



Title	4 THE "USHIO MARU" CRUISE 309, CRUISE 310, CRUISE 311, IN MAY - JUNE 2014
Citation	海洋調査漁業試験要報, 58: 109-118
Issue Date	2017-03-31
Doc URL	http://hdl.handle.net/2115/64988
Type	bulletin (other)
File Information	Data.Rec.Oceanogr.Obs.Expl.Fish.58.109.pdf



[Instructions for use](#)

THE " USHIO MARU "

CRUISE 309

CRUISE 310

CRUISE 311

IN MAY 2014

IN JUNE 2014

1. Cruise Itinerary

Cruise 309

Departure from Hakodate	May	27, 2014
Deploy and retrieval ARGOS buoy		28
Deploy and retrieval ARGOS buoy		29
Arrival at Fukushima		29
Departure from Fukushima		30
Return to Hakodate		31
Total coverage 411.5 miles		

Cruise 310

Departure from Hakodate	Jun.	2, 2014
Sampling by trawl net		2
Start hydrographic research (US14228)		2
Arrival at Wakinosawa		2
Departure from Wakinosawa		3
Sampling by trawl net		3
Arrival at and departure from Aomori		3
Sampling by trawl net		4
Finish hydrographic research (US14251)		4
Arrival at Noheji		4
Departure from Noheji		5
Return to Hakodate		5
Total coverage 216.0 miles		

Cruise 311

Departure from Hakodate	Jun.	12, 2014
Start hydrographic research (US14252)		12
Arrival at and departure from Hakodate		14
Arrival at and departure from Mori		15
Sampling by frame trawl net		15
Arrival at and departure from Mori		16
Arrival at Muroran		16
Retrieval mooring ADCP system		17
Arrival at Mori		17
Departure from Mori		18
Set mooring ADCP system		18
Arrival at and departure from Mori		18
Finish hydrographic research (US14274)		18
Return to Hakodate		19
Total coverage 406.5 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).

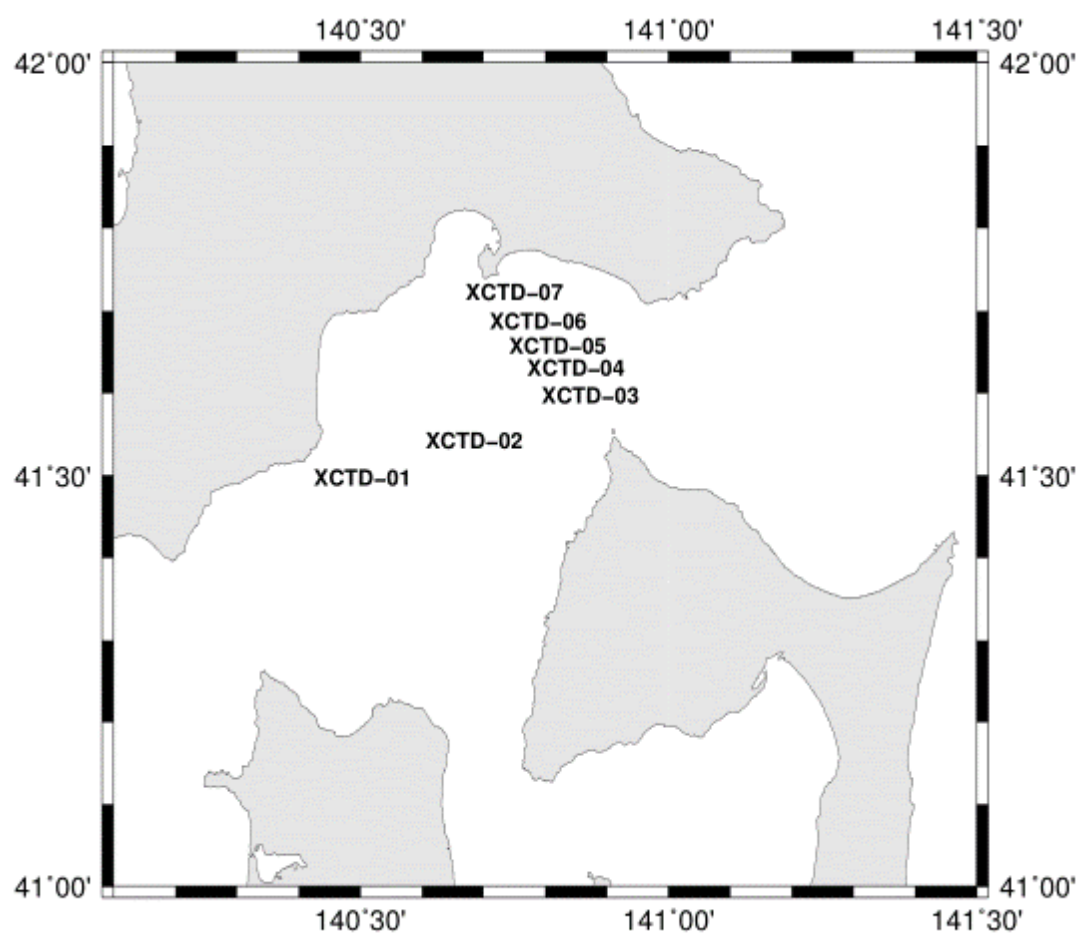


Figure 1. Oceanographic stations (Cruise 309)

