



HOKKAIDO UNIVERSITY

Title	5 "USHIO MARU" CRUISE 312, CRUISE 313, CRUISE 314, IN JUNE - JULY 2014
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THE " USHIO MARU "

CRUISE 312

CRUISE 313

CRUISE 314

IN JUNE 2014

IN JULY 2014

1. Cruise Itinerary

Cruise 312

Departure from Hakodate	Jun.	22, 2014
Sampling by frame trawl net		22
Start hydrographic research (US14275)		22
Sampling by frame trawl net		23
Finish hydrographic research (US14280)		23
Return to Hakodate		24
Total coverage 203.7 miles		

Cruise 313

Departure from Hakodate	Jun.	30, 2014
Start plankton net sampling		30
Finish plankton net sampling	Jul.	2
Return to Hakodate		4
Total coverage 684.5 miles		

Cruise 314

Departure from Hakodate	Jul.	7, 2014
Start hydrographic research (US14281)		8
Arrival at and departure from Nemuro		9
Arrival at Nemuro		10
Departure from Nemuro		12
Start whales and dolphins watching research		12
Arrival at Rausu		13
Departure from Rausu		14
Finish whales and dolphins watching research		14
Finish hydrographic research (US14333)		15
Arrival at Kushiro		15
Departure from Kushiro		16
Return to Hakodate		18
Total coverage 1004.0 miles		

2. Data on Temperature, Salinity and Pressure

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

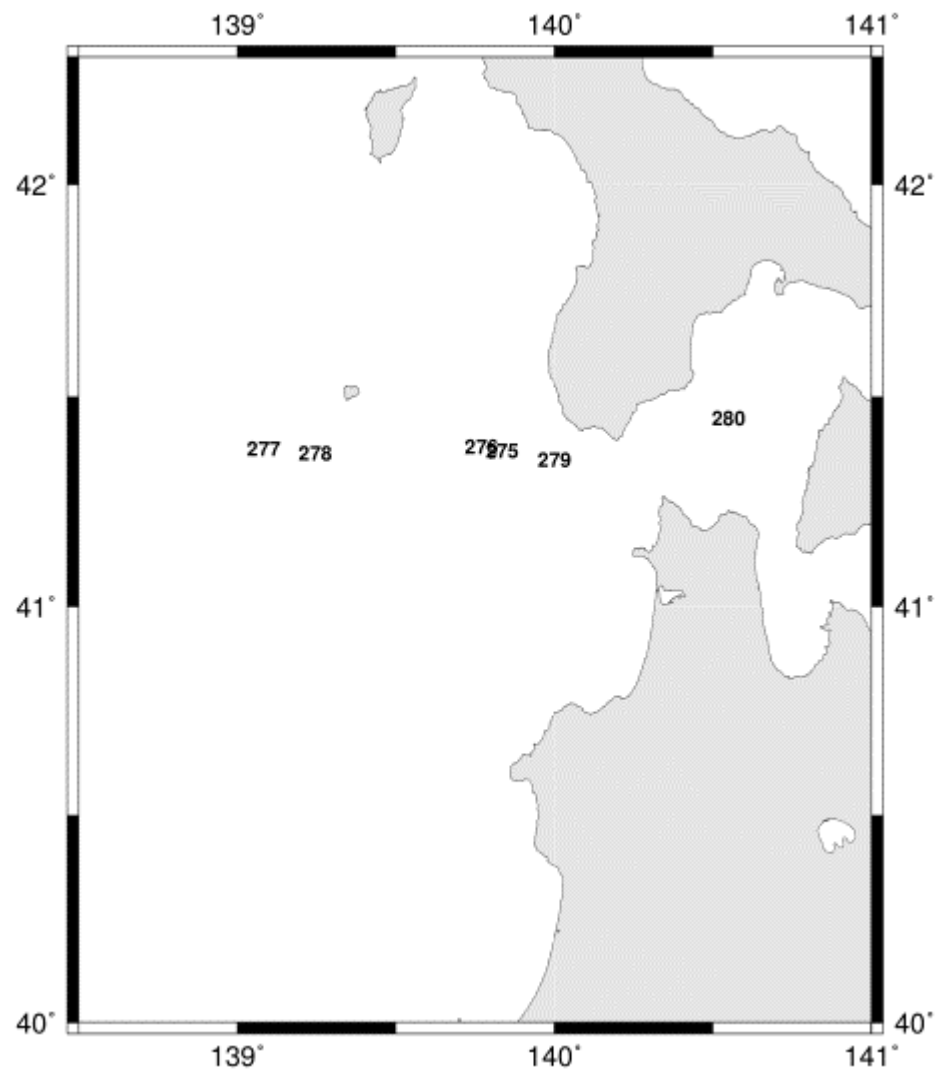


Figure 1. Oceanographic stations (Cruise 312)

