46.9 E			
DEPTH (m) 45			
Press.	Temp.	Salinity	Sigma-T
5	20.806	33.870	23.686
10	20.084	33.879	23.885
20	19.805	33.869	23.950
30	19.236	33.837	24.073
40	17.292	33.812	24.533

STATION US12433			
LATITUDE 41-12.2 N			
LONGITUD 140-43.0 E			
DEPTH (m) 72			
Press.	Temp.	Salinity	Sigma-T
5	20.949	33.865	23.644
10	20.673	33.874	23.725
20	19.733	33.907	23.998
30	19.310	33.928	24.123
40	18.506	33.966	24.355
50	17.676	33.971	24.563

STATION US12436			
LATITUDE 41-09.0 N			
LONGITUD 140-44.0 E			
DEPTH (m) 60			
Press.	Temp.	Salinity	Sigma-T
5	21.396	33.824	23.491
10	21.297	33.828	23.521
20	20.482	33.826	23.739
30	17.293	33.794	24.519
40	15.840	33.894	24.933
50	13.600	33.554	25.152

STATION US12439			
LATITUDE 41-20.0 N			
LONGITUD 140-25.1 E			
DEPTH (m) 216			
Press.	Temp.	Salinity	Sigma-T
5	21.543	33.757	23.400
10	21.481	33.766	23.424
20	21.165	33.805	23.540
30	20.380	33.860	23.792
40	19.734	33.910	24.000
50	19.191	33.952	24.172
75	15.969	34.158	25.107
100	13.544	34.323	25.758
125	11.736	34.307	26.101
150	11.059	34.300	26.220
175	10.924	34.299	26.243
200	10.646	34.289	26.285

STATION US12442			
LATITUDE 41-27.4 N			
LONGITUD 140-17.6 E			
DEPTH (m) 55			
Press.	Temp.	Salinity	Sigma-T
5	17.571	34.053	24.651
10	17.318	34.114	24.759
20	14.072	34.154	25.519
30	12.121	34.172	25.923
40	10.789	34.190	26.182
50	10.423	34.198	26.253

STATION US12431			
LATITUDE 41-14.1 N			
LONGITUD 140-43.7 E			
DEPTH (m) 80			
Press.	Temp.	Salinity	Sigma-T
5	20.983	33.971	23.715
10	20.629	33.965	23.806
20	19.807	33.973	24.029
30	18.638	33.993	24.343
40	18.283	33.984	24.424
50	17.600	33.972	24.582
75	13.164	33.998	25.584

STATION US12434			
LATITUDE 41-13.1 N			
LONGITUD 140-45.7 E			
DEPTH (m) 63			
Press.	Temp.	Salinity	Sigma-T
5	20.958	33.879	23.652
10	20.480	33.879	23.780
20	20.008	33.879	23.904
30	19.860	33.857	23.927
40	16.335	33.693	24.665
50	14.436	33.654	25.055

STATION US12437			
LATITUDE 41-15.1 N			
LONGITUD 140-29.9 E			
DEPTH (m) 89			
Press.	Temp.	Salinity	Sigma-T
5	21.248	33.830	23.536
10	20.827	33.867	23.679
20	19.902	33.932	23.973
30	14.871	34.101	25.307
40	12.728	34.217	25.841
50	12.618	34.244	25.883

STATION US12440			
LATITUDE 41-22.5 N			
LONGITUD 140-22.9 E			
DEPTH (m) 246			
Press.	Temp.	Salinity	Sigma-T
5	23.411	33.759	22.874
10	22.165	33.938	23.365
20	20.974	33.909	23.671
30	17.580	34.113	24.695
40	16.032	34.217	25.138
50	14.183	34.243	25.563
75	13.553	34.260	25.707
100	13.119	34.280	25.812
125	10.368	34.205	26.268
150	8.740	34.199	26.532
175	8.622	34.196	26.548
200	8.550	34.194	26.558

STATION US12443			
LATITUDE 41-24.4 N			
LONGITUD 140-05.9 E			
DEPTH (m) 56			
Press.	Temp.	Salinity	Sigma-T
5	19.993	34.081	24.063
10	19.382	34.151	24.275
20	17.153	34.255	24.906
30	16.808	34.285	25.011
40	16.356	34.278	25.110
50	15.015	34.281	25.414

STATION US12444			
LATITUDE 41-22.8 N			
LONGITUD 140-06.8 E			
DEPTH (m) 104			
Press.	Temp.	Salinity	Sigma-T
5	22.975	33.922	23.123
10	22.666	33.952	23.234
20	15.738	34.200	25.191
30	14.420	34.318	25.571
40	14.077	34.346	25.666
50	13.083	34.354	25.876
75	9.333	34.213	26.448

STATION US12445			
LATITUDE 41-20.0 N			
LONGITUD 140-08.4 E			
DEPTH (m) 260			
Press.	Temp.	Salinity	Sigma-T
5	23.469	33.910	22.972
10	22.626	33.969	23.259
20	19.081	34.209	24.396
30	16.448	34.282	25.093
40	14.493	34.317	25.555
50	13.007	34.341	25.881
75	10.064	34.261	26.364
100	9.700	34.253	26.419
125	9.342	34.236	26.465
150	9.026	34.222	26.504
175	8.490	34.196	26.569
200	8.172	34.189	26.611

STATION US12446			
LATITUDE 41-17.6 N			
LONGITUD 140-10.0 E			
DEPTH (m) 150			
Press.	Temp.	Salinity	Sigma-T
5	23.814	33.992	22.933
10	23.791	33.985	22.934
20	23.305	34.023	23.105
30	20.735	34.186	23.946
40	12.457	34.273	25.936
50	11.661	34.339	26.140
75	10.821	34.305	26.266
100	10.103	34.260	26.357
125	9.252	34.229	26.474

STATION US12447			
LATITUDE 41-15.1 N			
LONGITUD 140-11.7 E			
DEPTH (m) 138			
Press.	Temp.	Salinity	Sigma-T
5	23.256	33.512	22.732
10	23.050	33.521	22.798
20	22.227	34.011	23.403
30	17.698	34.297	24.807
40	15.714	34.392	25.345
50	13.218	34.392	25.878
75	11.059	34.306	26.224
100	10.814	34.307	26.269
125	9.781	34.240	26.396

STATION US12448			
LATITUDE 41-12.8 N			
LONGITUD 140-13.2 E			
DEPTH (m) 113			
Press.	Temp.	Salinity	Sigma-T
5	23.487	33.501	22.657
10	23.096	33.487	22.759
20	22.073	33.685	23.199
30	21.625	33.890	23.479
40	17.099	34.255	24.919
50	13.680	34.377	25.772
75	12.149	34.374	26.074
100	11.962	34.361	26.100

STATION US12449			
LATITUDE 41-10.0 N			
LONGITUD 140-14.9 E			
DEPTH (m) 67			
Press.	Temp.	Salinity	Sigma-T
5	23.467	33.490	22.654
10	23.410	33.502	22.680
20	22.414	33.638	23.067
30	21.224	33.916	23.608
40	20.139	34.126	24.059
50	15.655	34.289	25.279

STATION US12450			
LATITUDE 41-10.0 N			
LONGITUD 140-05.1 E			
DEPTH (m) 165			
Press.	Temp.	Salinity	Sigma-T
5	24.188	33.979	22.813
10	23.082	33.973	23.131
20	21.328	34.058	23.688
30	19.867	34.164	24.159
40	17.826	34.317	24.792
50	15.785	34.425	25.354
75	13.326	34.397	25.860
100	10.870	34.305	26.257
125	10.013	34.246	26.361
150	6.106	34.111	26.837

STATION US12451			
LATITUDE 41-10.1 N			
LONGITUD 139-54.8 E			
DEPTH (m) 260			
Press.	Temp.	Salinity	Sigma-T
5	24.196	33.981	22.812
10	23.823	33.967	22.912
20	20.791	34.159	23.910
30	14.911	34.244	25.409
40	12.873	34.263	25.847
50	10.815	34.296	26.261
75	9.454	34.252	26.459
100	7.743	34.164	26.655
125	6.596	34.123	26.783
150	5.080	34.070	26.928
175	3.740	34.041	27.050
200	3.407	34.040	27.081

STATION US12452			
LATITUDE 41-10.1 N			
LONGITUD 139-45.1 E			
DEPTH (m) 1804			
Press.	Temp.	Salinity	Sigma-T
5	23.332	33.779	22.912
10	23.240	33.777	22.937
20	21.256	33.884	23.575
30	17.626	33.940	24.551
40	9.803	33.939	26.157
50	6.403	34.007	26.717
75	2.910	34.023	27.114
100	1.995	34.039	27.202
125	1.857	34.046	27.218
150	1.519	34.046	27.243
175	1.288	34.056	27.267
200	1.251	34.059	27.272
250	1.009	34.063	27.291
300	0.812	34.065	27.305

STATION US12453			
LATITUDE 41-09.8 N			
LONGITUD 139-35.1 E			
DEPTH (m) 1940			
Press.	Temp.	Salinity	Sigma-T
5	22.028	33.844	23.332
10	17.510	33.899	24.546
20	9.481	33.924	26.198
30	6.594	33.988	26.677
40	4.236	33.998	26.965
50	2.995	34.012	27.097
75	2.296	34.040	27.179
100	1.878	34.041	27.213
125	1.687	34.054	27.237
150	1.402	34.052	27.256
175	1.259	34.058	27.271
200	1.103	34.060	27.283
250	0.957	34.064	27.295
300	0.827	34.065	27.305

STATION US12454			
LATITUDE 41-09.9 N			
LONGITUD 139-25.2 E			
DEPTH (m) 2735			
Press.	Temp.	Salinity	Sigma-T
5	22.034	33.838	23.326
10	16.056	33.835	24.837
20	6.742	33.852	26.549
30	4.637	34.000	26.923
40	3.736	34.025	27.037
50	2.831	34.003	27.104
75	1.955	34.027	27.196
100	1.732	34.031	27.216
125	1.415	34.033	27.240
150	1.318	34.041	27.254
175	1.185	34.044	27.265
200	1.158	34.049	27.270
250	1.032	34.058	27.286
300	0.931	34.064	27.297

STATION US12455			
LATITUDE 41-19.9 N			
LONGITUD 140-04.9 E			
DEPTH (m) 273			
Press.	Temp.	Salinity	Sigma-T
5	23.734	33.951	22.925
10	22.677	34.018	23.281
20	18.779	34.241	24.497
30	15.880	34.267	25.211
40	12.744	34.312	25.911
50	10.756	34.277	26.256
75	10.195	34.279	26.355
100	9.877	34.265	26.399
125	9.356	34.235	26.462
150	9.266	34.233	26.475
175	9.046	34.224	26.503
200	8.259	34.191	26.600
250	8.105	34.186	26.619

STATION US12456			
LATITUDE 41-20.0 N			
LONGITUD 140-00.0 E			
DEPTH (m) 237			
Press.	Temp.	Salinity	Sigma-T
5	24.046	33.953	22.835
10	22.650	33.967	23.250
20	16.703	34.237	24.999
30	14.908	34.281	25.438
40	13.076	34.311	25.844
50	12.705	34.329	25.932
75	8.982	34.208	26.501
100	7.923	34.174	26.636
125	7.056	34.151	26.742
150	7.030	34.153	26.747
175	6.971	34.149	26.752
200	6.940	34.150	26.757

STATION US12457			
LATITUDE 41-19.8 N			
LONGITUD 139-55.1 E			
DEPTH (m) 131			
Press.	Temp.	Salinity	Sigma-T
5	23.888	33.777	22.749
10	23.585	33.783	22.842
20	22.707	33.968	23.235
30	20.436	34.006	23.889
40	11.783	34.194	26.004
50	8.983	34.178	26.477
75	3.456	33.989	27.036
100	1.857	34.036	27.210

STATION US12458			
LATITUDE 41-20.0 N			
LONGITUD 139-45.2 E			
DEPTH (m) 485			
Press.	Temp.	Salinity	Sigma-T
5	22.571	33.825	23.165
10	21.530	33.853	23.477
20	14.431	33.786	25.157
30	6.440	33.912	26.636
40	4.779	33.998	26.906
50	4.294	34.014	26.971
75	2.332	34.026	27.165
100	1.773	34.039	27.219
125	1.571	34.040	27.235
150	1.448	34.048	27.250
175	1.292	34.056	27.267
200	1.098	34.059	27.282
250	1.006	34.062	27.291
300	0.909	34.064	27.299

STATION US12459			
LATITUDE 41-20.0 N			
LONGITUD 139-35.0 E			
DEPTH (m) 809			
Press.	Temp.	Salinity	Sigma-T
5	22.354	33.845	23.242
10	17.265	33.735	24.479
20	8.005	33.899	26.409
30	5.619	33.986	26.799
40	4.227	34.018	26.981
50	3.648	34.039	27.057
75	2.611	34.037	27.151
100	2.159	34.040	27.190
125	1.766	34.044	27.223
150	1.429	34.052	27.254
175	1.225	34.056	27.271
200	1.107	34.060	27.282
250	0.913	34.064	27.298
300	0.754	34.065	27.309

STATION US12460			
LATITUDE 41-20.0 N			
LONGITUD 139-24.9 E			
DEPTH (m) 2550			
Press.	Temp.	Salinity	Sigma-T
5	23.190	33.881	23.031
10	20.431	33.840	23.763
20	7.363	33.834	26.450
30	5.503	33.994	26.818
40	4.467	34.033	26.968
50	3.748	34.023	27.035
75	2.686	34.034	27.141
100	2.099	34.038	27.193
125	1.754	34.048	27.228
150	1.440	34.052	27.253
175	1.266	34.056	27.269
200	1.114	34.059	27.281
250	0.957	34.062	27.294
300	0.801	34.065	27.306

STATION US12461			
LATITUDE 41-24.7 N			
LONGITUD 139-25.3 E			
DEPTH (m) 2206			
Press.	Temp.	Salinity	Sigma-T
5	22.079	33.835	23.311
10	19.960	33.813	23.866
20	7.752	33.866	26.420
30	5.667	33.990	26.796
40	4.194	34.013	26.981
50	3.686	34.036	27.051
75	2.706	34.037	27.142
100	2.059	34.042	27.200
125	1.805	34.050	27.225
150	1.588	34.054	27.245
175	1.301	34.058	27.268
200	1.094	34.060	27.284
250	0.881	34.064	27.301
300	0.732	34.066	27.311

STATION US12462			
LATITUDE 41-24.8 N			
LONGITUD 139-35.1 E			
DEPTH (m) 1249			
Press.	Temp.	Salinity	Sigma-T
5	22.464	33.807	23.181
10	20.211	33.804	23.794
20	10.493	33.751	25.890
30	6.441	33.948	26.665
40	4.778	34.015	26.919
50	3.527	34.008	27.044
75	2.525	34.040	27.160
100	2.101	34.038	27.193
125	1.589	34.046	27.238
150	1.456	34.052	27.253
175	1.327	34.054	27.263
200	1.078	34.060	27.285
250	0.829	34.065	27.304
300	0.738	34.066	27.311

STATION US12463			
LATITUDE 41-24.9 N			
LONGITUD 139-44.5 E			
DEPTH (m) 1184			
Press.	Temp.	Salinity	Sigma-T
5	22.802	33.811	23.089
10	20.551	33.845	23.736
20	13.338	33.846	25.431
30	7.514	33.911	26.489
40	5.326	33.998	26.843
50	5.212	34.029	26.881
75	3.113	34.040	27.108
100	2.526	34.046	27.165
125	2.001	34.046	27.207
150	2.008	34.048	27.208
175	1.924	34.049	27.215
200	1.525	34.050	27.246
250	1.320	34.057	27.266
300	1.208	34.060	27.276

STATION US12464			
LATITUDE 41-24.9 N			
LONGITUD 139-50.0 E			
DEPTH (m) 973			
Press.	Temp.	Salinity	Sigma-T
5	23.644	33.814	22.849
10	22.324	33.847	23.251
20	19.918	34.004	24.024
30	11.655	34.075	25.935
40	7.405	34.084	26.640
50	4.766	34.028	26.931
75	3.323	34.050	27.097
100	2.864	34.049	27.138
125	2.663	34.049	27.155
150	2.265	34.049	27.189
175	1.982	34.050	27.212
200	1.663	34.052	27.238
250	1.334	34.059	27.267
300	1.082	34.062	27.286

STATION US12465			
LATITUDE 41-24.9 N			
LONGITUD 139-52.5 E			
DEPTH (m) 449			
Press.	Temp.	Salinity	Sigma-T
5	23.827	33.795	22.780
10	23.538	33.789	22.860
20	18.559	33.891	24.284
30	11.223	34.088	26.025
40	8.598	34.058	26.443
50	7.637	34.083	26.607
75	3.938	34.042	27.030
100	2.566	34.050	27.164
125	2.238	34.048	27.190
150	1.960	34.050	27.214
175	1.702	34.051	27.234
200	1.398	34.057	27.260
250	1.150	34.060	27.280
300	1.029	34.061	27.289

STATION US12466			
LATITUDE 41-24.9 N			
LONGITUD 139-54.9 E			
DEPTH (m) 138			
Press.	Temp.	Salinity	Sigma-T
5	22.967	33.792	23.027
10	22.092	33.829	23.303
20	16.407	33.987	24.875
30	12.156	34.209	25.945
40	9.696	34.230	26.402
50	6.643	34.093	26.752
75	3.998	34.051	27.032
100	3.161	34.053	27.114
125	1.834	34.047	27.220

STATION US12467			
LATITUDE 41-24.9 N			
LONGITUD 139-57.4 E			
DEPTH (m) 121			
Press.	Temp.	Salinity	Sigma-T
5	23.713	33.782	22.804
10	21.681	33.938	23.500
20	20.024	34.020	24.008
30	14.354	34.210	25.502
40	12.470	34.273	25.934
50	10.227	34.226	26.309
75	7.007	34.131	26.733
100	4.081	34.033	27.008

STATION US12468			
LATITUDE 41-25.1 N			
LONGITUD 139-59.9 E			
DEPTH (m) 107			
Press.	Temp.	Salinity	Sigma-T
5	23.976	33.782	22.727
10	23.905	33.809	22.768
20	22.652	33.961	23.245
30	18.933	34.081	24.336
40	12.306	34.236	25.937
50	11.126	34.252	26.170
75	7.274	34.149	26.710
100	5.034	34.083	26.945

STATION US12469			
LATITUDE 41-30.0 N			
LONGITUD 139-58.8 E			
DEPTH (m) 106			
Press.	Temp.	Salinity	Sigma-T
5	23.676	33.848	22.865
10	23.486	33.870	22.936
20	21.792	34.038	23.545
30	19.026	34.061	24.297
40	14.709	34.169	25.395
50	11.933	34.241	26.013
75	6.043	34.110	26.844
100	4.742	34.086	26.980

STATION US12470			
LATITUDE 41-30.0 N			
LONGITUD 139-57.4 E			
DEPTH (m) 123			
Press.	Temp.	Salinity	Sigma-T
5	24.055	33.807	22.722
10	23.029	33.881	23.076
20	21.160	34.062	23.737
30	17.919	34.141	24.634
40	12.908	34.259	25.837
50	10.136	34.240	26.336
75	6.184	34.106	26.823
100	4.408	34.057	26.993

STATION US12471			
LATITUDE 41-29.9 N			
LONGITUD 139-55.0 E			
DEPTH (m) 208			
Press.	Temp.	Salinity	Sigma-T
5	24.203	33.815	22.685
10	23.314	33.826	22.953
20	21.211	33.991	23.668
30	16.592	34.205	25.000
40	12.451	34.276	25.940
50	9.069	34.194	26.476
75	6.456	34.101	26.784
100	4.232	34.062	27.016
125	3.775	34.059	27.060
150	2.655	34.050	27.157
175	1.431	34.051	27.254
200	1.119	34.059	27.281

STATION US12472			
LATITUDE 41-30.0 N			
LONGITUD 139-52.7 E			
DEPTH (m) 868			
Press.	Temp.	Salinity	Sigma-T
5	23.607	33.806	22.853
10	22.974	33.810	23.039
20	19.666	34.032	24.110
30	12.455	34.217	25.894
40	10.626	34.245	26.254
50	8.572	34.176	26.540
75	5.146	34.064	26.917
100	4.029	34.055	27.031
125	3.145	34.054	27.117
150	2.331	34.047	27.182
175	1.891	34.050	27.219
200	1.557	34.052	27.246
250	1.272	34.059	27.271
300	0.990	34.063	27.292

STATION US12473			
LATITUDE 41-30.0 N			
LONGITUD 139-50.3 E			
DEPTH (m) 1327			
Press.	Temp.	Salinity	Sigma-T
5	23.321	33.804	22.934
10	22.663	33.816	23.132
20	20.108	33.906	23.899
30	11.908	34.237	26.014
40	10.386	34.290	26.331
50	8.494	34.178	26.554
75	4.296	34.048	26.998
100	3.894	34.058	27.047
125	3.195	34.048	27.107
150	2.642	34.048	27.157
175	1.908	34.048	27.216
200	1.634	34.053	27.240
250	1.171	34.059	27.278
300	0.977	34.062	27.293

STATION US12474			
LATITUDE 41-30.0 N			
LONGITUD 139-45.2 E			
DEPTH (m) 1430			
Press.	Temp.	Salinity	Sigma-T
5	22.941	33.838	23.070
10	22.112	33.827	23.295
20	19.155	33.939	24.170
30	12.676	34.173	25.816
40	10.126	34.166	26.279
50	5.562	34.023	26.834
75	4.257	34.056	27.008
100	3.322	34.042	27.090
125	2.588	34.042	27.156
150	2.193	34.043	27.190
175	1.926	34.048	27.215
200	1.620	34.052	27.241
250	1.262	34.058	27.271
300	1.074	34.061	27.286

STATION US12475			
LATITUDE 41-30.0 N			
LONGITUD 139-35.0 E			
DEPTH (m) 1427			
Press.	Temp.	Salinity	Sigma-T
5	22.914	33.812	23.057
10	21.541	33.814	23.444
20	15.248	33.877	25.052
30	8.970	34.026	26.360
40	6.673	34.026	26.695
50	4.918	34.035	26.919
75	3.318	34.041	27.091
100	2.818	34.044	27.138
125	2.428	34.042	27.170
150	2.056	34.045	27.202
175	1.573	34.049	27.242
200	1.352	34.052	27.260
250	1.118	34.061	27.282
300	0.891	34.064	27.299

STATION US12476			
LATITUDE 41-29.8 N			
LONGITUD 139-25.5 E			
DEPTH (m) 1221			
Press.	Temp.	Salinity	Sigma-T
5	22.063	33.801	23.290
10	21.044	33.823	23.586
20	11.195	33.904	25.887
30	7.175	33.951	26.569
40	5.729	34.016	26.809
50	4.053	34.022	27.003
75	2.999	34.041	27.120
100	2.078	34.033	27.191
125	1.728	34.049	27.230
150	1.516	34.052	27.248
175	1.328	34.057	27.265
200	1.153	34.059	27.279
250	0.934	34.063	27.296
300	0.798	34.065	27.306

STATION US12477			
LATITUDE 41-39.9 N			
LONGITUD 139-57.5 E			
DEPTH (m) 121			
Press.	Temp.	Salinity	Sigma-T
5	23.607	33.847	22.884
10	22.996	33.906	23.105
20	22.551	33.939	23.257
30	21.626	34.000	23.562
40	16.425	34.129	24.980
50	13.445	34.233	25.709
75	8.301	34.151	26.562
100	6.901	34.144	26.758

STATION US12478			
LATITUDE 41-40.0 N			
LONGITUD 139-55.0 E			
DEPTH (m) 991			
Press.	Temp.	Salinity	Sigma-T
5	23.664	33.848	22.868
10	22.519	33.929	23.259
20	20.589	34.016	23.855
30	16.258	34.170	25.051
40	14.134	34.258	25.586
50	11.869	34.237	26.021
75	8.521	34.174	26.547
100	7.760	34.176	26.662
125	6.264	34.088	26.799
150	4.785	34.066	26.959
175	3.964	34.062	27.044
200	2.595	34.045	27.158
250	1.641	34.046	27.234
300	1.184	34.059	27.277

STATION US12479			
LATITUDE 41-40.0 N			
LONGITUD 139-50.0 E			
DEPTH (m) 1433			
Press.	Temp.	Salinity	Sigma-T
5	22.063	33.868	23.340
10	21.637	33.879	23.467
20	19.713	34.088	24.141
30	16.022	34.187	25.117
40	12.040	34.239	25.990
50	10.436	34.266	26.304
75	6.966	34.127	26.736
100	5.989	34.102	26.845
125	5.045	34.071	26.934
150	4.135	34.049	27.015
175	3.206	34.042	27.102
200	2.611	34.044	27.156
250	1.608	34.055	27.244
300	1.191	34.056	27.274

STATION US12480			
LATITUDE 41-40.0 N			
LONGITUD 139-45.0 E			
DEPTH (m) 1438			
Press.	Temp.	Salinity	Sigma-T
5	23.584	33.860	22.901
10	22.134	33.863	23.316
20	17.458	34.030	24.661
30	11.011	34.108	26.079
40	9.616	34.201	26.393
50	7.899	34.083	26.569
75	6.508	34.086	26.765
100	5.393	34.078	26.899
125	4.280	34.043	26.995
150	3.572	34.048	27.072
175	3.123	34.046	27.113
200	2.811	34.045	27.139
250	1.758	34.048	27.227
300	1.252	34.058	27.271

STATION US12481			
LATITUDE 41-40.0 N			
LONGITUD 139-35.1 E			
DEPTH (m) 880			
Press.	Temp.	Salinity	Sigma-T
5	23.674	33.819	22.843
10	20.474	33.997	23.871
20	10.919	34.095	26.085
30	8.529	34.121	26.503
40	7.469	34.115	26.656
50	6.275	34.057	26.773
75	5.352	34.053	26.884
100	4.505	34.047	26.975
125	3.496	34.045	27.076
150	2.884	34.046	27.134
175	2.601	34.044	27.157
200	1.995	34.045	27.207
250	1.581	34.046	27.238
300	1.088	34.060	27.284

STATION US12482			
LATITUDE 41-39.9 N			
LONGITUD 139-25.0 E			
DEPTH (m) 2084			
Press.	Temp.	Salinity	Sigma-T
5	22.237	33.863	23.288
10	21.413	33.893	23.539
20	19.795	33.970	24.030
30	10.595	33.815	25.923
40	5.995	33.970	26.740
50	4.478	34.005	26.945
75	3.439	34.044	27.081
100	2.417	34.033	27.164
125	2.019	34.042	27.203
150	1.728	34.044	27.227
175	1.488	34.052	27.250
200	1.273	34.056	27.268
250	1.082	34.060	27.284
300	0.930	34.062	27.296

STATION US12483			
LATITUDE 41-16.2 N			
LONGITUD 140-42.3 E			
DEPTH (m) 128			
Press.	Temp.	Salinity	Sigma-T
5	22.476	33.761	23.144
10	21.121	33.874	23.604
20	20.206	33.937	23.897
30	15.503	34.152	25.208
40	14.188	34.227	25.551
50	13.610	34.262	25.698
75	11.745	34.281	26.079
100	11.185	34.276	26.178

STATION US12484			
LATITUDE 41-03.7 N			
LONGITUD 140-42.9 E			
DEPTH (m) 60			
Press.	Temp.	Salinity	Sigma-T
5	23.098	33.465	22.742
10	23.065	33.485	22.767
20	22.712	33.615	22.966
30	19.597	33.733	23.900
40	16.004	33.920	24.916
50	13.130	33.712	25.370

STATION US12485			
LATITUDE 41-02.4 N			
LONGITUD 140-43.0 E			
DEPTH (m) 57			
Press.	Temp.	Salinity	Sigma-T
5	23.048	33.502	22.784
10	23.014	33.508	22.798
20	22.640	33.627	22.995
30	19.208	33.797	24.049
40	16.187	33.915	24.870
50	14.433	34.018	25.337

STATION US12486			
LATITUDE 40-52.4 N			
LONGITUD 140-46.2 E			
DEPTH (m) 29			
Press.	Temp.	Salinity	Sigma-T
5	23.706	33.514	22.603
10	22.342	33.413	22.917
20	21.659	33.755	23.367

STATION US12487			
LATITUDE 40-55.4 N			
LONGITUD 140-46.3 E			
DEPTH (m) 41			
Press.	Temp.	Salinity	Sigma-T
5	23.320	33.498	22.703
10	21.794	33.647	23.247
20	20.817	33.643	23.511
30	18.187	33.655	24.196

STATION US12488			
LATITUDE 40-57.2 N			
LONGITUD 140-45.7 E			
DEPTH (m) 49			
Press.	Temp.	Salinity	Sigma-T
5	23.368	33.559	22.735
10	22.794	33.620	22.946
20	20.255	33.496	23.548
30	19.561	33.575	23.789
40	14.760	33.779	25.083

STATION US12489			
LATITUDE 41-00.0 N			
LONGITUD 140-46.8 E			
DEPTH (m) 51			
Press.	Temp.	Salinity	Sigma-T
5	22.990	33.277	22.630
10	22.728	33.458	22.842
20	21.597	33.741	23.373
30	19.829	33.509	23.669
40	17.899	33.770	24.355

STATION US12492			
LATITUDE 41-04.9 N			
LONGITUD 140-51.8 E			
DEPTH (m) 51			
Press.	Temp.	Salinity	Sigma-T
5	22.902	33.224	22.615
10	21.465	33.627	23.322
20	19.615	33.748	23.907
30	18.061	33.601	24.186
40	14.628	33.374	24.799
50	13.416	33.500	25.148

STATION US12495			
LATITUDE 41-09.0 N			
LONGITUD 140-44.0 E			
DEPTH (m) 60			
Press.	Temp.	Salinity	Sigma-T
5	23.439	33.404	22.597
10	22.965	33.497	22.804
20	22.718	33.604	22.956
30	19.434	33.711	23.926
40	17.048	33.883	24.646
50	13.357	33.917	25.482

STATION US12498			
LATITUDE 41-37.0 N			
LONGITUD 140-51.3 E			
DEPTH (m) 96			
Press.	Temp.	Salinity	Sigma-T
5	20.061	33.950	23.945
10	19.873	33.993	24.027
20	18.068	34.118	24.579
30	15.308	34.241	25.319
40	14.483	34.269	25.520
50	11.869	34.253	26.033
75	10.951	34.264	26.212

STATION US12501			
LATITUDE 41-42.8 N			
LONGITUD 140-45.0 E			
DEPTH (m) 83			
Press.	Temp.	Salinity	Sigma-T
5	22.992	33.984	23.166
10	22.893	33.992	23.200
20	20.804	34.040	23.816
30	17.917	34.121	24.619
40	15.132	34.164	25.299
50	12.785	34.218	25.830
75	9.838	34.220	26.370

STATION US12490			
LATITUDE 41-02.9 N			
LONGITUD 140-46.2 E			
DEPTH (m) 51			
Press.	Temp.	Salinity	Sigma-T
5	23.239	33.137	22.452
10	23.125	33.398	22.683
20	21.475	33.606	23.304
30	18.585	33.670	24.109
40	15.869	33.901	24.932

STATION US12493			
LATITUDE 41-06.0 N			
LONGITUD 140-51.3 E			
DEPTH (m) 51			
Press.	Temp.	Salinity	Sigma-T
5	23.086	33.248	22.581
10	21.441	33.648	23.345
20	18.901	33.698	24.051
30	18.261	33.760	24.259
40	14.724	33.340	24.752

