



Title	6 THE "USHIO MARU" CRUISE 315, CRUISE 316, CRUISE 317 IN JULY - AUGUST 2014
Citation	海洋調査漁業試験要報, 58: 129-140
Issue Date	2017-03-31
Doc URL	http://hdl.handle.net/2115/64991
Type	bulletin (other)
File Information	Data.Rec.Oceanogr.Obs.Expl.Fish.58.129.pdf



[Instructions for use](#)

THE " USHIO MARU "

CRUISE 315

CRUISE 316

CRUISE 317

IN JULY 2014

IN AUGUST 2014

1. Cruise Itinerary

Cruise 315

Departure from Hakodate	Jul.	22, 2014
Sampling by frame trawl net		22
Arrival at Usujiri		22
Departure from Usujiri		23
Start hydrographic research (US14334)		23
Sampling by frame trawl net		23
Arrival at and departure from Usujiri		23
Sampling by frame trawl net		24
Arrival at Usujiri		25
Departure from Usujiri		26
Arrival at Hakodate		26
Departure from Hakodate		28
Setting mooring ADCP system		28
Arrival at Hakodate		28
Departure from Hakodate		29
Arrival at Aomori		29
Departure from Aomori		30
Finish hydrographic research (US14368)		30
Return to Hakodate		31
Total coverage 605.4 miles		

Cruise 316

Departure from Hakodate	Aug.	4, 2014
Sampling by trawl net		4
Start hydrographic research (US14369)		4
Sampling by squid jigging		4
Arrival at Hakodate		5
Departure from Hakodate		6
Sampling by sledge net		6
Arrival and departure from Hakodate		6
Sampling by squid jigging		7
Retrieval ADCP mooring system		7
Sampling by squid jigging		7
Finish hydrographic research (US14395)		8
Return to Hakodate		9
Total coverage 397.3 miles		

Cruise 317

Departure from Hakodate	Aug.	21, 2014
Start hydrographic research (US14396)		22
Observation by echo sounder		22
Finish hydrographic research (US14398)		24
Return to Hakodate		25
Total coverage 649.4 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).

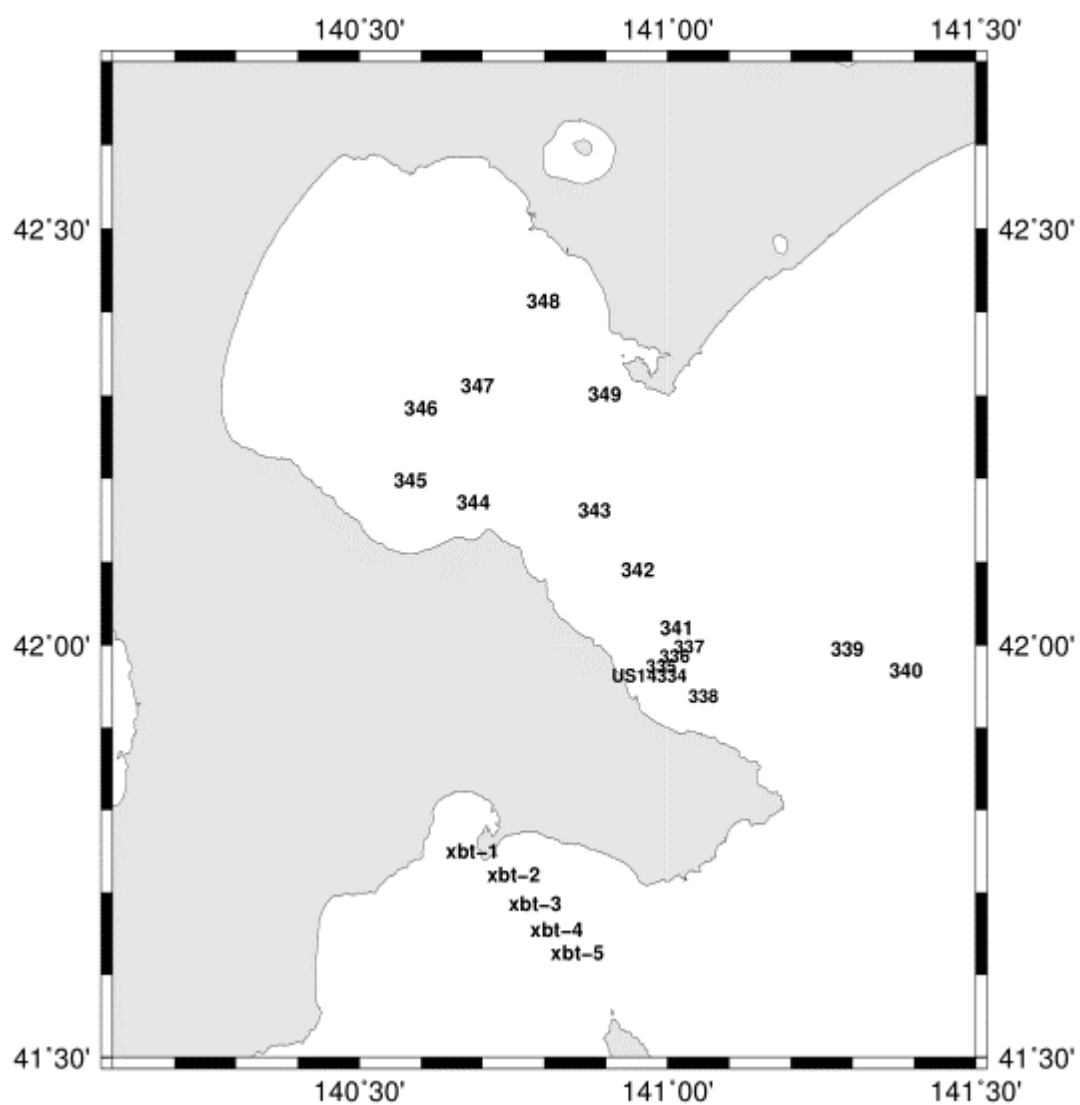


Figure 1. Oceanographic stations (Cruise 315)