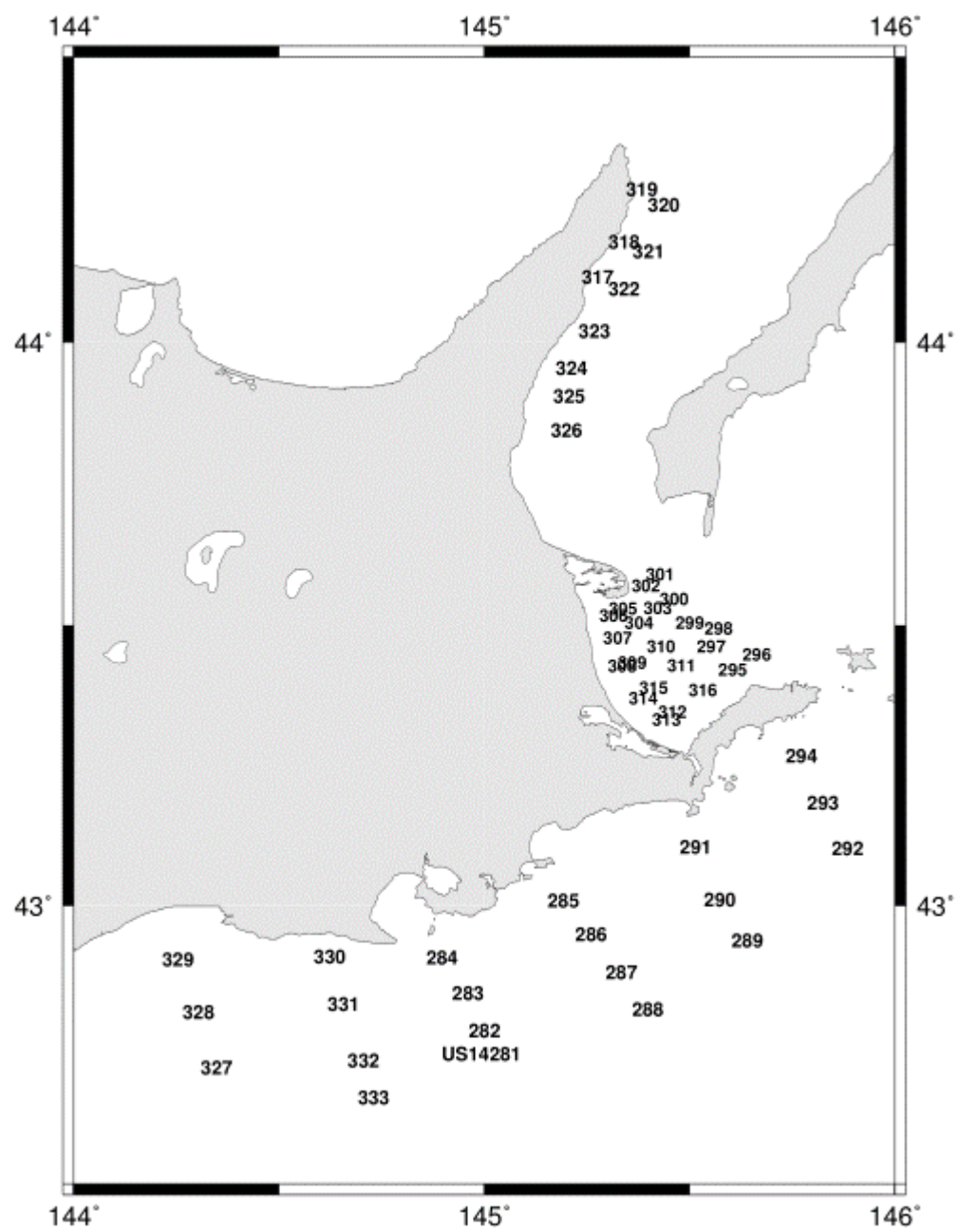


Figure 2. Oceanographic stations (Cruise 314)

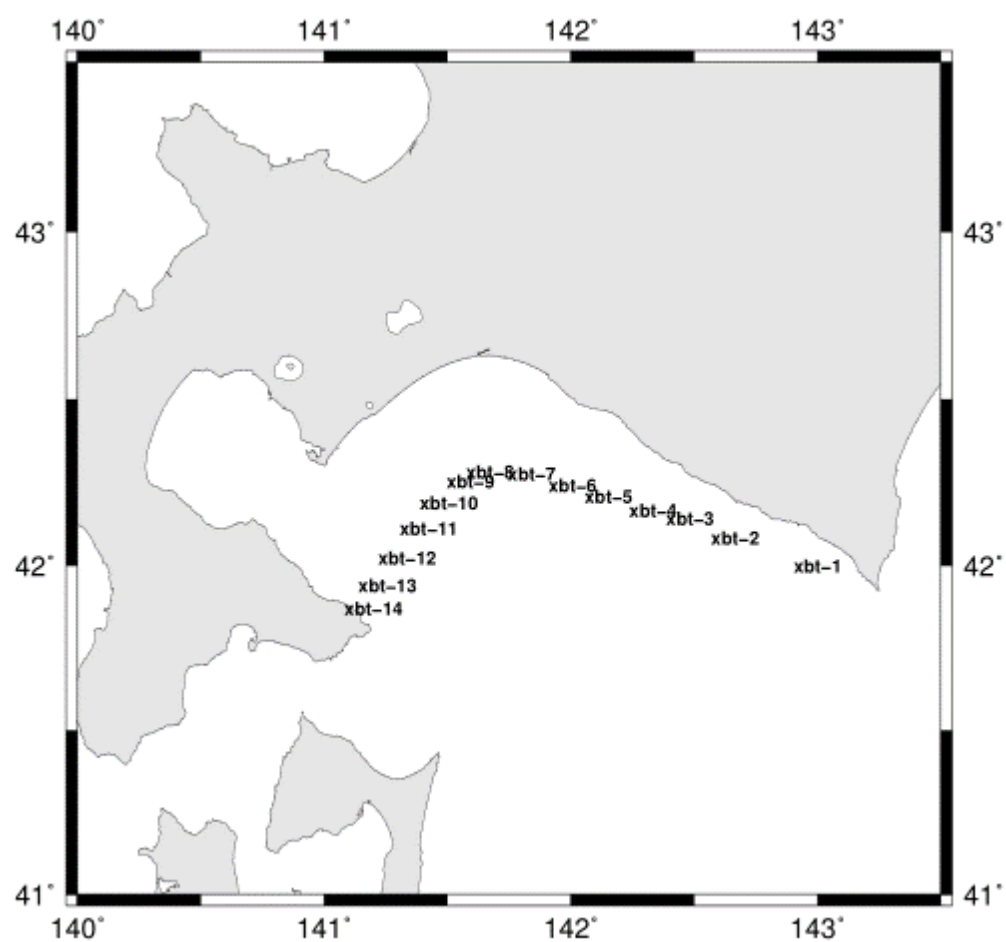


Figure 3. Oceanographic stations (Cruise 314)