STATION US12496			
LATITUDE 41-09.0 N			
LONGITUD 140-41.2 E			
DEPTH (m) 49			
Press.	Temp.	Salinity	Sigma-T
5	23.352	33.493	22.690
10	22.590	33.615	23.000
20	21.810	33.743	23.316
30	20.703	33.831	23.684
40	19.949	33.845	23.894

STATION US12499			
LATITUDE 41-38.7 N			
LONGITUD 140-49.3 E			
DEPTH (m) 313			
Press.	Temp.	Salinity	Sigma-T
5	22.585	33.815	23.153
10	21.816	33.872	23.412
20	19.997	34.020	24.016
30	18.439	34.088	24.465
40	14.112	34.197	25.543
50	11.984	34.219	25.985
75	11.371	34.245	26.120
100	10.190	34.220	26.310
125	10.015	34.233	26.350
150	9.283	34.216	26.459
175	8.582	34.202	26.559
200	8.652	34.205	26.550
250	8.542	34.204	26.566

STATION US12502			
LATITUDE 42-04.2 N			
LONGITUD 140-57.0 E			
DEPTH (m) 84			
Press.	Temp.	Salinity	Sigma-T
5	20.535	33.140	23.203
10	17.738	33.305	24.037
20	12.584	33.341	25.189
30	9.453	33.140	25.589
40	10.268	33.647	25.850
50	6.787	33.234	26.056
75	5.971	33.569	26.426

STATION US12491			
LATITUDE 41-03.6 N			
LONGITUD 140-52.2 E			
DEPTH (m) 50			
Press.	Temp.	Salinity	Sigma-T
5	23.239	33.211	22.509
10	21.996	33.626	23.175
20	19.953	33.693	23.777
30	18.759	33.701	24.090
40	16.462	33.553	24.529

STATION US12494			
LATITUDE 41-05.9 N			
LONGITUD 140-47.7 E			
DEPTH (m) 50			
Press.	Temp.	Salinity	Sigma-T
5	23.687	32.868	22.120
10	23.243	33.181	22.485
20	21.095	33.672	23.458
30	17.781	33.497	24.175
40	15.256	33.376	24.665

STATION US12497			
LATITUDE 41-34.9 N			
LONGITUD 140-53.2 E			
DEPTH (m) 33			
Press.	Temp.	Salinity	Sigma-T
5	18.936	34.099	24.349
10	16.938	34.185	24.903
20	12.848	34.242	25.836

STATION US12500			
LATITUDE 41-40.8 N			
LONGITUD 140-47.2 E			
DEPTH (m) 215			
Press.	Temp.	Salinity	Sigma-T
5	22.752	33.793	23.089
10	22.132	33.917	23.359
20	19.833	34.014	24.054
30	17.595	34.092	24.675
40	16.789	34.182	24.936
50	15.137	34.196	25.322
75	10.211	34.223	26.309
100	9.637	34.231	26.413
125	9.354	34.227	26.456
150	9.101	34.214	26.486
175	8.643	34.200	26.548

STATION US12503			
LATITUDE 42-12.7 N			
LONGITUD 140-56.0 E			
DEPTH (m) 69			
Press.	Temp.	Salinity	Sigma-T
5	19.847	33.136	23.380
10	19.424	33.216	23.550
20	16.096	33.333	24.444
30	12.226	33.554	25.423
40	9.029	33.384	25.848
50	7.705	33.525	26.158

STATION US12504			
LATITUDE	42-14.8	N	
LONGITUD	141-04.4	E	
DEPTH (m)	77		
Press.	Temp.	Salinity	Sigma-T
5	20.480	32.898	23.033
10	19.805	33.578	23.728
20	15.488	33.490	24.701
30	12.590	33.656	25.433
40	11.082	33.750	25.788
50	10.094	33.880	26.062

STATION US12505			
LATITUDE	42-18.9	N	
LONGITUD	141-22.7	E	
DEPTH (m)	425		
Press.	Temp.	Salinity	Sigma-T
5	17.954	33.804	24.367
10	17.782	33.784	24.394
20	14.022	34.074	25.467
30	12.266	34.134	25.866
40	11.301	34.138	26.050
50	10.621	34.125	26.162
75	9.745	34.105	26.296
100	9.353	34.068	26.332
125	8.831	34.030	26.385
150	7.547	33.887	26.466
175	7.324	33.890	26.499

STATION US12506			
LATITUDE	42-19.8	N	
LONGITUD	142-08.6	E	
DEPTH (m)	74		
Press.	Temp.	Salinity	Sigma-T
5	19.869	33.235	23.450
10	18.966	33.426	23.827
20	15.346	33.933	25.073
30	12.496	33.975	25.698
40	11.598	34.073	25.944
50	9.824	33.851	26.084

STATION US12507			
LATITUDE	42-16.7	N	
LONGITUD	142-06.3	E	
DEPTH (m)	246		
Press.	Temp.	Salinity	Sigma-T
5	19.444	33.689	23.906
10	16.837	34.008	24.791
20	13.624	34.145	25.604
30	11.387	34.080	25.989
40	9.529	33.827	26.114
50	10.263	34.110	26.212
75	9.846	34.105	26.279
100	8.965	34.045	26.376
125	8.598	34.018	26.412
150	8.525	34.012	26.419
175	7.431	33.849	26.452
200	6.250	33.727	26.515

STATION US12508			
LATITUDE	42-13.4	N	
LONGITUD	142-04.2	E	
DEPTH (m)	627		
Press.	Temp.	Salinity	Sigma-T
5	19.501	33.845	24.011
10	16.772	34.099	24.877
20	14.312	34.137	25.454
30	12.292	34.143	25.867
40	11.077	34.125	26.080
50	10.174	34.052	26.182
75	9.862	34.113	26.282
100	9.453	34.084	26.327
125	8.760	34.028	26.395
150	7.941	33.956	26.462
175	7.162	33.878	26.513
200	5.692	33.722	26.580

STATION US12509			
LATITUDE	42-21.5	N	
LONGITUD	141-31.9	E	
DEPTH (m)	407		
Press.	Temp.	Salinity	Sigma-T
5	19.211	33.589	23.890
10	18.901	33.582	23.963
20	15.475	33.895	25.016
30	13.195	34.148	25.693
40	12.344	34.150	25.863
50	11.161	34.079	26.029
75	10.257	34.044	26.162
100	9.742	34.083	26.280
125	9.228	34.048	26.337
150	8.261	33.950	26.410
175	6.838	33.791	26.488
200	5.270	33.632	26.560

STATION US12510			
LATITUDE	42-24.8	N	
LONGITUD	141-29.0	E	
DEPTH (m)	236		
Press.	Temp.	Salinity	Sigma-T
5	19.632	33.127	23.429
10	18.695	33.467	23.926
20	15.201	33.465	24.745
30	12.364	33.720	25.526
40	10.017	33.710	25.942
50	9.623	33.844	26.113
75	9.193	33.952	26.267
100	8.160	33.895	26.382
125	7.765	33.873	26.423
150	7.018	33.791	26.464
175	6.128	33.708	26.516
200	5.432	33.640	26.547

STATION US12511			
LATITUDE	42-28.7	N	
LONGITUD	141-26.1	E	
DEPTH (m)	81		
Press.	Temp.	Salinity	Sigma-T
5	19.945	33.182	23.390
10	18.708	33.288	23.786
20	15.147	33.287	24.619
30	12.720	33.666	25.415
40	10.758	33.713	25.816
50	9.061	33.652	26.053
75	7.348	33.720	26.363

STATION US12512			
LATITUDE	42-24.2	N	
LONGITUD	140-47.8	E	
DEPTH (m)	46		
Press.	Temp.	Salinity	Sigma-T
5	22.078	31.478	21.522
10	18.817	31.804	22.626
20	17.689	32.784	23.650
30	9.703	32.922	25.379
40	7.885	33.260	25.924

STATION US12513			
LATITUDE	42-17.5	N	
LONGITUD	140-35.4	E	
DEPTH (m)	91		
Press.	Temp.	Salinity	Sigma-T
5	21.553	31.524	21.701
10	20.819	31.525	21.899
20	19.540	33.042	23.388
30	10.575	32.386	24.815
40	6.962	32.732	25.637
50	4.128	32.733	25.971
75	3.762	33.207	26.384

STATION US12514			
LATITUDE	41-59.5	N	
LONGITUD	141-01.9	E	
DEPTH (m)	99		
Press.	Temp.	Salinity	Sigma-T
5	19.824	33.386	23.577
10	17.468	33.262	24.070
20	15.220	33.433	24.716
30	8.896	32.729	25.356
40	9.226	33.431	25.854
50	6.623	33.282	26.116
75	7.832	33.798	26.354

STATION US12515			
LATITUDE	41-58.7	N	
LONGITUD	141-00.7	E	
DEPTH (m)	93		
Press.	Temp.	Salinity	Sigma-T
5	19.597	33.380	23.631
10	17.065	33.231	24.141
20	13.301	33.333	25.042
30	10.407	33.386	25.622
40	7.270	33.125	25.905
50	5.771	33.135	26.107
75	7.187	33.721	26.386

STATION US12516			
LATITUDE 41-58.0 N			
LONGITUD 140-59.5 E			
DEPTH (m) 86			
Press.	Temp.	Salinity	Sigma-T
5	20.626	32.365	22.589
10	18.456	33.242	23.814
20	12.602	33.194	25.072
30	11.485	33.462	25.490
40	9.470	33.493	25.863
50	7.347	33.363	26.082
75	6.164	33.607	26.431

STATION US12517			
LATITUDE 41-57.4 N			
LONGITUD 140-58.3 E			
DEPTH (m) 78			
Press.	Temp.	Salinity	Sigma-T
5	19.212	32.601	23.134
10	17.330	32.901	23.826
20	13.403	33.147	24.878
30	10.963	33.359	25.505
40	9.572	33.523	25.870
50	6.839	33.308	26.108
75	5.490	33.444	26.385

STATION US12518			
LATITUDE 41-44.3 N			
LONGITUD 140-46.6 E			
DEPTH (m) 57			
Press.	Temp.	Salinity	Sigma-T
5	22.138	34.005	23.423
10	22.075	34.012	23.446
20	17.216	34.128	24.793
30	12.272	34.165	25.889
40	10.465	34.202	26.249
50	9.931	34.230	26.362

THE " USHIO MARU "

CRUISE 264

CRUISE 265

CRUISE 266

IN AUGUST - SEPTEMBER 2012

1. Cruise Itinerary

Cruise 264

Departure from Hakodate	Aug. 20, 2012
Arrival at Mori	20
Departure from Mori	21
Start hydrographic research (US12519) and trawl net research	21
Arrival at Mori	21
Departure from Mori	22
Finish trawl net research	22
Arrival at Mori	22
Departure from Mori	23
Sampling by sledge net and retrieval mooring ADCP system	23
Arrival at Mori	23
Departure from Mori	24
Set mooring ADCP system	24
Arrival at Usujiri	25
Departure from Usujiri	26
Arrival at Hakodate	28
Departure from Hakodate	29
Finish hydrographic research (US12566)	30
Return to Hakodate	31
Total coverage 638.8 miles	

Cruise 265

Departure from Hakodate	Sep. 4, 2012
Start hydrographic research (US12567) and trawl net research	4
Arrival at Aomori	4
Departure from Aomori	5
Arrival at Noheji	5
Departure from Noheji	6
Finish trawl net research	6
Finish hydrographic research (US12603)	7
Arrival at Hakodate	7
Departure from Hkodate	9
Arrival at Matsumae	10
Departure from Matsumae	11
Practical training in Scuba	11
Return to Hakodate	12
Total coverage 383.3 miles	

Cruise 266

Departure from Hakodate	Sep. 17, 2012
Arrival at Hakodate	18
Departure from Hakodate	19
Start hydrographic research (US12604)	19
Arrival at Nemuro	21
Departure from Nemuro	22
Arrival at and departure from Nemuro	23
Arrival at Kushiro	24
Departure from Kushiro	26
Finish hydrographic research (US12650)	26
Return to Hakodate	27
Total coverage 1035.4 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”.

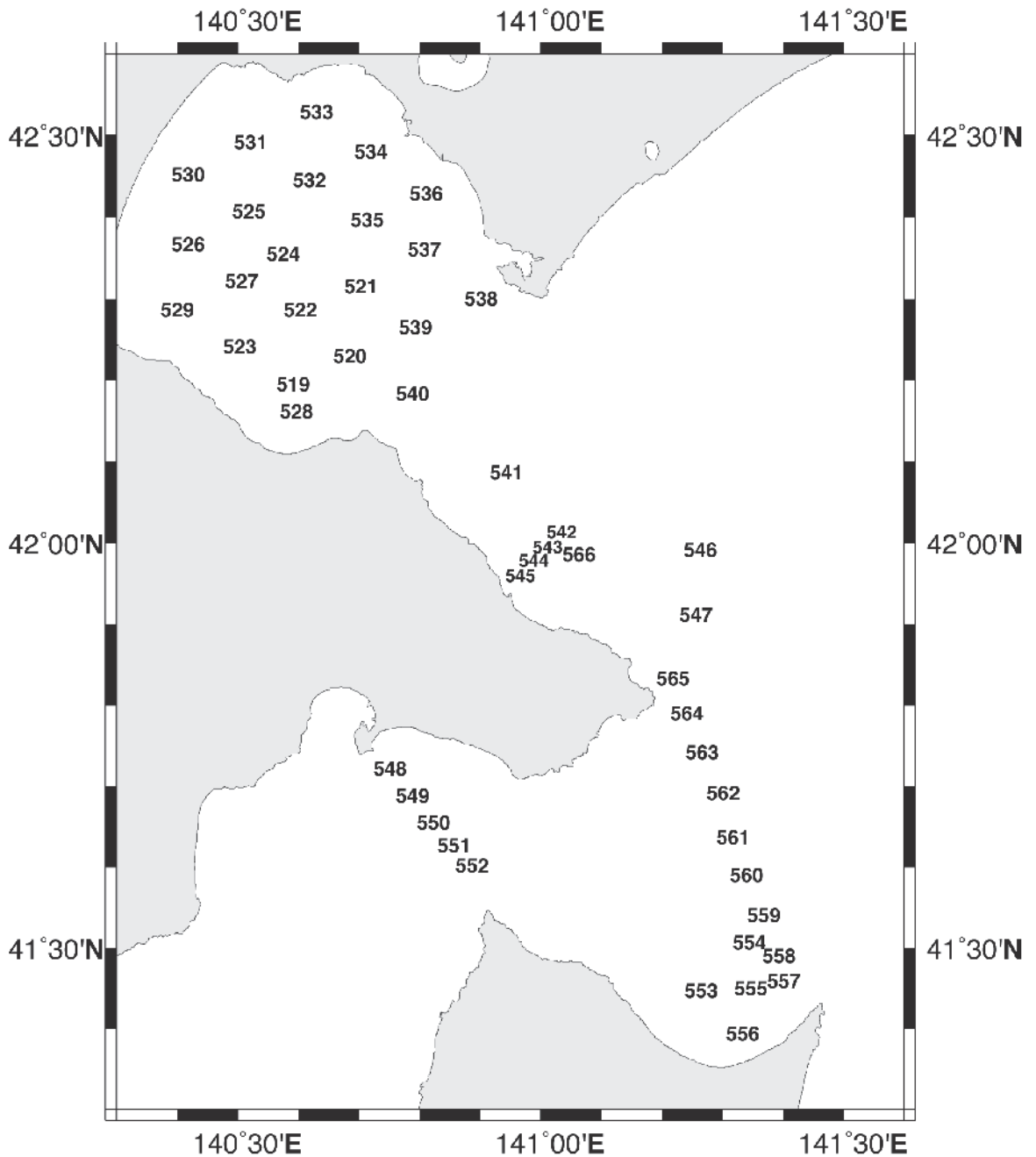


Figure 1. Oceanographic stations (Cruise 264)

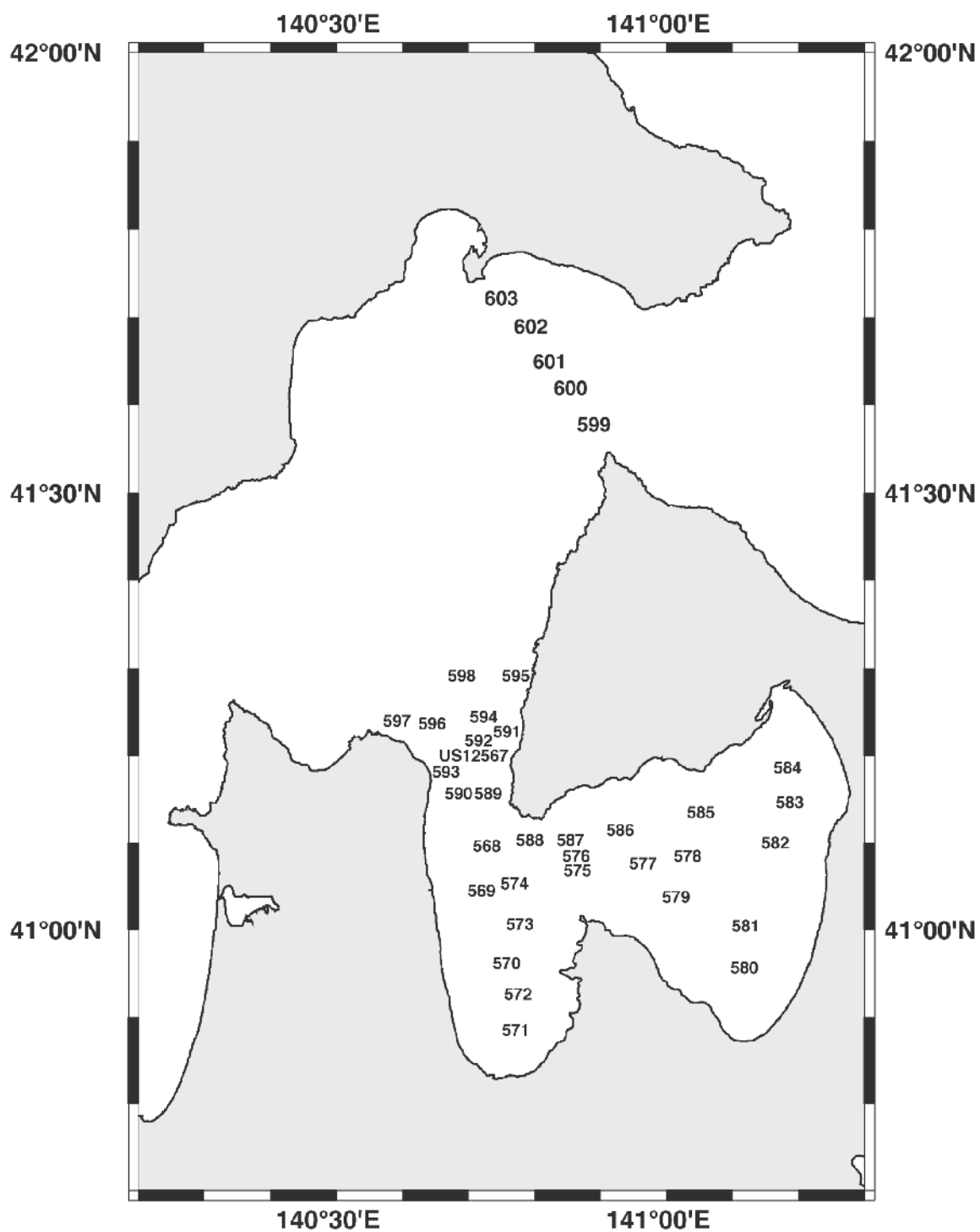


Figure 2. Oceanographic stations (Cruise 265)

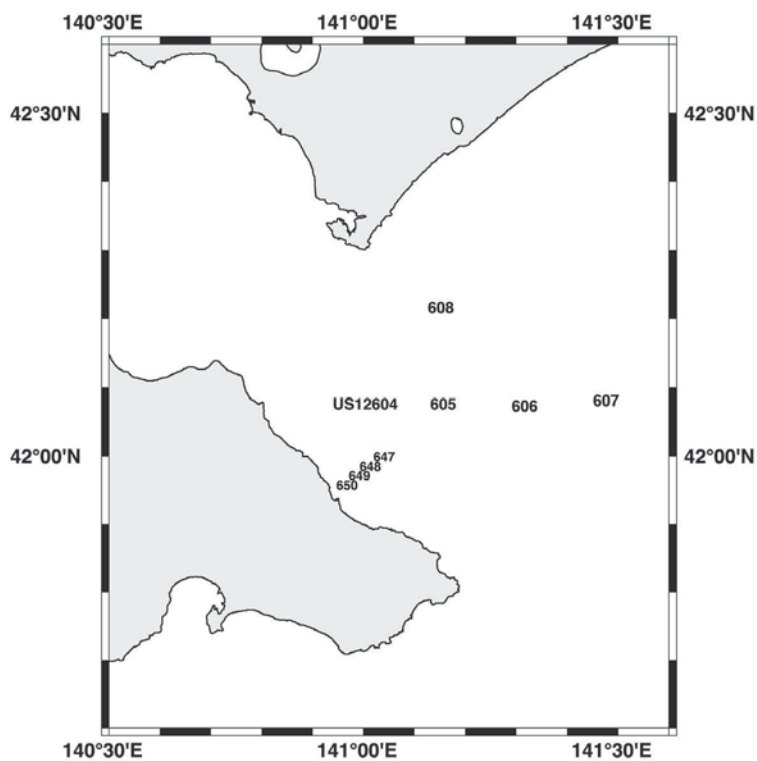


Figure 3. Oceanographic stations (Cruise 266-1)

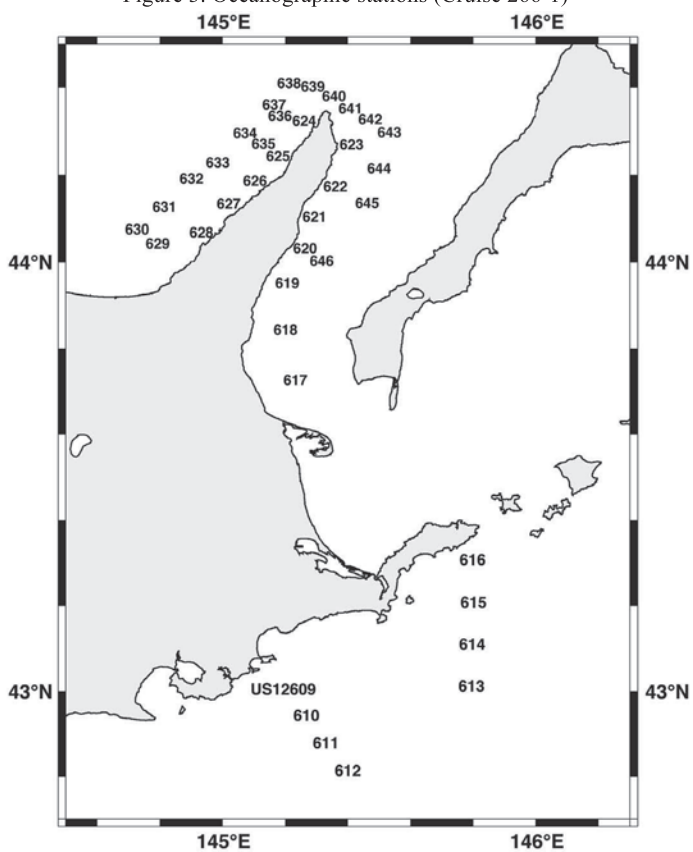


Figure 4. Oceanographic stations (Cruise 266-2)

Table 1. List of Oceanographic Station

Cruise 264												
Station	Lat. (N)*	Long. (E)*	Date	S.M.T.	Depth (m)	Wave	Swell	Wind	Air Temp.	Sea Temp.	Wr.	Bar. (hPa)
US12519	42-11.2	140-35.5	8/21	0625-0630	80	ESE-1	ESE-1	ESE-3	25.3	22.7	bc	1015.6
US12520	42-13.3	140-41.1	8/21	0758-0802	88	East-2	East-1	East-4	25.1	22.7	bc	1015.6
US12521	42-18.4	140-42.2	8/21	0908-0912	63	East-2	East-1	East-4	24.5	22.5	bc	1015.7
US12522	42-16.7	140-36.2	8/21	1025-1029	89	ESE-2	East-1	ESE-4	26.5	22.9	bc	1015.7
US12523	42-14.0	140-30.2	8/21	1200-1204	78	East-2	East-1	East-4	26.8	23.2	bc	1015.7
US12524	42-20.8	140-34.5	8/22	0839-0843	92	SE -2	East-1	SE -4	23.0	22.9	bc	1015.6
US12525	42-23.9	140-31.1	8/22	0926-0930	94	SE -1	East-1	SE -2	27.0	22.9	o	1015.6
US12526	42-21.5	140-25.1	8/22	1656-1100	69	SE -1	East-1	SE -2	24.0	23.3	o	1015.6
US12527	42-18.8	140-30.4	8/22	1216-1221	92	SE -1	East-1	SE -3	24.4	23.0	c	1015.1
US12528	42-09.2	140-35.8	8/23	1309-1313	67	Calm	East-1	Calm	28.7	23.0	c	1018.2
US12529	42-16.7	140-24.0	8/24	0913-0916	52	ESE-1	East-1	ESE-3	25.9	23.4	o	1021.0
US12530	42-26.6	140-25.1	8/24	1020-1024	60	East-1	East-1	East-3	23.6	23.9	o	1020.9
US12531	42-29.0	140-31.3	8/24	1100-1104	71	ESE-2	East-1	ESE-4	23.5	23.3	r	1020.7
US12532	42-26.2	140-37.1	8/24	1140-1147	82	ESE-2	East-1	ESE-4	24.9	23.2	o	1020.6
US12533	42-31.2	140-37.8	8/24	1247-1250	58	South-1	ESE-1	South-2	24.8	23.2	o	10211.1
US12534	42-28.3	140-43.2	8/24	1326-1330	58	SE -1	ESE-1	SE -3	24.1	23.6	r	1021.0
US12535	42-23.3	140-42.8	8/24	1406-1410	58	SE -1	ESE-1	SE -3	24.0	23.8	o	1021.0
US12536	42-25.2	140-48.7	8/24	1442-1445	42	SE -2	SE -1	SE -4	23.1	23.4	o	1020.7
US12537	42-21.1	140-48.5	8/24	1513-1516	50	ESE-2	SE -1	ESE-4	23.7	23.5	o	1020.6
US12538	42-17.5	140-54.1	8/25	0626-0629	55	ESE-1	SE -1	ESE-3	22.8	23.4	o	1020.9
US12539	42-15.4	140-47.6	8/25	0709-0713	70	East-1	SE -1	East-2	23.8	23.4	o	1021.1
US12540	42-10.5	140-47.3	8/25	0746-0750	91	East-1	East-1	East-3	23.5	22.8	o	1021.0
US12541	42-04.7	140-56.6	8/25	0845-0849	83	East-1	East-1	East-3	22.5	22.0	o	1021.0
US12542	41-59.5	141-01.7	8/25	0932-0936	98	East-1	East-1	East-3	23.0	22.1	o	1021.0
US12543	41-58.8	141-00.5	8/25	0943-0947	92	East-1	East-1	East-3	23.4	22.1	o	1021.0
US12544	41-58.1	140-59.3	8/25	0954-0958	84	East-1	East-1	East-2	23.5	22.2	o	1021.0
US12545	41-57.3	140-58.0	8/25	1005-1009	74	East-1	East-1	East-2	22.6	22.1	o	1021.0
US12546	41-59.0	141-15.8	8/26	1828-1840	259	SSE-1	East-1	SSE-3	23.0	22.4	o	1016.1
US12547	41-54.2	141-15.4	8/27	1932-1940	253	West-1	East-1	West-2	25.2	22.2	bc	1018.2
US12548	41-42.8	140-45.1	8/29	0916-0920	83	East-2	East-1	East-4	27.1	24.9	bc	1014.7
US12549	41-40.8	140-47.3	8/29	0937-0945	220	East-2	East-1	East-4	26.9	24.4	c	1014.7
US12550	41-38.8	140-49.4	8/29	1001-1012	298	East-2	East-1	East-4	27.2	25.7	c	1014.6
US12551	41-37.1	140-51.4	8/29	1028-1033	98	East-2	East-1	East-4	27.7	26.4	bc	1014.6
US12552	41-35.6	140-53.2	8/29	1047-1050	50	East-3	ENE-1	East-5	27.6	27.0	bc	1014.1
US12553	41-26.3	141-15.9	8/29	1246-1256	79	East-1	NE -1	East-3	27.3	22.1	bc	1013.7
US12554	41-29.9	141-20.7	8/29	1354-1401	227	ESE-2	ENE-1	ESE-4	25.5	23.2	c	1013.2
US12555	41-26.6	141-21.0	8/29	1424-1428	72	ESE-2	NE -1	ESE-4	26.8	23.2	c	1013.1
US12556	41-23.1	141-20.0	8/30	0448-0451	29	South-1	NE -1	South-3	27.0	23.9	bc	1011.5
US12557	41-27.0	141-24.1	8/30	0545-0551	45	South-1	ENE-1	South-3	26.7	23.2	bc	1011.6
US12558	41-28.9	141-23.6	8/30	0605-0614	88	South-2	SE -1	South-3	27.1	23.0	bc	1011.8
US12559	41-31.9	141-22.1	8/30	0640-0659	249	South-1	SE -1	South-2	27.8	22.2	bc	1011.9
US12560	41-34.9	141-20.4	8/30	0756-0818	314	South-1	East-1	South-3	27.9	23.4	bc	1011.7
US12561	41-37.7	141-19.1	8/30	0839-0855	212	South-1	East-1	South-3	29.9	23.2	bc	1011.7
US12562	41-41.0	141-18.1	8/30	0917-0936	230	SSW-1	East-1	SSW-3	29.3	23.3	bc	1011.7
US12563	41-44.0	141-16.0	8/30	1001-1019	227	Calm	East-1	Calm	31.1	23.2	c	1011.8
US12564	41-46.9	141-14.5	8/30	1041-1057	197	SW -1	East-1	SW -4	29.3	24.3	bc	1011.7
US12565	41-49.5	141-13.1	8/30	1118-1131	175	SW -2	SE -1	SE -4	27.2	19.5	bc	1011.0
US12566	41-59.1	141-02.8	8/30	1902-1908	105	Calm	SE -1	Calm	26.7	24.2	bc	1011.4
Cruise 265												
Station	Lat. (N)*	Long. (E)*	Date	S.M.T.	Depth (m)	Wave	Swell	Wind	Air Temp.	Sea Temp.	Wr.	Bar. (hPa)
US12567	41-11.6	140-42.5	9/4	1148-1151	71	ESE-3	SE -1	ESE-5	31.3	26.1	bc	1017.5
US12568	41-05.4	140-43.7	9/4	1307-1309	60	East-3	East-1	East-5	28.5	26.2	bc	1017.1
US12569	41-02.3	140-43.2	9/4	1423-1429	56	East-3	East-1	East-5	28.5	26.0	bc	1017.1
US12570	40-57.3	140-45.5	9/4	1505-1511	49	East-2	East-1	East-4	28.9	25.9	bc	1016.7
US12571	40-52.7	140-46.3	9/4	1638-1646	31	ENE-1	ENE-1	ENE-3	28.8	26.3	bc	1017.1
US12572	40-55.2	140-46.5	9/5	0629-0634	39	East-3	East-1	East-5	24.3	25.8	c	1019.6
US12573	41-00.0	140-46.7	9/5	0745-0751	51	East-3	East-1	East-5	24.1	25.6	o	1020.1
US12574	41-02.8	140-46.2	9/5	0901-0909	51	East-3	East-1	East-5	24.4	25.6	o	1020.6
US12575	41-03.7	140-51.9	9/5	0941-0948	49	East-3	East-1	East-5	24.7	25.5	o	1020.6
US12576	41-04.7	140-51.8	9/5	1000-1005	51	East-3	East-1	East-5	24.8	25.1	o	1020.6
US12577	41-04.2	140-57.9	9/5	1124-1130	48	East-3	East-1	East-5	24.5	25.5	o	1021.0
US12578	41-04.7	141-01.9	9/5	1206-1212	46	East-3	East-1	East-5	24.9	25.6	o	1020.7
US12579	41-01.9	141-00.9	9/5	1434-1440	47	East-3	East-1	East-5	23.8	25.1	o	1020.1
US12580	40-57.0	141-07.1	9/6	0718-0723	36	SSE-1	SSE-1	SSE-3	24.6	24.1	o	1018.0
US12581	40-59.9	141-07.2	9/6	0746-0750	42	SE -2	SE -1	SE -4	24.9	24.4	c	1017.6
US12582	41-05.6	141-09.9	9/6	0904-0909	37	SE -1	SE -1	SE -3	25.5	25.9	c	1017.6
US12583	41-08.4	141-11.2	9/6	0940-0944	33	South-1	SE -1	South-3	29.6	25.9	c	1017.6