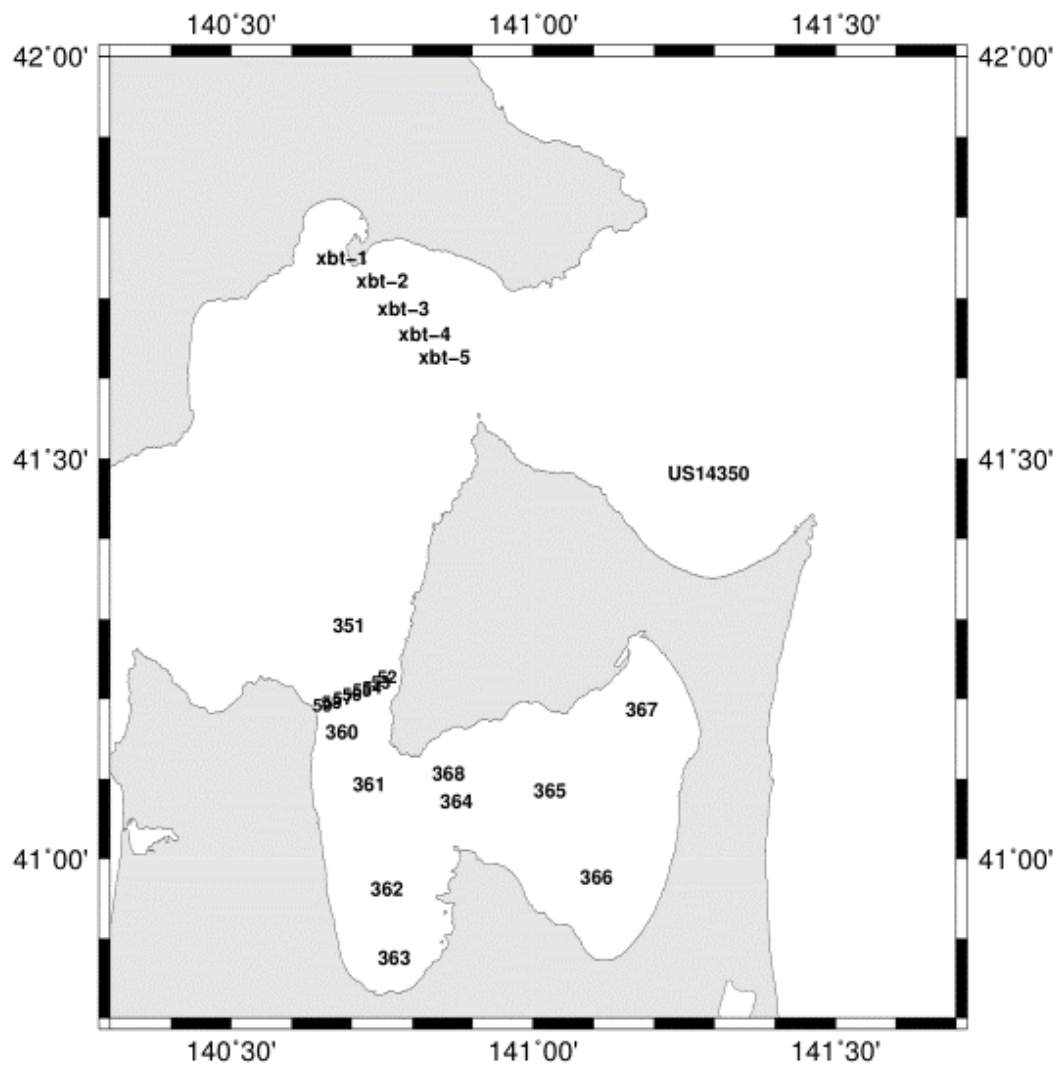


Figure 2. Oceanographic stations (Cruise 315)

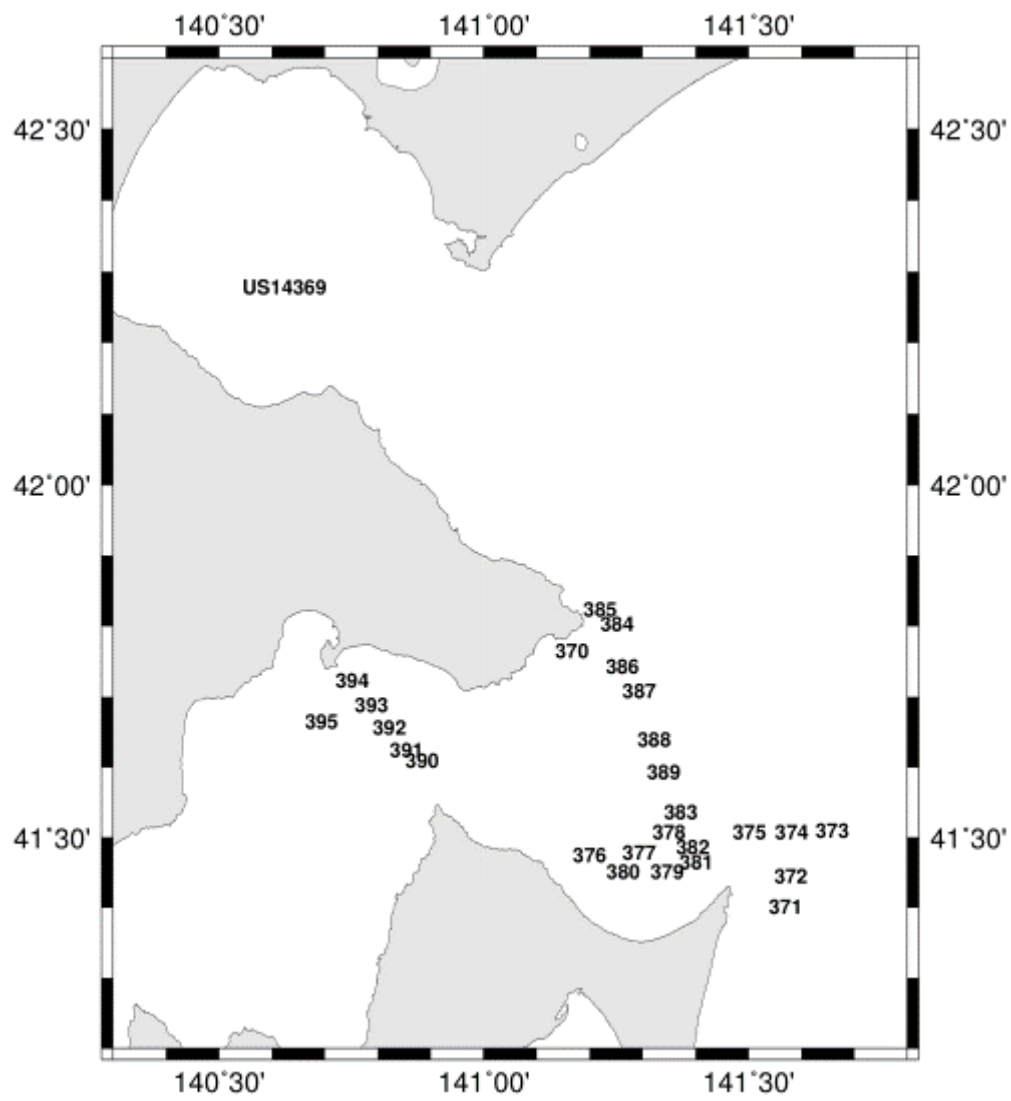


Figure 3. Oceanographic stations (Cruise 316)