Table 1. List of Oceanographic Station

Cruise 312											
Station	Lat. (N)*	Long. (E)*	Date	S.M.T.	Depth(m)	Wave	Swell	Wind	Air Temp.	Sea Temp.	Wr.
US14275	41-21.3	139-50.1	6/22	1255-1300	112	NNE-2	SE -1	NNE-3	17.9	18.4	bc
US14276	41-21.9	139-46.2	6/22	1450-1456	128	North-3	North-1	North-5	17.6	18.3	bc
US14277	41-21.6	139-05.0	6/23	0825-0841	1344	NW -2	NW -1	NW -4	16.2	18.6	r
US14278	41-28.9	139-14.7	6/23	0945-0959	2007	NW -2	NW -1	NW -4	17.2	18.3	o
US14279	41-20.0	140-00.0	6/23	1324-1333	233	NW -2	NW -1	NW -3	18.5	17.9	o
US14280	41-25.9	140-32.9	6/23	1616-1626	200	SW -3	SW -1	SW -5	17.5	17.2	bc

S.M.T.: Ship's mean time

Wr.: Weather in WMO Code 4501

Table 1 (Continued)

Cruise 314											
Station	Lat. (N)*	Long. (E)*	Date	S.M.T.	Depth(m)	Wave	Swell	Wind	Air Temp.	Sea Temp.	Wr.
US14281	42-43.3	144-59.5	7/8	1555-1601	186	East-2	SE -1	East-4	15.2	16.6	bc
US14282	42-45.8	145-00.0	7/8	1619-1625	149	East-2	SE -1	East-3	15.2	16.3	bc
US14283	42-49.9	144-57.6	7/8	1652-1657	105	East-1	SE -1	East-3	13.7	10.5	bc
US14284	42-53.7	144-53.8	7/8	1726-1729	68	East-2	SE -1	East-3	12.7	10.8	bc
US14285	42-59.8	145-11.5	7/8	1858-1901	51	Calm	SE -1	Calm	11.7	9.8	bc
US14286	42-56.2	145-15.6	7/8	1931-1936	88	East-1	SE -1	East-3	11.4	10.9	bc
US14287	42-52.1	145-20.0	7/8	2011-2019	155	ENE-1	SE -1	ENE-3	12.3	15.0	bc
US14288	42-48.1	145-23.9	7/8	2052-2117	880	Calm	SE -1	Calm	12.3	15.4	c
US14289	42-55.5	145-38.4	7/8	2236-2257	477	Calm	SE -1	Calm	10.7	12.4	f
US14290	42-59.9	145-34.4	7/8	2332-2337	98	Calm	SE -1	Calm	10.9	11.6	f
US14291	43-05.6	145-30.9	7/9	0017-0020	41	Calm	South-1	Calm	10.4	9.8	f
US14292	43-05.4	145-53.1	7/9	0202-0209	140	Calm	SE -1	Calm	10.6	10.0	f
US14293	43-10.3	145-49.5	7/9	0250-0255	87	Calm	SE -1	Calm	10.3	9.0	f
US14294	43-15.3	145-46.3	7/9	0427-0430	47	SE -1	South-1	SE -2	9.7	10.0	f
US14295	43-24.6	145-36.3	7/9	1151-1154	25	SE -1	NE -1	SE -3	13.2	14.3	o
US14296	43-26.2	145-39.8	7/9	1216-1219	29	SE -1	NE -1	SE -3	13.3	14.0	o
US14297	43-27.1	145-33.1	7/9	1303-1306	27	SE -1	NE -1	SE -3	14.8	13.0	o
US14298	43-29.0	145-34.2	7/9	1325-1328	30	SE -2	NE -1	SE -3	13.7	13.3	o
US14299	43-29.6	145-30.0	7/9	1352-1355	23	SE -2	NE -1	SE -3	14.5	13.4	o
US14300	43-32.1	145-27.7	7/9	1418-1420	19	SSE-2	NE -1	SSE-3	14.7	12.6	o
US14301	43-34.8	145-25.7	7/9	1441-1443	10	SSE-2	NE -1	SSE-4	13.8	10.9	o
US14302	43-33.6	145-23.6	7/9	1459-1500	11	SE -2	SE -1	SE -4	13.5	11.0	o
US14303	43-31.2	145-25.3	7/9	1522-1524	14	SE -2	SE -1	SE -4	12.9	14.2	o
US14304	43-29.6	145-22.6	7/9	1551-1553	11	SE -2	SE -1	SE -4	13.7	14.1	o
US14305	43-31.1	145-20.3	7/9	1613-1615	6	SE -2	SE -1	SE -4	13.9	14.5	o
US14306	43-30.4	145-18.9	7/9	1629-1630	6	SE -2	SE -1	SE -4	13.7	14.6	o