Cruise 265 (continued)

Station	Lat. (N)*	Long. (E)*	Date	S.M.T.	Depth (m)	Wave	Swell	Wind	Air Temp.	Sea Temp.	Wr.	Bar. (hPa)
US12584	41-10.8	141-11.0	9/6	1001-1005	28	South-1	South-1	South-3	28.0	25.7	c	1017.5
US12585	41-07.7	141-03.1	9/6	1140-1144	37	South-1	South-1	South-2	28.8	25.7	c	1017.2
US12586	41-06.5	140-55.8	9/6	1238-1243	46	Calm	SE -1	Calm	29.4	25.5	c	1016.2
US12587	41-05.8	140-51.3	9/6	1312-1316	51	SW -1	SE -1	SW -2	30.0	25.6	c	1016.0
US12588	41-05.8	140-47.6	9/6	1335-1340	51	Calm	SE -1	Calm	29.6	25.9	c	1015.8
US12589	41-09.0	140-43.8	9/7	0529-0537	60	ESE-2	NNW-1	ESE-4	24.1	25.5	bc	1019.6
US12590	41-09.0	140-41.1	9/7	0600-0604	46	SW -1	NW -1	SW -3	24.3	25.3	bc	1020.1
US12591	41-13.1	140-45.7	9/7	0657-0703	62	West-1	NW -1	West-2	26.3	25.5	bc	1020.3
US12592	41-12.2	140-42.9	9/7	0723-0733	71	WSW-1	NW -1	WSW-3	26.9	25.4	bc	1020.1
US12593	41-11.2	140-39.4	9/7	0752-0758	39	WSW-1	NW -1	WSW-2	27.1	25.7	bc	1020.1
US12594	41-14.0	140-43.6	9/7	0833-0841	79	WNW-1	NW -1	WNW-2	28.6	26.1	bc	1020.6
US12595	41-17.1	140-47.1	9/7	0915-0919	37	NW -1	NW -1	NW -3	29.1	25.9	bc	1021.0
US12596	41-13.8	140-38.7	9/7	0958-1007	76	NW -1	NW -1	NW -2	27.9	26.5	bc	1021.1
US12597	41-14.0	140-35.5	9/7	1024-1030	63	NW -1	NW -1	NW -3	28.0	26.1	bc	1021.0
US12598	41-17.1	140-41.4	9/7	1110-1131	149	NW -1	NW -1	NW -2	29.9	26.8	bc	1021.1
US12599	41-34.2	140-53.4	9/7	1351-1353	23	SW -2	East-1	SW -4	30.0	26.9	bc	1020.6
US12600	41-36.7	140-51.3	9/7	1412-1416	80	SW -1	East-1	SW -3	29.1	27.6	bc	1020.1
US12601	41-38.5	140-49.4	9/7	1435-1448	317	SW -3	East-1	SW -5	28.8	26.1	bc	1020.2
US12602	41-40.9	140-47.7	9/7	1515-1523	226	SW -3	East-1	SW -5	28.0	26.2	bc	1020.1
US12603	41-42.8	140-45.0	9/7	1546-1550	83	SW -3	East-1	SW -5	27.2	26.2	bc	1020.1

Cruise 266

Station	Lat. (N)*	Long. (E)*	Date	S.M.T.	Depth (m)	Wave	Swell	Wind	Air Temp.	Sea Temp.	Wr.	Bar. (hPa)
US12604	42-04.1	141-00.2	9/19	1358-1404	81	South-1	SE -1	South-2	27.9	23.5	bc	1006.7
US12605	42-04.1	141-09.4	9/19	1449-1454	122	South-2	SE -1	South-4	26.4	22.8	bc	1006.7
US12606	42-03.9	141-19.0	9/19	1543-1555	298	South-2	SE -1	South-4	25.8	23.2	bc	1007.1
US12607	42-04.4	141-28.6	9/19	1655-1713	479	SSW-2	South-1	SSW-4	25.6	23.9	bc	1007.7
US12608	42-12.5	141-09.1	9/20	0340-0345	100	WSW-2	SE -1	WSW-4	24.0	23.9	o	1009.6
US12609	42-59.6	145-11.6	9/21	0450-0453	52	NNW-1	South-1	NNW-2	17.9	17.1	bc	1014.5
US12610	42-55.9	145-16.1	9/21	0528-0532	90	NNW-1	South-1	NNW-1	18.3	16.8	bc	1014.9
US12611	42-52.0	145-19.8	9/21	0607-0614	152	Calm	South-1	Calm	18.5	19.3	bc	1015.1
US12612	42-48.1	145-24.0	9/21	0650-0711	899	NE -1	South-1	NE -2	19.6	20.9	bc	1015.4
US12613	43-00.0	145-47.7	9/21	1012-1027	473	North-1	South-1	North-2	21.1	20.2	c	1015.6
US12614	43-05.8	145-47.8	9/21	1105-1109	108	Calm	South-1	Calm	20.2	17.7	c	1014.8
US12615	43-11.7	145-48.1	9/21	1149-1153	68	SW -1	South-1	SW -2	21.1	17.0	c	1014.8
US12616	43-17.7	145-47.9	9/21	1234-1237	29	Calm	South-1	Calm	19.3	17.3	c	1013.7
US12617	43-42.9	145-14.0	9/22	0820-0822	17	NNW-3	NW -1	NNW-5	20.5	19.2	bc	1015.1
US12618	43-49.9	145-12.1	9/22	0901-0903	43	NNW-1	NW -1	NNW-3	21.6	19.2	bc	1015.6
US12619	43-56.4	145-12.4	9/22	0942-0946	80	NE -3	NNE-1	NE -5	19.6	18.9	bc	1015.8
US12620	44-01.4	145-13.9	9/22	1015-1022	247	NE -3	NE -1	NE -5	19.8	19.3	bc	1015.6
US12621	44-05.7	145-16.3	9/22	1051-1059	267	NE -3	NE -1	NE -6	18.8	19.2	bc	1015.5
US12622	44-10.1	145-20.5	9/22	1138-1144	177	NE -2	NE -1	NE -4	19.6	19.2	bc	1015.6
US12623	44-15.5	145-22.8	9/22	1225-1228	77	NNE-2	NE -1	NNE-5	19.2	19.2	bc	1015.6
US12624	44-18.4	145-16.2	9/22	1336-1342	121	NE -1	NE -1	NE -2	21.4	20.2	bc	1015.7
US12625	44-14.3	145-12.0	9/22	1416-1420	121	NE -1	North-1	NE -3	21.9	20.4	bc	1015.7
US12626	44-10.1	145-06.8	9/22	1458-1502	115	NE -1	North-1	NE -3	20.7	20.5	bc	1015.7
US12627	44-07.3	145-01.5	9/22	1533-1537	96	NE -1	North-1	NE -3	20.9	20.0	bc	1015.7
US12628	44-03.4	144-56.0	9/22	1612-1616	54	NE -1	North-1	NE -3	20.0	20.0	bc	1015.8
US12629	44-01.9	144-47.6	9/22	1803-1806	80	East-1	North-1	East-3	19.0	20.5	bc	1015.8
US12630	44-03.8	144-43.7	9/22	1831-1842	286	East-1	North-1	East-3	19.1	20.3	bc	1015.8
US12631	44-06.9	144-48.9	9/22	1907-1921	365	East-1	North-1	East-4	18.8	19.9	bc	1016.0
US12632	44-10.8	144-54.1	9/22	1946-2000	571	South-1	North-1	South-3	19.9	19.7	bc	1016.2
US12633	44-13.0	144-59.1	9/22	2020-2036	695	SW -1	North-1	SW -3	19.1	20.0	bc	1016.2
US12634	44-16.3	145-04.9	9/22	2058-2113	813	SW -2	NE -1	SW -2	19.0	19.9	c	1016.4
US12635	44-15.4	145-08.4	9/22	2127-2140	510	ESE-2	NE -1	ESE-4	18.4	20.3	c	1016.0
US12636	44-19.1	145-12.7	9/22	2203-2217	709	East-1	NE -1	East-3	18.9	20.2	c	1016.1
US12637	44-21.0	145-09.9	9/22	2237-2251	1113	WSW-2	NE -1	WSW-3	18.6	19.2	c	1016.6
US12638	44-23.8	145-13.6	9/22	2310-2324	1195	South-1	NE -1	South-2	19.0	18.6	o	1016.2
US12639	44-23.3	145-17.6	9/22	2342-2358	790	SE -1	NE -1	SE -3	19.0	20.5	o	1015.5
US12640	44-22.2	145-21.4	9/23	0018-0023	125	SE -3	NE -1	SE -5	18.6	19.7	bc	1015.6
US12641	44-20.7	145-24.5	9/23	0041-0057	965	South-3	SE -1	South-5	17.9	19.1	bc	1015.6
US12642	44-19.0	145-28.3	9/23	0119-0136	1871	South-3	South-1	South-5	17.0	19.2	bc	1016.0
US12643	44-17.2	145-32.0	9/23	0200-0241	2080	South-3	South-1	South-5	17.6	19.1	bc	1016.1
US12644	44-12.2	145-30.0	9/23	0507-0524	2028	South-3	South-1	South-5	17.5	19.0	bc	1016.1
US12645	44-07.4	145-27.7	9/23	0600-0615	1206	South-2	South-1	South-4	17.3	18.6	c	1016.6
US12646	43-59.5	145-19.0	9/23	0715-0724	276	South-2	South-1	South-4	17.6	18.8	c	1017.0
US12647	41-59.3	141-02.3	9/26	2308-2312	102	SSW-2	East-2	SSW-4	20.0	22.8	c	1025.6
US12648	41-58.7	141-00.8	9/26	2322-2326	93	SW -1	East-2	SW -3	19.8	23.0	c	1025.4
US12649	41-58.0	140-59.5	9/26	2335-2339	85	SW -1	East-2	SW -3	19.5	23.0	c	1025.2
US12650	41-57.4	140-58.4	9/26	2346-2350	78	SW -1	East-2	SW -3	19.2	22.8	c	1025.3

(*): Fixed position by Global Positioning System

Table 2. Oceanographic data

STATION US12519			
LATITUDE 42-11.2 N			
LONGITUD 140-35.5 E			
DEPTH (m) 80			
Press.	Temp.	Salinity	Sigma-T
5	22.850	32.162	21.825
10	20.187	32.455	22.773
20	15.098	32.376	23.928
30	12.123	32.724	24.798
40	6.813	32.600	25.553
50	5.123	32.786	25.907
75	3.502	33.162	26.372

STATION US12522			
LATITUDE 42-16.7 N			
LONGITUD 140-36.2 E			
DEPTH (m) 89			
Press.	Temp.	Salinity	Sigma-T
5	22.469	32.144	21.919
10	21.417	32.999	22.859
20	16.067	32.826	24.061
30	11.992	33.002	25.038
40	6.314	32.608	25.624
50	4.414	32.817	26.008
75	3.563	33.209	26.404

STATION US12525			
LATITUDE 42-23.9 N			
LONGITUD 140-31.1 E			
DEPTH (m) 94			
Press.	Temp.	Salinity	Sigma-T
5	22.714	32.166	21.867
10	22.071	32.523	22.317
20	15.730	32.788	24.106
30	11.334	32.873	25.059
40	8.468	33.019	25.648
50	4.544	32.731	25.926
75	3.774	33.194	26.372

STATION US12528			
LATITUDE 42-09.2 N			
LONGITUD 140-35.8 E			
DEPTH (m) 67			
Press.	Temp.	Salinity	Sigma-T
5	22.663	31.803	21.606
10	20.209	32.249	22.610
20	16.838	32.811	23.872
30	11.648	32.659	24.836
40	7.041	32.543	25.478
50	5.416	32.818	25.898

STATION US12531			
LATITUDE 42-29.0 N			
LONGITUD 140-31.3 E			
DEPTH (m) 71			
Press.	Temp.	Salinity	Sigma-T
5	23.491	31.837	21.396
10	21.492	32.473	22.438
20	15.885	32.519	23.865
30	10.871	32.699	25.007
40	8.684	33.151	25.719
50	4.440	32.802	25.993

STATION US12520			
LATITUDE 42-13.3 N			
LONGITUD 140-41.1 E			
DEPTH (m) 88			
Press.	Temp.	Salinity	Sigma-T
5	22.440	31.995	21.814
10	21.425	32.855	22.747
20	18.336	33.181	23.797
30	13.883	32.632	24.381
40	6.980	32.530	25.476
50	4.830	32.777	25.932
75	3.677	33.184	26.373

STATION US12523			
LATITUDE 42-14.0 N			
LONGITUD 140-30.2 E			
DEPTH (m) 78			
Press.	Temp.	Salinity	Sigma-T
5	23.306	31.793	21.416
10	21.358	32.766	22.698
20	14.464	32.490	24.151
30	11.307	32.960	25.133
40	5.241	32.539	25.697
50	4.224	32.816	26.026
75	3.578	33.115	26.328

STATION US12526			
LATITUDE 42-21.5 N			
LONGITUD 140-25.1 E			
DEPTH (m) 69			
Press.	Temp.	Salinity	Sigma-T
5	22.449	31.925	21.758
10	21.947	32.292	22.177
20	14.911	32.427	24.008
30	9.912	32.506	25.019
40	7.702	32.835	25.617
50	4.806	32.754	25.916

STATION US12529			
LATITUDE 42-16.7 N			
LONGITUD 140-24.0 E			
DEPTH (m) 52			
Press.	Temp.	Salinity	Sigma-T
5	23.536	31.752	21.319
10	21.970	32.313	22.186
20	14.910	32.257	23.878
30	12.266	32.671	24.731
40	6.631	32.592	25.571

STATION US12532			
LATITUDE 42-26.2 N			
LONGITUD 140-37.1 E			
DEPTH (m) 82			
Press.	Temp.	Salinity	Sigma-T
5	23.467	31.822	21.392
10	23.184	32.041	21.638
20	15.927	32.584	23.907
30	11.165	32.787	25.023
40	7.468	32.855	25.665
50	5.847	33.001	25.992
75	4.277	33.304	26.409

STATION US12521			
LATITUDE 42-18.4 N			
LONGITUD 140-42.2 E			
DEPTH (m) 63			
Press.	Temp.	Salinity	Sigma-T
5	22.496	31.801	21.652
10	21.804	32.460	22.343
20	20.842	32.987	23.004
30	15.640	32.520	23.921
40	11.622	33.281	25.324
50	7.213	33.062	25.864

STATION US12524			
LATITUDE 42-20.8 N			
LONGITUD 140-34.5 E			
DEPTH (m) 92			
Press.	Temp.	Salinity	Sigma-T
5	22.776	32.077	21.782
10	20.658	32.341	22.562
20	15.483	32.293	23.781
30	12.767	33.035	24.916
40	7.909	32.837	25.588
50	5.263	32.802	25.903
75	3.651	33.195	26.385

STATION US12527			
LATITUDE 42-18.8 N			
LONGITUD 140-30.4 E			
DEPTH (m) 92			
Press.	Temp.	Salinity	Sigma-T
5	22.803	32.151	21.831
10	20.087	32.670	22.963
20	13.428	32.603	24.452
30	8.847	32.515	25.196
40	5.386	32.591	25.722
50	4.773	32.900	26.035
75	3.580	33.174	26.375

STATION US12530			
LATITUDE 42-26.6 N			
LONGITUD 140-25.1 E			
DEPTH (m) 60			
Press.	Temp.	Salinity	Sigma-T
5	23.511	31.992	21.508
10	21.823	32.604	22.447
20	15.214	32.263	23.816
30	10.435	32.319	24.786
40	7.997	32.712	25.478
50	4.880	32.715	25.877

STATION US12533			
LATITUDE 42-31.2 N			
LONGITUD 140-37.8 E			
DEPTH (m) 58			
Press.	Temp.	Salinity	Sigma-T
5	23.650	31.666	21.222
10	21.706	32.612	22.485
20	16.976	32.771	23.809
30	13.112	33.187	24.966
40	11.101	33.604	25.671
50	8.257	33.288	25.892

STATION US12534			
LATITUDE 42-28.3 N			
LONGITUD 140-43.2 E			
DEPTH (m) 58			
Press.	Temp.	Salinity	Sigma-T
5	23.684	31.716	21.249
10	21.293	32.381	22.423
20	15.653	32.560	23.949
30	10.361	32.450	24.900
40	10.194	33.545	25.783
50	8.942	33.560	26.000

STATION US12537			
LATITUDE 42-21.1 N			
LONGITUD 140-48.5 E			
DEPTH (m) 50			
Press.	Temp.	Salinity	Sigma-T
5	23.607	31.572	21.163
10	23.393	31.577	21.228
20	20.137	32.965	23.174
30	13.459	33.030	24.775
40	11.887	33.645	25.558

STATION US12540			
LATITUDE 42-10.5 N			
LONGITUD 140-47.3 E			
DEPTH (m) 91			
Press.	Temp.	Salinity	Sigma-T
5	22.736	31.896	21.656
10	21.078	32.474	22.551
20	16.866	33.197	24.163
30	9.859	32.790	25.250
40	6.062	32.583	25.635
50	4.504	32.714	25.917
75	3.634	33.098	26.309

STATION US12543			
LATITUDE 41-58.8 N			
LONGITUD 141-00.5 E			
DEPTH (m) 92			
Press.	Temp.	Salinity	Sigma-T
5	22.141	32.541	22.311
10	20.403	33.482	23.498
20	15.941	33.657	24.728
30	12.789	33.750	25.466
40	11.307	33.975	25.922
50	9.737	33.848	26.096
75	7.762	33.787	26.356

STATION US12546			
LATITUDE 41-59.0 N			
LONGITUD 141-15.8 E			
DEPTH (m) 259			
Press.	Temp.	Salinity	Sigma-T
5	21.283	33.336	23.151
10	16.373	33.661	24.633
20	13.317	33.829	25.422
30	11.809	34.066	25.900
40	11.406	34.084	25.988
50	10.715	34.126	26.145
75	9.601	34.096	26.313
100	9.232	34.070	26.353
125	8.774	34.034	26.397
150	8.520	34.046	26.446
175	7.275	33.882	26.500
200	6.181	33.763	26.553

STATION US12535			
LATITUDE 42-23.3 N			
LONGITUD 140-42.8 E			
DEPTH (m) 58			
Press.	Temp.	Salinity	Sigma-T
5	23.699	31.592	21.151
10	22.237	31.592	21.565
20	20.221	33.160	23.301
30	13.285	32.917	24.723
40	11.613	33.576	25.555
50	10.037	33.739	25.961

STATION US12538			
LATITUDE 42-17.5 N			
LONGITUD 140-54.1 E			
DEPTH (m) 55			
Press.	Temp.	Salinity	Sigma-T
5	22.420	32.019	21.838
10	20.355	32.449	22.724
20	15.383	33.425	24.674
30	12.774	33.563	25.324
40	10.832	33.696	25.790
50	10.229	33.726	25.918

STATION US12541			
LATITUDE 42-04.7 N			
LONGITUD 140-56.6 E			
DEPTH (m) 83			
Press.	Temp.	Salinity	Sigma-T
5	22.142	32.618	22.369
10	21.469	32.994	22.840
20	17.847	33.315	24.019
30	14.094	33.759	25.209
40	11.361	33.743	25.731
50	9.837	33.792	26.036
75	6.136	33.433	26.298

STATION US12544			
LATITUDE 41-58.1 N			
LONGITUD 140-59.3 E			
DEPTH (m) 84			
Press.	Temp.	Salinity	Sigma-T
5	22.123	32.758	22.481
10	20.295	33.149	23.273
20	16.619	33.569	24.505
30	12.634	33.656	25.424
40	10.378	33.593	25.789
50	10.786	33.914	25.968
75	7.882	33.806	26.354

STATION US12547			
LATITUDE 41-54.2 N			
LONGITUD 141-15.4 E			
DEPTH (m) 253			
Press.	Temp.	Salinity	Sigma-T
5	22.411	33.362	22.859
10	21.452	33.503	23.232
20	18.370	33.843	24.295
30	14.298	34.022	25.369
40	11.025	33.692	25.753
50	11.062	34.102	26.065
75	9.731	34.103	26.297
100	9.145	34.072	26.368
125	8.685	34.079	26.447
150	7.275	33.882	26.500
175	5.766	33.704	26.557
200	4.627	33.579	26.590

STATION US12536			
LATITUDE 42-25.2 N			
LONGITUD 140-48.7 E			
DEPTH (m) 42			
Press.	Temp.	Salinity	Sigma-T
5	23.510	31.593	21.206
10	22.572	31.885	21.694
20	16.944	32.576	23.668
30	13.378	33.304	25.004
40	11.120	33.632	25.688

STATION US12539			
LATITUDE 42-15.4 N			
LONGITUD 140-47.6 E			
DEPTH (m) 70			
Press.	Temp.	Salinity	Sigma-T
5	23.577	31.603	21.195
10	22.847	31.594	21.396
20	17.638	33.051	23.867
30	12.266	33.026	25.006
40	5.916	32.669	25.722
50	4.299	32.807	26.012

STATION US12542			
LATITUDE 41-59.5 N			
LONGITUD 141-01.7 E			
DEPTH (m) 98			
Press.	Temp.	Salinity	Sigma-T
5	21.964	32.589	22.397
10	20.409	33.761	23.709
20	15.375	33.769	24.941
30	12.373	33.953	25.705
40	10.281	33.890	26.038
50	9.276	33.915	26.224
75	8.911	33.984	26.337

STATION US12545			
LATITUDE 41-57.3 N			
LONGITUD 140-58.0 E			
DEPTH (m) 74			
Press.	Temp.	Salinity	Sigma-T
5	21.770	32.881	22.672
10	20.342	33.141	23.255
20	17.476	33.434	24.200
30	14.395	33.515	24.957
40	10.773	33.579	25.709
50	6.988	33.308	26.088

STATION US12548			
LATITUDE 41-42.8 N			
LONGITUD 140-45.1 E			
DEPTH (m) 83			
Press.	Temp.	Salinity	Sigma-T
5	24.861	33.934	22.578
10	24.838	33.937	22.587
20	21.672	34.006	23.554
30	16.012	34.140	25.083
40	15.666	34.227	25.228
50	14.619	34.239	25.468
75	10.025	34.191	26.316

STATION US12549			
LATITUDE 41-40.8 N			
LONGITUD 140-47.3 E			
DEPTH (m) 220			
Press.	Temp.	Salinity	Sigma-T
5	23.940	33.960	22.871
10	23.443	33.960	23.017
20	22.395	34.014	23.358
30	18.715	34.112	24.415
40	15.441	34.175	25.239
50	14.630	34.216	25.448
75	12.450	34.232	25.907
100	10.910	34.255	26.211
125	9.876	34.233	26.374
150	9.816	34.232	26.383
175	9.823	34.233	26.383
200	9.850	34.233	26.378

STATION US12552			
LATITUDE 41-35.6 N			
LONGITUD 140-53.2 E			
DEPTH (m) 50			
Press.	Temp.	Salinity	Sigma-T
5	26.007	33.838	22.155
10	19.909	34.016	24.035
20	19.465	34.145	24.249
30	17.162	34.196	24.859

STATION US12555			
LATITUDE 41-26.6 N			
LONGITUD 141-21.0 E			
DEPTH (m) 72			
Press.	Temp.	Salinity	Sigma-T
5	23.147	33.927	23.078
10	21.531	33.935	23.539
20	20.806	33.979	23.769
30	20.050	34.018	23.999
40	19.479	34.044	24.168
50	16.520	34.112	24.945

STATION US12558			
LATITUDE 41-28.9 N			
LONGITUD 141-23.6 E			
DEPTH (m) 88			
Press.	Temp.	Salinity	Sigma-T
5	22.533	33.994	23.304
10	21.518	34.027	23.612
20	20.837	34.011	23.785
30	19.491	34.017	24.145
40	13.703	34.079	25.537
50	12.661	34.222	25.857
75	11.919	34.248	26.021

STATION US12550			
LATITUDE 41-38.8 N			
LONGITUD 140-49.4 E			
DEPTH (m) 298			
Press.	Temp.	Salinity	Sigma-T
5	26.434	33.827	22.013
10	25.366	33.827	22.344
20	23.810	33.929	22.886
30	21.017	34.030	23.751
40	16.764	34.156	24.922
50	14.701	34.219	25.434
75	13.596	34.236	25.681
100	10.401	34.213	26.269
125	9.913	34.219	26.357
150	9.265	34.205	26.453
175	9.661	34.216	26.397
200	9.328	34.209	26.446
250	9.066	34.208	26.488

STATION US12553			
LATITUDE 41-26.3 N			
LONGITUD 141-15.9 E			
DEPTH (m) 79			
Press.	Temp.	Salinity	Sigma-T
5	21.840	34.132	23.603
10	21.744	34.144	23.639
20	21.360	33.999	23.634
30	20.690	34.002	23.818
40	20.107	34.017	23.984
50	17.068	34.070	24.784

STATION US12556			
LATITUDE 41-23.1 N			
LONGITUD 141-20.0 E			
DEPTH (m) 29			
Press.	Temp.	Salinity	Sigma-T
5	23.234	33.944	23.065
10	22.745	33.957	23.216
20	21.222	33.969	23.649

STATION US12559			
LATITUDE 41-31.9 N			
LONGITUD 141-22.1 E			
DEPTH (m) 249			
Press.	Temp.	Salinity	Sigma-T
5	22.407	34.025	23.363
10	22.144	34.008	23.424
20	21.670	34.014	23.561
30	21.216	34.033	23.699
40	18.740	34.049	24.360
50	17.311	34.140	24.780
75	12.970	34.223	25.797
100	12.418	34.233	25.913
125	11.347	34.238	26.119
150	10.999	34.232	26.178
175	10.890	34.232	26.197
200	10.554	34.226	26.252

STATION US12551			
LATITUDE 41-37.1 N			
LONGITUD 140-51.4 E			
DEPTH (m) 98			
Press.	Temp.	Salinity	Sigma-T
5	24.924	33.916	22.545
10	22.956	33.992	23.182
20	19.295	34.168	24.310
30	15.511	34.249	25.280
40	14.559	34.294	25.523
50	14.920	34.311	25.458
75	14.438	34.301	25.554

STATION US12554			
LATITUDE 41-29.9 N			
LONGITUD 141-20.7 E			
DEPTH (m) 227			
Press.	Temp.	Salinity	Sigma-T
5	23.513	33.907	22.957
10	23.484	33.911	22.968
20	21.423	33.913	23.552
30	19.840	34.008	24.047
40	18.718	34.044	24.362
50	17.164	34.106	24.789
75	15.261	34.190	25.290
100	14.040	34.210	25.569
125	11.861	34.243	26.027
150	11.702	34.254	26.065
175	11.509	34.252	26.100

STATION US12557			
LATITUDE 41-27.0 N			
LONGITUD 141-24.1 E			
DEPTH (m) 45			
Press.	Temp.	Salinity	Sigma-T
5	22.234	34.013	23.403
10	20.738	33.955	23.769
20	19.403	34.023	24.172
30	18.890	34.052	24.325
40	12.459	34.271	25.935

STATION US12560			
LATITUDE 41-34.9 N			
LONGITUD 141-20.4 E			
DEPTH (m) 314			
Press.	Temp.	Salinity	Sigma-T
5	23.242	34.009	23.112
10	22.668	33.987	23.261
20	21.769	34.015	23.534
30	18.650	34.078	24.405
40	18.181	34.134	24.564
50	18.085	34.148	24.598
75	17.350	34.150	24.778
100	13.481	34.205	25.680
125	12.263	34.168	25.893
150	10.180	34.069	26.195
175	9.348	34.042	26.312
200	8.064	33.932	26.425
250	6.613	33.849	26.564
300	5.922	33.798	26.613

STATION US12561			
LATITUDE 41-37.7 N			
LONGITUD 141-19.1 E			
DEPTH (m) 212			
Press.	Temp.	Salinity	Sigma-T
5	23.216	34.054	23.154
10	22.590	33.989	23.284
20	19.751	34.064	24.113
30	18.925	34.113	24.362
40	18.716	34.123	24.423
50	18.328	34.131	24.526
75	17.683	34.131	24.684
100	13.019	34.215	25.781
125	10.896	34.128	26.115
150	9.433	34.044	26.300
175	7.481	33.901	26.486
200	3.510	33.538	26.671

STATION US12564			
LATITUDE 41-46.9 N			
LONGITUD 141-14.5 E			
DEPTH (m) 197			
Press.	Temp.	Salinity	Sigma-T
5	22.604	34.033	23.313
10	20.243	34.024	23.954
20	17.291	33.911	24.610
30	13.585	33.720	25.283
40	11.945	33.725	25.609
50	10.871	33.670	25.763
75	9.122	33.752	26.122
100	8.562	33.946	26.361
125	8.673	33.985	26.374
150	8.490	33.976	26.396
175	8.401	33.971	26.405

STATION US12567			
LATITUDE 41-11.6 N			
LONGITUD 140-42.5 E			
DEPTH (m) 71			
Press.	Temp.	Salinity	Sigma-T
5	26.367	33.404	21.716
10	26.154	33.567	21.905
20	25.149	33.731	22.337
30	23.693	33.848	22.859
40	22.691	33.932	23.212
50	20.599	34.010	23.848

STATION US12570			
LATITUDE 40-57.3 N			
LONGITUD 140-45.5 E			
DEPTH (m) 49			
Press.	Temp.	Salinity	Sigma-T
5	26.287	33.330	21.684
10	26.017	33.581	21.958
20	24.196	33.746	22.634
30	22.583	33.916	23.231
40	20.496	33.881	23.778

STATION US12573			
LATITUDE 41-00.0 N			
LONGITUD 140-46.7 E			
DEPTH (m) 51			
Press.	Temp.	Salinity	Sigma-T
5	25.469	33.103	21.766
10	25.450	33.152	21.809
20	22.671	33.824	23.136
30	21.647	33.939	23.510
40	18.918	34.067	24.329

STATION US12562			
LATITUDE 41-41.0 N			
LONGITUD 141-18.1 E			
DEPTH (m) 230			
Press.	Temp.	Salinity	Sigma-T
5	23.440	33.981	23.034
10	22.843	33.971	23.198
20	22.571	33.975	23.279
30	22.584	33.978	23.278
40	21.653	34.014	23.565
50	20.930	34.038	23.780
75	15.004	33.936	25.151
100	10.848	34.070	26.078
125	8.887	34.028	26.375
150	8.092	34.001	26.476
175	5.628	33.695	26.567
200	4.241	33.563	26.619