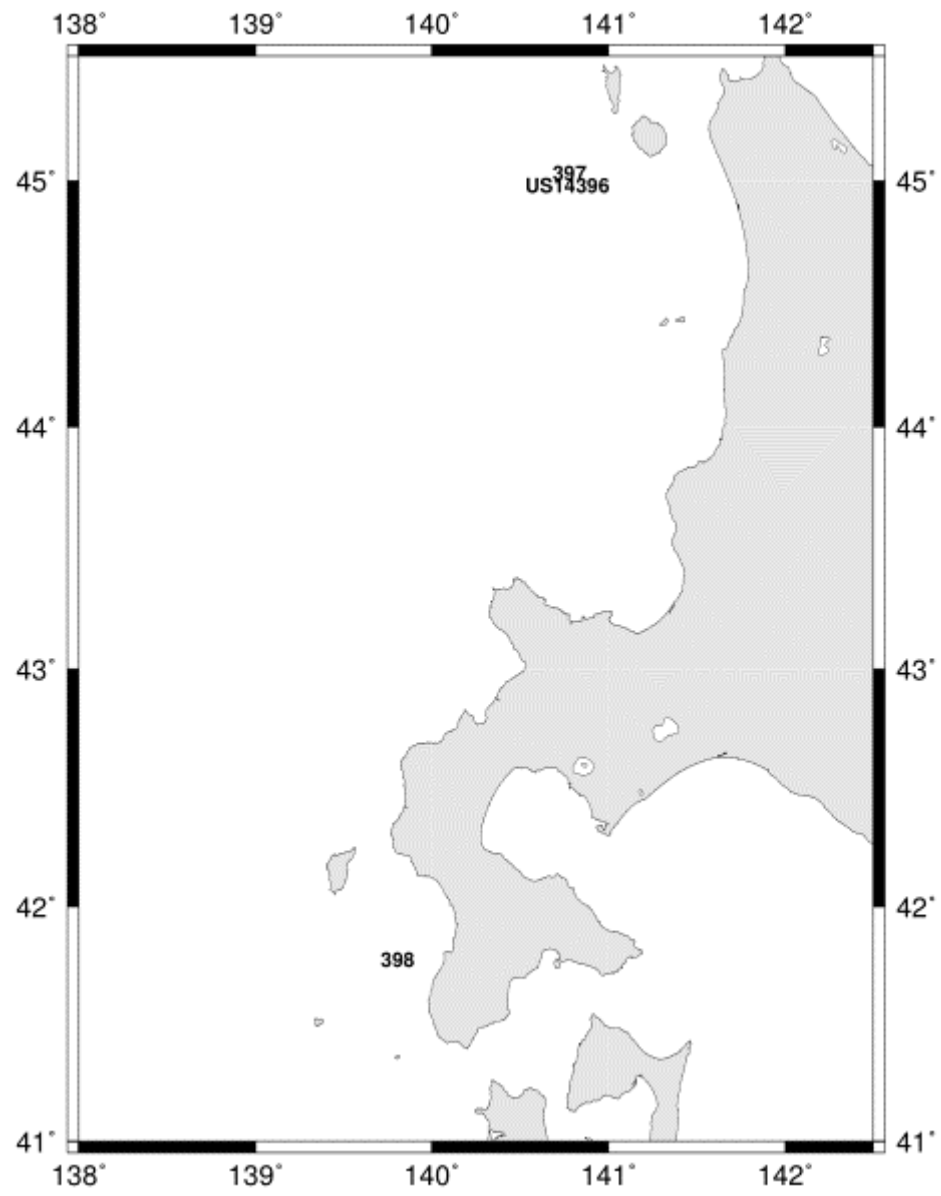


Figure 4. Oceanographic stations (Cruise 317)

Table 1. List of Oceanographic Station

Cruise 315											
Station	Lat. (N)*	Long. (E)*	Date	S.M.T.	Depth(m)	Wave	Swell	Wind	Air Temp.	Sea Temp.	Wr.
US14334	41-57.3	140-58.2	7/23	0512-0516	76	NE -1	East-1	NE -2	20.6	18.2	r
US14335	41-58.0	140-59.4	7/23	0524-0529	85	NE -1	East-1	NE -3	21.0	18.5	r
US14336	41-58.7	141-00.7	7/23	0537-0541	93	East-1	East-1	East-3	21.2	18.6	r
US14337	41-59.4	141-02.1	7/23	0551-0557	100	East-1	East-1	East-2	21.7	18.6	r
US14338	41-55.8	141-03.5	7/23	0927-0933	109	WSW-2	East-1	WSW-4	22.9	18.3	r
US14338-2	41-54.0	141-08.3	7/23	1207-1212	117						
US14338-3	41-56.6	140-59.4	7/23	1910-1916	78						
US14338-4	41-55.8	141-03.7	7/23	2205-2211	110						
US14338-5	41-55.3	141-05.2	7/24	0030-0036	111						
US14339	41-59.2	141-17.5	7/24	0723-0733	269	Calm	ESE-1	Calm	20.8	18.5	bc
US14340	41-57.6	141-23.2	7/24	0925-0938	340	Calm	ESE-1	Calm	24.0	18.8	bc
US14339-2	42-00.0	141-17.5	7/24	1902-1913	268						
US14340-2	41-57.6	141-23.5	7/24	2110-2124	340						
US14341	42-00.7	141-00.9	7/26	0428-0433	91	South-1	SE -1	South-3	23.9	20.0	c
US14342	42-04.9	140-57.1	7/26	0537-0541	82	West-1	SE -1	West-3	22.4	29.8	c
US14343	42-09.2	140-52.9	7/26	0626-0630	76	Calm	SE -1	Calm	23.8	20.3	c
US14344	42-09.8	140-41.1	7/26	0745-0750	78	NE -1	SE -1	NE -3	22.0	19.8	o
US14345	42-11.4	140-35.0	7/26	0845-0849	79	East-1	SE -1	East-3	20.9	19.8	o
US14346	42-16.6	140-36.0	7/26	0922-0930	89	SE -1	SE -1	SE -3	21.3	19.5	o
US14347	42-18.2	140-41.5	7/26	1104-1107	70	East-2	SE -1	East-4	21.7	19.6	o
US14348	42-24.3	140-47.9	7/26	1206-1210	44	East-2	SE -1	East-4	20.8	19.9	r
US14349	42-17.6	140-53.9	7/26	1312-1315	56	East-3	SE -1	East-5	21.1	19.3	r
XBT-1	41-44.5	140-41.0	7/28	0700-0701	54						
XBT-2	41-42.8	140-45.0	7/28	0721-0722	84						
XBT-3	41-40.7	140-47.1	7/28	0735-0736	224						
XBT-4	41-38.8	140-49.2	7/28	0749-0750	347						
XBT-5	41-37.1	140-51.2	7/28	0802-0803	98						
XBT-6	41-28.4	141-52.8	7/28	0810-0811	40						
US14350	41-28.4	141-17.4	7/28	1054-1104	221	NW -2	East-1	NW -4	24.0	18.9	bc
US14351	41-17.0	140-41.7	7/29	1012-1021	144	Calm	West-1	Calm	25.4	22.3	bc
US14352	41-13.2	140-45.5	7/29	1051-1056	65	Calm	West-1	Calm	25.7	22.3	bc
US14353	41-12.8	140-44.9	7/29	1103-1107	66	NE -1	West-1	NE -2	25.9	22.1	bc
US14354	41-12.4	140-44.0	7/29	1119-1124	69	NE -1	West-1	NE -2	25.4	22.9	bc
US14355	41-12.2	140-43.0	7/29	1131-1136	71	NE -1	West-1	NE -3	25.8	22.8	bc
US14356	41-11.9	140-42.0	7/29	1144-1149	73	North-1	East-1	North-3	25.9	22.5	bc
US14357	41-11.6	140-41.1	7/29	1157-1202	68	NW -2	East-1	NW -3	25.2	23.1	bc
US14358	41-11.3	140-40.0	7/29	1210-1214	52	NNW-2	East-1	NNW-3	25.1	22.4	bc
US14359	41-11.1	140-39.1	7/29	1219-1222	32	Calm	North-1	Calm	25.8	21.8	bc
US14360	41-09.0	140-41.0	7/29	1239-1243	43	NE -1	East-1	NE -3	26.4	21.2	bc
US14361	41-05.1	140-43.7	7/29	1311-1316	60	NE -2	NE -1	NE -3	27.1	23.3	bc
US14362	40-57.2	140-45.5	7/29	1402-1405	50	North-1	North-1	North-3	27.8	23.7	bc
US14363	40-52.0	140-46.2	7/29	1437-1440	28	NE -1	North-1	NE -3	28.5	23.5	bc
US14364	41-03.8	140-52.4	7/30	0613-0621	51	Calm	North-1	Calm	22.2	23.1	bc
US14365	41-04.6	141-01.7	7/30	0700-0708	47	North-1	North-1	North-1	22.8	22.0	bc
US14366	40-58.1	141-06.3	7/30	0843-0847	39	Calm	North-1	Calm	23.4	22.3	m
US14367	41-10.7	141-10.8	7/30	1003-1007	29	Calm	South-1	Calm	23.8	23.2	m
US14368	41-05.9	140-51.6	7/30	1138-1143	51	Calm	South-1	Calm	25.2	23.0	bc