US14307	43-28.0	145-19.5	7/9	1652-1653	8	SE -2	SE -1	SE -4	13.1	14.6	o
US14308	43-25.0	145-20.1	7/9	1731-1733	9	SE -2	SE -1	SE -4	13.1	14.5	o
US14309	43-25.4	145-21.6	7/9	1746-1748	10	SE -2	SE -1	SE -4	13.1	14.8	o
US14310	43-27.1	145-25.8	7/9	1813-1815	18	SE -2	SE -1	SE -4	12.6	13.8	o
US14311	43-25.1	145-28.8	7/9	1837-1839	19	SE -2	SE -1	SE -4	12.5	13.9	o
US14312	43-20.1	145-27.5	7/10	0601-0603	13	SE -3	SE -1	SE -5	12.5	12.9	r
US14313	43-19.3	145-26.6	7/10	0620-0622	11	SE -2	SE -1	SE -4	12.8	11.0	r
US14314	43-21.6	145-23.2	7/10	0650-0652	10	SE -2	SE -1	SE -4	12.5	11.3	r
US14315	43-22.7	145-24.7	7/10	0706-0707	12	SE -2	SE -1	SE -4	12.7	11.9	r
US14316	43-22.4	145-31.9	7/10	0743-0745	17	SE -2	SE -1	SE -4	13.3	13.6	r
US14317	44-06.2	145-16.5	7/13	0531-0544	398	SE -1	NE -1	SE -2	13.6	13.0	f
US14318	44-09.9	145-20.4	7/13	0612-0620	240	South-1	NE -1	South-3	14.0	13.5	f
US14319	44-15.4	145-23.0	7/13	0652-1656	87	South-1	NE -1	South-2	14.4	13.3	f
US14320	44-13.8	145-26.2	7/13	0717-0739	1525	South-1	NE -1	South-3	14.2	13.2	f
US14321	44-08.9	145-24.0	7/13	0816-0832	1447	South-2	NE -1	South-4	13.9	13.4	f
US14322	44-04.9	145-20.4	7/13	0904-0919	958	South-1	NE -1	South-1	13.9	13.2	f
US14323	44-00.5	145-16.1	7/14	0407-0422	451	SW -1	South-1	SW -3	13.7	13.5	f
US14324	43-56.6	145-12.7	7/14	0454-0458	83	SSW-1	South-1	SSW-3	13.6	12.9	f
US14325	43-53.6	145-12.4	7/14	0519-0523	67	South-1	South-1	South-3	13.5	13.1	f
US14326	43-50.0	145-12.0	7/14	0548-0551	45	South-1	South-1	South-2	13.6	13.2	o
US14327	42-41.8	144-20.9	7/15	0448-0504	691	Calm	SE -1	Calm	15.9	13.6	f
US14328	42-47.8	144-18.2	7/15	0543-0600	662	Calm	SE -1	Calm	15.8	13.3	f
US14329	42-53.5	144-15.2	7/15	0636-0640	65	Calm	SE -1	Calm	15.2	12.8	f
US14330	42-53.8	144-37.4	7/15	0820-0823	47	Calm	SE -1	Calm	15.4	11.6	f
US14331	42-48.7	144-39.4	7/15	0856-0901	104	Calm	SE -1	Calm	16.3	13.9	f
US14332	42-42.6	144-42.3	7/15	0943-0949	175	WSW-1	SE -1	WSW-2	17.8	17.0	f
US14333	42-38.6	144-43.8	7/15	1017-1034	614	SSW-1	SE -1	SSW-2	18.1	17.9	f
XBT-1	41-58.7	143-00.0	7/17	0323-0324	68						
XBT-2	42-03.8	142-40.0	7/17	0447-0448	122						
XBT-3	42-07.3	142-29.0	7/17	0541-0542	431						
XBT-4	42-08.8	142-20.0	7/17	0613-0614	583						
XBT-5	42-11.3	142-09.2	7/17	0703-0705	732						
XBT-6	42-13.3	142-00.4	7/17	0742-0744	584						
XBT-7	42-15.4	141-50.5	7/17	0827-0829	672						
XBT-8	42-15.7	141-40.3	7/17	0910-0912	633						
XBT-9	42-14.0	141-35.6	7/17	0933-0935	598						
XBT-10	42-10.2	141-30.3	7/17	1005-1007	570						
XBT-11	42-05.5	141-25.4	7/17	1038-1039	414						
XBT-12	42-00.2	141-20.2	7/17	1114-1115	314						
XBT-13	41-55.2	141-15.4	7/17	1150-1151	243						
XBT-14	41-51.0	141-12.0	7/17	1219-1220	155						