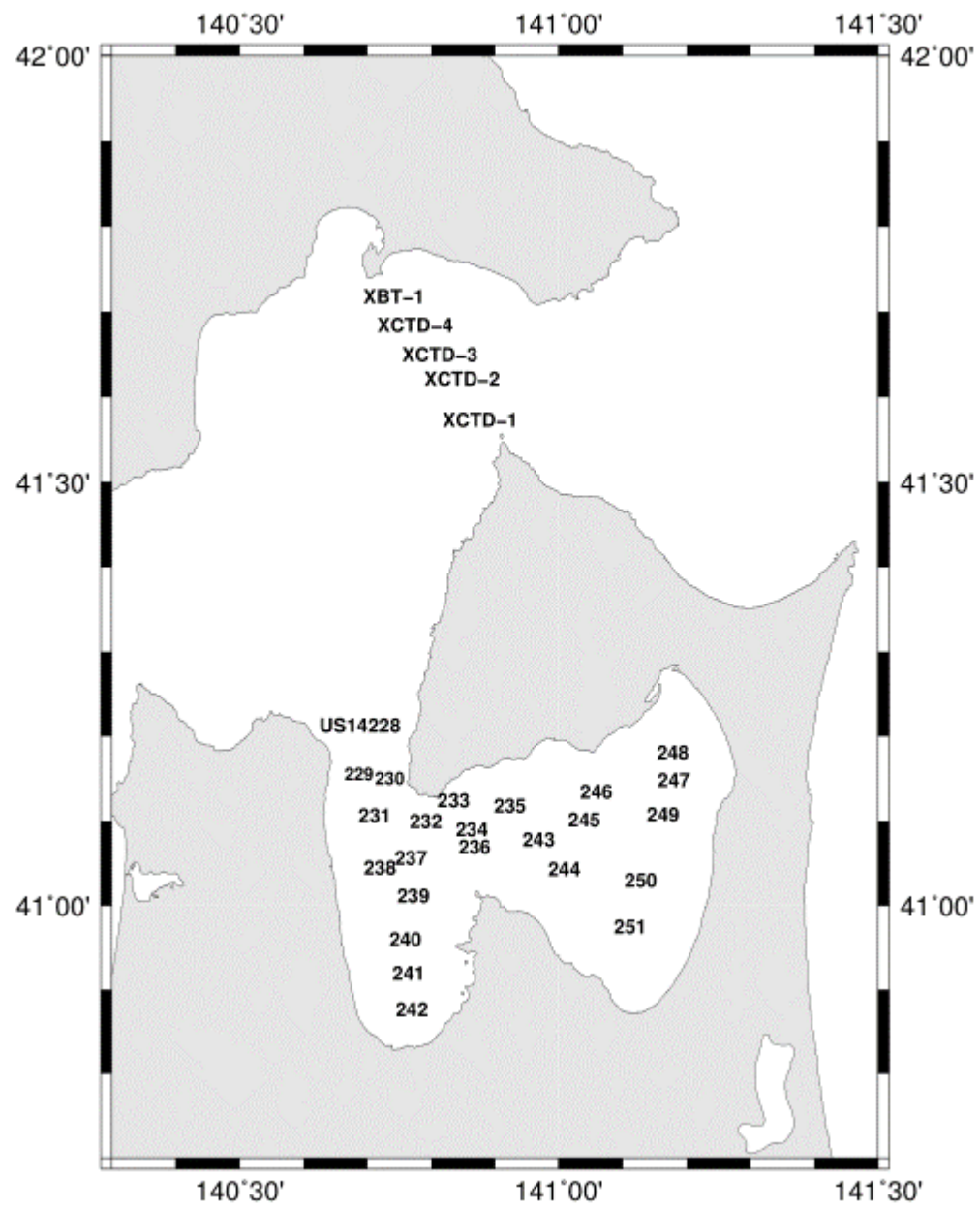


Figure 2. Oceanographic stations (Cruise 310)