Table 1 (Continued)

Cruise 316											
Station	Lat. (N)*	Long. (E)*	Date	S.M.T.	Depth(m)	Wave	Swell	Wind	Air Temp.	Sea Temp.	Wr.
US14369	42-16.1	140-37.4	8/4	1510-1517	88	NE -1	East-1	NE -2	25.1	23.1	r
US14370	41-45.3	141-10.0	8/4	2307-2313	117	Calm	East-1	Calm	23.1	20.2	f
US14371	41-23.5	141-34.2	8/6	2033-2047	160	South-2	SE -1	South-4	23.4	22.5	o
US14372	41-26.1	141-34.8	8/6	2109-2132	396	South-1	Sout-1	South-3	23.8	22.5	m
US14373	41-30.0	141-39.5	8/6	2202-2234	609	South-1	SE -1	South-3	23.9	22.4	r
US14374	41-29.9	141-34.9	8/6	2303-2314	149	South-1	SE -1	South-3	23.0	22.4	r
US14375	41-29.9	141-30.1	8/6	2344-2351	62	South-2	SE -1	South-4	23.2	22.2	o
US14376	41-27.9	141-12.0	8/7	0125-0130	91	WSW-1	WNW-1	WSW-2	24.5	23.1	o
US14377	41-28.1	141-17.6	8/7	0646-0658	203	Calm	WNW-1	Calm	24.4	21.9	o
US14378	41-29.9	141-21.0	8/7	0723-0738	223	West-1	WNW-1	West-3	24.4	21.0	o
US14379	41-26.5	141-20.8	8/7	0801-0808	70	West-2	East-1	West-4	23.3	21.5	r
US14380	41-26.5	141-15.8	8/7	0831-0838	82	NW -2	East-1	NW -4	22.9	21.9	r
US14380-2	41-26.3	141-16.0	8/7	0855-0903	79						
US14381	41-27.3	141-24.1	8/7	0945-0950	47	SE -1	East-1	SE -3	22.6	21.5	r
US14382	41-28.6	141-23.7	8/7	1005-1015	78	SE -1	East-1	SE -3	23.0	22.1	r
US14383	41-31.6	141-22.3	8/7	1046-1103	238	NE -1	East-1	NE -3	23.4	22.9	c
US14383-2	41-31.3	141-22.7	8/7	1126-1136	215						
US14384	41-47.6	141-15.1	8/7	1342-1356	213	SSE-1	East-1	SSE -3	24.2	20.5	c
US14385	41-48.8	141-13.2	8/7	1413-1425	161	SSE-1	SSE-1	SSE -2	22.5	18.5	c
US14385	41-48.8	141-12.9	8/7	1438-1449	130						
US14386	41-44.0	141-15.7	8/7	1527-1543	225	SSE-2	SSE-1	SSE-4	22.0	19.9	c
US14387	41-41.9	141-17.6	8/7	1611-1627	230	SSE-2	ESE-1	SSE-3	22.4	18.9	o
US14388	41-37.8	141-19.3	8/7	1700-1717	216	SE -3	ESE-1	SE -4	23.1	23.3	o
US14389	41-35.0	141-20.4	8/7	1742-1800	311	SE -2	ESE-1	SE -3	22.4	21.4	o
US14390	41-36.0	140-53.0	8/8	0423-0430	53	East-2	ENE-1	East-3	22.1	22.8	r
US14391	41-36.9	140-51.3	8/8	0450-0458	93	NE-2	NE-1	NE-3	22.6	22.5	r
US14392	41-38.8	140-49.3	8/8	0518-0538	346	NE-2	NE-1	NE-3	22.3	21.6	r
US14393	41-40.7	140-47.3	8/8	0557-0615	231	NE-1	NE-1	NE-3	22.5	22.4	r
US14394	41-42.8	140-45.1	8/8	0631-0642	83	East-1	SSW-1	East-2	22.4	22.7	r
US14395	41-39.3	140-41.6	8/8	1807-1813	132	East-1	ESE-1	East-3	23.9	23.2	c