(*): Fixed position by Global Positioning System

Table 2. Oceanographic data

STATION US14275				STATION US14276				STATION US14277			
LATITUDE 41-21.3 N				LATITUDE 41-21.9 N				LATITUDE 41-21.6 N			
LONGITUDE 139-50.1 E				LONGITUDE 139-46.2 E				LONGITUDE 139-05.0 E			
DEPTH (m) 112				DEPTH (m) 128				DEPTH (m) 1344			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	18.170	34.053	24.505	5	18.072	33.937	24.440	5	18.689	34.136	24.440
10	17.480	34.043	24.665	10	17.377	33.937	24.609	10	18.687	34.136	24.440
20	15.460	34.164	25.226	20	13.889	34.085	25.504	20	15.286	34.242	25.325
30	13.978	34.263	25.622	30	13.183	34.314	25.825	30	13.705	34.324	25.726
40	11.832	34.168	25.975	40	12.185	34.299	26.010	40	12.554	34.317	25.952
50	11.703	34.179	26.007	50	11.389	34.235	26.109	50	11.703	34.288	26.092
75	9.686	34.105	26.306	75	10.479	34.201	26.245	75	9.293	34.158	26.412
100	8.341	34.114	26.526	100	10.013	34.199	26.324	100	7.344	34.093	26.656
								125	5.620	34.044	26.844
								150	3.912	34.016	27.012
								175	2.694	34.024	27.133
								200	1.928	34.026	27.197
								250	1.330	34.049	27.258
STATION US14278				STATION US14279				STATION US14280			
LATITUDE 41-28.9 N				LATITUDE 41-20.0 N				LATITUDE 41-25.9 N			
LONGITUDE 139-14.7 E				LONGITUDE 140-00.0 E				LONGITUDE 140-32.9 E			
DEPTH (m) 2007				DEPTH (m) 233				DEPTH (m) 200			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	18.359	33.933	24.367	5	18.221	34.090	24.521	5	16.309	34.200	25.061
10	18.344	33.934	24.371	10	18.190	34.092	24.530	10	14.782	34.253	25.443
20	15.325	34.279	25.345	20	17.524	34.036	24.649	20	12.893	34.220	25.810
30	13.459	34.274	25.738	30	16.697	34.212	24.980	30	12.583	34.250	25.894
40	12.658	34.367	25.970	40	15.272	34.242	25.328	40	11.957	34.238	26.006
50	11.776	34.326	26.108	50	14.288	34.306	25.590	50	11.675	34.232	26.054
75	10.244	34.223	26.304	75	12.132	34.347	26.057	75	10.800	34.188	26.179
100	9.290	34.182	26.431	100	10.516	34.233	26.264	100	10.281	34.164	26.251
125	7.855	34.087	26.578	125	8.976	34.146	26.453	125	9.945	34.167	26.311
150	6.367	34.059	26.762	150	8.566	34.127	26.503	150	9.915	34.168	26.317
175	4.506	34.021	26.954	175	8.276	34.113	26.536	175	9.892	34.168	26.320
200	3.199	34.017	27.082	200	7.960	34.115	26.585				
250	1.808	34.062	27.235								
STATION US14281				STATION US14282				STATION US14283			
LATITUDE 42-43.3 N				LATITUDE 42-45.8 N				LATITUDE 42-49.9 N			
LONGITUDE 144-59.5 E				LONGITUDE 145-00.0 E				LONGITUDE 144-57.6 E			
DEPTH (m) 186				DEPTH (m) 149				DEPTH (m) 105			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	15.705	32.708	24.051	5	12.912	32.535	24.498	5	8.088	32.495	25.294
10	13.131	32.540	24.461	10	7.640	32.434	25.310	10	6.799	32.449	25.437
20	5.408	32.588	25.717	20	4.821	32.614	25.804	20	4.621	32.493	25.729
30	4.827	32.805	25.954	30	3.247	32.745	26.064	30	3.913	32.546	25.843
40	3.454	32.856	26.133	40	2.483	32.779	26.156	40	3.725	32.596	25.900
50	2.739	32.891	26.224	50	2.023	32.849	26.247	50	3.070	32.640	25.996
75	1.759	32.942	26.341	75	1.277	32.927	26.361	75	2.117	32.713	26.131
100	2.042	33.124	26.465	100	1.129	32.985	26.417				
125	1.419	33.149	26.530	125	0.989	33.019	26.453				
150	3.081	33.411	26.609								
175	2.284	33.353	26.630								
STATION US14284				STATION US14285				STATION US14286			
LATITUDE 42-53.7 N				LATITUDE 42-59.8 N				LATITUDE 42-56.2 N			
LONGITUDE 144-53.8 E				LONGITUDE 145-11.5 E				LONGITUDE 145-15.6 E			
DEPTH (m) 68				DEPTH (m) 51				DEPTH (m) 88			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	9.394	32.432	25.046	5	8.766	32.286	25.029	5	10.284	32.578	25.014
10	8.788	32.464	25.166	10	6.914	32.375	25.363	10	8.843	32.527	25.206
20	5.643	32.376	25.522	20	5.676	32.336	25.487	20	5.891	32.606	25.674
30	4.922	32.476	25.683	30	5.083	32.417	25.619	30	3.973	32.710	25.968
40	4.166	32.596	25.858	40	4.469	32.445	25.707	40	3.214	32.734	26.058
50	3.047	32.566	25.939					50	2.891	32.783	26.125
								75	2.112	32.835	26.229

Table 2. (Continued)

STATION US14287			
LATITUDE 42-52.1 N			
LONGITU 145-20.0 E			
DEPTH (m) 155			
Press.	Temp.	Salinity	Sigma-T
5	9.666	32.439	25.007
10	6.835	32.535	25.499
20	3.946	32.646	25.919
30	3.255	32.756	26.071
40	2.463	32.808	26.180
50	1.904	32.859	26.264
75	1.186	32.972	26.403
100	0.981	33.011	26.448
125	0.962	33.021	26.457

STATION US14288			
LATITUDE 42-48.1 N			
LONGITU 145-23.9 E			
DEPTH (m) 880			
Press.	Temp.	Salinity	Sigma-T
5	15.405	32.827	24.209
10	13.704	32.679	24.454
20	7.646	32.455	25.326
30	6.659	32.875	25.790
40	5.947	33.063	26.028
50	5.725	33.243	26.198
75	3.576	33.210	26.404
100	3.913	33.287	26.432
125	4.094	33.382	26.490
150	3.812	33.424	26.551
175	5.475	33.700	26.589
200	3.788	33.484	26.601
250	2.802	33.362	26.595
300	3.958	33.729	26.779
400	2.671	33.682	26.862

STATION US14289			
LATITUDE 42-55.5 N			
LONGITU 145-38.4 E			
DEPTH (m) 477			
Press.	Temp.	Salinity	Sigma-T
5	12.619	32.681	24.671
10	10.390	32.593	25.008
20	6.946	32.578	25.518
30	3.862	32.717	25.984
40	2.418	32.856	26.222
50	1.948	32.928	26.315
75	0.647	32.953	26.420
100	0.650	32.998	26.456
125	1.019	33.088	26.507
150	0.975	33.140	26.552
175	0.894	33.171	26.581
200	0.978	33.207	26.605
250	1.247	33.300	26.663
300	1.391	33.364	26.704
400	2.103	33.521	26.779