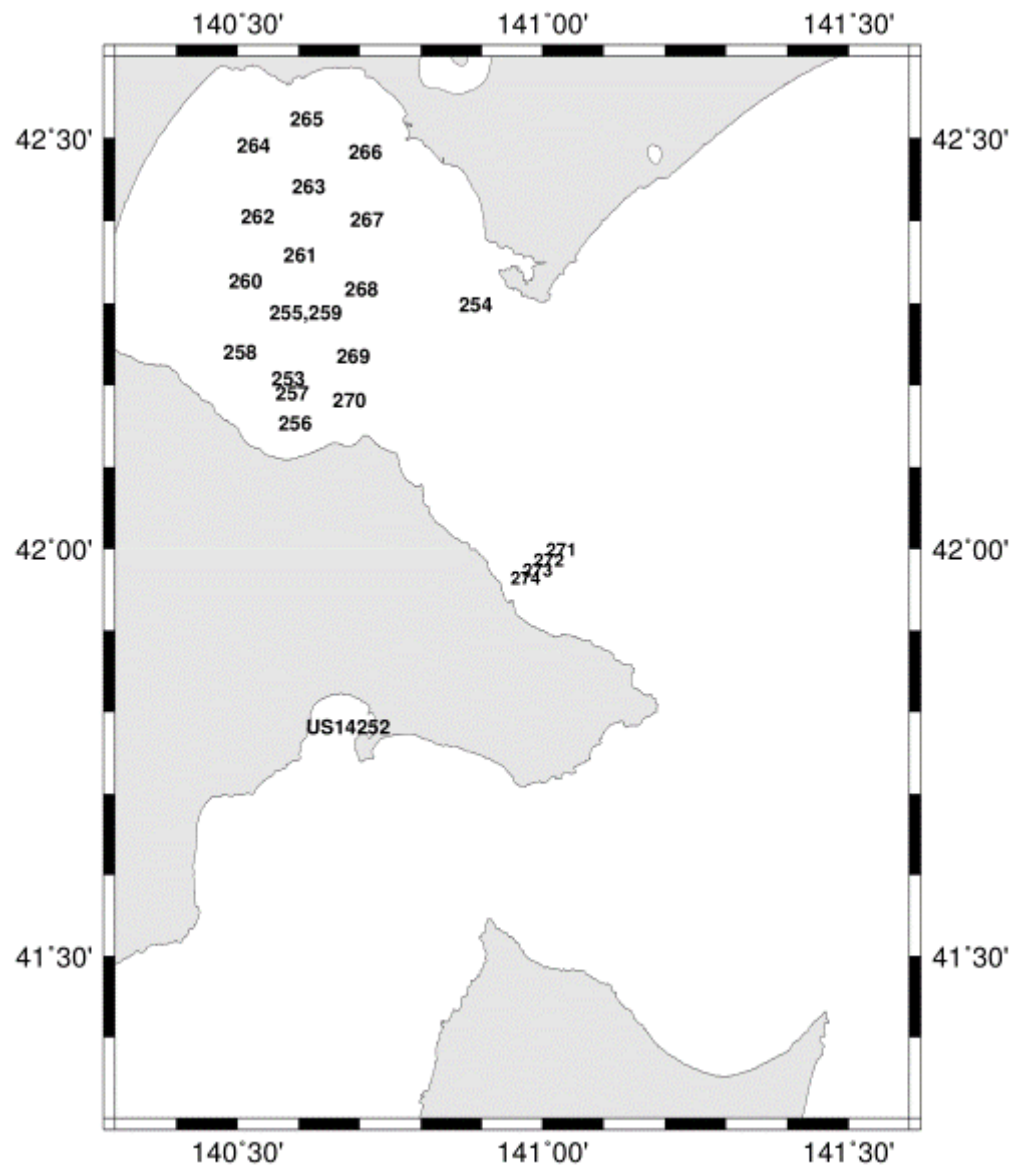


Figure 3. Oceanographic stations (Cruise 311)