Cruise 317											
Station	Lat. (N)*	Long. (E)*	Date	S.M.T.	Depth(m)	Wave	Swell	Wind	Air Temp.	Sea Temp.	Wr.
US14396	44-57.2	140-46.0	8/22	1301-1312	185	SSE-2	SE-1	SSE-3	24.5	22.8	bc
US14397	45-00.2	140-46.7	8/22	1535-1545	159	SSE-2	SSE-1	SSE-2	24.0	23.3	bc
US14398	41-44.8	139-48.3	8/24	1841-1913	1427	WNW-2	WNW-1	WNW-4	22.1	23.1	c

(*): Fixed position by Global Positioning System

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

Wr.: Weather in WMO Code 4501

Table 2. Oceanographic data

STATION US14334				STATION US14335				STATION US14336			
LATITUDE 41-57.3 N				LATITUDE 41-58.0 N				LATITUDE 41-58.7 N			
LONGITUI 140-58.2 E				LONGITUI 140-59.4 E				LONGITUI 141-00.7 E			
DEPTH (m) 76				DEPTH (m) 85				DEPTH (m) 93			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	17.211	31.992	23.158	5	18.569	32.000	22.837	5	18.390	32.001	22.882
10	15.169	31.894	23.542	10	15.991	31.809	23.296	10	16.477	31.871	23.234
20	13.216	32.061	24.075	20	13.231	32.103	24.104	20	12.794	32.144	24.221
30	12.309	31.992	24.196	30	10.291	32.375	24.854	30	8.514	32.274	25.058
40	10.487	32.099	24.606	40	7.708	32.399	25.273	40	6.757	32.619	25.576
50	7.937	32.292	25.157	50	7.379	33.045	25.827	50	6.847	33.108	25.949
				75	5.081	33.305	26.322	75	5.424	33.296	26.276
STATION US14337				STATION US14338				STATION US14339			
LATITUDE 41-59.4 N				LATITUDE 41-55.8 N				LATITUDE 41-59.2 N			
LONGITUI 141-02.1 E				LONGITUI 141-03.5 E				LONGITUI 141-17.5 E			
DEPTH (m) 100				DEPTH (m) 109				DEPTH (m) 269			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	18.546	31.993	22.837	5	16.924	31.942	23.186	5	18.527	31.708	22.624
10	17.025	31.901	23.131	10	14.673	31.960	23.699	10	14.284	31.878	23.717
20	12.342	32.090	24.266	20	12.156	32.105	24.312	20	10.213	32.324	24.827
30	9.741	32.925	25.374	30	9.153	32.347	25.017	30	9.601	32.943	25.412
40	6.817	32.781	25.696	40	7.996	32.744	25.503	40	7.894	33.247	25.913
50	6.776	33.104	25.955	50	4.260	32.756	25.976	50	6.170	33.216	26.122
75	7.149	33.616	26.308	75	6.028	33.355	26.249	75	4.788	33.325	26.371
				100	5.456	33.515	26.446	100	5.351	33.486	26.435
								125	4.520	33.392	26.453
								150	4.359	33.467	26.529
								175	3.883	33.477	26.586
								200	3.694	33.505	26.627
								250	2.875	33.523	26.717
STATION US14340				STATION US14341				STATION US14342			
LATITUDE 41-57.6 N				LATITUDE 42-00.7 N				LATITUDE 42-04.9 N			
LONGITUI 141-23.2 E				LONGITUI 141-00.9 E				LONGITUI 140-57.1 E			
DEPTH (m) 340				DEPTH (m) 91				DEPTH (m) 82			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	17.803	32.054	23.064	5	20.070	31.620	22.168	5	19.008	31.664	22.472
10	14.695	32.252	23.919	10	18.243	31.614	22.622	10	16.517	31.833	23.197
20	11.658	32.459	24.679	20	15.038	31.950	23.613	20	14.090	32.153	23.970
30	8.214	32.822	25.533	30	8.913	32.290	25.010	30	10.843	32.299	24.701
40	6.448	33.027	25.937	40	5.824	32.504	25.602	40	7.411	32.459	25.362
50	5.173	33.123	26.168	50	6.283	33.094	26.011	50	5.613	33.247	26.215
75	4.567	33.278	26.357	75	6.356	33.514	26.334	75	5.778	33.514	26.406
100	6.005	33.586	26.434								
125	5.083	33.500	26.477								
150	4.301	33.450	26.523								
175	3.843	33.478	26.591								
200	3.333	33.508	26.664								
250	3.072	33.551	26.722								
300	2.919	33.616	26.787								
STATION US14343				STATION US14344				STATION US14345			
LATITUDE 42-09.2 N				LATITUDE 42-09.8 N				LATITUDE 42-11.4 N			
LONGITUI 140-52.9 E				LONGITUI 140-41.1 E				LONGITUI 140-35.0 E			
DEPTH (m) 76				DEPTH (m) 78				DEPTH (m) 79			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	19.261	31.573	22.338	5	19.881	31.515	22.137	5	19.861	31.478	22.113
10	16.911	31.802	23.081	10	19.685	31.538	22.204	10	19.292	31.501	22.276
20	10.360	32.017	24.563	20	17.609	31.723	22.858	20	16.353	31.682	23.116
30	10.301	32.644	25.062	30	10.590	32.120	24.604	30	10.449	32.045	24.571
40	6.658	32.694	25.648	40	5.375	32.228	25.436	40	5.726	32.294	25.448
50	5.416	32.919	25.978	50	6.324	32.830	25.798	50	4.645	32.585	25.800
								75	3.338	33.022	26.276
STATION US14346				STATION US14347				STATION US14348			
LATITUDE 42-16.6 N				LATITUDE 42-18.2 N				LATITUDE 42-24.3 N			
LONGITUI 140-36.0 E				LONGITUI 140-41.5 E				LONGITUI 140-47.9 E			
DEPTH (m) 89				DEPTH (m) 70				DEPTH (m) 44			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	19.631	31.469	22.166	5	19.756	31.466	22.131	5	20.208	31.469	22.017
10	19.505	31.467	22.196	10	19.638	31.468	22.163	10	19.753	31.528	22.179
20	18.504	31.575	22.528	20	17.380	31.541	22.772	20	14.256	31.799	23.661
30	12.586	31.772	23.973	30	13.037	31.898	23.983	30	8.583	32.360	25.115
40	6.550	32.077	25.175	40	6.731	32.014	25.102	40	4.657	32.278	25.555
50	4.132	32.318	25.640	50	4.518	32.575	25.804				
75	3.182	32.983	26.259								

Table 2. (Continued)