STATION US12565			
LATITUDE 41-49.5 N			
LONGITUD 141-13.1 E			
DEPTH (m) 175			
Press.	Temp.	Salinity	Sigma-T
5	19.355	33.605	23.865
10	18.729	33.759	24.141
20	15.532	33.192	24.462
30	13.684	33.739	25.278
40	11.033	33.588	25.670
50	9.626	33.503	25.846
75	8.600	33.643	26.118
100	7.604	33.709	26.318
125	7.377	33.725	26.362
150	7.586	33.779	26.375

STATION US12568			
LATITUDE 41-05.4 N			
LONGITUD 140-43.7 E			
DEPTH (m) 60			
Press.	Temp.	Salinity	Sigma-T
5	26.685	33.452	21.652
10	26.043	33.654	22.005
20	23.842	33.750	22.742
30	21.964	33.830	23.339
40	18.863	33.986	24.281
50	17.322	34.106	24.751

STATION US12571			
LATITUDE 40-52.7 N			
LONGITUD 140-46.3 E			
DEPTH (m) 31			
Press.	Temp.	Salinity	Sigma-T
5	26.569	33.565	21.773
10	26.176	33.671	21.976
20	25.340	33.701	22.257

STATION US12574			
LATITUDE 41-02.8 N			
LONGITUD 140-46.2 E			
DEPTH (m) 51			
Press.	Temp.	Salinity	Sigma-T
5	25.601	33.580	22.086
10	25.624	33.636	22.121
20	22.998	33.786	23.014
30	21.870	33.821	23.358
40	20.532	33.897	23.780

STATION US12563			
LATITUDE 41-44.0 N			
LONGITUD 141-16.0 E			
DEPTH (m) 227			
Press.	Temp.	Salinity	Sigma-T
5	22.566	34.358	23.571
10	21.618	34.012	23.573
20	19.929	34.049	24.055
30	19.021	34.088	24.319
40	16.686	33.999	24.820
50	13.724	33.666	25.213
75	10.752	34.104	26.122
100	9.341	34.072	26.337
125	8.716	34.033	26.406
150	8.085	33.970	26.452
175	6.950	33.846	26.516
200	4.926	33.610	26.582

STATION US12566			
LATITUDE 41-59.1 N			
LONGITUD 141-02.8 E			
DEPTH (m) 105			
Press.	Temp.	Salinity	Sigma-T
5	23.247	33.116	22.434
10	21.355	33.409	23.186
20	15.788	33.230	24.434
30	14.445	33.945	25.278
40	12.369	33.990	25.734
50	11.518	34.042	25.935
75	8.859	33.806	26.205
100	6.596	33.575	26.350

STATION US12569			
LATITUDE 41-02.3 N			
LONGITUD 140-43.2 E			
DEPTH (m) 56			
Press.	Temp.	Salinity	Sigma-T
5	26.276	33.440	21.771
10	26.108	33.705	22.023
20	22.631	33.807	23.134
30	20.660	33.927	23.769
40	19.225	34.055	24.241
50	16.713	34.107	24.896

STATION US12572			
LATITUDE 40-55.2 N			
LONGITUD 140-46.5 E			
DEPTH (m) 39			
Press.	Temp.	Salinity	Sigma-T
5	25.904	33.323	21.798
10	25.892	33.261	21.755
20	23.845	33.771	22.757
30	22.642	33.915	23.213

STATION US12575			
LATITUDE 41-03.7 N			
LONGITUD 140-51.9 E			
DEPTH (m) 49			
Press.	Temp.	Salinity	Sigma-T
5	25.014	33.264	22.026
10	25.002	33.637	22.311
20	24.274	33.799	22.651
30	22.154	33.760	23.233
40	20.605	33.861	23.733

STATION US12576			
LATITUDE 41-04.7 N			
LONGITUD 140-51.8 E			
DEPTH (m) 51			
Press.	Temp.	Salinity	Sigma-T
5	25.331	33.549	22.145
10	25.320	33.565	22.160
20	25.040	33.650	22.309
30	22.191	33.646	23.136
40	19.439	33.896	24.066

STATION US12579			
LATITUDE 41-01.9 N			
LONGITUD 141-00.9 E			
DEPTH (m) 47			
Press.	Temp.	Salinity	Sigma-T
5	25.067	33.333	22.062
10	24.977	33.409	22.146
20	22.750	33.243	22.673
30	19.835	33.388	23.575
40	17.924	33.413	24.075

STATION US12582			
LATITUDE 41-05.6 N			
LONGITUD 141-09.9 E			
DEPTH (m) 37			
Press.	Temp.	Salinity	Sigma-T
5	25.882	32.864	21.459
10	25.958	33.099	21.613
20	22.806	33.652	22.967
30	20.867	33.605	23.468

STATION US12585			
LATITUDE 41-07.7 N			
LONGITUD 141-03.1 E			
DEPTH (m) 37			
Press.	Temp.	Salinity	Sigma-T
5	25.863	33.116	21.655
10	25.490	33.211	21.841
20	24.926	33.342	22.111
30	21.257	33.611	23.367

STATION US12588			
LATITUDE 41-05.8 N			
LONGITUD 140-47.6 E			
DEPTH (m) 51			
Press.	Temp.	Salinity	Sigma-T
5	25.634	33.513	22.025
10	25.539	33.592	22.114
20	24.448	33.820	22.616
30	23.155	33.806	22.984
40	20.928	33.717	23.537

STATION US12591			
LATITUDE 41-13.1 N			
LONGITUD 140-45.7 E			
DEPTH (m) 62			
Press.	Temp.	Salinity	Sigma-T
5	25.573	33.558	22.078
10	25.316	33.610	22.195
20	23.459	33.644	22.773
30	21.664	33.804	23.403
40	20.098	33.784	23.809
50	19.185	33.782	24.044

STATION US12577			
LATITUDE 41-04.2 N			
LONGITUD 140-57.9 E			
DEPTH (m) 48			
Press.	Temp.	Salinity	Sigma-T
5	25.065	33.013	21.821
10	24.990	33.180	21.969
20	22.578	33.786	23.134
30	20.626	33.563	23.501
40	18.516	33.441	23.952

STATION US12580			
LATITUDE 40-57.0 N			
LONGITUD 141-07.1 E			
DEPTH (m) 36			
Press.	Temp.	Salinity	Sigma-T
5	24.202	33.484	22.435
10	24.200	33.483	22.435
20	21.944	33.640	23.200
30	20.428	33.556	23.548

STATION US12583			
LATITUDE 41-08.4 N			
LONGITUD 141-11.2 E			
DEPTH (m) 33			
Press.	Temp.	Salinity	Sigma-T
5	25.732	32.866	21.507
10	25.643	32.984	21.623
20	22.657	33.669	23.023
30	20.907	33.563	23.425

STATION US12586			
LATITUDE 41-06.5 N			
LONGITUD 140-55.8 E			
DEPTH (m) 46			
Press.	Temp.	Salinity	Sigma-T
5	25.560	33.125	21.755
10	25.345	33.262	21.923
20	22.847	33.238	22.642
30	21.368	33.755	23.446
40	18.553	33.434	23.936

STATION US12589			
LATITUDE 41-09.0 N			
LONGITUD 140-43.8 E			
DEPTH (m) 60			
Press.	Temp.	Salinity	Sigma-T
5	25.490	33.384	21.972
10	25.502	33.594	22.126
20	25.021	33.665	22.326
30	22.493	33.742	23.124
40	21.816	33.850	23.395
50	19.423	33.995	24.145

STATION US12592			
LATITUDE 41-12.2 N			
LONGITUD 140-42.9 E			
DEPTH (m) 71			
Press.	Temp.	Salinity	Sigma-T
5	25.321	33.398	22.033
10	25.555	33.582	22.101
20	24.712	33.705	22.449
30	24.601	33.725	22.498
40	22.911	33.857	23.092
50	20.656	33.974	23.806

STATION US12578			
LATITUDE 41-04.7 N			
LONGITUD 141-01.9 E			
DEPTH (m) 46			
Press.	Temp.	Salinity	Sigma-T
5	25.603	32.759	21.465
10	25.686	32.771	21.449
20	23.202	33.370	22.640
30	19.696	33.404	23.624
40	18.131	33.437	24.043

STATION US12581			
LATITUDE 40-59.9 N			
LONGITUD 141-07.2 E			
DEPTH (m) 42			
Press.	Temp.	Salinity	Sigma-T
5	24.296	33.258	22.236
10	24.242	33.446	22.394
20	22.930	33.705	22.972
30	19.567	33.405	23.658

STATION US12584			
LATITUDE 41-10.8 N			
LONGITUD 141-11.0 E			
DEPTH (m) 28			
Press.	Temp.	Salinity	Sigma-T
5	25.859	32.787	21.408
10	25.889	32.906	21.489
20	22.171	33.550	23.069

STATION US12587			
LATITUDE 41-05.8 N			
LONGITUD 140-51.3 E			
DEPTH (m) 51			
Press.	Temp.	Salinity	Sigma-T
5	25.971	33.607	21.992
10	25.926	33.602	22.002
20	24.806	33.760	22.463
30	22.443	33.786	23.171
40	19.375	33.630	23.879

STATION US12590			
LATITUDE 41-09.0 N			
LONGITUD 140-41.1 E			
DEPTH (m) 46			
Press.	Temp.	Salinity	Sigma-T
5	25.207	33.473	22.125
10	25.242	33.665	22.260
20	24.886	33.714	22.404
30	23.321	33.802	22.933
40	22.927	33.857	23.087

STATION US12593			
LATITUDE 41-11.2 N			
LONGITUD 140-39.4 E			
DEPTH (m) 39			
Press.	Temp.	Salinity	Sigma-T
5	25.716	33.434	21.940
10	25.577	33.395	21.953
20	25.778	33.596	22.043
30	25.587	33.626	22.124

STATION US12594			
LATITUDE 41-14.0 N			
LONGITUD 140-43.6 E			
DEPTH (m) 79			
Press.	Temp.	Salinity	Sigma-T
5	25.714	33.587	22.056
10	25.015	33.551	22.242
20	24.058	33.719	22.655
30	23.874	33.737	22.723
40	23.673	33.742	22.785
50	21.991	33.874	23.365

STATION US12597			
LATITUDE 41-14.0 N			
LONGITUD 140-35.5 E			
DEPTH (m) 63			
Press.	Temp.	Salinity	Sigma-T
5	26.032	33.429	21.839
10	25.872	33.431	21.890
20	25.924	33.597	21.999
30	25.557	33.631	22.138
40	24.587	33.757	22.526
50	23.493	33.848	22.918

STATION US12600			
LATITUDE 41-36.7 N			
LONGITUD 140-51.3 E			
DEPTH (m) 80			
Press.	Temp.	Salinity	Sigma-T
5	27.259	33.579	21.566
10	26.098	33.625	21.966
20	23.318	33.858	22.976
30	22.947	33.907	23.120
40	21.933	33.990	23.469
50	18.158	34.197	24.618
75	14.766	34.313	25.493

STATION US12603			
LATITUDE 41-42.8 N			
LONGITUD 140-45.0 E			
DEPTH (m) 83			
Press.	Temp.	Salinity	Sigma-T
5	25.912	33.740	22.110
10	25.726	33.741	22.169
20	24.680	33.786	22.521
30	23.585	33.846	22.890
40	20.994	33.938	23.687
50	16.721	34.110	24.897
75	13.376	34.194	25.686

STATION US12595			
LATITUDE 41-17.1 N			
LONGITUD 140-47.1 E			
DEPTH (m) 37			
Press.	Temp.	Salinity	Sigma-T
5	25.579	33.517	22.044
10	25.362	33.671	22.227
20	22.569	33.694	23.066
30	21.888	33.681	23.247

STATION US12598			
LATITUDE 41-17.1 N			
LONGITUD 140-41.4 E			
DEPTH (m) 149			
Press.	Temp.	Salinity	Sigma-T
5	27.080	33.684	21.701
10	26.548	33.796	21.954
20	25.667	33.650	22.118
30	25.371	33.690	22.239
40	25.269	33.705	22.281
50	25.046	33.743	22.377
75	22.876	33.909	23.142
100	17.827	34.071	24.603
125	15.397	34.182	25.254

STATION US12601			
LATITUDE 41-38.5 N			
LONGITUD 140-49.4 E			
DEPTH (m) 317			
Press.	Temp.	Salinity	Sigma-T
5	27.218	33.632	21.618
10	26.694	33.649	21.797
20	25.977	33.706	22.064
30	25.304	33.767	22.318
40	22.302	33.980	23.359
50	21.076	34.064	23.761
75	17.716	34.265	24.778
100	14.638	34.269	25.487
125	12.531	34.278	25.926
150	11.104	34.251	26.173
175	10.301	34.241	26.308
200	9.436	34.211	26.430
250	9.371	34.211	26.441
300	9.258	34.209	26.457

STATION US12604			
LATITUDE 42-04.1 N			
LONGITUD 141-00.2 E			
DEPTH (m) 81			
Press.	Temp.	Salinity	Sigma-T
5	23.429	33.527	22.693
10	22.872	33.540	22.863
20	17.370	33.829	24.528
30	15.636	34.089	25.129
40	13.937	34.065	25.478
50	12.707	34.062	25.724
75	9.513	33.924	26.193

STATION US12596			
LATITUDE 41-13.8 N			
LONGITUD 140-38.7 E			
DEPTH (m) 76			
Press.	Temp.	Salinity	Sigma-T
5	25.993	32.924	21.470
10	26.130	33.026	21.505
20	26.012	33.589	21.965
30	25.778	33.615	22.057
40	25.705	33.622	22.085
50	25.640	33.626	22.108
75	19.544	34.045	24.152

STATION US12599			
LATITUDE 41-34.2 N			
LONGITUD 140-53.4 E			
DEPTH (m) 23			
Press.	Temp.	Salinity	Sigma-T
5	26.787	33.524	21.674
10	26.216	33.595	21.907
20	25.172	33.697	22.305

STATION US12602			
LATITUDE 41-40.9 N			
LONGITUD 140-47.7 E			
DEPTH (m) 226			
Press.	Temp.	Salinity	Sigma-T
5	26.201	33.641	21.946
10	26.052	33.671	22.015
20	25.337	33.725	22.275
30	22.041	33.933	23.396
40	21.317	34.092	23.716
50	20.608	34.131	23.938
75	16.632	34.217	25.000
100	11.964	34.215	25.986
125	11.126	34.234	26.156
150	10.435	34.224	26.271
175	10.091	34.224	26.330
200	9.758	34.225	26.388

STATION US12605			
LATITUDE 42-04.1 N			
LONGITUD 141-09.4 E			
DEPTH (m) 122			
Press.	Temp.	Salinity	Sigma-T
5	22.829	33.595	22.917
10	22.451	33.595	23.025
20	17.836	33.910	24.478
30	14.436	34.053	25.363
40	13.284	34.081	25.624
50	11.962	34.111	25.906
75	11.025	34.144	26.105
100	10.029	34.112	26.254

STATION US12606			
LATITUDE	42-03.9	N	
LONGITUD	141-19.0	E	
DEPTH (m)	298		
Press.	Temp.	Salinity	Sigma-T
5	22.776	33.579	22.920
10	21.493	33.634	23.320
20	15.847	33.989	25.004
30	14.738	34.191	25.405
40	13.319	34.115	25.643
50	12.025	34.125	25.905
75	10.428	34.145	26.211
100	9.643	34.106	26.313
125	9.255	34.096	26.369
150	8.861	34.060	26.404
175	7.945	33.963	26.468
200	6.130	33.752	26.550
250	4.226	33.591	26.642

STATION US12607			
LATITUDE	42-04.4	N	
LONGITUD	141-28.6	E	
DEPTH (m)	479		
Press.	Temp.	Salinity	Sigma-T
5	23.912	33.479	22.516
10	22.372	33.651	23.089
20	16.153	34.063	24.992
30	13.121	33.780	25.423
40	12.761	34.187	25.811
50	11.900	34.181	25.972
75	11.297	34.209	26.106
100	9.904	34.090	26.258
125	8.816	34.037	26.393
150	6.851	33.720	26.431
175	5.459	33.607	26.518
200	5.200	33.592	26.536
250	4.094	33.557	26.629
300	3.540	33.594	26.713
400	3.238	33.768	26.880

STATION US12608			
LATITUDE	42-12.5	N	
LONGITUD	141-09.1	E	
DEPTH (m)	100		
Press.	Temp.	Salinity	Sigma-T
5	23.996	33.046	22.164
10	23.844	33.422	22.493
20	22.670	33.739	23.072
30	18.402	34.035	24.434
40	17.108	34.100	24.798
50	15.151	34.096	25.242
75	11.682	34.134	25.977

STATION US12609			
LATITUDE	42-59.6	N	
LONGITUD	145-11.6	E	
DEPTH (m)	52		
Press.	Temp.	Salinity	Sigma-T
5	17.277	33.217	24.081
10	17.028	33.236	24.154
20	14.987	33.300	24.665
30	13.558	33.294	24.960
40	13.188	33.281	25.024

STATION US12610			
LATITUDE	42-55.9	N	
LONGITUD	145-16.1	E	
DEPTH (m)	90		
Press.	Temp.	Salinity	Sigma-T
5	17.124	33.104	24.030
10	16.994	33.145	24.092
20	14.932	33.301	24.677
30	13.336	33.271	24.986
40	11.681	33.193	25.245
50	10.687	33.193	25.424
75	9.921	33.856	26.072

STATION US12611			
LATITUDE	42-52.0	N	
LONGITUD	145-19.8	E	
DEPTH (m)	152		
Press.	Temp.	Salinity	Sigma-T
5	20.072	33.074	23.275
10	17.617	33.205	23.991
20	14.550	33.154	24.645
30	10.384	33.022	25.343
40	10.242	33.489	25.731
50	8.751	33.570	26.037
75	6.475	33.542	26.340
100	6.435	33.670	26.446
125	5.161	33.552	26.509

STATION US12612			
LATITUDE	42-48.1	N	
LONGITUD	145-24.0	E	
DEPTH (m)	899		
Press.	Temp.	Salinity	Sigma-T
5	21.144	32.702	22.707
10	20.919	32.721	22.782
20	12.189	33.620	25.481
30	11.831	34.089	25.914
40	10.854	34.044	26.057
50	9.966	34.024	26.196
75	9.283	34.074	26.348
100	8.497	34.006	26.419
125	6.677	33.761	26.486
150	5.482	33.649	26.548
175	4.432	33.550	26.588
200	3.134	33.425	26.616
250	2.999	33.516	26.700
300	2.072	33.484	26.752
400	2.881	33.689	26.849

STATION US12613			
LATITUDE	43-00.0	N	
LONGITUD	145-47.7	E	
DEPTH (m)	473		
Press.	Temp.	Salinity	Sigma-T
5	18.272	33.184	23.814
10	16.667	33.235	24.237
20	13.334	33.624	25.260
30	11.734	33.741	25.661
40	9.458	33.589	25.940
50	9.324	33.835	26.154
75	8.170	33.839	26.337
100	6.877	33.743	26.445
125	4.906	33.487	26.486
150	3.980	33.445	26.551
175	3.982	33.457	26.560
200	3.617	33.464	26.602
250	2.242	33.413	26.682
300	3.096	33.595	26.755
400	2.383	33.606	26.825

STATION US12614			
LATITUDE	43-05.8	N	
LONGITUD	145-47.8	E	
DEPTH (m)	108		
Press.	Temp.	Salinity	Sigma-T
5	17.121	33.216	24.117
10	16.199	33.323	24.413
20	14.506	33.305	24.771
30	13.909	33.335	24.920
40	13.229	33.325	25.050
50	12.081	33.264	25.226
75	9.793	33.600	25.893

STATION US12615			
LATITUDE	43-11.7	N	
LONGITUD	145-48.1	E	
DEPTH (m)	68		
Press.	Temp.	Salinity	Sigma-T
5	16.735	33.147	24.154
10	16.452	33.206	24.265
20	15.186	33.231	24.568
30	14.778	33.239	24.663
40	14.475	33.267	24.748
50	13.935	33.276	24.868

STATION US12616			
LATITUDE	43-17.7	N	
LONGITUD	145-47.9	E	
DEPTH (m)	29		
Press.	Temp.	Salinity	Sigma-T
5	16.655	33.122	24.154
10	16.342	33.163	24.257
20	15.178	33.206	24.550

STATION US12617			
LATITUDE	43-42.9	N	
LONGITUD	145-14.0	E	
DEPTH (m)	17		
Press.	Temp.	Salinity	Sigma-T
5	19.261	32.846	23.310
10	17.189	33.390	24.234

STATION US12618			
LATITUDE	43-49.9	N	
LONGITUD	145-12.1	E	
DEPTH (m)	43		
Press.	Temp.	Salinity	Sigma-T
5	19.299	33.227	23.590
10	19.400	33.485	23.762
20	17.874	33.414	24.089
30	16.747	33.567	24.474

STATION US12619			
LATITUDE	43-56.4	N	
LONGITUD	145-12.4	E	
DEPTH (m)	80		
Press.	Temp.	Salinity	Sigma-T
5	19.068	32.955	23.442
10	19.026	32.978	23.470
20	16.557	33.556	24.510
30	15.708	33.626	24.757
40	14.716	33.706	25.036
50	12.877	33.656	25.376
75	5.897	33.434	26.329

STATION US12620			
LATITUDE	44-01.4	N	
LONGITUD	145-13.9	E	
DEPTH (m)	247		
Press.	Temp.	Salinity	Sigma-T
5	19.311	33.526	23.815
10	19.243	33.548	23.850
20	19.038	33.583	23.928
30	17.545	33.511	24.242
40	15.494	33.594	24.780
50	11.833	33.556	25.499
75	9.820	33.641	25.921
100	7.544	33.564	26.212
125	6.976	33.552	26.282
150	5.578	33.482	26.405
175	4.245	33.420	26.505
200	3.181	33.386	26.581

STATION US12621			
LATITUDE	44-05.7	N	
LONGITUD	145-16.3	E	
DEPTH (m)	267		
Press.	Temp.	Salinity	Sigma-T
5	19.300	33.376	23.704
10	19.233	33.415	23.751
20	18.989	33.544	23.911
30	18.977	33.608	23.964
40	18.968	33.618	23.973
50	18.160	33.616	24.173
75	10.262	33.609	25.821
100	6.287	33.515	26.343
125	4.858	33.458	26.469
150	3.470	33.427	26.587
175	3.443	33.430	26.592
200	2.384	33.360	26.628

STATION US12622			
LATITUDE	44-10.1	N	
LONGITUD	145-20.5	E	
DEPTH (m)	177		
Press.	Temp.	Salinity	Sigma-T
5	19.330	33.420	23.730
10	19.359	33.472	23.762
20	18.850	33.573	23.969
30	17.291	33.614	24.382
40	16.545	33.652	24.586
50	13.785	33.613	25.160
75	9.210	33.586	25.977
100	7.487	33.647	26.285
125	5.309	33.502	26.453
150	3.088	33.335	26.548

STATION US12623			
LATITUDE	44-15.5	N	
LONGITUD	145-22.8	E	
DEPTH (m)	77		
Press.	Temp.	Salinity	Sigma-T
5	19.306	33.408	23.727
10	19.287	33.438	23.755
20	19.273	33.438	23.759
30	19.549	33.488	23.725
40	14.960	33.644	24.935
50	13.437	33.678	25.281

STATION US12624			
LATITUDE	44-18.4	N	
LONGITUD	145-16.2	E	
DEPTH (m)	121		
Press.	Temp.	Salinity	Sigma-T
5	20.217	33.702	23.715
10	20.107	33.707	23.748
20	20.021	33.707	23.770
30	19.754	33.706	23.839
40	18.812	33.711	24.084
50	11.338	33.635	25.651
75	9.248	33.700	26.061
100	6.202	33.664	26.471

STATION US12625			
LATITUDE	44-14.3	N	
LONGITUD	145-12.0	E	
DEPTH (m)	121		
Press.	Temp.	Salinity	Sigma-T
5	20.014	33.679	23.750
10	19.935	33.689	23.779
20	19.910	33.695	23.790
30	19.880	33.695	23.798
40	19.813	33.693	23.814
50	8.790	33.539	26.007
75	7.005	33.555	26.280
100	7.130	33.720	26.393

STATION US12626			
LATITUDE	44-10.1	N	
LONGITUD	145-06.8	E	
DEPTH (m)	115		
Press.	Temp.	Salinity	Sigma-T
5	20.057	33.696	23.753
10	20.054	33.697	23.754
20	19.994	33.694	23.768
30	19.991	33.696	23.770
40	19.885	33.693	23.795
50	12.149	33.424	25.336
75	6.670	33.674	26.419
100	5.749	33.676	26.537

STATION US12627			
LATITUDE	44-07.3	N	
LONGITUD	145-01.5	E	
DEPTH (m)	96		
Press.	Temp.	Salinity	Sigma-T
5	20.073	33.674	23.731
10	19.865	33.692	23.799
20	19.876	33.695	23.799
30	19.181	33.696	23.979
40	18.734	33.682	24.081
50	18.553	33.686	24.129
75	6.622	33.708	26.452

STATION US12628			
LATITUDE	44-03.4	N	
LONGITUD	144-56.0	E	
DEPTH (m)	54		
Press.	Temp.	Salinity	Sigma-T
5	19.817	33.700	23.818
10	19.184	33.687	23.971
20	18.905	33.703	24.054
30	18.635	33.704	24.123
40	17.196	33.662	24.441

STATION US12629			
LATITUDE	44-01.9	N	
LONGITUD	144-47.6	E	
DEPTH (m)	80		
Press.	Temp.	Salinity	Sigma-T
5	20.670	33.720	23.609
10	20.342	33.716	23.692
20	19.770	33.711	23.838
30	17.170	33.703	24.479
40	17.083	33.726	24.517
50	15.471	33.686	24.855

STATION US12630			
LATITUDE	44-03.8	N	
LONGITUD	144-43.7	E	
DEPTH (m)	286		
Press.	Temp.	Salinity	Sigma-T
5	20.559	33.718	23.637
10	20.071	33.718	23.765
20	17.443	33.681	24.397
30	17.372	33.697	24.426
40	16.468	33.661	24.611
50	16.238	33.712	24.703
75	12.757	33.822	25.528
100	11.774	33.852	25.740
125	11.306	33.858	25.831
150	8.871	33.774	26.179
175	3.428	33.512	26.658
200	3.142	33.530	26.699
250	2.347	33.554	26.787

STATION US12631			
LATITUDE	44-06.9	N	
LONGITUD	144-48.9	E	
DEPTH (m)	365		
Press.	Temp.	Salinity	Sigma-T
5	19.873	33.719	23.818
10	19.431	33.697	23.916
20	16.384	33.629	24.605
30	14.802	33.731	25.037
40	11.806	33.532	25.485
50	10.917	33.850	25.895
75	10.688	33.940	26.006
100	8.559	33.822	26.264
125	7.260	33.730	26.383
150	3.258	33.361	26.554
175	2.845	33.477	26.683
200	1.482	33.360	26.695
250	1.025	33.389	26.749
300	2.237	33.550	26.791

STATION US12632			
LATITUDE	44-10.8	N	
LONGITUD	144-54.1	E	
DEPTH (m)	571		
Press.	Temp.	Salinity	Sigma-T
5	19.727	33.714	23.852
10	19.267	33.640	23.914
20	15.186	33.119	24.482
30	11.368	33.356	25.430
40	7.987	33.244	25.896
50	7.909	33.825	26.364
75	3.753	33.389	26.528
100	0.383	33.235	26.662
125	0.585	33.295	26.699
150	0.775	33.335	26.720
175	0.858	33.374	26.747
200	0.924	33.392	26.757
250	1.394	33.484	26.801
300	2.534	33.652	26.849
400	2.503	33.697	26.888

STATION US12633			
LATITUDE	44-13.0	N	
LONGITUD	144-59.1	E	
DEPTH (m)	695		
Press.	Temp.	Salinity	Sigma-T
5	19.474	33.733	23.932
10	18.659	33.684	24.102
20	17.872	33.537	24.183
30	15.067	33.422	24.741
40	14.069	33.421	24.953
50	10.780	33.288	25.482
75	2.952	33.286	26.521
100	1.882	33.358	26.665
125	1.839	33.416	26.715
150	2.050	33.470	26.742
175	1.494	33.445	26.763
200	2.228	33.571	26.809
250	2.554	33.655	26.850
300	2.583	33.679	26.867
400	2.371	33.738	26.931

STATION US12634			
LATITUDE	44-16.3	N	
LONGITUD	145-04.9	E	
DEPTH (m)	813		
Press.	Temp.	Salinity	Sigma-T
5	19.909	33.638	23.747
10	17.398	33.041	23.917
20	14.595	33.188	24.662
30	10.426	33.362	25.600
40	7.015	33.417	26.169
50	3.836	33.286	26.439
75	1.905	33.323	26.635
100	1.693	33.391	26.705
125	2.564	33.486	26.714
150	2.590	33.491	26.716
175	2.644	33.503	26.721
200	2.599	33.535	26.750
250	2.270	33.536	26.778
300	2.621	33.617	26.814
400	2.669	33.667	26.850

STATION US12635			
LATITUDE	44-15.4	N	
LONGITUD	145-08.4	E	
DEPTH (m)	510		
Press.	Temp.	Salinity	Sigma-T
5	20.487	33.715	23.653
10	20.058	33.729	23.777
20	19.184	33.741	24.012
30	19.059	33.729	24.035
40	18.221	33.654	24.187
50	15.992	33.466	24.570
75	6.423	33.670	26.448
100	4.238	33.553	26.611
125	4.070	33.580	26.650
150	3.340	33.510	26.665
175	2.933	33.463	26.664
200	3.010	33.517	26.700
250	2.778	33.521	26.724
300	2.253	33.520	26.767
400	2.494	33.642	26.844

STATION US12636			
LATITUDE	44-19.1	N	
LONGITUD	145-12.7	E	
DEPTH (m)	709		
Press.	Temp.	Salinity	Sigma-T
5	20.409	33.721	23.678
10	20.409	33.718	23.677
20	19.876	33.721	23.819
30	19.363	33.717	23.949
40	15.788	33.570	24.695
50	10.670	33.606	25.748
75	6.264	33.606	26.418
100	5.230	33.663	26.589
125	4.162	33.592	26.650
150	3.469	33.524	26.664
175	3.453	33.555	26.690
200	3.201	33.537	26.699
250	2.598	33.501	26.723
300	2.547	33.559	26.774
400	2.627	33.625	26.820

STATION US12637			
LATITUDE	44-21.0	N	
LONGITUD	145-09.9	E	
DEPTH (m)	1113		
Press.	Temp.	Salinity	Sigma-T
5	17.353	33.082	23.960
10	16.591	33.080	24.136
20	11.529	33.259	25.324
30	7.492	33.266	25.985
40	4.498	33.305	26.386
50	2.892	33.270	26.514
75	1.258	33.272	26.640
100	0.448	33.233	26.656
125	1.010	33.320	26.694
150	1.051	33.350	26.716
175	1.445	33.403	26.732
200	1.347	33.403	26.739
250	1.861	33.510	26.788
300	2.395	33.630	26.843
400	2.408	33.694	26.893