Table 1. List of Oceanographic Station

Cruise 309												
Station	Lat. (N)*	Long. (E)*	Date	S.M.T.	Depth(m)	Wave	Swell	Wind	Air Temp.	Sea Temp.	Wr.	
XCTD-01	41-29.3	140-30.2	5/30	0634-0635	160							
XCTD-02	41-32.0	140-41.1	5/30	0723-0724	218							
XCTD-03	41-35.3	140-52.4	5/30	0804-0805	47							
XCTD-04	41-37.3	140-51.0	5/30	0822-0823	98							
XCTD-05	41-38.9	140-49.2	5/30	0834-0835	349							
XCTD-06	41-40.7	140-47.3	5/30	0847-0848	232							
XCTD-07	41-42.8	140-45.0	5/30	0902-0903	84							
Cruise 310												
Station	Lat. (N)*	Long. (E)*	Date	S.M.T.	Depth(m)	Wave	Swell	Wind	Air Temp.	Sea Temp.	Wr.	
US14228	41-12.3	140-41.3	6/2	1218-1222	77	NW -1	NW -1	NW -2	16.2	15.0	bc	
US14229	41-08.9	140-41.2	6/2	1249-1252	46	North-1	North-1	North-3	16.2	15.6	m	
US14230	41-08.6	140-44.1	6/2	1314-1318	59	North-1	North-1	North-3	18.2	14.7	bc	
US14231	41-05.9	140-42.7	6/2	1336-1340	53	North-1	North-1	North-3	16.4	14.5	bc	
US14232	41-05.5	140-47.5	6/2	1452-1456	59	NW -1	NW -1	NW -3	17.2	13.7	bc	
US14233	41-07.0	140-50.1	6/3	0559-0602	46	Calm	SW -1	Calm	15.7	14.7	bc	
US14234	41-04.9	140-51.8	6/3	0620-0623	52	SE -1	East-1	SE -2	16.6	15.2	bc	
US14235	41-06.6	140-55.4	6/3	0653-0657	47	East-1	East-1	East-2	16.4	15.7	bc	
US14236	41-03.7	140-52.1	6/3	0802-0806	50	ENE-1	East-1	ENE-2	18.7	16.1	bc	
US14237	41-02.9	140-46.1	6/3	0843-0847	52	East-1	East-1	East-2	18.2	14.0	bc	
US14238	41-02.2	140-43.2	6/3	0902-0906	57	East-1	East-1	East-2	18.7	14.2	bc	
US14239	41-00.2	140-46.3	6/3	1006-1010	52	NE -1	NE -1	NE -3	21.1	14.9	bc	
US14240	40-57.1	140-45.6	6/3	1030-1034	49	North-1	NE -1	North-3	20.3	15.3	bc	
US14241	40-54.7	140-45.9	6/3	1116-1119	39	North-1	NE -1	North-3	20.1	15.8	bc	
US14242	40-52.1	140-46.2	6/3	1136-1139	28	North-1	NE -1	North-3	19.0	16.7	bc	
US14243	41-04.2	140-58.1	6/4	0617-0620	49	East-1	East-1	East-3	16.1	15.4	bc	
US14244	41-02.1	141-00.5	6/4	0647-0650	48	East-1	East-1	East-3	16.8	15.6	bc	
US14245	41-05.6	141-02.4	6/4	0747-0750	46	East-1	East-1	East-3	18.6	15.4	bc	
US14246	41-07.6	141-03.5	6/4	0811-0814	38	NE -1	NE -1	NE -3	18.0	16.1	bc	
US14247	41-08.4	141-10.8	6/4	0849-0851	35	NE -1	NE -1	NE -3	18.8	16.3	bc	
US14248	41-10.4	141-10.7	6/4	0911-0914	31	NE -3	NE -1	NE -5	17.7	15.9	bc	
US14249	41-06.0	141-09.8	6/4	1005-1008	38	NNE-3	NNE-1	NNE-5	19.2	15.9	bc	
US14250	41-01.3	141-07.7	6/4	1046-1049	42	NNE-2	NNE-1	NNE-3	20.1	16.4	bc	
US14251	40-58.0	141-06.7	6/4	1136-1139	39	NE -1	NNE-1	NE -3	21.3	17.1	bc	
XCTD-1	41-33.9	140-52.6	6/5	0903-0904	56							
XCTD-2	41-36.8	140-50.9	6/5	0920-0921	80							
XCTD-3	41-38.5	140-48.8	6/5	0933-0934	331							
XCTD-4	41-40.6	140-46.5	6/5	0949-0950	220							
XBT-1	41-42.6	140-44.5	6/5	1003-1004	91							

Table 1 (Continued)