STATION US14349				STATION US14350				STATION US14351			
LATITUDE 42-17.6 N				LATITUDE 41-28.4 N				LATITUDE 41-17.0 N			
LONGITUI 140-53.9 E				LONGITUI 141-17.4 E				LONGITUI 140-41.7 E			
DEPTH (m) 56				DEPTH (m) 221				DEPTH (m) 144			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	19.213	31.786	22.513	5	19.719	33.729	23.866	5	21.522	33.897	23.512
10	17.073	31.942	23.151	10	20.197	34.027	23.968	10	20.613	33.900	23.761
20	11.684	31.931	24.264	20	20.076	34.045	24.014	20	19.110	33.880	24.138
30	6.258	32.134	25.257	30	19.892	34.043	24.060	30	18.353	33.969	24.396
40	5.341	32.572	25.712	40	19.307	34.001	24.180	40	14.942	33.802	25.061
50	6.443	33.229	26.097	50	18.901	33.996	24.279	50	14.781	33.949	25.210
				75	13.776	34.133	25.563	75	14.020	33.949	25.371
				100	12.451	34.220	25.896	100	13.212	34.285	25.797
				125	11.495	34.226	26.083	125	12.049	34.270	26.013
				150	10.969	34.200	26.158				
				175	10.918	34.204	26.170				
STATION US14352				STATION US14353				STATION US14354			
LATITUDE 41-13.2 N				LATITUDE 41-12.8 N				LATITUDE 41-12.4 N			
LONGITUI 140-45.5 E				LONGITUI 140-44.9 E				LONGITUI 140-44.0 E			
DEPTH (m) 65				DEPTH (m) 66				DEPTH (m) 69			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	21.475	33.852	23.491	5	21.992	33.275	22.910	5	22.241	33.883	23.302
10	21.591	33.831	23.443	10	21.704	33.856	23.431	10	22.042	33.948	23.407
20	20.706	33.815	23.671	20	21.114	33.857	23.593	20	21.153	33.872	23.594
30	18.506	33.583	24.063	30	19.620	33.728	23.890	30	19.880	33.790	23.870
40	16.492	33.406	24.410	40	16.864	33.434	24.345	40	15.466	33.246	24.518
50	14.186	33.356	24.878	50	14.973	33.298	24.666	50	14.152	33.346	24.878
STATION US14355				STATION US14356				STATION US14357			
LATITUDE 41-12.2 N				LATITUDE 41-11.9 N				LATITUDE 41-11.6 N			
LONGITUI 140-43.0 E				LONGITUI 140-42.0 E				LONGITUI 140-41.1 E			
DEPTH (m) 71				DEPTH (m) 73				DEPTH (m) 68			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	22.316	33.814	23.229	5	22.413	33.782	23.177	5	21.972	33.804	23.317
10	22.180	33.940	23.362	10	21.904	33.794	23.328	10	21.685	33.831	23.417
20	21.877	33.971	23.471	20	21.790	33.928	23.462	20	21.563	33.850	23.465
30	20.433	33.911	23.817	30	20.039	33.871	23.890	30	20.917	33.908	23.685
40	18.102	33.745	24.286	40	17.039	33.816	24.596	40	19.984	33.922	23.944
50	13.905	33.339	24.923	50	14.635	33.692	25.043	50	15.052	33.725	24.977
STATION US14358				STATION US14359				STATION US14360			
LATITUDE 41-11.3 N				LATITUDE 41-11.1 N				LATITUDE 41-09.0 N			
LONGITUI 140-40.0 E				LONGITUI 140-39.1 E				LONGITUI 140-41.0 E			
DEPTH (m) 52				DEPTH (m) 32				DEPTH (m) 43			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	21.581	33.827	23.443	5	21.676	33.777	23.378	5	22.154	33.817	23.276
10	21.483	33.857	23.492	10	21.311	33.829	23.518	10	21.971	33.795	23.310
20	20.156	33.923	23.899	20	21.048	33.877	23.626	20	21.858	33.877	23.404
30	19.217	33.967	24.177					30	21.180	33.877	23.591
40	18.842	33.942	24.253					40	19.253	33.948	24.153
STATION US14361				STATION US14362				STATION US14363			
LATITUDE 41-05.1 N				LATITUDE 40-57.2 N				LATITUDE 40-52.0 N			
LONGITUI 140-43.7 E				LONGITUI 140-45.5 E				LONGITUI 140-46.2 E			
DEPTH (m) 60				DEPTH (m) 50				DEPTH (m) 28			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	20.956	32.740	22.786	5	22.061	33.435	23.012	5	23.167	33.407	22.678
10	21.229	33.755	23.484	10	21.648	33.465	23.149	10	22.361	33.413	22.911
20	20.823	33.791	23.621	20	21.250	33.619	23.375	20	21.780	33.433	23.089
30	19.349	33.681	23.925	30	21.004	33.678	23.487				
40	16.459	33.641	24.598	40	19.263	33.628	23.906				
50	14.687	33.765	25.087								
STATION US14364				STATION US14365				STATION US14366			
LATITUDE 41-03.8 N				LATITUDE 41-04.6 N				LATITUDE 40-58.1 N			
LONGITUI 140-52.4 E				LONGITUI 141-01.7 E				LONGITUI 141-06.3 E			
DEPTH (m) 51				DEPTH (m) 47				DEPTH (m) 39			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	22.150	33.465	23.010	5	21.351	33.114	22.964	5	22.150	32.536	22.306
10	22.075	33.493	23.052	10	21.280	33.328	23.146	10	21.888	32.625	22.445
20	18.847	33.112	23.618	20	20.342	33.230	23.323	20	21.537	33.502	23.208
30	19.622	33.659	23.837	30	16.254	33.216	24.318	30	20.532	33.535	23.504
40	16.445	33.595	24.566	40	15.370	33.363	24.629				

Table 2. (Continued)