STATION US12638			
LATITUDE	44-23.8	N	
LONGITUD	145-13.6	E	
DEPTH (m)	1195		
Press.	Temp.	Salinity	Sigma-T
5	18.948	33.369	23.788
10	17.517	33.048	23.894
20	16.104	33.505	24.575
30	13.288	33.411	25.104
40	9.301	33.317	25.753
50	6.024	33.304	26.210
75	5.345	33.639	26.557
100	2.924	33.411	26.623
125	2.562	33.424	26.665
150	2.727	33.497	26.709
175	2.314	33.484	26.733
200	2.333	33.524	26.764
250	2.245	33.543	26.785
300	2.118	33.580	26.825
400	2.337	33.649	26.863

STATION US12639			
LATITUDE 44-23.3 N			
LONGITUD 145-17.6 E			
DEPTH (m) 790			
Press.	Temp.	Salinity	Sigma-T
5	20.333	33.718	23.697
10	20.102	33.702	23.745
20	19.811	33.719	23.834
30	18.963	33.672	24.016
40	15.700	33.646	24.774
50	11.370	33.578	25.601
75	7.373	33.693	26.337
100	5.625	33.670	26.548
125	4.903	33.641	26.609
150	4.088	33.568	26.638
175	2.769	33.441	26.661
200	2.298	33.416	26.680
250	1.537	33.386	26.712
300	1.787	33.480	26.770
400	2.137	33.584	26.827

STATION US12640			
LATITUDE 44-22.2 N			
LONGITUD 145-21.4 E			
DEPTH (m) 125			
Press.	Temp.	Salinity	Sigma-T
5	19.931	33.696	23.785
10	19.919	33.697	23.789
20	19.692	33.696	23.848
30	18.904	33.685	24.041
40	18.408	33.688	24.167
50	16.487	33.635	24.587
75	9.259	33.697	26.056
100	6.707	33.669	26.409

STATION US12641			
LATITUDE 44-20.7 N			
LONGITUD 145-24.5 E			
DEPTH (m) 965			
Press.	Temp.	Salinity	Sigma-T
5	19.150	33.386	23.750
10	19.152	33.388	23.751
20	19.269	33.476	23.789
30	18.118	33.544	24.129
40	16.728	33.624	24.522
50	14.438	33.601	25.014
75	10.485	33.604	25.779
100	6.055	33.475	26.341
125	2.736	33.268	26.526
150	1.585	33.247	26.597
175	2.075	33.320	26.620
200	3.168	33.466	26.646
250	1.894	33.388	26.688
300	1.415	33.417	26.746
400	1.776	33.568	26.841
500	2.034	33.695	26.924

STATION US12642			
LATITUDE 44-19.0 N			
LONGITUD 145-28.3 E			
DEPTH (m) 1871			
Press.	Temp.	Salinity	Sigma-T
5	19.368	33.354	23.670
10	19.373	33.354	23.669
20	18.831	33.496	23.915
30	16.694	33.553	24.476
40	15.811	33.597	24.711
50	13.846	33.594	25.133
75	11.405	33.654	25.654
100	7.029	33.549	26.272
125	4.841	33.434	26.452
150	3.350	33.379	26.560
175	2.277	33.356	26.633
200	1.866	33.360	26.668
250	1.085	33.358	26.720
300	1.242	33.430	26.768
400	1.949	33.616	26.866

STATION US12643			
LATITUDE 44-17.2 N			
LONGITUD 145-32.0 E			
DEPTH (m) 2080			
Press.	Temp.	Salinity	Sigma-T
5	19.277	33.411	23.737
10	19.229	33.436	23.768
20	17.557	33.438	24.183
30	16.023	33.590	24.658
40	13.461	33.552	25.179
50	12.920	33.562	25.294
75	10.819	33.635	25.745
100	7.061	33.542	26.262
125	4.620	33.441	26.481
150	2.994	33.354	26.572
175	1.699	33.309	26.639
200	1.250	33.327	26.685
250	1.266	33.407	26.747
300	1.449	33.496	26.806
400	1.974	33.651	26.893
500	1.959	33.727	26.955
600	1.908	33.797	27.015
700	2.083	33.961	27.133
800	2.207	34.106	27.239
900	2.261	34.207	27.315
1000	2.281	34.298	27.387
1200	2.223	34.412	27.483

STATION US12644			
LATITUDE 44-12.2 N			
LONGITUD 145-30.0 E			
DEPTH (m) 2028			
Press.	Temp.	Salinity	Sigma-T
5	19.054	33.357	23.752
10	19.014	33.378	23.778
20	16.809	33.634	24.511
30	15.286	33.668	24.883
40	14.025	33.575	25.081
50	13.032	33.607	25.307
75	9.341	33.675	26.026
100	7.329	33.702	26.350
125	5.189	33.482	26.450
150	2.302	33.340	26.618
175	1.785	33.336	26.655
200	1.640	33.350	26.676
250	1.558	33.370	26.698
300	1.315	33.403	26.741
400	1.814	33.603	26.867

STATION US12645			
LATITUDE 44-07.4 N			
LONGITUD 145-27.7 E			
DEPTH (m) 1206			
Press.	Temp.	Salinity	Sigma-T
5	18.856	33.478	23.895
10	18.858	33.477	23.894
20	16.674	33.570	24.493
30	14.358	33.624	25.049
40	12.246	33.539	25.408
50	11.284	33.687	25.702
75	8.002	33.561	26.144
100	5.935	33.477	26.357
125	4.132	33.421	26.517
150	3.802	33.461	26.582
175	2.276	33.350	26.629
200	1.526	33.326	26.665
250	1.111	33.349	26.711
300	1.323	33.440	26.770
400	1.572	33.569	26.856

STATION US12646			
LATITUDE 43-59.5 N			
LONGITUD 145-19.0 E			
DEPTH (m) 276			
Press.	Temp.	Salinity	Sigma-T
5	19.103	33.452	23.812
10	19.116	33.548	23.882
20	18.345	33.540	24.069
30	16.563	33.616	24.554
40	14.266	33.544	25.007
50	11.954	33.557	25.477
75	7.195	33.476	26.192
100	5.496	33.477	26.410
125	5.138	33.548	26.509
150	3.262	33.359	26.551
175	2.180	33.360	26.644
200	1.463	33.317	26.662
250	1.267	33.367	26.715

STATION US12647			
LATITUDE 41-59.3 N			
LONGITUD 141-02.3 E			
DEPTH (m) 102			
Press.	Temp.	Salinity	Sigma-T
5	23.069	32.777	22.229
10	21.985	33.324	22.949
20	18.284	33.934	24.386
30	15.767	34.055	25.073
40	13.984	33.993	25.413
50	13.374	34.086	25.610
75	9.974	33.910	26.105

STATION US12648			
LATITUDE 41-58.7 N			
LONGITUD 141-00.8 E			
DEPTH (m) 93			
Press.	Temp.	Salinity	Sigma-T
5	23.175	32.836	22.243
10	23.142	32.852	22.265
20	19.343	33.807	24.022
30	16.313	34.031	24.931
40	14.018	33.929	25.355
50	12.874	33.989	25.635
75	6.433	33.320	26.170

STATION US12649			
LATITUDE 41-58.0 N			
LONGITUD 140-59.5 E			
DEPTH (m) 85			
Press.	Temp.	Salinity	Sigma-T
5	23.034	32.833	22.282
10	23.045	32.836	22.280
20	21.927	33.282	22.933
30	16.408	33.269	24.324
40	14.107	33.596	25.080
50	12.161	33.658	25.516
75	6.543	33.269	26.116

STATION US12650			
LATITUDE 41-57.4 N			
LONGITUD 140-58.4 E			
DEPTH (m) 78			
Press.	Temp.	Salinity	Sigma-T
5	22.852	32.893	22.379
10	22.847	32.915	22.397
20	19.145	33.275	23.666
30	12.919	32.904	24.785
40	10.925	32.876	25.135
50	8.672	33.078	25.664
75	7.672	33.228	25.930

THE " USHIO MARU "

CRUISE 267

CRUISE 268

CRUISE 269

IN OCTOBER 2012

1. Cruise Itinerary

Cruise 267

Departure from Hakodate	Oct.	2,	2012
Start hydrographic research (US12651)		3	
Sampling by tuna long-line and vertical line		3	
Finish hydrographic research (US12655)		4	
Return to Hakodate		5	
Total coverage 245.1 miles			

Cruise 268

Departure from Hakodate	Oct.	10,	2012
Arrival at Shiraoi		10	
Departure from Shiraoi		12	
Start hydrographic research (US12656)		13	
Arrival at Shiraoi		14	
Departure from Shiraoi		16	
Finish hydrographic research (US12669)		16	
Return to Hakodate		17	
Total coverage 653.6 miles			

Cruise 269

Departure from Hakodate	Oct.	24,	2012
Start hydrographic research (US12670)		24	
Retrieval mooring ADCP system and research by trawl net		24	
Set mooring ADCP system		26	
Arrival at Hakodate		26	
Departure from Hakodate		27	
Arrival at Esashi		28	
Departure from Esashi		30	
Finish hydrographic research (US12691)		30	
Sampling by tuna long-line		30	
Return to Hakodate		31	
Total coverage 463.5 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”.

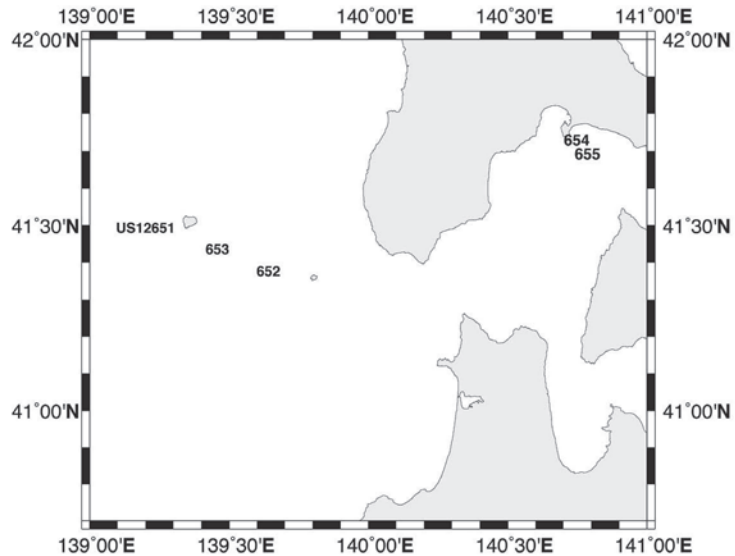


Figure 1. Oceanographic stations (Cruise 267)

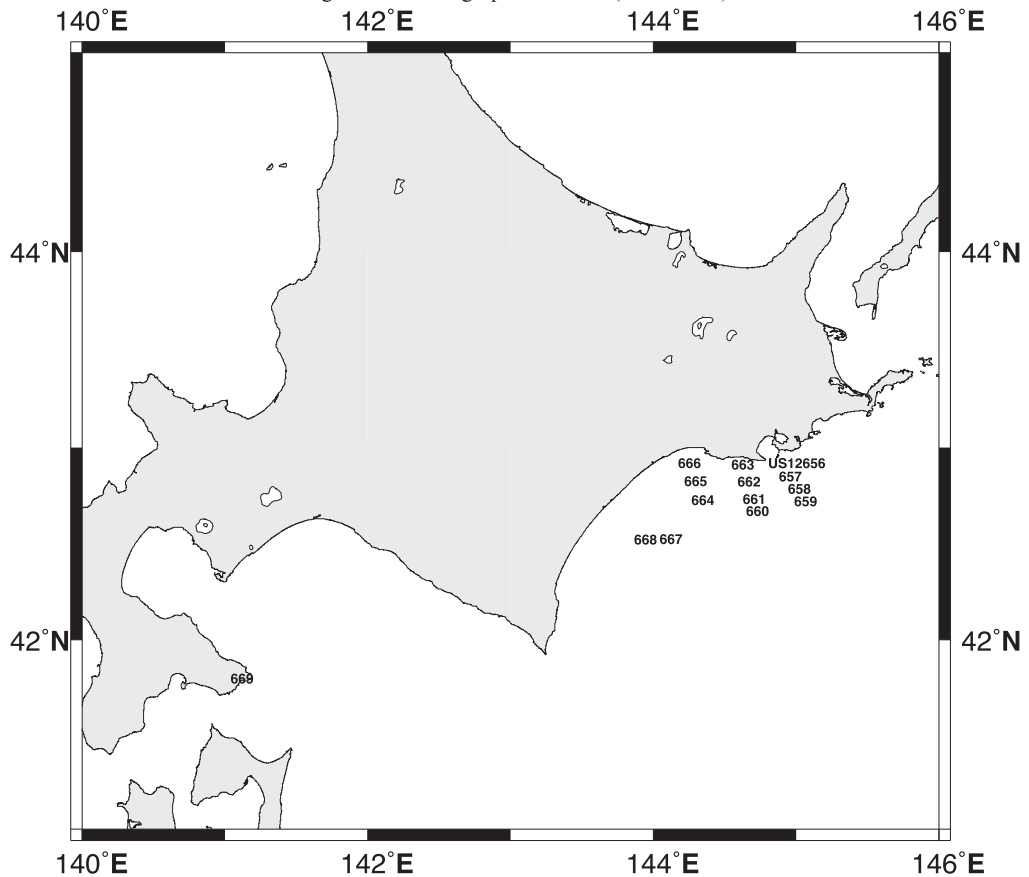


Figure 2. Oceanographic stations (Cruise 268)

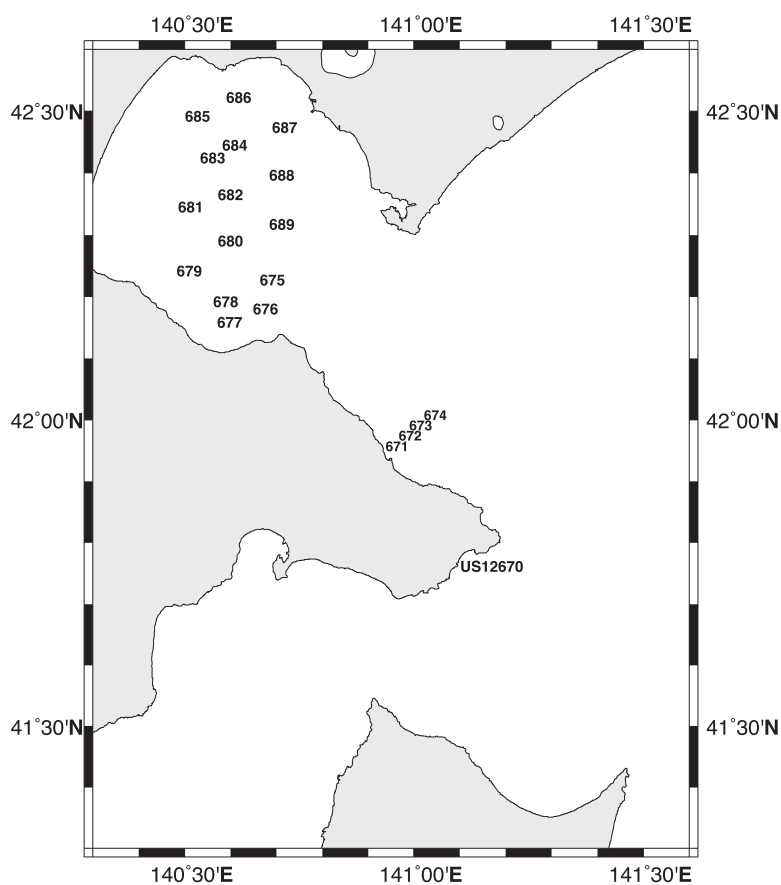


Figure 3. Oceanographic stations (Cruise 269-1)

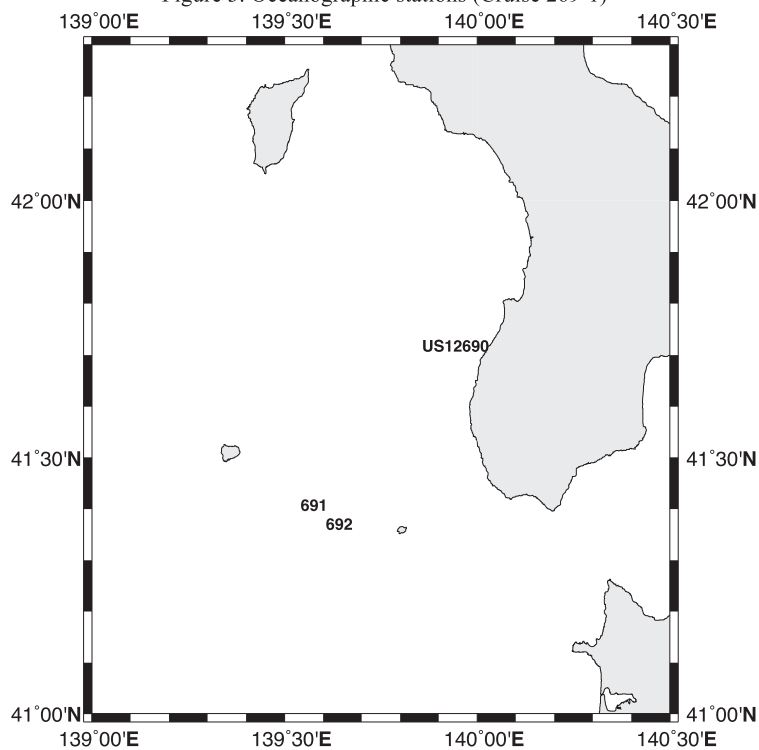


Figure 4. Oceanographic stations (Cruise 269-2)

Table 1. List of Oceanographic Station

Cruise 267												
Station	Lat. (N) [*]	Long. (E) [*]	Date	S.M.T.	Depth (m)	Wave	Swell	Wind	Air Temp.	Sea Temp.	Wr.	Bar. (hPa)
US12651	41-28.8	139-12.0	10/3	0040-0115	1145	ESE-1	North-1	ESE-3	21.1	22.6	bc	1016.6
US12652	41-21.8	139-38.5	10/3	0326-0334	228	East-2	NE -1	East-4	21.4	23.4	r	1016.1
US12653	41-25.4	139-27.5	10/3	0526-0533	2157	East-2	NE -1	East-4	21.2	23.2	bc	1015.6
US12654	41-42.9	140-44.9	10/4	0936-0940	82	NE -2	East-1	NE -4	20.3	22.9	bc	1010.6
US12655	41-40.7	140-47.2	10/4	0957-1005	227	East-2	East-1	East-4	20.7	22.6	bc	1010.1
Cruise 268												
Station	Lat. (N) [*]	Long. (E) [*]	Date	S.M.T.	Depth (m)	Wave	Swell	Wind	Air Temp.	Sea Temp.	Wr.	Bar. (hPa)
US12656	42-54.2	144-53.5	10/13	0755-0758	60	NNW-1	East-1	NNW-2	12.3	14.7	r	1007.0
US12657	42-50.1	144-57.6	10/13	0831-0835	102	NW -1	East-1	NW -3	13.5	13.7	c	1007.5
US12658	42-46.2	145-01.4	10/13	0909-0914	145	NW -2	East-1	NW -4	13.3	14.0	r	1007.0
US12659	42-43.6	145-04.0	10/13	0940-0950	284	NNW-2	East-1	NNW-4	13.0	13.8	c	1007.0
US12660	42-38.8	144-43.8	10/13	1112-1128	594	NW -2	East-1	NW -4	13.4	13.4	c	1007.6
US12661	42-41.9	144-42.4	10/13	1153-1200	186	NW -2	East-1	NW -4	13.4	13.9	bc	1007.6
US12662	42-47.8	144-40.2	10/13	1240-1244	109	NW -2	East-1	NW -4	15.3	14.3	bc	1008.2
US12663	42-53.8	144-37.7	10/13	1323-1326	47	NW -1	East-1	NW -3	14.1	14.7	bc	1008.4
US12664	42-42.1	144-20.8	10/13	1502-1519	699	North-2	NW -1	North-4	13.6	14.4	c	1010.4
US12665	42-48.0	144-17.9	10/13	1557-1610	508	North-2	East-1	North-5	13.8	13.9	c	1011.5
US12666	42-53.6	144-15.1	10/13	1352-1655	60	North-2	East-1	North-4	13.6	14.1	c	1012.1
US12667	42-30.0	144-05.8	10/14	0546-0607	718	SE -1	East-1	SE -2	12.8	13.9	bc	1018.1
US12668	42-29.8	143-58.3	10/14	0648-0703	434	SE -1	East-1	SE -3	13.7	14.9	bc	1018.6
US12669	41-46.2	141-07.2	10/16	1755-1758	40	West-1	SW -1	West-2	15.3	18.6	bc	1021.6
Cruise 269												
Station	Lat. (N) [*]	Long. (E) [*]	Date	S.M.T.	Depth (m)	Wave	Swell	Wind	Air Temp.	Sea Temp.	Wr.	Bar. (hPa)
US12670	41-45.9	141-07.1	10/25	0049-0052	50	NW -1	WSW-1	NW -3	6.4	16.0	bc	1020.5
US12671	41-57.4	140-58.2	10/25	0246-0250	77	SSW-2	NW -1	SSW-4	9.7	16.7	bc	1020.6
US12672	41-58.0	140-59.5	10/25	0258-0302	85	SSW-1	NW -1	SSW-3	9.3	16.6	bc	1020.6
US12673	41-58.7	141-00.7	10/25	0309-0313	93	SSW-1	NW -1	SSW-3	9.6	16.2	bc	1020.6
US12674	41-59.4	141-02.0	10/25	0320-0325	99	SSW-1	NW -1	SSW-3	9.5	16.1	bc	1020.6
US12675	42-13.1	140-41.5	10/25	0523-0528	88	SW -2	West-1	SW -4	10.4	17.0	bc	1021.0
US12676	42-10.3	140-40.6	10/25	0548-0552	83	SW -2	West-1	SW -4	10.3	16.9	bc	1021.1
US12677	42-09.0	140-35.9	10/25	0622-0626	65	SSW-2	West-1	SSW-4	8.5	16.5	bc	1021.1
US12678	42-11.0	140-35.4	10/25	0651-0655	78	South-2	West-1	South-4	9.1	16.5	bc	1021.1
US12679	42-14.0	140-30.6	10/25	0728-0736	79	SSE-1	West-1	SSE-3	11.8	16.1	bc	1021.1
US12680	42-16.9	140-36.0	10/25	0807-0812	89	South-1	SE -1	South-3	12.1	17.0	bc	1021.2
US12681	42-20.2	140-30.8	10/25	1036-1042	93	SSE-1	SE -1	SSE-3	13.8	16.5	bc	1021.1
US12682	42-21.4	140-36.0	10/25	1144-1149	88	SE -1	SE -1	SE -3	14.4	17.1	bc	1020.5
US12683	42-25.1	140-33.9	10/25	1253-1257	90	ESE-2	SE -1	ESE-4	14.2	17.0	bc	1019.6
US12684	42-26.2	140-36.6	10/25	1322-1328	83	SE -2	SE -1	SE -4	13.7	16.8	c	1018.8
US12685	42-29.0	140-31.7	10/25	1420-1424	74	SE -2	SE -1	SE -4	13.3	16.2	r	1019.1
US12686	42-30.8	140-37.1	10/25	1452-1454	63	SSE-2	SE -1	SSE-4	12.1	16.4	r	1019.5
US12687	42-27.9	140-43.1	10/25	1528-1532	60	ESE-2	SE -1	ESE-4	12.1	16.3	o	1019.1
US12688	42-23.3	140-42.7	10/25	1604-1609	59	SSE-2	SE -1	SSE-3	12.4	16.4	r	1019.1
US12689	42-18.5	140-42.7	10/25	1651-1654	61	South-1	SE -1	South-3	11.8	16.8	r	1018.6
US12690	41-42.4	139-56.6	10/27	1935-1946	559	East-2	East-1	East-4	15.6	17.3	bc	1027.1
US12691	41-23.8	139-34.6	10/30	1211-1222	942	NW -1	NW -2	NW -3	12.2	15.8	c	1010.2
US12692	41-21.6	139-38.5	10/30	1315-1323	228	NW -2	NW -2	NW -4	10.9	16.2	o	1009.7

(*) : Fixed position by Global Positioning System

Table 2. Oceanographic data

STATION US12651				STATION US12652				STATION US12653			
LATITUDE		41-28.8	N	LATITUDE		41-21.8	N	LATITUDE		41-25.4	N
LONGITUD		139-12.0	E	LONGITUD		139-38.5	E	LONGITUD		139-27.5	E
DEPTH (m)		1145		DEPTH (m)		228		DEPTH (m)		2157	
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	22.711	33.395	22.799	5	23.779	32.877	22.100	5	23.338	33.397	22.621
10	22.712	33.394	22.798	10	24.053	33.157	22.231	10	23.336	33.396	22.621
20	20.142	33.670	23.709	20	23.543	33.352	22.528	20	23.269	33.430	22.666
30	14.345	34.144	25.453	30	23.138	33.396	22.678	30	16.450	33.985	24.863
40	12.623	34.209	25.855	40	14.435	34.007	25.328	40	12.261	34.204	25.921
50	10.554	34.244	26.266	50	11.470	34.131	26.013	50	11.230	34.274	26.169
75	7.979	34.157	26.615	75	8.821	34.172	26.498	75	8.881	34.201	26.511
100	5.263	34.063	26.902	100	6.629	34.121	26.777	100	6.632	34.107	26.765
125	3.295	34.031	27.085	125	5.043	34.047	26.915	125	4.913	34.062	26.941
150	2.601	34.038	27.152	150	3.912	34.045	27.035	150	2.917	34.030	27.119
175	2.073	34.041	27.198	175	2.385	34.028	27.162	175	1.593	34.039	27.233
200	1.757	34.047	27.227								
250	1.260	34.054	27.267								
300	1.017	34.059	27.288								
400	0.733	34.064	27.309								
500	0.598	34.065	27.318								
600	0.499	34.065	27.324								
700	0.438	34.065	27.328								
800	0.363	34.064	27.331								
900	0.312	34.063	27.333								
1000	0.261	34.063	27.336								

STATION US12654				STATION US12655				STATION US12656			
LATITUDE		41-42.9	N	LATITUDE		41-40.7	N	LATITUDE		42-54.2	N
LONGITUD		140-44.9	E	LONGITUD		140-47.2	E	LONGITUD		144-53.5	E
DEPTH (m)		82		DEPTH (m)		227		DEPTH (m)		60	
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	23.170	33.325	22.615	5	22.692	33.391	22.802	5	14.898	33.152	24.569
10	23.168	33.326	22.616	10	22.577	33.403	22.843	10	14.857	33.154	24.580
20	23.169	33.325	22.615	20	22.232	33.468	22.990	20	14.794	33.159	24.597
30	22.539	33.458	22.896	30	21.902	33.535	23.132	30	14.632	33.175	24.644
40	18.854	33.856	24.184	40	19.432	33.793	23.989	40	14.424	33.267	24.759
50	15.987	34.058	25.026	50	17.943	33.952	24.483	50	14.312	33.308	24.815
75	11.843	34.235	26.025	75	13.564	34.234	25.685				
				100	12.301	34.189	25.902				
				125	11.515	34.205	26.063				
				150	11.310	34.223	26.115				
				175	10.358	34.217	26.279				
				200	9.880	34.218	26.362				

STATION US12657				STATION US12658				STATION US12659			
LATITUDE		42-50.1	N	LATITUDE		42-46.2	N	LATITUDE		42-43.6	N
LONGITUD		144-57.6	E	LONGITUD		145-01.4	E	LONGITUD		145-04.0	E
DEPTH (m)		102		DEPTH (m)		145		DEPTH (m)		284	
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	13.873	33.284	24.888	5	13.334	32.797	24.620	5	13.933	32.646	24.382
10	13.724	33.278	24.913	10	13.329	32.807	24.630	10	13.881	32.664	24.407
20	13.400	33.302	24.998	20	13.006	32.965	24.815	20	13.007	33.050	24.881
30	13.161	33.309	25.051	30	11.307	32.969	25.139	30	11.784	33.042	25.109
40	12.309	33.297	25.208	40	11.047	33.177	25.348	40	8.232	32.876	25.572
50	11.437	33.278	25.356	50	10.524	33.306	25.540	50	3.463	32.930	26.191
75	10.651	33.257	25.479	75	3.961	33.078	26.262	75	2.083	33.145	26.480
				100	2.771	33.094	26.384	100	1.743	33.198	26.547
				125	4.318	33.391	26.473	125	1.891	33.227	26.559
								150	1.895	33.256	26.582
								175	1.745	33.270	26.605
								200	1.768	33.286	26.615
								250	1.814	33.359	26.671

STATION US12660			
LATITUDE	42-38.8	N	
LONGITUD	144-43.8	E	
DEPTH (m)	594		
Press.	Temp.	Salinity	Sigma-T
5	13.755	33.267	24.899
10	13.696	33.268	24.911
20	13.658	33.279	24.928
30	13.178	33.273	25.020
40	12.586	33.256	25.123
50	11.912	33.237	25.237
75	9.813	33.210	25.586
100	7.014	33.310	26.085
125	6.130	33.480	26.335
150	4.105	33.390	26.495
175	3.014	33.362	26.576
200	1.943	33.328	26.636
250	1.765	33.411	26.716
300	1.889	33.491	26.771
400	2.647	33.699	26.877

STATION US12663			
LATITUDE	42-53.8	N	
LONGITUD	144-37.7	E	
DEPTH (m)	47		
Press.	Temp.	Salinity	Sigma-T
5	15.166	32.977	24.377
10	14.786	33.132	24.578
20	14.762	33.147	24.595
30	14.765	33.147	24.594
40	14.770	33.147	24.593

STATION US12666			
LATITUDE	42-53.6	N	
LONGITUD	144-15.1	E	
DEPTH (m)	60		
Press.	Temp.	Salinity	Sigma-T
5	14.161	32.897	24.529
10	14.150	32.905	24.537
20	14.032	32.955	24.601
30	14.017	32.985	24.627
40	13.930	33.029	24.679
50	13.877	33.135	24.771

STATION US12661			
LATITUDE	42-41.9	N	
LONGITUD	144-42.4	E	
DEPTH (m)	186		
Press.	Temp.	Salinity	Sigma-T
5	14.245	33.318	24.836
10	14.078	33.317	24.871
20	14.040	33.320	24.881
30	14.007	33.317	24.885
40	13.652	33.318	24.959
50	13.054	33.275	25.046
75	12.153	33.242	25.195
100	9.571	33.264	25.668
125	5.512	33.199	26.188
150	3.033	33.296	26.522

STATION US12664			
LATITUDE	42-42.1	N	
LONGITUD	144-20.8	E	
DEPTH (m)	699		
Press.	Temp.	Salinity	Sigma-T
5	14.489	33.127	24.637
10	14.488	33.126	24.637
20	14.490	33.129	24.639
30	14.442	33.134	24.653
40	14.266	33.144	24.698
50	13.017	33.172	24.973
75	9.585	33.203	25.618
100	6.823	33.230	26.048
125	5.702	33.501	26.405
150	3.793	33.369	26.509
175	3.133	33.361	26.565
200	2.788	33.383	26.613
250	2.418	33.399	26.656
300	2.241	33.462	26.721
400	2.523	33.623	26.827

STATION US12667			
LATITUDE	42-30.0	N	
LONGITUD	144-05.8	E	
DEPTH (m)	718		
Press.	Temp.	Salinity	Sigma-T
5	14.201	32.873	24.502
10	13.963	32.915	24.584
20	13.853	32.973	24.651
30	13.741	32.999	24.695
40	12.949	33.138	24.961
50	12.913	33.265	25.066
75	9.592	33.357	25.737
100	7.089	33.652	26.345
125	5.755	33.606	26.481
150	3.799	33.412	26.543
175	2.930	33.361	26.583
200	2.975	33.403	26.613
250	2.463	33.421	26.670
300	2.155	33.472	26.736
400	2.781	33.717	26.880
500	3.142	33.886	26.983