Cruise 311

Station	Lat. (N)*	Long. (E)*	Date	S.M.T.	Depth(m)	Wave	Swell	Wind	Air Temp.	Sea Temp.	Wr.
US14252	41-46.4	140-40.9	6/12	1430-1433	25	East-3	SE -1	East-5	17.3	15.3	r
US14253	42-12.0	140-35.0	6/15	0955-0959	83	East-1	East-1	East-3	12.9	11.4	bc
US14254	42-17.4	140-53.4	6/15	1135-1138	57	East-1	ESE-1	East-3	15.0	12.9	c
US14254-2	42-17.1	140-52.8	6/15	1503-1507	60	Calm	ESE-1	Calm	16.6	12.7	bc
US14254-3	42-16.1	140-50.5	6/15	1945-1949	65	Calm	ESE-1	Calm	15.5	12.9	c
US14254-4	42-17.1	140-55.1	6/15	2335-2340	55	Calm	ESE-1	Calm	14.5	13.3	c
US14255	42-16.8	140-36.7	6/17	0723-0732	90	SE -2	ESE-1	SE -4	13.2	12.2	m
US14256	42-08.7	140-35.7	6/17	1415-1420	63	East-1	East-1	East-2	12.7	11.3	m
US14256-2	42-08.9	140-35.7	6/18	0457-0503	65	Calm	East-1	Calm	12.5	11.6	f
US14257	42-10.9	140-35.4	6/18	0518-0525	79	Calm	East-1	Calm	12.5	12.5	f
US14258	42-13.9	140-30.3	6/18	0558-0603	79	Calm	East-1	Calm	12.5	12.4	f
US14259	42-16.5	140-35.8	6/18	0638-0648	91	Calm	East-1	Calm	12.5	12.5	f
US14260	42-19.1	140-30.8	6/18	0728-0731	94	Calm	East-1	Calm	12.5	12.5	f
US14261	42-21.0	140-36.2	6/18	0801-0808	88	Calm	East-1	Calm	12.8	21.5	f
US14262	42-23.8	140-32.0	6/18	0845-0850	95	Calm	East-1	Calm	12.9	12.4	f
US14263	42-26.0	140-37.0	6/18	0917-0924	83	Calm	East-1	Calm	12.9	12.5	f
US14264	42-29.0	140-31.6	6/18	1003-1007	74	Calm	East-1	Calm	13.8	13.5	f
US14265	42-30.9	140-36.8	6/18	1040-1045	63	East-1	East-1	East-2	14.0	13.5	m
US14266	42-28.5	140-42.6	6/18	1119-1122	58	Calm	East-1	Calm	14.3	13.0	o
US14267	42-23.6	140-42.7	6/18	1153-1156	60	SE -1	East-1	SE -3	14.6	13.1	c
US14268	42-268	140-42.2	6/18	1227-1231	65	SE -1	East-1	SE -3	14.6	12.9	c
US14269	42-13.6	140-41.4	6/18	1302-1306	87	SE -1	East-1	SE -3	14.4	13.4	o
US14270	42-10.4	140-41.0	6/18	1329-1335	85	SE -1	East-1	SE -3	15.3	14.0	o
US14271	41-59.5	141-01.8	6/18	1702-1709	101	SE -1	SE -1	SE -2	13.3	12.9	o
US14272	41-58.7	141-00.6	6/18	1718-1722	94	Calm	SE -1	Calm	13.5	12.7	o
US14273	41-58.0	140-59.5	6/18	1730-1735	87	Calm	SE -1	Calm	13.6	11.9	o
US14274	41-57.4	140-58.3	6/18	1743-1747	79	Calm	SE -1	Calm	13.8	12.9	o