STATION US14367				STATION US14368				STATION US14369			
LATITUDE 41-10.7 N				LATITUDE 41-05.9 N				LATITUDE 42-16.1 N			
LONGITUI 141-10.8 E				LONGITUI 140-51.6 E				LONGITUI 140-37.4 E			
DEPTH (m) 29				DEPTH (m) 51				DEPTH (m) 88			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	23.013	32.265	21.857	5	22.598	32.366	22.051	5	22.730	31.537	21.386
10	22.490	32.396	22.104	10	21.235	32.531	22.552	10	20.187	31.480	22.030
20	21.377	33.153	22.986	20	20.419	33.604	23.587	20	15.658	31.719	23.301
				30	16.948	33.111	24.077	30	9.108	32.036	24.781
				40	14.739	33.217	24.654	40	7.682	32.599	25.434
								50	6.291	32.848	25.816
								75	5.487	33.477	26.412
STATION US14370				STATION US14371				STATION US14372			
LATITUDE 41-45.3 N				LATITUDE 41-23.5 N				LATITUDE 41-26.1 N			
LONGITUI 141-10.0 E				LONGITUI 141-34.2 E				LONGITUI 141-34.8 E			
DEPTH (m) 117				DEPTH (m) 160				DEPTH (m) 396			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	17.919	31.790	22.835	5	22.208	33.702	23.174	5	22.293	33.448	22.957
10	14.772	32.005	23.713	10	21.836	33.888	23.419	10	22.218	33.762	23.217
20	12.786	32.480	24.483	20	20.603	33.701	23.612	20	20.863	33.652	23.505
30	11.970	33.092	25.113	30	20.763	33.965	23.770	30	19.982	33.563	23.671
40	10.210	33.348	25.627	40	19.767	33.989	24.052	40	20.506	33.972	23.844
50	9.807	33.453	25.777	50	18.910	34.032	24.304	50	19.564	33.996	24.110
75	7.182	33.233	26.002	75	16.573	33.862	24.741	75	17.242	33.925	24.632
100	7.205	33.523	26.227	100	15.931	33.897	24.915	100	16.095	33.850	24.841
				125	15.008	33.870	25.099	125	15.290	34.010	25.145
				150	14.590	33.929	25.235	150	14.560	34.061	25.344
								175	12.391	33.917	25.673
								200	9.545	33.767	26.065
								250	5.919	33.689	26.527
								300	3.490	33.544	26.678
STATION US14373				STATION US14374				STATION US14375			
LATITUDE 41-30.0 N				LATITUDE 41-29.9 N				LATITUDE 41-29.9 N			
LONGITUI 141-39.5 E				LONGITUI 141-34.9 E				LONGITUI 141-30.1 E			
DEPTH (m) 609				DEPTH (m) 149				DEPTH (m) 62			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	22.507	33.634	23.038	5	22.423	33.446	22.919	5	21.163	33.274	23.137
10	22.439	33.749	23.145	10	22.302	33.716	23.158	10	20.937	33.619	23.460
20	21.964	33.925	23.412	20	21.651	33.802	23.405	20	20.644	33.875	23.733
30	20.447	33.511	23.509	30	20.385	33.490	23.509	30	20.288	33.923	23.865
40	20.956	33.966	23.719	40	20.056	33.759	23.801	40	19.814	33.821	23.911
50	20.036	33.948	23.950	50	19.089	33.791	24.074	50	19.255	33.840	24.070
75	18.225	34.022	24.468	75	17.231	33.771	24.516				
100	16.066	33.823	24.828	100	15.274	34.126	25.238				
125	13.527	33.810	25.365	125	14.303	34.175	25.486				
150	12.736	34.003	25.673								
175	11.809	34.094	25.922								
200	9.677	33.818	26.083								
250	6.343	33.459	26.291								
300	3.198	33.422	26.608								
400	2.993	33.729	26.871								
500	3.284	33.930	27.005								
STATION US14376				STATION US14377				STATION US14378			
LATITUDE 41-27.9 N				LATITUDE 41-28.1 N				LATITUDE 41-29.9 N			
LONGITUI 141-12.0 E				LONGITUI 141-17.6 E				LONGITUI 141-21.0 E			
DEPTH (m) 91				DEPTH (m) 203				DEPTH (m) 223			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	21.827	33.798	23.353	5	21.860	33.785	23.334	5	21.110	33.844	23.585
10	21.572	33.842	23.457	10	21.584	33.819	23.436	10	20.997	33.858	23.626
20	21.486	33.856	23.491	20	20.941	33.908	23.679	20	20.426	33.916	23.822
30	21.462	33.861	23.501	30	20.602	33.939	23.793	30	19.841	34.009	24.047
40	20.737	33.889	23.719	40	19.183	33.965	24.184	40	19.414	34.039	24.181
50	19.746	33.915	24.000	50	16.598	34.028	24.862	50	17.442	34.082	24.705
75	13.079	34.217	25.771	75	12.821	34.247	25.845	75	15.081	34.224	25.356
				100	11.884	34.248	26.027	100	13.102	34.290	25.823
				125	11.494	34.239	26.093	125	12.526	34.263	25.915
				150	11.343	34.230	26.114	150	12.069	34.227	25.975
				175	10.957	34.213	26.171	175	11.484	34.221	26.080
								200	11.465	34.230	26.092

Table 2 (Continued)

STATION US14379				STATION US14380				STATION US14381			
LATITUDE 41-26.5 N				LATITUDE 41-26.5 N				LATITUDE 41-27.3 N			
LONGITUI 141-20.8 E				LONGITUI 141-15.8 E				LONGITUI 141-24.1 E			
DEPTH (m) 70				DEPTH (m) 82				DEPTH (m) 47			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	21.867	33.808	23.349	5	21.020	33.709	23.506	5	21.835	33.755	23.318
10	21.787	33.816	23.378	10	20.860	33.753	23.583	10	21.820	33.759	23.325
20	19.853	33.818	23.898	20	20.890	33.792	23.605	20	21.703	33.779	23.373
30	19.731	33.811	23.925	30	20.671	33.823	23.686	30	21.521	33.809	23.446
40	19.155	33.867	24.116	40	20.184	33.887	23.864				
50	15.413	34.087	25.177	50	18.722	33.947	24.287				
STATION US14382				STATION US14383				STATION US14384			
LATITUDE 41-28.6 N				LATITUDE 41-31.6 N				LATITUDE 41-47.6 N			
LONGITUI 141-23.7 E				LONGITUI 141-22.3 E				LONGITUI 141-15.1 E			
DEPTH (m) 78				DEPTH (m) 238				DEPTH (m) 213			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	22.481	33.686	23.085	5	22.429	33.749	23.147	5	18.502	32.720	23.404
10	22.305	33.714	23.156	10	22.087	33.785	23.271	10	17.294	32.783	23.744
20	21.953	33.743	23.276	20	21.328	33.851	23.530	20	8.387	32.998	25.644
30	21.481	33.791	23.443	30	20.768	33.891	23.712	30	7.165	32.988	25.812
40	21.135	33.839	23.574	40	20.472	33.925	23.817	40	6.343	32.959	25.897
50	20.648	33.894	23.747	50	19.960	33.963	23.982	50	5.843	33.048	26.030
				75	14.745	34.062	25.304	75	5.222	33.212	26.233
				100	13.974	34.249	25.612	100	4.877	33.214	26.273
				125	12.954	34.292	25.853	125	5.357	33.389	26.357
				150	12.215	34.221	25.943	150	4.966	33.369	26.386
				175	11.717	34.230	26.044	175	5.180	33.435	26.414
				200	11.445	34.226	26.091	200	4.255	33.396	26.484
STATION US14385				STATION US14386				STATION US14387			
LATITUDE 41-48.8 N				LATITUDE 41-44.0 N				LATITUDE 41-41.9 N			
LONGITUI 141-13.2 E				LONGITUI 141-15.7 E				LONGITUI 141-17.6 E			
DEPTH (m) 161				DEPTH (m) 225				DEPTH (m) 230			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	17.844	32.038	23.043	5	19.657	34.122	24.181	5	19.784	33.946	24.014
10	16.368	32.247	23.547	10	17.681	34.132	24.685	10	19.713	33.949	24.035
20	6.667	32.307	25.341	20	15.766	34.183	25.172	20	17.507	33.950	24.587
30	4.330	32.478	25.748	30	13.097	34.031	25.623	30	16.352	33.993	24.893
40	7.715	33.359	26.026	40	11.327	33.794	25.777	40	16.037	34.084	25.035
50	5.238	33.009	26.070	50	7.919	33.252	25.913	50	15.680	34.178	25.187
75	6.112	33.338	26.225	75	5.583	33.108	26.109	75	9.496	33.809	26.106
100	5.080	33.202	26.241	100	6.007	33.346	26.245	100	8.632	33.692	26.151
125	4.682	33.236	26.312	125	8.117	33.806	26.319	125	7.838	33.589	26.190
				150	7.231	33.727	26.385	150	7.754	33.674	26.269
				175	4.627	33.414	26.459	175	7.523	33.717	26.335
				200	4.047	33.416	26.521	200	5.907	33.623	26.476
STATION US14388				STATION US14389				STATION US14390			
LATITUDE 41-37.8 N				LATITUDE 41-35.0 N				LATITUDE 41-36.0 N			
LONGITUI 141-19.3 E				LONGITUI 141-20.4 E				LONGITUI 140-53.0 E			
DEPTH (m) 216				DEPTH (m) 311				DEPTH (m) 53			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	22.599	33.670	23.040	5	21.143	33.853	23.582	5	22.873	33.538	22.862
10	21.938	33.725	23.267	10	21.017	33.864	23.625	10	22.863	33.542	22.867
20	21.745	33.752	23.341	20	20.859	33.879	23.679	20	19.370	33.985	24.151
30	21.254	33.794	23.507	30	20.750	33.878	23.707	30	18.049	34.157	24.614
40	20.375	33.887	23.814	40	18.611	33.960	24.325	40	17.716	34.203	24.731
50	19.895	33.960	23.996	50	17.260	34.073	24.741				
75	19.491	34.006	24.136	75	16.450	34.120	24.967				
100	15.836	33.956	24.982	100	15.115	34.189	25.321				
125	9.727	33.876	26.120	125	14.044	34.158	25.527				
150	9.255	33.870	26.192	150	12.722	34.193	25.822				
175	9.121	33.872	26.215	175	12.722	34.233	25.854				
200	8.537	33.843	26.284	200	9.761	34.013	26.221				
				250	5.552	33.628	26.523				
				300	3.725	33.655	26.744				