STATION US14290			
LATITUDE 42-59.9 N			
LONGITU 145-34.4 E			
DEPTH (m) 98			
Press.	Temp.	Salinity	Sigma-T
5	11.460	32.557	24.791
10	9.748	32.450	25.001
20	5.148	32.705	25.840
30	3.496	32.763	26.055
40	3.107	32.802	26.121
50	2.893	32.845	26.174
75	2.334	32.900	26.264

STATION US14291			
LATITUDE 43-05.6 N			
LONGITU 145-30.9 E			
DEPTH (m) 41			
Press.	Temp.	Salinity	Sigma-T
5	8.377	32.354	25.141
10	6.274	32.313	25.397
20	5.598	32.460	25.594
30	4.535	32.560	25.791

STATION US14292			
LATITUDE 43-05.4 N			
LONGITU 145-53.1 E			
DEPTH (m) 140			
Press.	Temp.	Salinity	Sigma-T
5	8.910	32.521	25.191
10	7.951	32.480	25.302
20	5.091	32.552	25.725
30	4.085	32.623	25.887
40	3.028	32.833	26.153
50	2.422	32.878	26.239
75	2.133	32.953	26.322
100	1.330	32.935	26.364
125	1.033	33.011	26.444

STATION US14293			
LATITUDE 43-10.3 N			
LONGITU 145-49.5 E			
DEPTH (m) 87			
Press.	Temp.	Salinity	Sigma-T
5	8.057	32.565	25.353
10	6.962	32.668	25.587
20	5.200	32.715	25.842
30	4.420	32.835	26.021
40	3.775	32.873	26.117
50	3.653	32.896	26.146
75	3.214	32.900	26.190

STATION US14294			
LATITUDE 43-15.3 N			
LONGITU 145-46.3 E			
DEPTH (m) 47			
Press.	Temp.	Salinity	Sigma-T
5	8.613	32.401	25.143
10	7.254	32.412	25.346
20	5.923	32.500	25.587
30	5.208	32.569	25.725

STATION US14295			
LATITUDE 43-24.6 N			
LONGITU 145-36.3 E			
DEPTH (m) 25			
Press.	Temp.	Salinity	Sigma-T
5	13.092	31.414	23.598
10	9.292	31.784	24.555
20	6.541	32.200	25.273

STATION US14296			
LATITUDE 43-26.2 N			
LONGITU 145-39.8 E			
DEPTH (m) 29			
Press.	Temp.	Salinity	Sigma-T
5	10.662	31.706	24.270
10	9.002	31.917	24.705
20	6.441	32.326	25.385

STATION US14297			
LATITUDE 43-27.1 N			
LONGITU 145-33.1 E			
DEPTH (m) 27			
Press.	Temp.	Salinity	Sigma-T
5	12.828	31.738	23.900
10	11.275	31.766	24.208
20	4.811	32.130	25.421

STATION US14298			
LATITUDE 43-29.0 N			
LONGITU 145-34.2 E			
DEPTH (m) 30			
Press.	Temp.	Salinity	Sigma-T
5	10.558	31.765	24.333
10	7.051	31.999	25.049
20	5.379	32.271	25.470

STATION US14299			
LATITUDE 43-29.6 N			
LONGITU 145-30.0 E			
DEPTH (m) 23			
Press.	Temp.	Salinity	Sigma-T
5	13.408	31.363	23.497
10	8.206	31.967	24.863

STATION US14300			
LATITUDE 43-32.1 N			
LONGITU 145-27.7 E			
DEPTH (m) 19			
Press.	Temp.	Salinity	Sigma-T
5	11.794	31.784	24.130
10	11.422	31.792	24.204

STATION US14301			
LATITUDE 43-34.8 N			
LONGITU 145-25.7 E			
DEPTH (m) 10			
Press.	Temp.	Salinity	Sigma-T
5	10.696	31.900	24.415

STATION US14302			
LATITUDE 43-33.6 N			
LONGITU 145-23.6 E			
DEPTH (m) 11			
Press.	Temp.	Salinity	Sigma-T
5	10.560	31.721	24.299

STATION US14303			
LATITUDE 43-31.2 N			
LONGITU 145-25.3 E			
DEPTH (m) 14			
Press.	Temp.	Salinity	Sigma-T
5	10.974	31.638	24.162
10	10.025	31.835	24.478

STATION US14304			
LATITUDE 43-29.6 N			
LONGITU 145-22.6 E			
DEPTH (m) 11			
Press.	Temp.	Salinity	Sigma-T
5	12.827	31.330	23.584

Table 2. (Continued)

STATION US14305			
LATITUDE 43-31.1 N			
LONGITUDE 145-20.3 E			
DEPTH (m) 6			
Press.	Temp.	Salinity	Sigma-T
5	10.589	31.456	24.109

STATION US14308			
LATITUDE 43-25.0 N			
LONGITUDE 145-20.1 E			
DEPTH (m) 9			
Press.	Temp.	Salinity	Sigma-T
5	13.324	31.404	23.545

STATION US14311			
LATITUDE 43-25.1 N			
LONGITUDE 145-28.8 E			
DEPTH (m) 19			
Press.	Temp.	Salinity	Sigma-T
5	13.115	31.525	23.680
10	9.238	31.846	24.613

STATION US14314			
LATITUDE 43-21.6 N			
LONGITUDE 145-23.2 E			
DEPTH (m) 10			
Press.	Temp.	Salinity	Sigma-T
5	11.783	31.449	23.873