(*): Fixed position by Global Positioning System

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

Wr.: Weather in WMO Code 4501

Table 2. Oceanographic data

STATION US14228				STATION US14229				STATION US14230			
LATITUDE 41-12.3 N				LATITUDE 41-08.9 N				LATITUDE 41-08.6 N			
LONGITUI 140-41.3 E				LONGITUI 140-41.2 E				LONGITUI 140-44.1 E			
DEPTH (m) 77				DEPTH (m) 46				DEPTH (m) 59			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	13.452	33.178	24.892	5	13.466	33.065	24.802	5	13.451	33.063	24.803
10	13.129	33.188	24.964	10	13.280	33.116	24.878	10	13.433	33.077	24.817
20	12.474	33.262	25.149	20	12.870	33.252	25.064	20	12.862	33.261	25.073
30	11.642	33.316	25.348	30	12.477	33.365	25.228	30	11.252	33.114	25.262
40	10.743	33.355	25.540	40	10.130	33.541	25.791	40	10.436	33.304	25.554
50	8.688	33.423	25.932					50	8.860	33.108	25.659
75	9.629	33.845	26.112								
STATION US14231				STATION US14232				STATION US14233			
LATITUDE 41-05.9 N				LATITUDE 41-05.5 N				LATITUDE 41-07.0 N			
LONGITUI 140-42.7 E				LONGITUI 140-47.5 E				LONGITUI 140-50.1 E			
DEPTH (m) 53				DEPTH (m) 59				DEPTH (m) 46			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	13.719	32.981	24.685	5	12.943	32.729	24.645	5	13.322	32.409	24.323
10	13.443	33.061	24.802	10	12.247	32.846	24.870	10	12.136	32.498	24.621
20	13.064	33.217	24.999	20	11.275	32.939	25.121	20	10.511	32.700	25.070
30	12.736	33.303	25.130	30	10.193	33.097	25.434	30	9.988	32.994	25.388
40	11.632	33.318	25.351	40	9.333	33.092	25.571	40	9.224	33.138	25.625
50	10.221	33.450	25.705	50	9.229	33.106	25.599				
STATION US14234				STATION US14235				STATION US14236			
LATITUDE 41-04.9 N				LATITUDE 41-06.6 N				LATITUDE 41-03.7 N			
LONGITUI 140-51.8 E				LONGITUI 140-55.4 E				LONGITUI 140-52.1 E			
DEPTH (m) 52				DEPTH (m) 47				DEPTH (m) 50			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	14.722	32.617	24.195	5	15.049	32.503	24.037	5	14.949	32.497	24.054
10	12.998	33.097	24.919	10	13.095	32.583	24.502	10	12.734	32.764	24.713
20	12.527	33.138	25.042	20	11.111	32.879	25.104	20	12.058	33.192	25.175
30	10.431	33.077	25.377	30	10.176	33.123	25.457	30	12.130	33.431	25.346
40	8.950	33.109	25.645	40	7.261	32.875	25.709	40	10.903	33.370	25.523
50	8.250	33.212	25.833								
STATION US14237				STATION US14238				STATION US14239			
LATITUDE 41-02.9 N				LATITUDE 41-02.2 N				LATITUDE 41-00.2 N			
LONGITUI 140-46.1 E				LONGITUI 140-43.2 E				LONGITUI 140-46.3 E			
DEPTH (m) 52				DEPTH (m) 57				DEPTH (m) 52			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	14.095	32.868	24.520	5	13.978	33.029	24.669	5	13.440	33.098	24.832
10	13.311	33.008	24.788	10	13.719	33.019	24.714	10	13.236	33.128	24.896
20	11.788	32.914	25.009	20	13.068	33.216	24.998	20	12.534	33.287	25.157
30	11.297	33.150	25.282	30	12.819	33.255	25.077	30	12.407	33.411	25.277
40	10.900	33.454	25.590	40	12.169	33.435	25.342	40	11.871	33.406	25.375
50	9.184	33.360	25.805	50	10.850	33.656	25.756				
STATION US14240				STATION US14241				STATION US14242			
LATITUDE 40-57.1 N				LATITUDE 40-54.7 N				LATITUDE 40-52.1 N			
LONGITUI 140-45.6 E				LONGITUI 140-45.9 E				LONGITUI 140-46.2 E			
DEPTH (m) 49				DEPTH (m) 39				DEPTH (m) 28			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	14.741	32.713	24.265	5	14.640	32.460	24.091	5	15.881	32.484	23.839
10	13.969	32.966	24.622	10	14.276	32.570	24.252	10	16.195	32.470	23.759
20	13.142	33.175	24.951	20	11.777	32.826	24.942	20	12.114	32.933	24.963
30	11.807	33.145	25.185	30	11.717	33.026	25.109				
40	11.999	33.448	25.384								
STATION US14243				STATION US14244				STATION US14245			
LATITUDE 41-04.2 N				LATITUDE 41-02.1 N				LATITUDE 41-05.6 N			
LONGITUI 140-58.1 E				LONGITUI 141-00.5 E				LONGITUI 141-02.4 E			
DEPTH (m) 49				DEPTH (m) 48				DEPTH (m) 46			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	14.942	32.295	23.900	5	13.509	32.254	24.165	5	13.868	32.293	24.123
10	13.783	32.267	24.120	10	13.192	32.283	24.252	10	13.847	32.300	24.132
20	11.537	32.948	25.081	20	12.012	32.432	24.593	20	12.897	32.319	24.337
30	10.865	33.036	25.270	30	10.985	33.105	25.303	30	10.584	32.969	25.267
40	9.556	33.139	25.573	40	9.266	33.056	25.554	40	7.434	32.898	25.704

Table 2. (Continued)