STATION US12662			
LATITUDE	42-47.8	N	
LONGITUD	144-40.2	E	
DEPTH (m)	109		
Press.	Temp.	Salinity	Sigma-T
5	14.480	33.196	24.693
10	14.454	33.206	24.706
20	14.399	33.222	24.730
30	14.350	33.217	24.737
40	13.827	33.205	24.836
50	13.356	33.222	24.944
75	11.754	33.218	25.251
100	9.166	33.227	25.704

STATION US12665			
LATITUDE	42-48.0	N	
LONGITUD	144-17.9	E	
DEPTH (m)	508		
Press.	Temp.	Salinity	Sigma-T
5	14.117	32.922	24.558
10	14.115	32.921	24.557
20	14.042	32.927	24.577
30	13.949	32.992	24.646
40	13.981	33.168	24.775
50	13.314	33.257	24.980
75	11.642	33.195	25.254
100	8.156	33.166	25.811
125	6.315	33.176	26.072
150	6.512	33.539	26.333
175	4.794	33.434	26.457
200	3.990	33.455	26.558
250	2.459	33.373	26.632
300	2.250	33.433	26.697

STATION US12668			
LATITUDE	42-29.8	N	
LONGITUD	143-58.3	E	
DEPTH (m)	434		
Press.	Temp.	Salinity	Sigma-T
5	15.137	32.989	24.392
10	15.074	32.986	24.403
20	14.818	32.978	24.452
30	14.496	32.928	24.482
40	14.496	33.070	24.593
50	13.608	33.143	24.832
75	11.126	33.261	25.399
100	8.718	33.394	25.905
125	6.121	33.495	26.348
150	4.878	33.499	26.499
175	4.143	33.453	26.541
200	3.454	33.415	26.578
250	2.250	33.426	26.691
300	2.118	33.463	26.732
400	2.556	33.628	26.828

STATION US12669			
LATITUDE 41-46.2 N			
LONGITUD 141-07.2 E			
DEPTH (m) 40			
Press.	Temp.	Salinity	Sigma-T
5	18.670	33.451	23.921
10	18.464	33.503	24.011
20	17.043	33.672	24.485
30	13.898	33.835	25.308

STATION US12670			
LATITUDE 41-45.9 N			
LONGITUD 141-07.1 E			
DEPTH (m) 50			
Press.	Temp.	Salinity	Sigma-T
5	16.183	33.671	24.684
10	16.217	33.767	24.750
20	16.172	33.773	24.764
30	15.643	33.809	24.912
40	14.435	33.883	25.233

STATION US12671			
LATITUDE 41-57.4 N			
LONGITUD 140-58.2 E			
DEPTH (m) 77			
Press.	Temp.	Salinity	Sigma-T
5	16.947	33.523	24.394
10	16.951	33.514	24.386
20	16.816	33.654	24.524
30	16.609	33.711	24.616
40	12.915	33.585	25.314
50	10.936	33.547	25.656

STATION US12672			
LATITUDE 41-58.0 N			
LONGITUD 140-59.5 E			
DEPTH (m) 85			
Press.	Temp.	Salinity	Sigma-T
5	16.841	33.504	24.404
10	16.843	33.505	24.404
20	16.620	33.638	24.558
30	16.062	33.708	24.740
40	14.301	33.690	25.112
50	10.253	33.879	26.033
75	9.167	34.029	26.331

STATION US12673			
LATITUDE 41-58.7 N			
LONGITUD 141-00.7 E			
DEPTH (m) 93			
Press.	Temp.	Salinity	Sigma-T
5	16.335	33.702	24.673
10	16.338	33.689	24.662
20	16.344	33.682	24.656
30	16.179	33.743	24.740
40	11.822	33.800	25.690
50	9.885	33.976	26.172
75	9.474	34.049	26.297

STATION US12674			
LATITUDE 41-59.4 N			
LONGITUD 141-02.0 E			
DEPTH (m) 99			
Press.	Temp.	Salinity	Sigma-T
5	16.374	33.688	24.653
10	16.377	33.681	24.647
20	16.375	33.679	24.646
30	16.157	33.742	24.745
40	11.461	33.596	25.599
50	9.112	33.701	26.083
75	9.762	34.077	26.271

STATION US12675			
LATITUDE 42-13.1 N			
LONGITUD 140-41.5 E			
DEPTH (m) 88			
Press.	Temp.	Salinity	Sigma-T
5	17.271	33.179	24.053
10	17.282	33.178	24.050
20	17.283	33.179	24.050
30	17.194	33.227	24.108
40	12.634	33.493	25.298
50	10.286	33.581	25.795
75	8.369	33.958	26.400

STATION US12676			
LATITUDE 42-10.3 N			
LONGITUD 140-40.6 E			
DEPTH (m) 83			
Press.	Temp.	Salinity	Sigma-T
5	17.053	33.258	24.165
10	17.058	33.257	24.164
20	17.061	33.260	24.165
30	14.404	33.389	24.858
40	13.320	33.757	25.366
50	11.220	33.699	25.723
75	6.495	33.371	26.203

STATION US12677			
LATITUDE 42-09.0 N			
LONGITUD 140-35.9 E			
DEPTH (m) 65			
Press.	Temp.	Salinity	Sigma-T
5	16.482	32.951	24.063
10	16.589	33.085	24.141
20	16.666	33.315	24.299
30	13.726	33.740	25.270
40	12.639	33.730	25.480
50	11.616	33.773	25.708

STATION US12678			
LATITUDE 42-11.0 N			
LONGITUD 140-35.4 E			
DEPTH (m) 78			
Press.	Temp.	Salinity	Sigma-T
5	16.775	33.306	24.267
10	16.780	33.306	24.266
20	16.783	33.309	24.268
30	14.159	33.761	25.196
40	13.289	33.944	25.517
50	11.328	33.701	25.705
75	7.497	33.458	26.135

STATION US12679			
LATITUDE 42-14.0 N			
LONGITUD 140-30.6 E			
DEPTH (m) 79			
Press.	Temp.	Salinity	Sigma-T
5	16.067	33.010	24.202
10	16.100	33.019	24.201
20	14.721	33.755	25.072
30	13.712	33.925	25.416
40	12.933	33.870	25.531
50	11.651	33.710	25.653
75	7.438	33.485	26.165

STATION US12680			
LATITUDE 42-16.9 N			
LONGITUD 140-36.0 E			
DEPTH (m) 89			
Press.	Temp.	Salinity	Sigma-T
5	17.003	32.728	23.770
10	17.201	33.134	24.035
20	17.240	33.218	24.090
30	14.514	33.615	25.009
40	11.980	33.579	25.489
50	9.464	33.541	25.901
75	5.365	33.299	26.285

STATION US12681			
LATITUDE 42-20.2 N			
LONGITUD 140-30.8 E			
DEPTH (m) 93			
Press.	Temp.	Salinity	Sigma-T
5	16.819	33.286	24.241
10	16.815	33.286	24.243
20	16.827	33.295	24.246
30	13.492	33.639	25.240
40	12.735	34.017	25.684
50	10.578	33.745	25.873
75	5.328	33.292	26.284

STATION US12682			
LATITUDE 42-21.4 N			
LONGITUD 140-36.0 E			
DEPTH (m) 88			
Press.	Temp.	Salinity	Sigma-T
5	17.293	33.195	24.060
10	17.289	33.195	24.061
20	17.252	33.195	24.070
30	14.848	33.598	24.924
40	11.471	33.578	25.583
50	8.680	33.405	25.919
75	9.081	33.966	26.296

STATION US12683			
LATITUDE 42-25.1 N			
LONGITUD 140-33.9 E			
DEPTH (m) 90			
Press.	Temp.	Salinity	Sigma-T
5	17.127	33.254	24.145
10	17.122	33.254	24.146
20	16.912	33.267	24.205
30	12.865	33.500	25.257
40	11.049	33.744	25.789
50	8.541	33.447	25.973
75	6.027	33.436	26.314

STATION US12684			
LATITUDE 42-26.2 N			
LONGITUD 140-36.6 E			
DEPTH (m) 83			
Press.	Temp.	Salinity	Sigma-T
5	16.612	33.104	24.150
10	16.567	33.134	24.183
20	16.535	33.191	24.235
30	11.927	33.471	25.415
40	11.377	33.964	25.901
50	9.857	33.918	26.131
75	9.371	33.976	26.257

STATION US12687			
LATITUDE 42-27.9 N			
LONGITUD 140-43.1 E			
DEPTH (m) 60			
Press.	Temp.	Salinity	Sigma-T
5	16.544	33.195	24.236
10	16.549	33.196	24.235
20	13.061	33.968	25.582
30	10.571	34.041	26.105
40	10.553	34.075	26.134
50	10.556	34.087	26.143

STATION US12690			
LATITUDE 41-42.4 N			
LONGITUD 139-56.6 E			
DEPTH (m) 559			
Press.	Temp.	Salinity	Sigma-T
5	17.556	33.617	24.321
10	17.535	33.631	24.337
20	17.308	33.704	24.447
30	16.977	33.784	24.587
40	16.728	33.800	24.657
50	16.002	34.225	25.151
75	11.968	34.280	26.036
100	9.865	34.243	26.384
125	8.119	34.163	26.599
150	6.774	34.130	26.764
175	5.359	34.082	26.905
200	4.323	34.060	27.005

STATION US12685			
LATITUDE 42-29.0 N			
LONGITUD 140-31.7 E			
DEPTH (m) 74			
Press.	Temp.	Salinity	Sigma-T
5	16.427	33.175	24.247
10	16.423	33.175	24.248
20	14.545	33.424	24.855
30	11.068	33.564	25.645
40	10.309	33.908	26.047
50	9.626	33.813	26.088

STATION US12688			
LATITUDE 42-23.3 N			
LONGITUD 140-42.7 E			
DEPTH (m) 59			
Press.	Temp.	Salinity	Sigma-T
5	16.713	33.146	24.159
10	16.754	33.164	24.163
20	16.710	33.169	24.177
30	13.696	33.443	25.047
40	9.995	34.002	26.174
50	9.653	34.033	26.255

STATION US12691			
LATITUDE 41-23.8 N			
LONGITUD 139-34.6 E			
DEPTH (m) 942			
Press.	Temp.	Salinity	Sigma-T
5	15.984	33.775	24.809
10	15.983	33.774	24.808
20	15.983	33.773	24.808
30	15.980	33.774	24.809
40	15.958	33.777	24.817
50	15.449	33.800	24.948
75	7.265	34.077	26.655
100	5.238	34.071	26.911
125	3.402	34.032	27.075
150	2.782	34.027	27.128
175	2.343	34.032	27.169

STATION US12686			
LATITUDE 42-30.8 N			
LONGITUD 140-37.1 E			
DEPTH (m) 63			
Press.	Temp.	Salinity	Sigma-T
5	16.635	33.174	24.198
10	16.591	33.186	24.218
20	12.760	33.502	25.280
30	11.167	33.994	25.962
40	10.653	34.008	26.065
50	10.374	34.034	26.134

STATION US12689			
LATITUDE 42-18.5 N			
LONGITUD 140-42.7 E			
DEPTH (m) 61			
Press.	Temp.	Salinity	Sigma-T
5	17.124	33.232	24.128
10	17.163	33.248	24.132
20	17.147	33.246	24.134
30	17.137	33.252	24.141
40	12.196	33.764	25.592
50	9.343	33.985	26.269

STATION US12692			
LATITUDE 41-21.6 N			
LONGITUD 139-38.5 E			
DEPTH (m) 228			
Press.	Temp.	Salinity	Sigma-T
5	16.885	33.661	24.514
10	16.885	33.659	24.512
20	16.874	33.667	24.521
30	16.645	33.712	24.609
40	15.863	33.836	24.883
50	15.397	33.890	25.029
75	10.221	34.257	26.334
100	6.782	34.107	26.745
125	4.965	34.057	26.931
150	3.356	34.032	27.080
175	2.206	34.026	27.175

THE " USHIO MARU "

CRUISE 270

CRUISE 271

CRUISE 272

IN NOVEMBER 2012

1. Cruise Itinerary

Cruise 270

Departure from Hakodate	Nov. 5, 2012
Start hydrographic research (US12693) and trawl net research	5
Arrival at Aomori	5
Departure from Aomori	6
Arrival at Wakinosawa	6
Departure from Wakinosawa	7
Finish hydrographic research (US12723) and trawl net research	7
Return to Hakodate	8
Total coverage 240.7 miles	

Cruise 271

Departure from Hakodate	Nov. 13, 2012
Start hydrographic research (US12724)	13
Arrival at and departure from Hakodate	14
Arrival at Shiraoi	14
Departure from Shiraoi	15
Start salmon fishing research	15
Arrival at and departure from Shiraoi	15
Arrival at and departure from Shiraoi	16
Finish salmon fishing research	16
Finish hydrographic research (US12740-2)	17
Return to Hakodate	18
Total coverage 371.0 miles	

Cruise 272

Departure from Hakodate	Nov. 26, 2012
Start hydrographic research (US12747) and sledge net sampling	26
Arrival at Fukushima	26
Departure from Fukushima	28
Finish hydrographic research (US12777) and sledge net sampling	28
Return to Hakodate	29
Total coverage 91.1 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”.

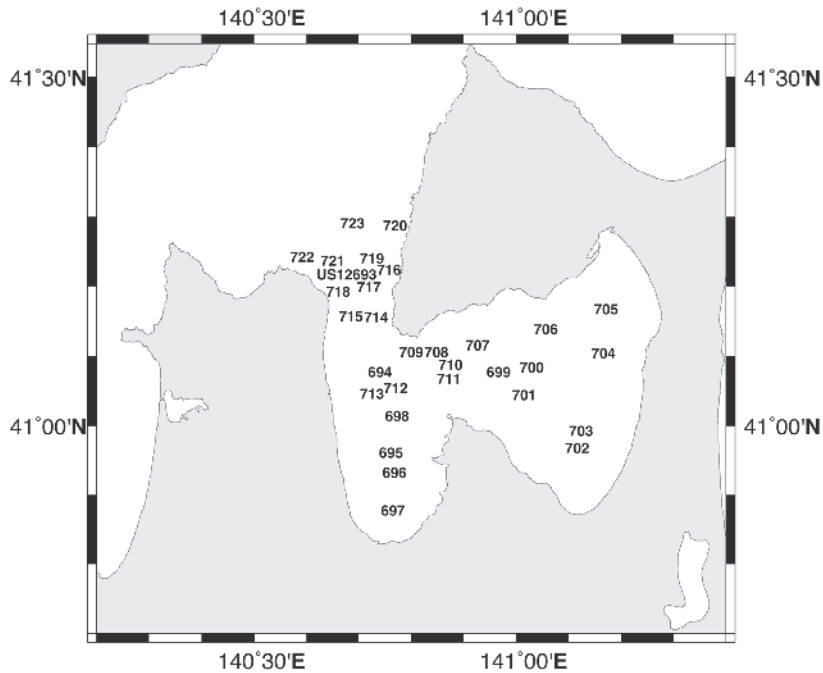


Figure 1. Oceanographic stations (Cruise 270)

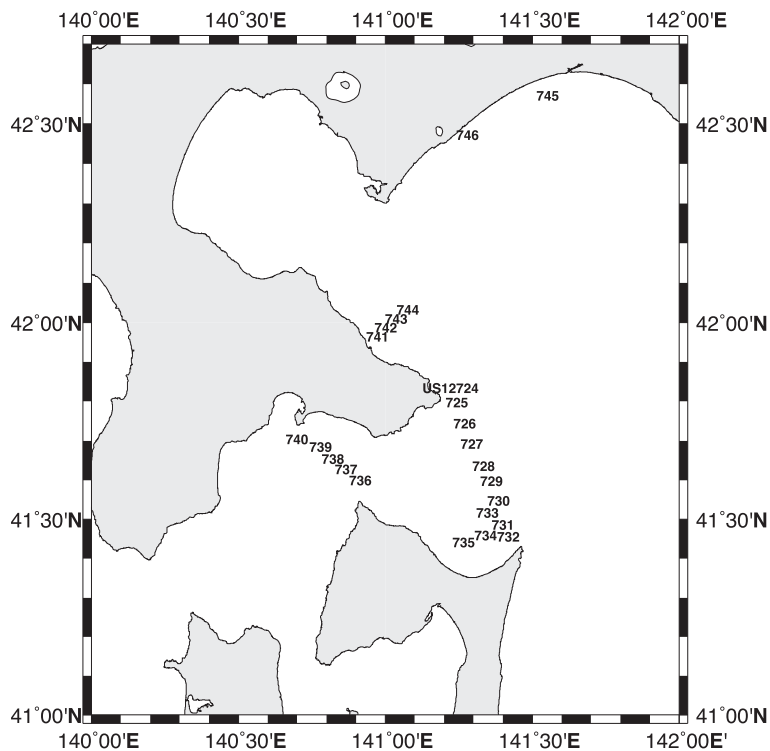


Figure 2. Oceanographic stations (Cruise 271)

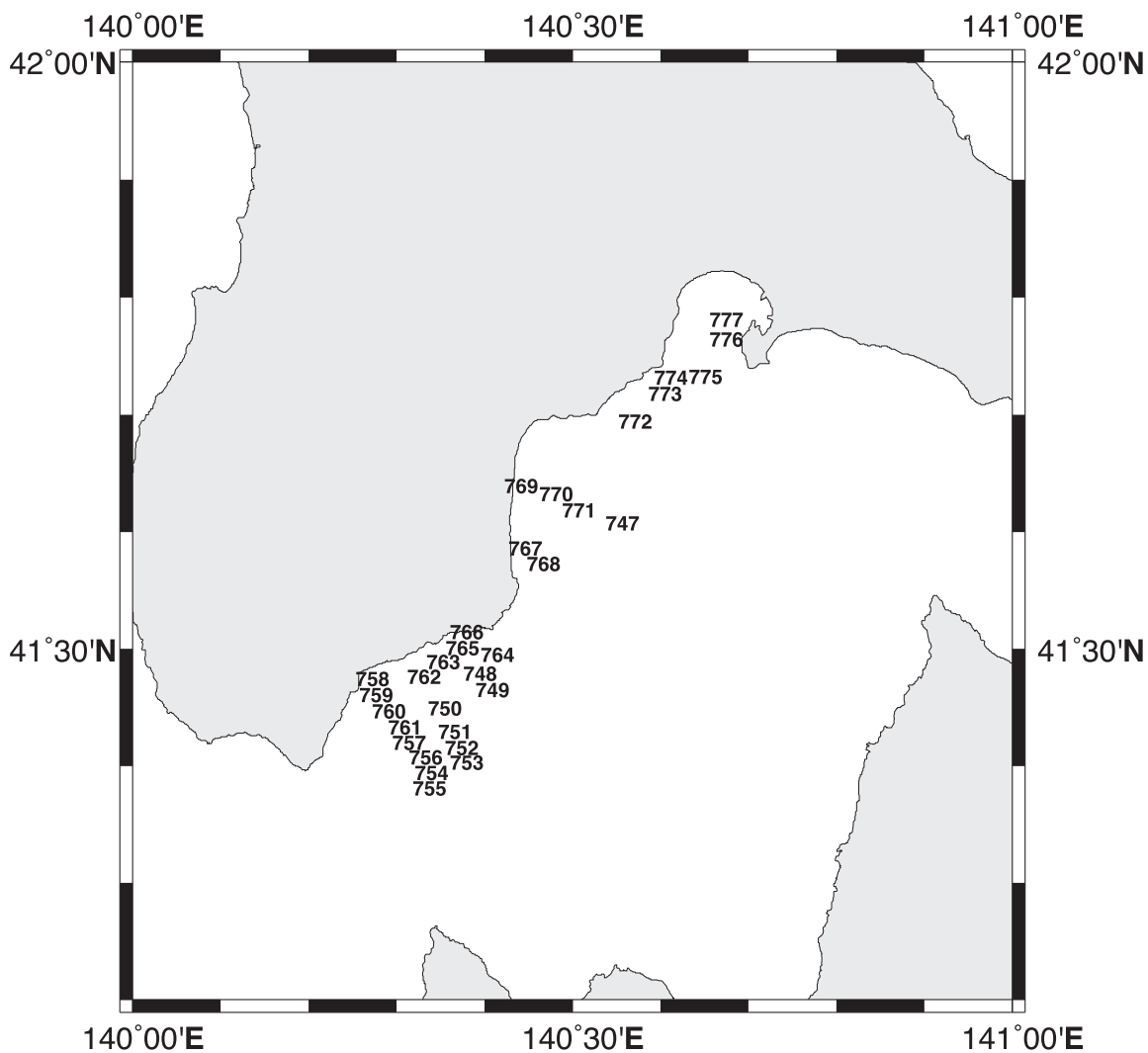


Figure 3. Oceanographic stations (Cruise 272)

Table 1. List of Oceanographic Station

Cruise 270												
Station	Lat. (N)*	Long. (E)*	Date	S.M.T.	Depth (m)	Wave	Swell	Wind	Air Temp.	Sea Temp.	Wr.	Bar. (hPa)
US12693	41-12.6	140-41.5	11/5	1143-1149	78	SE -1	SE -1	SE -3	13.6	18.6	c	1024.1
US12694	41-04.2	140-44.4	11/5	1320-1325	56	East-2	East-1	East-4	13.6	17.9	c	1023.1
US12695	40-57.2	140-45.7	11/5	1423-1428	49	East-3	East-1	East-5	14.4	17.9	bc	1022.1
US12696	40-55.5	140-46.1	11/5	1559-1603	42	ENE-3	East-1	ENE-5	12.9	17.7	bc	1022.1
US12697	40-52.2	140-45.9	11/5	1636-1640	29	East-3	ENE-1	East-5	13.2	17.8	c	1021.7
US12698	41-00.4	140-46.4	11/6	0756-0802	52	East-1	NE -1	East-2	14.1	18.0	c	1018.1
US12699	41-04.2	140-58.0	11/6	0912-0915	49	ESE-3	East-1	ESE-5	13.9	17.4	o	1017.9
US12700	41-04.6	141-01.8	11/6	0947-0952	47	SE -3	East-1	SE -5	15.0	16.8	o	1017.6
US12701	41-02.2	141-00.9	11/6	1131-1136	48	SE -3	SE -1	SE -5	15.5	17.3	o	1015.6
US12702	40-57.6	141-07.0	11/6	1215-1220	37	SSE-2	SE -1	SSE-4	15.6	17.2	r	1015.1
US12703	40-59.1	141-07.4	11/6	1313-1317	41	SE -3	SE -1	SE -5	16.2	17.2	r	1014.6
US12704	41-05.8	141-10.0	11/6	1409-1413	37	SE -3	SE -1	SE -5	15.5	16.8	r	1014.1
US12705	41-09.6	141-10.3	11/6	1510-1514	33	SE -3	SE -1	SE -5	14.8	16.4	r	1013.6
US12706	41-07.9	141-03.4	11/6	1605-1609	36	SE -3	SE -1	SE -6	15.6	16.5	r	1013.0
US12707	41-06.5	140-55.6	11/6	1658-1702	46	SE -3	SE -1	SE -5	16.4	17.1	r	1012.2
US12708	41-05.9	140-50.9	11/7	0623-0627	53	SSW-1	SE -1	SSW-3	12.9	16.9	r	1008.0
US12709	41-05.9	140-48.0	11/7	0642-0650	54	SW -1	SE -1	SW -3	13.9	17.5	r	1007.6
US12710	41-04.8	140-52.5	11/7	0748-0754	51	South-1	South-1	South-2	14.2	17.7	r	1007.6
US12711	41-03.6	140-52.3	11/7	0821-0828	50	SSW-1	South-1	SSW-2	14.8	17.7	c	1007.6
US12712	41-02.8	140-46.2	11/7	0901-0906	51	South-1	South-1	South-3	15.0	17.6	c	1007.5
US12713	41-02.3	140-43.5	11/7	0927-0932	57	SE -1	South-1	SE -3	15.2	17.4	bc	1007.2
US12714	41-08.9	140-44.0	11/7	1039-1042	61	South-1	South-1	South-2	16.1	18.0	c	1006.6
US12715	41-09.0	140-41.1	11/7	1102-1107	46	SE -1	South-1	SE -3	16.4	17.8	c	1006.4
US12716	41-13.0	140-45.8	11/7	1155-1201	61	ESE-2	NW -1	ESE-4	15.3	18.0	c	1005.1
US12717	41-12.2	140-43.0	11/7	1218-1223	73	South-1	NW -1	South-2	15.8	18.2	c	1004.7
US12718	41-11.0	140-39.1	11/7	1249-1252	32	SE -1	South-1	SE -3	16.2	18.3	c	1004.6
US12719	41-14.0	140-43.5	11/7	1328-1335	80	SSE-1	WNW-1	SSE-2	15.6	18.0	c	1004.1
US12720	41-16.8	140-46.5	11/7	1403-1413	58	East-1	WNW-1	East-2	15.1	18.0	o	1003.6
US12721	41-13.8	140-39.0	11/7	1452-1501	87	NW -3	West-1	NW -5	13.9	18.1	r	1003.6
US12722	41-14.1	140-35.5	11/7	1520-1528	62	West-2	West-1	West-4	14.0	18.2	c	1003.5
US12723	41-17.0	140-41.3	11/7	1608-1625	147	NNW-2	NW -1	NNW-4	13.8	18.0	c	1003.5
Cruise 271												
Station	Lat. (N)*	Long. (E)*	Date	S.M.T.	Depth (m)	Wave	Swell	Wind	Air Temp.	Sea Temp.	Wr.	Bar. (hPa)
US12724	41-49.3	141-13.3	11/13	1100-1112	176	Calm	East-1	Calm	11.5	14.2	o	1004.6
US12725	41-47.1	141-14.6	11/13	1201-1216	201	WSW-1	East-1	WSW-1	11.7	14.3	o	1003.6
US12726	41-43.9	141-16.2	11/13	1237-1254	229	SW -1	East-1	SW -3	11.3	14.4	r	1003.3
US12727	41-40.8	141-17.7	11/13	1315-1330	228	SW -1	East-1	SW -2	10.2	14.2	r	1003.0
US12728	41-37.4	141-20.1	11/13	1352-1410	228	Calm	SE -1	Calm	10.7	17.7	o	1002.6
US12729	41-35.1	141-21.7	11/13	1424-1443	299	Calm	SE -2	Calm	11.2	18.1	r	1002.2
US12730	41-32.1	141-23.1	11/13	1501-1526	219	South-1	SE -2	South-3	11.3	17.9	r	1002.2
US12731	41-28.9	141-23.7	11/13	1607-1612	84	SW -1	SE -1	SW -3	11.7	17.8	r	1002.1
US12732	41-27.3	141-24.2	11/13	1626-1629	46	SW -1	East-1	SW -3	11.0	17.5	r	1002.0
US12733	41-29.8	141-21.2	11/13	1656-1712	212	NW -1	East-1	NW -2	10.8	17.1	o	1001.6
US12734	41-26.6	141-20.8	11/13	1732-1738	74	North-1	SE -1	North-3	11.3	16.9	o	1001.6
US12735	41-26.2	141-16.0	11/13	1802-1809	76	North-2	ESE-1	North-4	11.3	17.1	r	1001.5
US12736	41-35.2	140-54.9	11/13	2003-2007	60	NW -1	ESE-1	NW -3	9.8	17.9	r	1001.1
US12737	41-36.9	140-52.0	11/13	2035-2040	77	NW -2	East-1	NW -4	10.0	18.0	r	1000.6
US12738	41-38.5	140-49.3	11/13	2104-2115	327	North-2	East-1	North-4	9.8	17.4	c	1000.2
US12739	41-40.8	140-46.2	11/13	2138-2145	211	North-1	East-1	North-3	9.9	17.0	c	1000.1
US12740	41-41.5	140-42.0	11/13	2209-2213	121	NW -1	ESE-1	NW -2	9.6	17.7	r	1000.1
US12741	41-57.3	140-58.4	11/14	1256-1300	78	NW -2	NW -1	NW-4	10.8	14.2	bc	999.3
US12742	41-58.0	140-59.5	11/14	1309-1313	85	NW -2	NW -1	NW-4	11.2	14.2	c	999.5
US12743	41-58.7	141-00.7	11/14	1323-1326	94	NW -2	NW -1	NW-4	11.3	14.0	c	999.5
US12744	41-59.4	141-01.9	11/14	1336-1340	100	NW -2	NW -1	NW-4	11.3	13.4	c	999.6
US12745	42-33.5	141-33.2	11/15	1633-1636	52	North-3	North-1	North-5	7.6	13.2	bc	1015.5
US12746	42-27.6	141-16.8	11/16	0615-0618	46	NW -1	South-1	NW -2	5.9	13.6	c	1022.5

Cruise 272

Station	Lat. (N) ^a	Long. (E) ^a	Date	S.M.T.	Depth (m)	Wave	Swell	Wind	Air Temp.	Sea Temp.	Wr.	Bar. (hPa)
US12747	41-36.1	140-33.4	11/26	0931-0934	51	SSW-3	SW -1	SSW-5	9.3	14.2	c	1006.2
US12748	41-28.4	140-23.7	11/26	1047-1053	119	SW -2	SW -1	SW -4	8.5	13.4	r	1005.1
US12749	41-28.0	140-24.4	11/26	1111-1117	150	SW -2	South-1	SW -4	8.3	13.6	o	1004.1
US12750	41-26.6	140-21.3	11/26	1153-1157	77	SW -2	SSW-1	SW -4	7.8	13.4	r	1003.1
US12751	41-25.4	140-22.0	11/26	1217-1222	96	West-1	SSW-1	West-2	7.5	13.5	r	1002.0
US12752	41-24.8	140-22.0	11/26	1241-1247	144	West-1	SSW-1	West-2	8.0	13.6	r	1001.4
US12753	41-24.4	140-21.9	11/26	1306-1314	181	NW -1	SSW-1	NW -3	7.9	13.5	r	1000.6
US12754	41-23.4	140-20.4	11/26	1344-1352	146	NW -1	SW -1	NW -3	7.4	13.0	r	999.5
US12755	41-23.3	140-20.1	11/26	1416-1422	118	NW -1	SW -1	NW -3	7.5	13.4	r	998.6
US12756	41-24.1	140-20.0	11/26	1457-1501	94	NW -2	SW -1	NW -4	7.2	13.1	r	997.7
US12757	41-24.6	140-19.0	11/26	1518-1522	90	NW -2	SW -1	NW -4	7.4	13.1	r	997.6
US12758	41-28.0	140-16.2	11/28	0640-0642	22	NW -1	South-1	NW -2	1.2	13.0	c	1021.1
US12759	41-27.3	140-16.6	11/28	0659-0701	36	NW-1	South-1	NW -2	1.8	13.1	c	1021.1
US12760	41-26.8	140-17.5	11/28	0724-0728	60	NW -1	South-1	NW -2	3.0	13.1	c	1021.1
US12761	41-26.1	140-18.3	11/28	0753-0758	70	NW -2	SSW-2	NW -4	4.0	12.7	c	1021.1
US12762	41-28.8	140-19.9	11/28	0836-0841	58	NW -2	SSW-1	NW -3	3.2	12.9	bc	1021.3
US12763	41-29.0	140-21.2	11/28	0902-0907	62	NW -1	SSW-1	NW -3	3.2	12.6	c	1021.1
US12764	41-29.8	140-23.4	11/28	0929-0934	87	West-1	SSW-1	West-3	4.1	14.0	bc	1021.1
US12765	41-29.7	140-22.5	11/28	0957-1002	73	West-1	SSW-1	West-3	4.9	14.2	bc	1021.1
US12766	41-30.4	140-22.8	11/28	1018-1022	50	SW -2	SSW-1	SW -4	5.8	14.1	bc	1020.6
US12767	41-34.8	140-26.8	11/28	1112-1117	16	South-2	South-1	South-4	6.8	12.8	bc	1019.5
US12768	41-34.7	140-27.9	11/28	1136-1137	26	South-1	South-1	South-3	6.0	12.9	bc	1018.9
US12769	41-38.0	140-26.5	11/28	1212-1213	15	South-1	South-1	South-3	7.2	12.7	bc	1018.1
US12770	41-37.6	140-28.3	11/28	1241-1242	22	South-1	South-1	South-3	6.3	13.1	bc	1017.8
US12771	41-37.2	140-30.0	11/28	1300-1302	31	South-2	South-1	South-4	7.0	13.3	bc	1017.6
US12772	41-41.3	140-34.3	11/28	1348-1351	40	South-2	South-1	South-3	7.5	13.6	bc	1016.9
US12773	41-43.4	140-36.2	11/28	1421-1423	34	South-2	South-1	South-4	7.1	13.8	c	1016.7
US12774	41-44.0	140-35.8	11/28	1430-1431	10	SSE-1	South-1	SSE-3	7.7	13.8	o	1016.7
US12775	41-43.6	140-39.1	11/28	1509-1513	61	SSE-3	South-1	SSE-5	8.1	14.0	o	1016.1
US12776	41-45.5	140-40.5	11/28	1538-1540	36	SSE-3	South-1	SSE-5	7.9	13.3	o	1015.7
US12777	41-46.5	140-40.5	11/28	1557-1559	23	SE -3	South-1	SE -5	7.1	13.1	o	1015.6