STATION US14317			
LATITUDE 44-06.2 N			
LONGITUDE 145-16.5 E			
DEPTH (m) 398			
Press.	Temp.	Salinity	Sigma-T
5	12.517	31.397	23.696
10	11.721	31.812	24.166
20	10.935	32.293	24.680
30	9.107	32.757	25.346
40	8.469	32.886	25.544
50	8.435	33.130	25.741
75	6.974	33.093	25.920
100	6.720	33.265	26.090
125	4.792	33.079	26.175
150	1.923	33.056	26.420
175	2.939	33.284	26.521
200	2.137	33.236	26.548
250	0.357	33.312	26.726
300	0.373	33.298	26.713

STATION US14320			
LATITUDE 44-13.8 N			
LONGITUDE 145-26.2 E			
DEPTH (m) 1525			
Press.	Temp.	Salinity	Sigma-T
5	12.579	32.481	24.524
10	12.467	32.570	24.614
20	11.886	32.811	24.910
30	11.491	33.040	25.161
40	9.752	33.138	25.540
50	8.901	33.217	25.738
75	7.517	33.202	25.931
100	4.779	33.122	26.211
125	2.582	32.937	26.274
150	2.652	33.155	26.442
175	2.779	33.259	26.515
200	1.901	33.288	26.608
250	0.969	33.288	26.671
300	0.403	33.325	26.733
400	1.039	33.513	26.847

STATION US14306			
LATITUDE 43-30.4 N			
LONGITUDE 145-18.9 E			
DEPTH (m) 6			
Press.	Temp.	Salinity	Sigma-T
3	14.602	31.087	23.041

STATION US14309			
LATITUDE 43-25.4 N			
LONGITUDE 145-21.6 E			
DEPTH (m) 10			
Press.	Temp.	Salinity	Sigma-T
5	12.882	31.347	23.588

STATION US14312			
LATITUDE 43-20.1 N			
LONGITUDE 145-27.5 E			
DEPTH (m) 13			
Press.	Temp.	Salinity	Sigma-T
5	12.462	31.471	23.764
10	7.761	31.714	24.728

STATION US14315			
LATITUDE 43-22.7 N			
LONGITUDE 145-24.7 E			
DEPTH (m) 12			
Press.	Temp.	Salinity	Sigma-T
5	11.837	31.508	23.908

STATION US14318			
LATITUDE 44-09.9 N			
LONGITUDE 145-20.4 E			
DEPTH (m) 240			
Press.	Temp.	Salinity	Sigma-T
5	12.473	31.924	24.113
10	11.404	32.300	24.602
20	11.144	32.457	24.770
30	10.192	32.672	25.102
40	8.342	33.095	25.727
50	9.087	33.436	25.880
75	8.031	33.324	25.953
100	6.270	33.230	26.120
125	4.586	33.118	26.229
150	1.632	32.961	26.365
175	2.820	33.198	26.462

STATION US14321			
LATITUDE 44-08.9 N			
LONGITUDE 145-24.0 E			
DEPTH (m) 1447			
Press.	Temp.	Salinity	Sigma-T
5	12.853	32.090	24.168
10	12.400	32.633	24.676
20	11.814	33.384	25.369
30	11.812	33.436	25.410
40	11.788	33.505	25.468
50	11.028	33.429	25.547
75	7.612	33.227	25.937
100	6.941	33.327	26.109
125	4.310	33.057	26.209
150	2.900	33.094	26.373
175	2.174	33.252	26.558
200	1.971	33.323	26.631
250	0.337	33.266	26.689
300	0.608	33.339	26.733
400	1.107	33.493	26.827

STATION US14307			
LATITUDE 43-28.0 N			
LONGITUDE 145-19.5 E			
DEPTH (m) 8			
Press.	Temp.	Salinity	Sigma-T
5	13.385	31.176	23.357

STATION US14310			
LATITUDE 43-27.1 N			
LONGITUDE 145-25.8 E			
DEPTH (m) 18			
Press.	Temp.	Salinity	Sigma-T
5	13.468	31.405	23.518
10	10.025	31.835	24.478

STATION US14313			
LATITUDE 43-19.3 N			
LONGITUDE 145-26.6 E			
DEPTH (m) 11			
Press.	Temp.	Salinity	Sigma-T
5	10.800	31.594	24.159

STATION US14316			
LATITUDE 43-22.4 N			
LONGITUDE 145-31.9 E			
DEPTH (m) 17			
Press.	Temp.	Salinity	Sigma-T
5	13.846	31.177	23.266
10	8.830	31.845	24.675

STATION US14319			
LATITUDE 44-15.4 N			
LONGITUDE 145-23.0 E			
DEPTH (m) 87			
Press.	Temp.	Salinity	Sigma-T
5	11.800	32.013	24.307
10	11.336	32.275	24.595
20	9.374	32.930	25.439
30	8.944	33.238	25.747
40	8.283	33.265	25.869
50	6.154	33.120	26.048

STATION US14322			
LATITUDE 44-04.9 N			
LONGITUDE 145-20.4 E			
DEPTH (m) 958			
Press.	Temp.	Salinity	Sigma-T
5	12.752	31.813	23.973
10	12.620	32.342	24.408
20	11.592	32.948	25.071
30	9.438	32.846	25.362
40	10.632	33.496	25.670
50	9.641	33.348	25.721
75	8.758	33.424	25.922
100	6.351	33.223	26.104
125	4.381	33.114	26.247
150	1.617	32.992	26.390
175	0.887	33.057	26.490
200	0.608	33.127	26.562
250	0.235	33.204	26.645
300	0.335	33.306	26.722
400	1.040	33.514	26.848