STATION US14246				STATION US14247				STATION US14248			
LATITUDE 41-07.6 N				LATITUDE 41-08.4 N				LATITUDE 41-10.4 N			
LONGITUI 141-03.5 E				LONGITUI 141-10.8 E				LONGITUI 141-10.7 E			
DEPTH (m) 38				DEPTH (m) 35				DEPTH (m) 31			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	15.279	32.346	23.866	5	15.709	32.356	23.780	5	15.563	32.384	23.833
10	14.768	32.389	24.010	10	13.623	32.477	24.315	10	12.954	32.368	24.364
20	12.532	32.581	24.610	20	11.260	32.771	24.994	20	11.001	32.680	24.969
30	8.840	32.729	25.365	30	8.146	32.748	25.484	30	8.243	32.710	25.441
STATION US14249				STATION US14250				STATION US14251			
LATITUDE 41-06.0 N				LATITUDE 41-01.3 N				LATITUDE 40-58.0 N			
LONGITUI 141-09.8 E				LONGITUI 141-07.7 E				LONGITUI 141-06.7 E			
DEPTH (m) 38				DEPTH (m) 42				DEPTH (m) 39			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	15.677	32.331	23.768	5	15.888	32.222	23.637	5	16.293	32.241	23.560
10	14.506	32.407	24.079	10	14.107	32.268	24.055	10	12.883	32.297	24.322
20	12.877	32.604	24.562	20	11.562	32.530	24.752	20	11.145	32.608	24.888
30	8.461	32.712	25.409	30	9.554	33.022	25.481	30	9.333	33.027	25.521
				40	7.895	33.003	25.721				
STATION US14252				STATION US14253				STATION US14254			
LATITUDE 41-46.4 N				LATITUDE 42-12.0 N				LATITUDE 42-17.4 N			
LONGITUI 140-40.9 E				LONGITUI 140-35.0 E				LONGITUI 140-53.4 E			
DEPTH (m) 25				DEPTH (m) 83				DEPTH (m) 57			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	14.785	33.540	24.893	5	10.661	31.153	23.840	5	12.177	31.499	23.839
10	14.431	33.589	25.006	10	10.658	31.681	24.251	10	10.409	31.874	24.444
20	13.787	33.659	25.195	20	9.650	31.879	24.573	20	8.553	31.998	24.836
				30	7.232	32.060	25.072	30	8.106	32.347	25.175
				40	5.647	32.145	25.339	40	6.233	32.242	25.345
				50	3.624	32.338	25.705	50	3.598	32.266	25.650
				75	2.512	32.755	26.134				
STATION US14255				STATION US14256				STATION US14257			
LATITUDE 42-16.8 N				LATITUDE 42-08.7 N				LATITUDE 42-10.9 N			
LONGITUI 140-36.7 E				LONGITUI 140-35.7 E				LONGITUI 140-35.4 E			
DEPTH (m) 90				DEPTH (m) 63				DEPTH (m) 79			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	12.384	31.104	23.494	5	11.240	31.368	23.907	5	13.009	31.117	23.385
10	11.688	31.695	24.080	10	10.344	31.369	24.062	10	12.580	31.216	23.544
20	11.186	31.748	24.211	20	9.078	31.956	24.723	20	9.697	31.813	24.513
30	9.827	31.878	24.543	30	7.173	32.027	25.055	30	7.524	31.986	24.975
40	7.338	31.988	25.002	40	5.575	32.156	25.357	40	5.353	32.144	25.372
50	5.741	32.108	25.299	50	3.288	32.346	25.742	50	3.110	32.321	25.737
75	2.429	32.731	26.122					75	2.884	32.920	26.235
STATION US14258				STATION US14259				STATION US14260			
LATITUDE 42-13.9 N				LATITUDE 42-16.5 N				LATITUDE 42-19.1 N			
LONGITUI 140-30.3 E				LONGITUI 140-35.8 E				LONGITUI 140-30.8 E			
DEPTH (m) 79				DEPTH (m) 91				DEPTH (m) 94			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	12.353	31.475	23.787	5	12.478	31.278	23.611	5	12.409	31.507	23.802
10	11.380	31.626	24.082	10	12.508	31.477	23.759	10	11.947	31.497	23.879
20	10.978	31.739	24.241	20	11.244	31.809	24.249	20	11.323	31.719	24.165
30	9.409	31.922	24.645	30	10.829	31.904	24.395	30	10.237	31.877	24.475
40	6.389	32.107	25.219	40	6.831	31.961	25.048	40	8.554	31.973	24.816
50	3.728	32.301	25.666	50	5.940	32.091	25.262	50	5.115	32.153	25.406
75	2.489	32.716	26.105	75	2.643	32.767	26.133	75	2.610	32.797	26.160
STATION US14261				STATION US14262				STATION US14263			
LATITUDE 42-21.0 N				LATITUDE 42-23.8 N				LATITUDE 42-26.0 N			
LONGITUI 140-36.2 E				LONGITUI 140-32.0 E				LONGITUI 140-37.0 E			
DEPTH (m) 88				DEPTH (m) 95				DEPTH (m) 83			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	12.563	31.444	23.723	5	12.221	31.516	23.843	5	12.305	31.261	23.630
10	11.588	31.505	23.951	10	11.835	31.646	24.016	10	11.711	31.681	24.066
20	11.371	31.753	24.182	20	10.619	31.636	24.222	20	11.235	31.674	24.145
30	10.771	31.826	24.344	30	9.713	31.914	24.590	30	9.815	31.939	24.593
40	7.937	31.944	24.883	40	7.700	31.987	24.951	40	8.234	31.971	24.862
50	6.568	32.044	25.147	50	5.043	32.175	25.431	50	5.005	32.164	25.427
75	2.568	32.726	26.106	75	2.583	32.760	26.132	75	2.529	32.707	26.094