Table 2 (Continued)

STATION US14391				STATION US14392				STATION US14393			
LATITUDE 41-36.9 N				LATITUDE 41-38.8 N				LATITUDE 41-40.7 N			
LONGITUI 140-51.3 E				LONGITUI 140-49.3 E				LONGITUI 140-47.3 E			
DEPTH (m) 93				DEPTH (m) 346				DEPTH (m) 231			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	22.081	33.691	23.201	5	21.106	33.780	23.537	5	22.660	33.531	22.917
10	21.813	33.765	23.332	10	20.734	33.816	23.665	10	22.633	33.556	22.943
20	19.779	34.036	24.084	20	19.761	33.941	24.016	20	21.643	33.798	23.404
30	16.385	34.219	25.058	30	17.144	34.124	24.808	30	16.799	34.209	24.955
40	16.045	34.266	25.173	40	15.849	34.218	25.180	40	15.245	34.274	25.358
50	15.966	34.276	25.199	50	15.316	34.265	25.335	50	14.778	34.326	25.501
75	15.994	34.278	25.193	75	14.436	34.316	25.566	75	14.373	34.326	25.588
				100	14.223	34.320	25.615	100	13.945	34.324	25.676
				125	14.081	34.324	25.647	125	13.705	34.318	25.722
				150	13.617	34.298	25.724	150	13.552	34.317	25.752
				175	12.509	34.282	25.934	175	13.364	34.314	25.788
				200	11.535	34.250	26.094	200	12.663	34.290	25.910
				250	11.126	34.235	26.157				
				300	10.885	34.228	26.195				

STATION US14394				STATION US14395				STATION US14396			
LATITUDE 41-42.8 N				LATITUDE 41-39.3 N				LATITUDE 44-57.2 N			
LONGITUI 140-45.1 E				LONGITUI 140-41.6 E				LONGITUI 140-46.0 E			
DEPTH (m) 83				DEPTH (m) 132				DEPTH (m) 185			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	22.561	33.581	22.982	5	22.684	33.918	23.204	5	22.776	33.521	22.876
10	22.071	33.675	23.191	10	22.127	34.058	23.467	10	21.821	33.676	23.262
20	21.159	33.845	23.572	20	21.078	34.123	23.805	20	21.085	33.786	23.547
30	18.015	34.176	24.638	30	19.673	34.191	24.230	30	16.247	33.919	24.860
40	16.497	34.243	25.051	40	18.652	34.237	24.526	40	12.661	34.074	25.742
50	15.292	34.300	25.368	50	16.413	34.199	25.037	50	10.703	33.987	26.039
75	12.649	34.287	25.910	75	12.327	34.246	25.941	75	8.275	34.031	26.472
				100	11.779	34.246	26.045	100	6.604	34.018	26.698
								125	4.862	34.000	26.898
								150	4.017	34.015	27.001
								175	2.682	34.024	27.134

STATION US14397				STATION US14398			
LATITUDE 45-00.2 N				LATITUDE 41-44.8 N			
LONGITUI 140-46.7 E				LONGITUI 139-48.3 E			
DEPTH (m) 159				DEPTH (m) 1427			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	22.786	33.360	22.751	5	23.571	33.770	22.836
10	21.437	33.750	23.424	10	22.865	33.930	23.161
20	20.640	33.775	23.658	20	21.693	33.979	23.528
30	16.709	33.867	24.713	30	17.888	34.264	24.736
40	13.060	33.991	25.599	40	16.046	34.318	25.213
50	11.639	33.998	25.879	50	15.424	34.380	25.401
75	8.962	34.066	26.393	75	12.394	34.280	25.955
100	6.809	34.007	26.663	100	9.809	34.173	26.339
125	4.820	34.001	26.904	125	8.216	34.115	26.546
150	4.613	34.013	26.936	150	5.900	34.046	26.811
				175	4.703	34.034	26.943
				200	3.484	34.062	27.092
				250	2.190	34.067	27.209
				300	1.450	34.065	27.263
				400	0.883	34.059	27.297
				500	0.673	34.069	27.317
				600	0.557	34.067	27.322
				700	0.460	34.068	27.329