Table 2 (Continued)

STATION US14323			
LATITUDE 44-00.5 N			
LONGITUDE 145-16.1 E			
DEPTH (m) 451			
Press.	Temp.	Salinity	Sigma-T
5	13.636	31.145	23.283
10	11.746	31.631	24.021
20	10.933	31.927	24.395
30	10.259	32.992	25.341
40	9.672	33.069	25.499
50	8.711	33.111	25.684
75	7.618	33.199	25.915
100	7.125	33.287	26.052
125	4.288	33.081	26.231
150	1.090	33.003	26.434
175	1.031	33.087	26.505
200	0.907	33.146	26.560
250	0.241	33.172	26.619
300	0.222	33.238	26.672
400	0.756	33.411	26.783

STATION US14326			
LATITUDE 43-50.0 N			
LONGITUDE 145-12.0 E			
DEPTH (m) 45			
Press.	Temp.	Salinity	Sigma-T
5	12.926	31.587	23.765
10	10.588	31.896	24.431
20	8.643	32.755	25.416
30	8.230	33.054	25.712

STATION US14329			
LATITUDE 42-53.5 N			
LONGITUDE 144-15.2 E			
DEPTH (m) 65			
Press.	Temp.	Salinity	Sigma-T
5	12.019	31.717	24.037
10	10.338	32.252	24.751
20	6.366	32.299	25.374
30	5.501	32.382	25.544
40	4.646	32.520	25.747
50	3.423	32.585	25.920

STATION US14332			
LATITUDE 42-42.6 N			
LONGITUDE 144-42.3 E			
DEPTH (m) 175			
Press.	Temp.	Salinity	Sigma-T
5	16.432	32.435	23.678
10	15.223	32.428	23.942
20	6.805	32.524	25.495
30	5.072	32.881	25.987
40	3.844	32.832	26.077
50	2.272	32.811	26.198
75	3.816	33.273	26.430
100	1.109	33.050	26.471
125	1.578	33.157	26.526
150	1.447	33.194	26.564

STATION US14324			
LATITUDE 43-56.6 N			
LONGITUDE 145-12.7 E			
DEPTH (m) 83			
Press.	Temp.	Salinity	Sigma-T
5	12.294	31.557	23.862
10	11.802	31.835	24.169
20	10.213	32.286	24.798
30	8.727	32.986	25.584
40	6.850	32.844	25.740
50	7.676	33.112	25.838

STATION US14327			
LATITUDE 42-41.8 N			
LONGITUDE 144-20.9 E			
DEPTH (m) 691			
Press.	Temp.	Salinity	Sigma-T
5	12.764	32.069	24.169
10	10.517	32.234	24.705
20	4.873	32.388	25.619
30	4.245	32.542	25.807
40	2.878	32.611	25.988
50	2.095	32.701	26.123
75	2.015	32.814	26.219
100	1.517	32.890	26.316
125	1.364	32.986	26.403
150	1.294	33.095	26.495
175	1.735	33.257	26.595
200	1.598	33.284	26.626
250	2.350	33.497	26.740
300	2.035	33.531	26.792
400	3.047	33.769	26.898

STATION US14330			
LATITUDE 42-53.8 N			
LONGITUDE 144-37.4 E			
DEPTH (m) 47			
Press.	Temp.	Salinity	Sigma-T
5	10.286	31.857	24.452
10	9.587	32.055	24.720
20	7.234	32.395	25.336
30	5.665	32.411	25.547

STATION US14333			
LATITUDE 42-38.6 N			
LONGITUDE 144-43.8 E			
DEPTH (m) 614			
Press.	Temp.	Salinity	Sigma-T
5	17.574	32.533	23.486
10	16.276	32.505	23.767
20	5.884	32.548	25.629
30	3.708	32.780	26.049
40	3.238	32.869	26.163
50	2.200	32.878	26.257
75	1.329	33.003	26.419
100	1.368	33.115	26.506
125	1.315	33.183	26.564
150	1.744	33.309	26.636
175	1.862	33.384	26.687
200	1.951	33.431	26.718
250	2.137	33.537	26.789
300	2.018	33.581	26.833
400	2.997	33.816	26.940

STATION US14325			
LATITUDE 43-53.6 N			
LONGITUDE 145-12.4 E			
DEPTH (m) 67			
Press.	Temp.	Salinity	Sigma-T
5	13.615	31.660	23.686
10	12.217	31.722	24.004
20	10.027	32.223	24.779
30	8.916	33.009	25.573
40	7.283	32.940	25.758
50	6.410	32.939	25.873

STATION US14328			
LATITUDE 42-47.8 N			
LONGITUDE 144-18.2 E			
DEPTH (m) 662			
Press.	Temp.	Salinity	Sigma-T
5	10.333	31.897	24.474
10	8.448	32.289	25.079
20	5.590	32.374	25.527
30	4.709	32.533	25.751
40	3.196	32.639	25.984
50	3.028	32.690	26.039
75	2.067	32.744	26.160
100	1.588	32.810	26.247
125	1.398	32.897	26.329
150	1.622	33.025	26.417
175	2.749	33.251	26.510
200	2.241	33.394	26.666
250	2.025	33.517	26.782
300	2.443	33.623	26.834
400	2.771	33.812	26.957

STATION US14331			
LATITUDE 42-48.7 N			
LONGITUDE 144-39.4 E			
DEPTH (m) 104			
Press.	Temp.	Salinity	Sigma-T
5	12.069	32.314	24.491
10	10.286	32.395	24.870
20	6.035	32.636	25.681
30	3.685	32.726	26.008
40	3.371	32.780	26.081
50	3.273	32.800	26.105
75	2.700	32.839	26.185