Table 2. (Continued)

STATION US14264
 LATITUDE 42-29.0 N
 LONGITUI 140-31.6 E
 DEPTH (m) 74

Press.	Temp.	Salinity	Sigma-T
5	11.078	31.185	23.793
10	10.358	31.460	24.130
20	9.204	31.927	24.681
30	7.119	32.028	25.062
40	5.643	32.136	25.332
50	4.015	32.279	25.621

STATION US14265
 LATITUDE 42-30.9 N
 LONGITUI 140-36.8 E
 DEPTH (m) 63

Press.	Temp.	Salinity	Sigma-T
5	11.340	31.737	24.176
10	10.781	31.870	24.377
20	9.179	31.918	24.678
30	6.975	32.020	25.075
40	5.651	32.171	25.359
50	3.720	32.328	25.688

STATION US14266
 LATITUDE 42-28.5 N
 LONGITUI 140-42.6 E
 DEPTH (m) 58

Press.	Temp.	Salinity	Sigma-T
5	12.651	31.111	23.449
10	11.765	31.494	23.910
20	10.419	31.868	24.437
30	8.519	32.013	24.852
40	5.694	32.157	25.343
50	3.887	32.307	25.655

STATION US14267
 LATITUDE 42-23.6 N
 LONGITUI 140-42.7 E
 DEPTH (m) 60

Press.	Temp.	Salinity	Sigma-T
5	12.284	31.489	23.811
10	11.577	31.649	24.065
20	10.783	31.627	24.187
30	10.148	31.939	24.538
40	8.020	31.991	24.908
50	4.386	32.250	25.560

STATION US14268
 LATITUDE 42-268 N
 LONGITUI 140-42.2 E
 DEPTH (m) 65

Press.	Temp.	Salinity	Sigma-T
5	12.511	31.113	23.477
10	11.463	31.504	23.972
20	10.957	31.865	24.343
30	10.049	31.923	24.542
40	6.666	32.028	25.121
50	3.394	32.270	25.672

STATION US14269
 LATITUDE 42-13.6 N
 LONGITUI 140-41.4 E
 DEPTH (m) 87

Press.	Temp.	Salinity	Sigma-T
5	12.550	31.251	23.576
10	12.252	31.385	23.736
20	9.152	31.911	24.676
30	6.312	32.068	25.198
40	3.126	32.333	25.746
50	2.442	32.498	25.934
75	2.372	32.704	26.104

STATION US14270
 LATITUDE 42-10.4 N
 LONGITUI 140-41.0 E
 DEPTH (m) 85

Press.	Temp.	Salinity	Sigma-T
5	12.957	31.127	23.403
10	11.392	31.713	24.148
20	9.001	31.950	24.731
30	7.083	32.116	25.137
40	4.705	32.227	25.509
50	2.808	32.385	25.814
75	2.616	32.808	26.168

STATION US14271
 LATITUDE 41-59.5 N
 LONGITUI 141-01.8 E
 DEPTH (m) 101

Press.	Temp.	Salinity	Sigma-T
5	12.271	31.341	23.698
10	9.903	31.741	24.424
20	7.419	31.962	24.970
30	4.537	32.037	25.376
40	4.048	32.194	25.550
50	4.977	32.630	25.800
75	3.092	32.832	26.147

STATION US14272
 LATITUDE 41-58.7 N
 LONGITUI 141-00.6 E
 DEPTH (m) 94

Press.	Temp.	Salinity	Sigma-T
5	10.461	31.646	24.257
10	9.694	31.794	24.500
20	8.704	31.966	24.788
30	5.318	32.005	25.266
40	4.441	32.115	25.448
50	4.903	32.590	25.776
75	3.513	32.948	26.201

STATION US14273
 LATITUDE 41-58.0 N
 LONGITUI 140-59.5 E
 DEPTH (m) 87

Press.	Temp.	Salinity	Sigma-T
5	11.617	31.402	23.866
10	9.687	31.775	24.486
20	9.112	31.911	24.683
30	7.865	32.013	24.948
40	5.229	32.015	25.284
50	4.524	32.100	25.428
75	3.339	33.010	26.266

STATION US14274
 LATITUDE 41-57.4 N
 LONGITUI 140-58.3 E
 DEPTH (m) 79

Press.	Temp.	Salinity	Sigma-T
5	11.807	31.308	23.758
10	9.932	31.738	24.417
20	8.829	31.946	24.754
30	7.851	32.034	24.966
40	6.181	32.024	25.180
50	4.767	32.237	25.510
75	3.964	33.390	26.509