(*): Fixed position by Global Positioning System

Table 2. Oceanographic data

STATION US12693				STATION US12694				STATION US12695			
LATITUDE 41-12.6 N				LATITUDE 41-04.2 N				LATITUDE 40-57.2 N			
LONGITUD 140-41.5 E				LONGITUD 140-44.4 E				LONGITUD 140-45.7 E			
DEPTH (m) 78				DEPTH (m) 56				DEPTH (m) 49			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	18.352	33.182	23.794	5	17.926	33.346	24.024	5	17.933	33.315	23.998
10	18.530	33.169	23.740	10	17.953	33.474	24.115	10	17.981	33.441	24.083
20	18.747	33.440	23.893	20	17.981	33.515	24.140	20	17.999	33.492	24.117
30	18.751	33.440	23.892	30	17.941	33.518	24.152	30	18.003	33.493	24.117
40	18.744	33.442	23.895	40	17.922	33.522	24.160	40	17.987	33.489	24.119
50	18.675	33.459	23.925	50	17.655	33.530	24.230				
75	18.529	33.491	23.986								
STATION US12696				STATION US12697				STATION US12698			
LATITUDE 40-55.5 N				LATITUDE 40-52.2 N				LATITUDE 41-00.4 N			
LONGITUD 140-46.1 E				LONGITUD 140-45.9 E				LONGITUD 140-46.4 E			
DEPTH (m) 42				DEPTH (m) 29				DEPTH (m) 52			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	17.771	32.931	23.744	5	17.725	32.751	23.617	5	17.816	32.930	23.732
10	18.036	33.477	24.097	10	17.636	32.859	23.721	10	18.057	33.157	23.847
20	18.043	33.485	24.102	20	17.942	33.459	24.106	20	18.079	33.489	24.096
30	18.046	33.485	24.101					30	18.059	33.508	24.115
								40	17.843	33.523	24.179
								50	17.822	33.527	24.188
STATION US12699				STATION US12700				STATION US12701			
LATITUDE 41-04.2 N				LATITUDE 41-04.6 N				LATITUDE 41-02.2 N			
LONGITUD 140-58.0 E				LONGITUD 141-01.8 E				LONGITUD 141-00.9 E			
DEPTH (m) 49				DEPTH (m) 47				DEPTH (m) 48			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	17.549	33.011	23.858	5	16.822	33.061	24.068	5	17.426	33.303	24.111
10	17.692	33.468	24.174	10	16.991	33.514	24.376	10	17.481	33.447	24.208
20	17.670	33.510	24.212	20	17.008	33.533	24.387	20	17.481	33.504	24.252
30	17.555	33.526	24.251	30	17.010	33.533	24.386	30	17.202	33.545	24.350
40	17.473	33.529	24.273	40	17.017	33.536	24.387	40	16.933	33.537	24.407

STATION US12702			
LATITUDE 40-57.6 N			
LONGITUD 141-07.0 E			
DEPTH (m) 37			
Press.	Temp.	Salinity	Sigma-T
5	17.351	33.254	24.091
10	17.405	33.349	24.152
20	17.476	33.510	24.258
30	17.480	33.511	24.257

STATION US12705			
LATITUDE 41-09.6 N			
LONGITUD 141-10.3 E			
DEPTH (m) 33			
Press.	Temp.	Salinity	Sigma-T
5	16.591	33.390	24.374
10	16.616	33.482	24.439
20	16.612	33.517	24.467
30	16.471	33.522	24.503

STATION US12708			
LATITUDE 41-05.9 N			
LONGITUD 140-50.9 E			
DEPTH (m) 53			
Press.	Temp.	Salinity	Sigma-T
5	17.645	32.949	23.787
10	17.726	33.300	24.037
20	17.668	33.494	24.200
30	17.222	33.529	24.333
40	17.140	33.536	24.358
50	17.000	33.539	24.393

STATION US12711			
LATITUDE 41-03.6 N			
LONGITUD 140-52.3 E			
DEPTH (m) 50			
Press.	Temp.	Salinity	Sigma-T
5	17.899	33.276	23.977
10	17.943	33.342	24.017
20	17.976	33.496	24.126
30	17.948	33.508	24.142
40	17.840	33.525	24.181

STATION US12714			
LATITUDE 41-08.9 N			
LONGITUD 140-44.0 E			
DEPTH (m) 61			
Press.	Temp.	Salinity	Sigma-T
5	18.092	33.338	23.977
10	18.112	33.448	24.056
20	18.026	33.472	24.096
30	18.001	33.496	24.120
40	17.847	33.509	24.168
50	17.790	33.525	24.193

STATION US12717			
LATITUDE 41-12.2 N			
LONGITUD 140-43.0 E			
DEPTH (m) 73			
Press.	Temp.	Salinity	Sigma-T
5	18.239	33.345	23.946
10	18.268	33.441	24.013
20	18.286	33.515	24.065
30	18.272	33.522	24.074
40	18.232	33.517	24.080
50	18.236	33.540	24.096

STATION US12703			
LATITUDE 40-59.1 N			
LONGITUD 141-07.4 E			
DEPTH (m) 41			
Press.	Temp.	Salinity	Sigma-T
5	17.166	33.265	24.144
10	17.211	33.464	24.286
20	17.170	33.530	24.346
30	16.973	33.541	24.401

STATION US12706			
LATITUDE 41-07.9 N			
LONGITUD 141-03.4 E			
DEPTH (m) 36			
Press.	Temp.	Salinity	Sigma-T
5	16.921	33.044	24.032
10	16.985	33.133	24.086
20	17.013	33.525	24.380
30	16.029	33.436	24.539

STATION US12709			
LATITUDE 41-05.9 N			
LONGITUD 140-48.0 E			
DEPTH (m) 54			
Press.	Temp.	Salinity	Sigma-T
5	17.629	33.249	24.021
10	17.660	33.404	24.133
20	17.412	33.519	24.280
30	17.307	33.546	24.326
40	17.266	33.546	24.336
50	17.204	33.543	24.348

STATION US12712			
LATITUDE 41-02.8 N			
LONGITUD 140-46.2 E			
DEPTH (m) 51			
Press.	Temp.	Salinity	Sigma-T
5	17.720	33.280	24.023
10	17.755	33.357	24.074
20	17.789	33.474	24.155
30	17.768	33.492	24.174
40	17.244	33.522	24.322

STATION US12715			
LATITUDE 41-09.0 N			
LONGITUD 140-41.1 E			
DEPTH (m) 46			
Press.	Temp.	Salinity	Sigma-T
5	18.395	33.099	23.720
10	18.388	33.356	23.918
20	18.176	33.430	24.027
30	18.162	33.490	24.076
40	18.117	33.507	24.100

STATION US12718			
LATITUDE 41-11.0 N			
LONGITUD 140-39.1 E			
DEPTH (m) 32			
Press.	Temp.	Salinity	Sigma-T
5	18.208	32.852	23.577
10	18.522	33.362	23.889
20	18.542	33.486	23.979

STATION US12704			
LATITUDE 41-05.8 N			
LONGITUD 141-10.0 E			
DEPTH (m) 37			
Press.	Temp.	Salinity	Sigma-T
5	16.836	32.854	23.906
10	17.100	33.438	24.293
20	17.071	33.550	24.385
30	16.536	33.537	24.500

STATION US12707			
LATITUDE 41-06.5 N			
LONGITUD 140-55.6 E			
DEPTH (m) 46			
Press.	Temp.	Salinity	Sigma-T
5	17.151	32.933	23.893
10	17.217	33.379	24.219
20	17.074	33.539	24.376
30	16.929	33.537	24.409
40	16.910	33.538	24.413

STATION US12710			
LATITUDE 41-04.8 N			
LONGITUD 140-52.5 E			
DEPTH (m) 51			
Press.	Temp.	Salinity	Sigma-T
5	17.849	33.235	23.957
10	17.909	33.376	24.051
20	17.938	33.503	24.141
30	17.819	33.515	24.179
40	17.416	33.531	24.288

STATION US12713			
LATITUDE 41-02.3 N			
LONGITUD 140-43.5 E			
DEPTH (m) 57			
Press.	Temp.	Salinity	Sigma-T
5	17.464	32.599	23.563
10	17.560	33.420	24.169
20	17.605	33.494	24.215
30	17.555	33.528	24.253
40	17.465	33.542	24.285
50	17.430	33.541	24.293

STATION US12716			
LATITUDE 41-13.0 N			
LONGITUD 140-45.8 E			
DEPTH (m) 61			
Press.	Temp.	Salinity	Sigma-T
5	18.137	33.338	23.966
10	18.172	33.428	24.026
20	18.257	33.496	24.058
30	18.130	33.508	24.098
40	17.963	33.529	24.155
50	17.589	33.537	24.252

STATION US12719			
LATITUDE 41-14.0 N			
LONGITUD 140-43.5 E			
DEPTH (m) 80			
Press.	Temp.	Salinity	Sigma-T
5	18.225	33.331	23.939
10	18.258	33.444	24.018
20	18.280	33.512	24.064
30	18.276	33.522	24.072
40	18.277	33.526	24.076
50	18.276	33.529	24.078
75	17.639	33.624	24.306

STATION US12720			
LATITUDE 41-16.8 N			
LONGITUD 140-46.5 E			
DEPTH (m) 58			
Press.	Temp.	Salinity	Sigma-T
5	17.635	33.124	23.924
10	18.077	33.104	23.801
20	18.235	33.506	24.070
30	18.226	33.505	24.072
40	18.232	33.506	24.072
50	18.231	33.508	24.073

STATION US12721			
LATITUDE 41-13.8 N			
LONGITUD 140-39.0 E			
DEPTH (m) 87			
Press.	Temp.	Salinity	Sigma-T
5	17.500	32.333	23.351
10	18.075	32.892	23.640
20	18.296	33.511	24.059
30	18.246	33.514	24.074
40	18.205	33.518	24.087
50	18.180	33.525	24.099
75	17.738	33.594	24.259

STATION US12722			
LATITUDE 41-14.1 N			
LONGITUD 140-35.5 E			
DEPTH (m) 62			
Press.	Temp.	Salinity	Sigma-T
5	17.724	33.208	23.967
10	18.105	33.135	23.818
20	18.366	33.501	24.035
30	18.361	33.505	24.039
40	18.355	33.507	24.041
50	18.335	33.513	24.051

STATION US12723			
LATITUDE 41-17.0 N			
LONGITUD 140-41.3 E			
DEPTH (m) 147			
Press.	Temp.	Salinity	Sigma-T
5	17.853	33.010	23.784
10	18.090	33.144	23.829
20	18.152	33.519	24.101
30	18.202	33.541	24.105
40	18.114	33.556	24.138
50	18.109	33.558	24.141
75	18.077	33.564	24.153
100	18.069	33.565	24.156
125	17.840	33.593	24.233

STATION US12724			
LATITUDE 41-49.3 N			
LONGITUD 141-13.3 E			
DEPTH (m) 176			
Press.	Temp.	Salinity	Sigma-T
5	14.534	33.559	24.961
10	14.580	33.747	25.097
20	14.118	33.739	25.188
30	13.984	33.732	25.211
40	13.914	33.745	25.235
50	13.284	33.735	25.356
75	12.549	33.901	25.631
100	11.897	33.961	25.801
125	10.549	34.003	26.079
150	10.273	34.048	26.162

STATION US12725			
LATITUDE 41-47.1 N			
LONGITUD 141-14.6 E			
DEPTH (m) 201			
Press.	Temp.	Salinity	Sigma-T
5	14.562	33.741	25.096
10	14.545	33.771	25.123
20	14.373	33.765	25.155
30	14.214	33.753	25.179
40	13.956	33.747	25.228
50	13.890	33.748	25.243
75	13.635	33.747	25.295
100	12.409	33.928	25.678
125	11.475	33.977	25.893
150	10.039	34.020	26.180
175	9.043	33.999	26.328

STATION US12726			
LATITUDE 41-43.9 N			
LONGITUD 141-16.2 E			
DEPTH (m) 229			
Press.	Temp.	Salinity	Sigma-T
5	14.246	32.930	24.537
10	14.103	33.361	24.899
20	14.266	33.737	25.155
30	14.172	33.752	25.187
40	14.068	33.757	25.212
50	13.929	33.738	25.227
75	13.430	33.796	25.374
100	12.690	33.890	25.594
125	11.680	33.960	25.842
150	9.670	34.041	26.258
175	8.867	33.951	26.318
200	8.038	33.919	26.419

STATION US12727			
LATITUDE 41-40.8 N			
LONGITUD 141-17.7 E			
DEPTH (m) 228			
Press.	Temp.	Salinity	Sigma-T
5	14.098	33.249	24.814
10	13.810	33.402	24.992
20	14.510	33.772	25.131
30	14.490	33.771	25.135
40	14.413	33.770	25.150
50	14.417	33.771	25.149
75	14.400	33.771	25.153
100	14.385	33.771	25.156
125	12.658	33.959	25.654
150	11.245	34.071	26.008
175	10.185	34.039	26.170
200	8.477	33.941	26.370

STATION US12728			
LATITUDE 41-37.4 N			
LONGITUD 141-20.1 E			
DEPTH (m) 228			
Press.	Temp.	Salinity	Sigma-T
5	17.347	33.074	23.955
10	16.592	33.252	24.268
20	16.305	33.612	24.610
30	15.808	33.649	24.752
40	15.272	33.691	24.903
50	14.954	33.694	24.975
75	14.437	33.884	25.233
100	12.719	33.950	25.635
125	11.371	34.019	25.945
150	10.812	34.010	26.038
175	9.224	33.969	26.275
200	8.623	33.944	26.350

STATION US12729			
LATITUDE 41-35.1 N			
LONGITUD 141-21.7 E			
DEPTH (m) 299			
Press.	Temp.	Salinity	Sigma-T
5	17.645	33.185	23.968
10	18.211	33.286	23.908
20	17.808	33.496	24.167
30	17.411	33.533	24.291
40	17.211	33.546	24.349
50	17.013	33.564	24.409
75	16.318	33.612	24.607
100	15.468	33.681	24.852
125	12.552	33.932	25.654
150	10.542	33.970	26.054
175	10.342	33.983	26.100
200	8.774	33.906	26.297
250	6.292	33.784	26.555

STATION US12730			
LATITUDE 41-32.1 N			
LONGITUD 141-23.1 E			
DEPTH (m) 219			
Press.	Temp.	Salinity	Sigma-T
5	17.440	33.221	24.045
10	17.754	33.480	24.168
20	17.739	33.501	24.187
30	17.292	33.589	24.362
40	16.995	33.622	24.458
50	16.928	33.629	24.479
75	15.613	33.723	24.852
100	14.538	34.017	25.314
125	13.517	34.153	25.633
150	12.707	34.208	25.837
175	12.528	34.222	25.883

STATION US12731			
LATITUDE 41-28.9 N			
LONGITUD 141-23.7 E			
DEPTH (m) 84			
Press.	Temp.	Salinity	Sigma-T
5	17.141	32.765	23.766
10	17.251	32.822	23.784
20	17.153	33.616	24.416
30	17.138	33.625	24.427
40	16.979	33.645	24.479
50	16.492	33.679	24.619

STATION US12732			
LATITUDE	41-27.3	N	
LONGITUD	141-24.2	E	
DEPTH (m)	46		
Press.	Temp.	Salinity	Sigma-T
5	17.577	33.310	24.081
10	17.494	33.464	24.218
20	16.787	33.670	24.544
30	16.768	33.683	24.558

STATION US12733			
LATITUDE	41-29.8	N	
LONGITUD	141-21.2	E	
DEPTH (m)	212		
Press.	Temp.	Salinity	Sigma-T
5	16.842	33.171	24.148
10	17.151	33.062	23.992
20	17.401	33.571	24.322
30	17.264	33.597	24.375
40	17.102	33.623	24.433
50	17.022	33.637	24.463
75	16.542	33.721	24.639
100	15.666	33.764	24.872
125	14.999	33.923	25.142
150	13.871	34.104	25.522
175	13.063	34.197	25.758
199	12.994	34.204	25.777

STATION US12734			
LATITUDE	41-26.6	N	
LONGITUD	141-20.8	E	
DEPTH (m)	74		
Press.	Temp.	Salinity	Sigma-T
5	16.981	33.114	24.072
10	16.968	33.275	24.198
20	16.609	33.688	24.599
30	16.516	33.706	24.634
40	16.515	33.708	24.636
50	16.523	33.708	24.634

STATION US12735			
LATITUDE	41-26.2	N	
LONGITUD	141-16.0	E	
DEPTH (m)	76		
Press.	Temp.	Salinity	Sigma-T
5	16.968	33.239	24.171
10	17.189	33.217	24.102
20	17.474	33.560	24.297
30	17.474	33.562	24.299
40	17.477	33.565	24.300
50	17.459	33.569	24.307

STATION US12736			
LATITUDE	41-35.2	N	
LONGITUD	140-54.9	E	
DEPTH (m)	60		
Press.	Temp.	Salinity	Sigma-T
5	18.087	33.599	24.178
10	18.086	33.609	24.186
20	18.081	33.620	24.195
30	18.083	33.620	24.195
40	18.080	33.620	24.196
50	18.082	33.613	24.190

STATION US12737			
LATITUDE	41-36.9	N	
LONGITUD	140-52.0	E	
DEPTH (m)	77		
Press.	Temp.	Salinity	Sigma-T
5	18.070	33.460	24.076
10	17.993	33.484	24.113
20	17.808	33.543	24.203
30	17.815	33.538	24.198
40	17.785	33.553	24.216
50	17.648	33.589	24.277

STATION US12738			
LATITUDE	41-38.5	N	
LONGITUD	140-49.3	E	
DEPTH (m)	327		
Press.	Temp.	Salinity	Sigma-T
5	17.616	33.508	24.223
10	17.470	33.539	24.282
20	17.198	33.549	24.354
30	16.972	33.624	24.465
40	16.934	33.641	24.487
50	16.905	33.646	24.498
75	16.152	33.765	24.763
100	15.744	33.835	24.909
125	14.274	34.039	25.387
150	13.422	34.172	25.666
175	12.767	34.218	25.833
200	12.771	34.252	25.859
250	12.578	34.261	25.904
300	11.966	34.245	26.009

STATION US12739			
LATITUDE	41-40.8	N	
LONGITUD	140-46.2	E	
DEPTH (m)	211		
Press.	Temp.	Salinity	Sigma-T
5	17.667	33.624	24.299
10	17.673	33.626	24.300
20	17.666	33.635	24.308
30	17.586	33.659	24.346
40	17.367	33.716	24.442
50	17.255	33.726	24.477
75	15.409	34.041	25.143
100	13.956	34.268	25.631
125	13.540	34.277	25.724
150	13.373	34.279	25.759
175	12.981	34.290	25.847
200	12.515	34.277	25.929

STATION US12740			
LATITUDE	41-41.5	N	
LONGITUD	140-42.0	E	
DEPTH (m)	121		
Press.	Temp.	Salinity	Sigma-T
5	17.980	33.569	24.181
10	17.973	33.581	24.192
20	17.579	33.677	24.361
30	17.361	33.728	24.453
40	17.279	33.742	24.483
50	17.175	33.753	24.516
75	16.607	33.904	24.765
100	15.485	34.063	25.143

STATION US12741			
LATITUDE	41-57.3	N	
LONGITUD	140-58.4	E	
DEPTH (m)	78		
Press.	Temp.	Salinity	Sigma-T
5	14.485	33.769	25.134
10	14.489	33.771	25.135
20	14.492	33.771	25.134
30	14.072	33.689	25.159
40	14.074	33.756	25.211
50	13.779	33.760	25.275

STATION US12742			
LATITUDE	41-58.0	N	
LONGITUD	140-59.5	E	
DEPTH (m)	85		
Press.	Temp.	Salinity	Sigma-T
5	14.434	33.776	25.150
10	14.436	33.776	25.150
20	14.423	33.776	25.152
30	14.391	33.777	25.159
40	14.348	33.775	25.167
50	14.092	33.796	25.238
75	12.882	33.837	25.516

STATION US12743			
LATITUDE	41-58.7	N	
LONGITUD	141-00.7	E	
DEPTH (m)	94		
Press.	Temp.	Salinity	Sigma-T
5	13.879	33.748	25.244
10	13.861	33.745	25.246
20	13.859	33.746	25.247
30	13.852	33.742	25.246
40	13.799	33.729	25.247
50	13.533	33.687	25.269
75	12.669	33.892	25.600

STATION US12744			
LATITUDE 41-59.4 N			
LONGITUD 141-01.9 E			
DEPTH (m) 100			
Press.	Temp.	Salinity	Sigma-T
5	13.682	33.699	25.248
10	13.689	33.700	25.247
20	13.606	33.682	25.250
30	13.522	33.691	25.274
40	13.288	33.707	25.334
50	13.083	33.763	25.418
75	12.585	33.909	25.630

STATION US12747			
LATITUDE 41-36.1 N			
LONGITUD 140-33.4 E			
DEPTH (m) 51			
Press.	Temp.	Salinity	Sigma-T
5	14.441	33.758	25.135
10	14.468	33.769	25.138
20	14.475	33.821	25.176
30	14.133	33.961	25.356
40	13.653	34.030	25.509

STATION US12750			
LATITUDE 41-26.6 N			
LONGITUD 140-21.3 E			
DEPTH (m) 77			
Press.	Temp.	Salinity	Sigma-T
5	13.624	33.884	25.402
10	13.364	33.901	25.469
20	13.012	33.984	25.603
30	12.854	34.017	25.661
40	12.760	34.037	25.695
50	12.623	34.064	25.742
75	11.374	34.267	26.137

STATION US12753			
LATITUDE 41-24.4 N			
LONGITUD 140-21.9 E			
DEPTH (m) 181			
Press.	Temp.	Salinity	Sigma-T
5	13.834	33.831	25.318
10	13.515	33.874	25.417
20	12.900	34.000	25.638
30	12.811	34.029	25.678
40	12.753	34.040	25.698
50	12.717	34.048	25.712
75	11.823	34.166	25.975
100	11.559	34.199	26.050
125	11.449	34.220	26.087
150	10.989	34.253	26.196
175	10.632	34.257	26.263

STATION US12756			
LATITUDE 41-24.1 N			
LONGITUD 140-20.0 E			
DEPTH (m) 94			
Press.	Temp.	Salinity	Sigma-T
5	13.249	33.905	25.495
10	13.218	33.931	25.521
20	12.585	34.050	25.739
30	12.361	34.084	25.809
40	12.267	34.102	25.840
50	11.963	34.126	25.917
75	11.409	34.261	26.126

STATION US12745			
LATITUDE 42-33.5 N			
LONGITUD 141-33.2 E			
DEPTH (m) 52			
Press.	Temp.	Salinity	Sigma-T
5	13.443	33.601	25.221
10	13.442	33.601	25.221
20	13.443	33.606	25.225
30	13.442	33.597	25.218
40	13.372	33.548	25.194
50	12.815	33.706	25.427

STATION US12748			
LATITUDE 41-28.4 N			
LONGITUD 140-23.7 E			
DEPTH (m) 119			
Press.	Temp.	Salinity	Sigma-T
5	13.635	33.886	25.402
10	13.548	33.904	25.433
20	13.445	33.923	25.469
30	13.311	33.937	25.507
40	13.291	33.941	25.514
50	13.220	33.970	25.551
75	12.172	34.169	25.911
100	11.315	34.259	26.141

STATION US12751			
LATITUDE 41-25.4 N			
LONGITUD 140-22.0 E			
DEPTH (m) 96			
Press.	Temp.	Salinity	Sigma-T
5	13.918	33.879	25.338
10	13.696	33.895	25.396
20	13.191	33.979	25.563
30	12.957	34.002	25.628
40	12.796	34.036	25.687
50	12.785	34.040	25.692
75	12.819	34.034	25.681

STATION US12754			
LATITUDE 41-23.4 N			
LONGITUD 140-20.4 E			
DEPTH (m) 146			
Press.	Temp.	Salinity	Sigma-T
5	14.087	33.765	25.214
10	14.159	33.746	25.185
20	14.230	33.735	25.162
30	13.742	33.824	25.331
40	13.642	33.820	25.349
50	13.536	33.833	25.381
75	13.004	33.985	25.606
100	12.330	34.083	25.814
125	11.928	34.148	25.941
150	11.850	34.155	25.961

STATION US12757			
LATITUDE 41-24.6 N			
LONGITUD 140-19.0 E			
DEPTH (m) 90			
Press.	Temp.	Salinity	Sigma-T
5	13.436	33.874	25.433
10	13.275	33.938	25.515
20	12.777	34.026	25.683
30	12.612	34.065	25.745
40	12.382	34.105	25.821
50	11.841	34.191	25.991
75	11.608	34.228	26.063

STATION US12746			
LATITUDE 42-27.6 N			
LONGITUD 141-16.8 E			
DEPTH (m) 46			
Press.	Temp.	Salinity	Sigma-T
5	13.842	33.712	25.225
10	13.845	33.709	25.222
20	13.849	33.709	25.221
30	13.834	33.700	25.217
40	13.803	33.697	25.221

STATION US12749			
LATITUDE 41-28.0 N			
LONGITUD 140-24.4 E			
DEPTH (m) 150			
Press.	Temp.	Salinity	Sigma-T
5	13.948	33.680	25.178
10	13.854	33.843	25.323
20	13.445	33.902	25.453
30	13.350	33.929	25.493
40	13.322	33.936	25.504
50	13.297	33.944	25.516
75	13.170	33.987	25.574
100	11.930	34.223	25.999
125	11.188	34.257	26.163

STATION US12752			
LATITUDE 41-24.8 N			
LONGITUD 140-22.0 E			
DEPTH (m) 144			
Press.	Temp.	Salinity	Sigma-T
5	13.976	33.837	25.293
10	13.734	33.892	25.386
20	13.270	33.951	25.526
30	13.067	33.988	25.596
40	13.045	33.994	25.604
50	12.945	34.012	25.639
75	12.618	34.056	25.737
100	12.093	34.136	25.900
125	11.602	34.198	26.041

STATION US12755			
LATITUDE 41-23.3 N			
LONGITUD 140-20.1 E			
DEPTH (m) 118			
Press.	Temp.	Salinity	Sigma-T
5	14.256	33.754	25.171
10	14.263	33.761	25.174
20	14.067	33.750	25.207
30	13.544	33.879	25.415
40	13.637	33.866	25.386
50	13.676	33.850	25.366
75	13.571	33.869	25.402
100	13.140	33.965	25.563

STATION US12758			
LATITUDE 41-28.0 N			
LONGITUD 140-16.2 E			
DEPTH (m) 22			
Press.	Temp.	Salinity	Sigma-T
5	13.462	33.849	25.408
10	13.463	33.848	25.407
20	13.479	33.848	25.404

STATION US12759			
LATITUDE 41-27.3 N			
LONGITUD 140-16.6 E			
DEPTH (m) 36			
Press.	Temp.	Salinity	Sigma-T
5	13.330	33.860	25.444
10	13.343	33.860	25.441
20	13.221	33.911	25.505
30	12.935	34.001	25.632

STATION US12762			
LATITUDE 41-28.8 N			
LONGITUD 140-19.9 E			
DEPTH (m) 58			
Press.	Temp.	Salinity	Sigma-T
5	13.350	33.888	25.462
10	13.279	33.911	25.493
20	12.839	34.030	25.673
30	12.720	34.054	25.716
40	12.437	34.088	25.797
50	12.150	34.176	25.920

STATION US12765			
LATITUDE 41-29.7 N			
LONGITUD 140-22.5 E			
DEPTH (m) 73			
Press.	Temp.	Salinity	Sigma-T
5	14.297	33.851	25.236
10	14.136	33.866	25.282
20	13.858	33.903	25.369
30	13.708	33.928	25.419
40	13.665	33.935	25.433
50	13.387	33.970	25.517

STATION US12768			
LATITUDE 41-34.7 N			
LONGITUD 140-27.9 E			
DEPTH (m) 26			
Press.	Temp.	Salinity	Sigma-T
5	13.249	33.497	25.179
10	13.252	33.629	25.281
20	13.526	33.771	25.335

STATION US12771			
LATITUDE 41-37.2 N			
LONGITUD 140-30.0 E			
DEPTH (m) 31			
Press.	Temp.	Salinity	Sigma-T
5	13.537	33.762	25.326
10	13.526	33.791	25.350
20	13.540	33.828	25.376

STATION US12774			
LATITUDE 41-44.0 N			
LONGITUD 140-35.8 E			
DEPTH (m) 10			
Press.	Temp.	Salinity	Sigma-T
5	13.771	33.782	25.293
10	13.772	33.832	25.332

STATION US12760			
LATITUDE 41-26.8 N			
LONGITUD 140-17.5 E			
DEPTH (m) 60			
Press.	Temp.	Salinity	Sigma-T
5	13.363	33.868	25.443
10	13.365	33.874	25.447
20	12.919	34.050	25.673
30	12.291	34.152	25.874
40	12.216	34.153	25.890
50	12.187	34.158	25.900

STATION US12763			
LATITUDE 41-29.0 N			
LONGITUD 140-21.2 E			
DEPTH (m) 62			
Press.	Temp.	Salinity	Sigma-T
5	13.025	34.017	25.626
10	13.020	34.021	25.630
20	13.039	34.018	25.625
30	13.023	34.021	25.630
40	12.774	34.046	25.698
50	12.539	34.083	25.773

STATION US12766			
LATITUDE 41-30.4 N			
LONGITUD 140-22.8 E			
DEPTH (m) 50			
Press.	Temp.	Salinity	Sigma-T
5	14.079	33.872	25.299
10	13.945	33.885	25.337
20	13.874	33.899	25.363
30	13.854	33.901	25.368
40	13.804	33.890	25.370

STATION US12769			
LATITUDE 41-38.0 N			
LONGITUD 140-26.5 E			
DEPTH (m) 15			
Press.	Temp.	Salinity	Sigma-T
5	13.354	33.457	25.127
10	13.501	33.596	25.205

STATION US12772			
LATITUDE 41-41.3 N			
LONGITUD 140-34.3 E			
DEPTH (m) 40			
Press.	Temp.	Salinity	Sigma-T
5	14.038	33.858	25.297
10	14.035	33.856	25.296
20	13.964	33.866	25.318
30	13.854	33.893	25.362

STATION US12775			
LATITUDE 41-43.6 N			
LONGITUD 140-39.1 E			
DEPTH (m) 61			
Press.	Temp.	Salinity	Sigma-T
5	14.359	33.841	25.216
10	14.352	33.864	25.235
20	14.364	33.862	25.231
30	14.181	33.837	25.251
40	14.033	33.818	25.267
50	13.861	33.802	25.290

STATION US12761			
LATITUDE 41-26.1 N			
LONGITUD 140-18.3 E			
DEPTH (m) 70			
Press.	Temp.	Salinity	Sigma-T
5	12.761	33.989	25.657
10	12.659	34.015	25.697
20	12.507	34.051	25.754
30	11.946	34.084	25.888
40	11.547	34.193	26.048
50	11.550	34.203	26.054

STATION US12764			
LATITUDE 41-29.8 N			
LONGITUD 140-23.4 E			
DEPTH (m) 87			
Press.	Temp.	Salinity	Sigma-T
5	14.306	33.830	25.219
10	14.307	33.825	25.215
20	14.077	33.860	25.290
30	13.745	33.900	25.390
40	13.589	33.945	25.457
50	13.445	33.972	25.507
75	13.353	33.987	25.538

STATION US12767			
LATITUDE 41-34.8 N			
LONGITUD 140-26.8 E			
DEPTH (m) 16			
Press.	Temp.	Salinity	Sigma-T
5	13.547	33.731	25.300
10	13.554	33.747	25.311

STATION US12770			
LATITUDE 41-37.6 N			
LONGITUD 140-28.3 E			
DEPTH (m) 22			
Press.	Temp.	Salinity	Sigma-T
5	13.490	33.656	25.254
10	13.524	33.740	25.312

STATION US12773			
LATITUDE 41-43.4 N			
LONGITUD 140-36.2 E			
DEPTH (m) 34			
Press.	Temp.	Salinity	Sigma-T
5	14.283	33.849	25.239
10	14.249	33.847	25.244
20	14.194	33.847	25.255
30	14.068	33.876	25.305

STATION US12776			
LATITUDE 41-45.5 N			
LONGITUD 140-40.5 E			
DEPTH (m) 36			
Press.	Temp.	Salinity	Sigma-T
5	13.508	33.675	25.265
10	13.481	33.664	25.261
20	13.731	33.771	25.293
30	13.729	33.893	25.388

STATION US12777
 LATITUDE 41-46.5 N
 LONGITUD 140-40.5 E
 DEPTH (m) 23

Press.	Temp.	Salinity	Sigma-T
5	13.310	33.545	25.204
10	13.312	33.544	25.203
20	13.736	33.887	25.382

THE " USHIO MARU "

CRUISE 273

CRUISE 274

IN DECEMBER 2012

1. Cruise Itinerary

Cruise 273

Departure from Hakodate	Dec. 9, 2012
Arrival at Usujiri	9
Departure from Usujiri	11
Start hydrographic research (US12778)	11
Retrieval mooring ADCP system	11
Arrival at Usujiri	11
Departure from Usujiri	12
Set mooring ADCP system	12
Arrival at and departure from Usujiri	12
Finish hydrographic research (US12798)	12
Return to Hakodate	13
Total coverage 292.1 miles	

Cruise 274

Departure from Hakodate	Dec. 20, 2012
Start hydrographic research (US12799)	20
Arrival at Fukushima	20
Departure from Fukushima	21
Finish hydrographic research (US12823)	21
Return to Hakodate	22
Total coverage 153.0 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”.

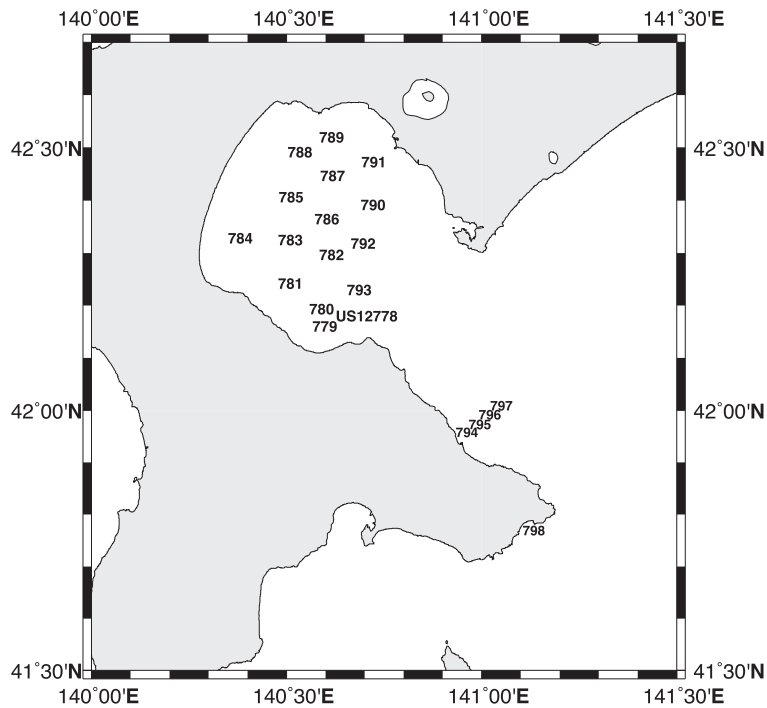


Figure 1. Oceanographic stations (Cruise 273)

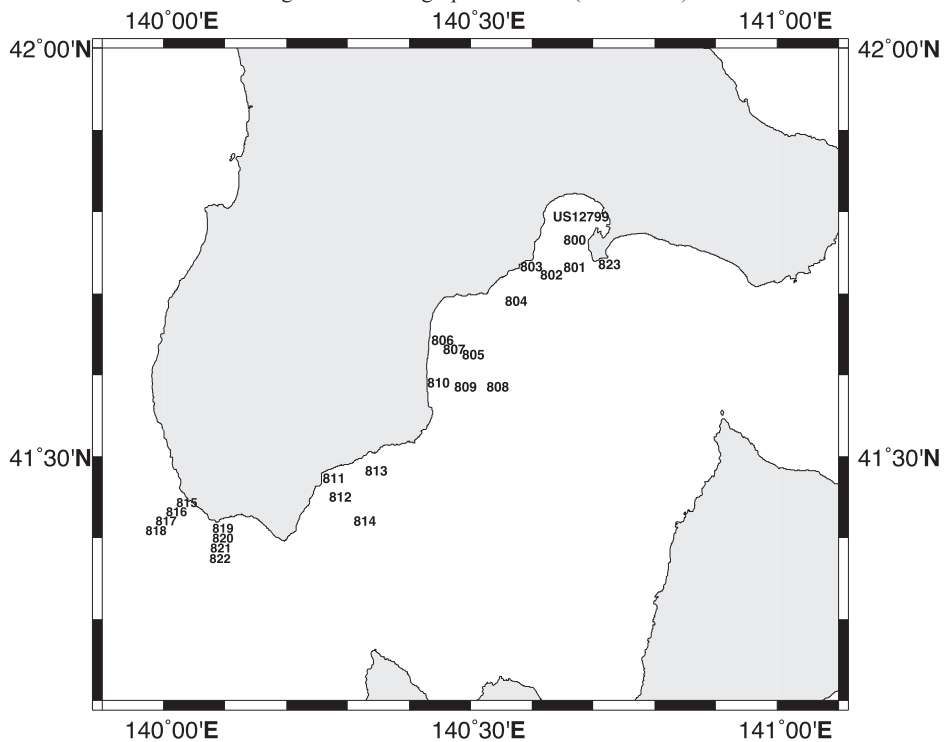


Figure 2. Oceanographic stations (Cruise 274)

Table 1. List of Oceanographic Station

Cruise 273													
Station	Lat. (N)*	Long. (E)*	Date	S.M.T.	Depth (m)	Wave	Swell	Wind	Air Temp.	Sea Temp.	Wr.	Bar. (hPa)	
US12778	42-10.0	140-41.2	12/11	0803-0807	83	NW -3	WNW-1	NW -5	3.1	8.2	bc	1010.6	
US12779	42-09.0	140-35.9	12/11	0840-0845	66	NW -3	WNW-1	NW -5	2.8	8.5	c	1011.0	
US12780	42-11.0	140-35.4	12/11	0919-0923	79	NW -3	NW -1	NW -5	2.6	8.2	bc	1011.4	
US12781	42-13.9	140-30.6	12/11	0959-1004	80	NNW-3	NW -1	NNW-5	3.1	8.4	bc	1011.6	
US12782	42-17.2	140-36.9	12/11	1041-1047	89	NNW-3	NW -1	NNW-5	3.8	8.6	bc	1011.6	
US12783	42-18.9	140-30.6	12/11	1210-1215	93	NNW-2	NW -1	NNW-4	2.6	8.5	bc	1011.6	
US12784	42-19.1	140-22.9	12/11	1256-1259	52	WNW-2	NW -1	WNW-4	3.4	8.6	bc	1011.5	
US12785	42-23.8	140-30.7	12/11	1352-1356	94	NW -3	NW -1	NW -5	3.1	8.5	c	1011.1	
US12786	42-21.3	140-36.2	12/11	1434-1438	88	NW -3	NW -1	NW -5	3.6	8.5	s	1011.5	
US12787	42-26.2	140-37.1	12/11	1513-1518	82	NW -3	NW -1	NW -5	3.1	8.5	s	1011.5	
US12788	42-28.9	140-32.1	12/11	1617-1620	75	NW -2	NW -1	NW -4	1.1	8.6	c	1012.2	
US12789	42-30.6	140-36.9	12/11	1646-1649	64	NW -2	NW -1	NW -4	2.2	8.6	s	1012.2	
US12790	42-22.9	140-43.3	12/12	0823-0827	58	WNW-3	NW -1	WNW-5	2.1	8.0	s	1016.7	
US12791	42-27.8	140-43.4	12/12	0907-0911	60	WNW-1	West-1	WNW-3	1.9	8.5	bc	1016.9	
US12792	42-18.5	140-41.8	12/12	1011-1015	70	West-2	West-1	West-4	2.3	8.0	bc	1017.8	
US12793	42-13.2	140-41.2	12/12	1149-1154	89	WNW-2	West-1	WNW-4	3.7	8.4	bc	1017.6	
US12794	41-57.4	140-58.2	12/12	1436-1439	78	NW -2	NW -1	NW -4	3.0	9.8	bc	1017.6	
US12795	41-58.0	140-59.5	12/12	1448-1452	86	NW -2	NW -1	NW -4	3.7	9.9	bc	1017.6	
US12796	41-58.6	141-00.8	12/12	1503-1506	94	NW -3	NW -1	NW -5	3.7	9.9	bc	1017.8	
US12797	41-59.3	141-01.9	12/12	1517-1521	100	NW -3	NW -1	NW -5	3.8	9.9	bc	1018.1	
US12798	41-46.3	141-07.8	12/12	1713-1716	40	NW -1	West-1	NW -3	1.8	10.2	bc	1019.1	
Cruise 274													
Station	Lat. (N)*	Long. (E)*	Date	S.M.T.	Depth (m)	Wave	Swell	Wind	Air Temp.	Sea Temp.	Wr.	Bar. (hPa)	
US12799	41-47.3	140-40.8	12/20	0836-0838	18	West-3	SW -1	West-5	-2.7	7.7	s	1019.6	
US12800	41-45.6	140-40.2	12/20	0859-0902	33	West-2	SSW-1	West-4	-2.5	11.1	s	1019.7	
US12801	41-43.6	140-40.2	12/20	0926-0930	64	West-2	SSW-1	West-4	-1.9	12.0	s	1020.1	
US12802	41-43.4	140-37.9	12/20	0950-0954	58	West-3	SW -1	West-5	-2.7	11.7	s	1020.1	
US12803	41-43.9	140-35.8	12/20	1006-1008	9	SW -2	SW -1	SW -4	-1.5	11.4	c	1020.1	
US12804	41-41.1	140-34.5	12/20	1045-1048	42	West-3	SW -1	West-6	-1.3	11.9	s	1020.0	
US12805	41-37.3	140-30.1	12/20	1127-1130	31	West-3	SW -1	West-5	-0.7	11.1	c	1019.7	
US12806	41-38.1	140-26.3	12/20	1150-1152	12	West-2	SSW-1	West-5	-1.2	10.5	bc	1019.6	
US12807	41-37.7	140-27.9	12/20	1210-1212	17	West-2	SSW-1	West-5	-0.6	10.6	bc	1019.6	
US12808	41-34.8	140-32.7	12/20	1300-1305	60	West-2	SW -1	West-4	-0.7	12.0	c	1019.0	
US12809	41-34.8	140-29.5	12/20	1338-1341	41	WNW-2	South-1	WNW-4	-1.4	11.3	bc	1019.4	
US12810	41-35.1	140-26.9	12/20	1414-1416	14	West-2	South-1	West-4	-1.5	11.9	bc	1019.5	
US12811	41-28.2	140-16.3	12/21	1737-1740	20	West-1	South-1	West-3	1.6	11.3	o	1024.1	
US12812	41-26.7	140-17.3	12/21	0825-0829	59	West-3	SSW-1	West-5	0.1	11.6	s	1026.6	
US12813	41-28.6	140-20.8	12/21	0900-0904	63	West-3	SW -1	West-5	0.0	11.7	bc	1026.5	
US12814	41-24.9	140-19.7	12/21	0945-0950	92	West-4	SW -2	West-6	1.4	11.3	bc	1026.5	
US12815	41-26.3	140-02.3	12/21	1124-1127	31	West-3	West-2	West-5	1.0	9.9	bc	1026.1	
US12816	41-26.0	140-01.6	12/21	1143-1147	60	WNW-3	West-2	WNW-5	0.6	9.8	bc	1025.5	
US12817	41-25.8	140-01.1	12/21	1200-1205	87	West-3	West-2	West-5	0.5	10.4	c	1025.1	
US12818	41-25.6	140-00.6	12/21	1218-1223	101	WNW-3	West-2	WNW-5	1.1	10.7	bc	1024.9	
US12819	41-24.4	140-05.8	12/21	1300-1304	54	NW-2	West-1	NW-4	1.5	10.6	c	1024.6	
US12820	41-23.8	140-05.8	12/21	1318-1323	88	West-3	West-2	West-5	2.0	10.7	c	1024.7	
US12821	41-23.3	140-05.6	12/21	1336-1342	103	West-3	West-2	West-5	1.4	11.1	c	1024.7	
US12822	41-22.4	140-05.5	12/21	1358-1404	117	West-3	West-2	West-5	1.8	11.0	o	1024.6	
US12823	41-43.8	140-43.6	12/21	2047-2050	72	West-2	SW -1	West-4	3.3	11.9	o	1022.2	

(*) : Fixed position by Global Positioning System

Table 2. Oceanographic data

STATION US12778				STATION US12779				STATION US12780			
LATITUDE 42-10.0 N				LATITUDE 42-09.0 N				LATITUDE 42-11.0 N			
LONGITUD 140-41.2 E				LONGITUD 140-35.9 E				LONGITUD 140-35.4 E			
DEPTH (m) 83				DEPTH (m) 66				DEPTH (m) 79			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	8.606	33.709	26.169	5	8.913	33.567	26.010	5	8.560	33.709	26.176
10	8.614	33.709	26.168	10	8.985	33.763	26.152	10	8.560	33.710	26.176
20	8.604	33.709	26.169	20	8.987	33.771	26.158	20	8.563	33.711	26.177
30	8.615	33.714	26.171	30	8.981	33.771	26.159	30	8.566	33.712	26.177
40	8.617	33.714	26.171	40	8.979	33.770	26.158	40	8.568	33.711	26.176
50	8.638	33.723	26.175	50	8.984	33.770	26.158	50	8.570	33.710	26.175
75	6.325	33.698	26.483					75	6.303	33.712	26.496
STATION US12781				STATION US12782				STATION US12783			
LATITUDE 42-13.9 N				LATITUDE 42-17.2 N				LATITUDE 42-18.9 N			
LONGITUD 140-30.6 E				LONGITUD 140-36.9 E				LONGITUD 140-30.6 E			
DEPTH (m) 80				DEPTH (m) 89				DEPTH (m) 93			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	8.814	33.728	26.152	5	8.781	33.536	26.006	5	8.824	33.732	26.153
10	8.815	33.729	26.152	10	8.838	33.694	26.121	10	8.833	33.732	26.151
20	8.815	33.729	26.152	20	8.861	33.740	26.153	20	8.835	33.732	26.151
30	8.816	33.729	26.152	30	8.859	33.742	26.155	30	8.837	33.733	26.152
40	8.816	33.729	26.152	40	8.858	33.743	26.156	40	8.837	33.732	26.151
50	8.817	33.729	26.152	50	8.855	33.745	26.158	50	8.834	33.733	26.152
75	7.098	33.711	26.390	75	8.793	33.746	26.169	75	8.663	33.697	26.150
STATION US12784				STATION US12785				STATION US12786			
LATITUDE 42-19.1 N				LATITUDE 42-23.8 N				LATITUDE 42-21.3 N			
LONGITUD 140-22.9 E				LONGITUD 140-30.7 E				LONGITUD 140-36.2 E			
DEPTH (m) 52				DEPTH (m) 94				DEPTH (m) 88			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	8.690	33.723	26.166	5	8.903	33.727	26.137	5	8.876	33.740	26.151
10	8.683	33.722	26.167	10	8.903	33.726	26.136	10	8.885	33.741	26.151
20	8.707	33.737	26.175	20	8.901	33.726	26.136	20	8.885	33.740	26.150
30	8.735	33.751	26.182	30	8.915	33.728	26.135	30	8.883	33.740	26.150
40	8.749	33.760	26.187	40	8.915	33.727	26.135	40	8.891	33.748	26.155
50	8.778	33.775	26.194	50	8.918	33.726	26.134	50	8.842	33.751	26.165
				75	8.911	33.727	26.135	75	8.839	33.769	26.180
STATION US12787				STATION US12788				STATION US12789			
LATITUDE 42-26.2 N				LATITUDE 42-28.9 N				LATITUDE 42-30.6 N			
LONGITUD 140-37.1 E				LONGITUD 140-32.1 E				LONGITUD 140-36.9 E			
DEPTH (m) 82				DEPTH (m) 75				DEPTH (m) 64			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	8.690	33.491	25.985	5	8.939	33.743	26.143	5	8.904	33.788	26.184
10	8.736	33.674	26.121	10	8.955	33.740	26.138	10	8.927	33.792	26.184
20	8.811	33.756	26.174	20	8.954	33.741	26.139	20	8.937	33.795	26.185
30	8.818	33.756	26.173	30	8.955	33.741	26.140	30	8.898	33.793	26.189
40	8.824	33.756	26.172	40	8.950	33.746	26.144	40	8.825	33.795	26.202
50	8.826	33.756	26.171	50	9.102	33.812	26.172	50	8.642	33.818	26.248
75	8.846	33.761	26.172								
STATION US12790				STATION US12791				STATION US12792			
LATITUDE 42-22.9 N				LATITUDE 42-27.8 N				LATITUDE 42-18.5 N			
LONGITUD 140-43.3 E				LONGITUD 140-43.4 E				LONGITUD 140-41.8 E			
DEPTH (m) 58				DEPTH (m) 60				DEPTH (m) 70			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	8.915	33.808	26.198	5	8.770	33.789	26.206	5	8.371	33.666	26.171
10	8.927	33.807	26.196	10	8.796	33.791	26.203	10	8.375	33.666	26.170
20	8.929	33.810	26.198	20	8.797	33.793	26.205	20	8.440	33.701	26.188
30	8.933	33.814	26.200	30	8.801	33.795	26.206	30	8.496	33.734	26.205
40	8.934	33.818	26.203	40	8.801	33.800	26.210	40	8.516	33.740	26.207
50	8.629	33.923	26.333	50	8.496	33.817	26.270	50	8.547	33.747	26.207

STATION US12793			
LATITUDE 42-13.2 N			
LONGITUD 140-41.2 E			
DEPTH (m) 89			
Press.	Temp.	Salinity	Sigma-T
5	8.711	33.753	26.187
10	8.712	33.754	26.188
20	8.712	33.754	26.188
30	8.681	33.754	26.192
40	8.676	33.755	26.194
50	8.596	33.751	26.203
75	8.466	33.748	26.220

STATION US12796			
LATITUDE 41-58.6 N			
LONGITUD 141-00.8 E			
DEPTH (m) 94			
Press.	Temp.	Salinity	Sigma-T
5	10.279	33.875	26.026
10	10.286	33.876	26.025
20	10.293	33.875	26.024
30	10.292	33.875	26.024
40	10.285	33.875	26.025
50	10.193	33.868	26.035
75	9.069	33.845	26.203

STATION US12799			
LATITUDE 41-47.3 N			
LONGITUD 140-40.8 E			
DEPTH (m) 18			
Press.	Temp.	Salinity	Sigma-T
5	10.073	32.798	25.221
10	11.172	33.498	25.575

STATION US12802			
LATITUDE 41-43.4 N			
LONGITUD 140-37.9 E			
DEPTH (m) 58			
Press.	Temp.	Salinity	Sigma-T
5	12.088	33.769	25.617
10	12.105	33.771	25.615
20	12.117	33.772	25.613
30	12.117	33.773	25.614
40	12.115	33.772	25.614
50	12.112	33.772	25.614

STATION US12805			
LATITUDE 41-37.3 N			
LONGITUD 140-30.1 E			
DEPTH (m) 31			
Press.	Temp.	Salinity	Sigma-T
5	11.350	33.695	25.696
10	11.355	33.697	25.697
20	11.365	33.696	25.694
30	11.371	33.695	25.693

STATION US12808			
LATITUDE 41-34.8 N			
LONGITUD 140-32.7 E			
DEPTH (m) 60			
Press.	Temp.	Salinity	Sigma-T
5	12.389	33.845	25.617
10	12.393	33.841	25.614
20	12.387	33.842	25.615
30	12.394	33.840	25.613
40	12.390	33.837	25.611
50	12.234	33.815	25.624

STATION US12794			
LATITUDE 41-57.4 N			
LONGITUD 140-58.2 E			
DEPTH (m) 78			
Press.	Temp.	Salinity	Sigma-T
5	10.245	33.876	26.033
10	10.250	33.875	26.031
20	10.245	33.877	26.034
30	10.185	33.860	26.030
40	9.996	33.860	26.063
50	9.216	33.758	26.111
75	7.160	33.736	26.401

STATION US12797			
LATITUDE 41-59.3 N			
LONGITUD 141-01.9 E			
DEPTH (m) 100			
Press.	Temp.	Salinity	Sigma-T
5	10.194	33.869	26.036
10	10.205	33.869	26.034
20	10.215	33.869	26.032
30	10.213	33.868	26.032
40	10.216	33.869	26.032
50	10.220	33.869	26.031
75	9.198	33.822	26.164
100	8.505	33.780	26.240

STATION US12800			
LATITUDE 41-45.6 N			
LONGITUD 140-40.2 E			
DEPTH (m) 33			
Press.	Temp.	Salinity	Sigma-T
5	11.474	33.621	25.616
10	11.423	33.600	25.609
20	11.546	33.640	25.618
30	11.568	33.640	25.613

STATION US12803			
LATITUDE 41-43.9 N			
LONGITUD 140-35.8 E			
DEPTH (m) 9			
Press.	Temp.	Salinity	Sigma-T
5	11.653	33.702	25.646

STATION US12806			
LATITUDE 41-38.1 N			
LONGITUD 140-26.3 E			
DEPTH (m) 12			
Press.	Temp.	Salinity	Sigma-T
5	10.832	33.534	25.664
10	10.839	33.531	25.660

STATION US12809			
LATITUDE 41-34.8 N			
LONGITUD 140-29.5 E			
DEPTH (m) 41			
Press.	Temp.	Salinity	Sigma-T
5	11.495	33.695	25.670
10	11.495	33.696	25.671
20	11.498	33.696	25.670
30	11.498	33.696	25.670

STATION US12795			
LATITUDE 41-58.0 N			
LONGITUD 140-59.5 E			
DEPTH (m) 86			
Press.	Temp.	Salinity	Sigma-T
5	10.265	33.877	26.030
10	10.277	33.877	26.028
20	10.278	33.877	26.028
30	10.279	33.877	26.027
40	10.270	33.876	26.029
50	10.265	33.875	26.028
75	8.303	33.765	26.259

STATION US12798			
LATITUDE 41-46.3 N			
LONGITUD 141-07.8 E			
DEPTH (m) 40			
Press.	Temp.	Salinity	Sigma-T
5	10.425	33.879	26.004
10	10.430	33.877	26.002
20	10.429	33.878	26.002
30	10.421	33.877	26.003

STATION US12801			
LATITUDE 41-43.6 N			
LONGITUD 140-40.2 E			
DEPTH (m) 64			
Press.	Temp.	Salinity	Sigma-T
5	12.522	33.840	25.588
10	12.547	33.838	25.582
20	12.552	33.840	25.582
30	12.525	33.833	25.582
40	12.511	33.836	25.587
50	12.478	33.828	25.588

STATION US12804			
LATITUDE 41-41.1 N			
LONGITUD 140-34.5 E			
DEPTH (m) 42			
Press.	Temp.	Salinity	Sigma-T
5	12.258	33.829	25.631
10	12.264	33.828	25.629
20	12.265	33.828	25.628
30	12.267	33.828	25.628
40	12.270	33.829	25.628

STATION US12807			
LATITUDE 41-37.7 N			
LONGITUD 140-27.9 E			
DEPTH (m) 17			
Press.	Temp.	Salinity	Sigma-T
5	10.788	33.588	25.714
10	10.795	33.589	25.713

STATION US12810			
LATITUDE 41-35.1 N			
LONGITUD 140-26.9 E			
DEPTH (m) 14			
Press.	Temp.	Salinity	Sigma-T
5	11.628	33.402	25.418
10	12.054	33.772	25.625

STATION US12811			
LATITUDE 41-28.2 N			
LONGITUD 140-16.3 E			
DEPTH (m) 20			
Press.	Temp.	Salinity	Sigma-T
5	11.627	33.907	25.810
10	11.640	33.966	25.854
20	11.612	34.025	25.904

STATION US12812			
LATITUDE 41-26.7 N			
LONGITUD 140-17.3 E			
DEPTH (m) 59			
Press.	Temp.	Salinity	Sigma-T
5	11.830	33.888	25.757
10	11.825	33.885	25.756
20	11.816	33.899	25.769
30	11.842	33.917	25.778
40	11.855	33.972	25.818
50	11.767	34.037	25.885

STATION US12813			
LATITUDE 41-28.6 N			
LONGITUD 140-20.8 E			
DEPTH (m) 63			
Press.	Temp.	Salinity	Sigma-T
5	11.978	33.912	25.748
10	11.987	33.914	25.748
20	11.943	33.921	25.762
30	11.662	33.976	25.858
40	11.248	34.051	25.992
50	10.918	34.086	26.079

STATION US12814			
LATITUDE 41-24.9 N			
LONGITUD 140-19.7 E			
DEPTH (m) 92			
Press.	Temp.	Salinity	Sigma-T
5	11.709	33.951	25.829
10	11.720	33.950	25.826
20	11.703	33.949	25.829
30	11.201	34.058	26.006
40	10.852	34.080	26.085
50	10.395	34.101	26.182
75	9.575	34.163	26.370

STATION US12815			
LATITUDE 41-26.3 N			
LONGITUD 140-02.3 E			
DEPTH (m) 31			
Press.	Temp.	Salinity	Sigma-T
5	10.061	34.068	26.214
10	10.093	34.067	26.208
20	10.049	34.071	26.219

STATION US12816			
LATITUDE 41-26.0 N			
LONGITUD 140-01.6 E			
DEPTH (m) 60			
Press.	Temp.	Salinity	Sigma-T
5	10.721	33.979	26.030
10	10.720	33.979	26.030
20	10.713	34.025	26.067
30	10.596	34.008	26.074
40	10.053	34.076	26.221
50	9.475	34.165	26.388

STATION US12817			
LATITUDE 41-25.8 N			
LONGITUD 140-01.1 E			
DEPTH (m) 87			
Press.	Temp.	Salinity	Sigma-T
5	10.938	33.969	25.984
10	10.942	33.969	25.983
20	10.952	33.975	25.986
30	10.953	33.979	25.989
40	10.400	34.086	26.170
50	10.275	34.157	26.247
75	8.624	34.142	26.505

STATION US12818			
LATITUDE 41-25.6 N			
LONGITUD 140-00.6 E			
DEPTH (m) 101			
Press.	Temp.	Salinity	Sigma-T
5	11.201	33.932	25.908
10	11.106	33.939	25.930
20	11.066	33.942	25.940
30	10.497	33.915	26.020
40	9.612	33.935	26.185
50	9.311	33.983	26.272
75	8.810	34.199	26.521

STATION US12819			
LATITUDE 41-24.4 N			
LONGITUD 140-05.8 E			
DEPTH (m) 54			
Press.	Temp.	Salinity	Sigma-T
5	10.228	34.067	26.184
10	10.239	34.067	26.183
20	10.231	34.071	26.187
30	10.071	34.106	26.242
40	9.951	34.111	26.266
50	9.665	34.128	26.327

STATION US12820			
LATITUDE 41-23.8 N			
LONGITUD 140-05.8 E			
DEPTH (m) 88			
Press.	Temp.	Salinity	Sigma-T
5	11.201	33.952	25.923
10	11.187	33.952	25.926
20	11.181	33.952	25.927
30	11.106	33.946	25.936
40	10.615	34.006	26.070
50	10.130	34.055	26.192
75	9.328	34.157	26.405

STATION US12821			
LATITUDE 41-23.3 N			
LONGITUD 140-05.6 E			
DEPTH (m) 103			
Press.	Temp.	Salinity	Sigma-T
5	11.293	33.937	25.894
10	11.298	33.937	25.894
20	11.197	33.938	25.913
30	10.674	33.993	26.050
40	10.521	34.022	26.099
50	10.081	34.085	26.224
75	9.497	34.120	26.349
100	8.867	34.182	26.499

STATION US12822			
LATITUDE 41-22.4 N			
LONGITUD 140-05.5 E			
DEPTH (m) 117			
Press.	Temp.	Salinity	Sigma-T
5	11.419	33.920	25.858
10	11.426	33.921	25.858
20	11.433	33.921	25.857
30	11.425	33.919	25.857
40	10.956	33.920	25.942
50	9.867	33.959	26.161
75	9.718	34.139	26.327
100	8.849	34.177	26.498

STATION US12823			
LATITUDE 41-43.8 N			
LONGITUD 140-43.6 E			
DEPTH (m) 72			
Press.	Temp.	Salinity	Sigma-T
5	12.112	33.909	25.721
10	12.101	33.914	25.727
20	12.107	33.915	25.726
30	12.112	33.915	25.725
40	12.151	33.959	25.752
50	12.049	33.970	25.780

