



HOKKAIDO UNIVERSITY

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THE " USHIO MARU "

CRUISE 348

CRUISE 349

CRUISE 350

IN NOVEMBER 2015

IN DECEMBER 2015

1.Cruise Itinerary

Cruise 348

Departure from Hakodate	Nov.	16, 2015
Start hydrographic research (US15483)		16
Finish hydrographic research (US1504-2)		17
Return to Hakodate		18
Total coverage 156.5 miles		

Cruise 349

Departure from Hakodate	Nov.	25, 2015
Start hydrographic research (US15505) and trawl net sampling		25
Finish trawl net sampling and hydrographic research (US15508)		25
Return to Hakodate		25
Total coverage 162.1 miles		

Cruise 350

Departure from Hakodate	Dec.	14, 2015
Retrieval of mooring current meter		14
Start hydrographic research (US15509)		14
Set mooring current meter		15
Arrival at and departure from Mori		15
Start trawl net sampling		15
Finish trawl net sampling and hydrographic research (US15521)		16
Arrival at Muroran		16
Departure from Muroran		18
Return to Hakodate		18
Total coverage 306.2 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”.

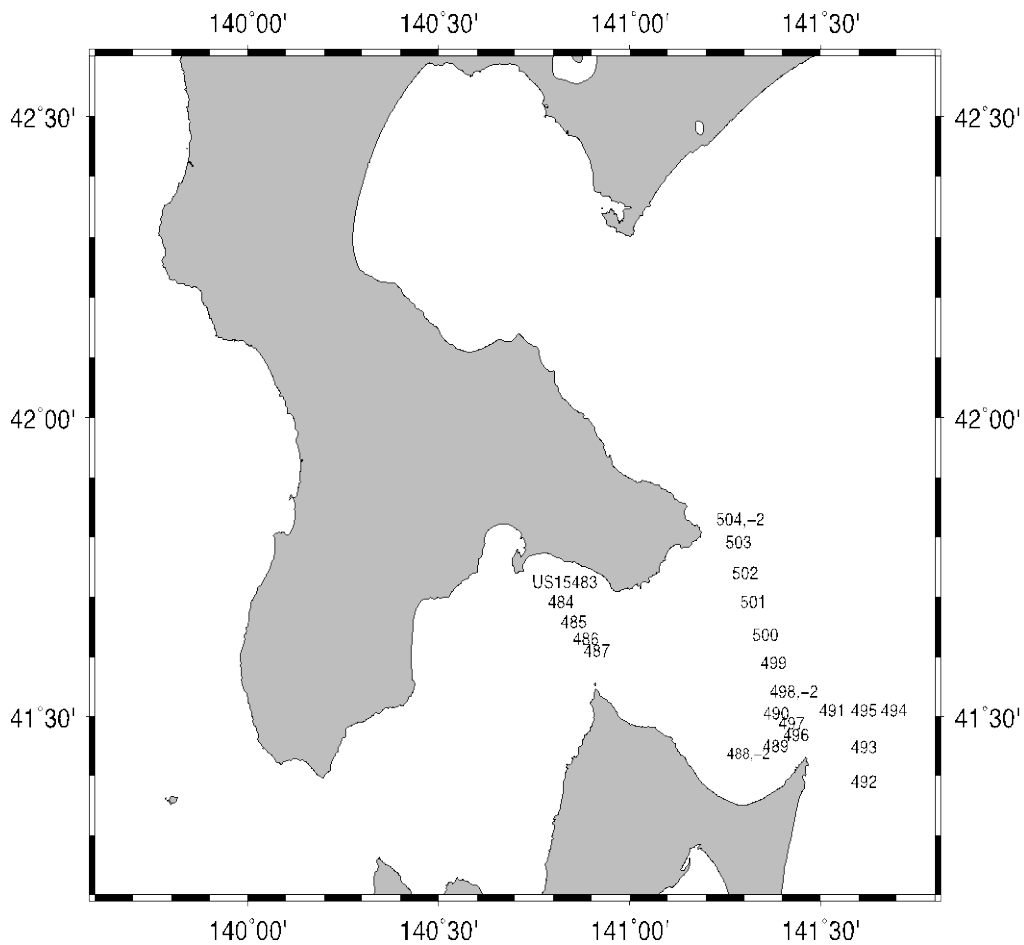


Figure 1. Oceanographic stations (Cruise 348)

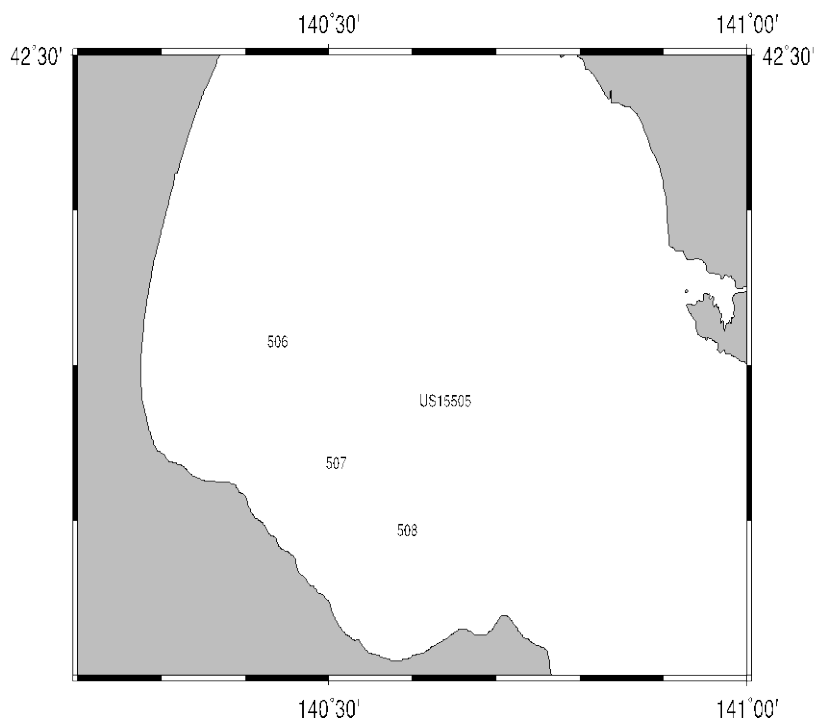


Figure 2. Oceanographic stations (Cruise 349)

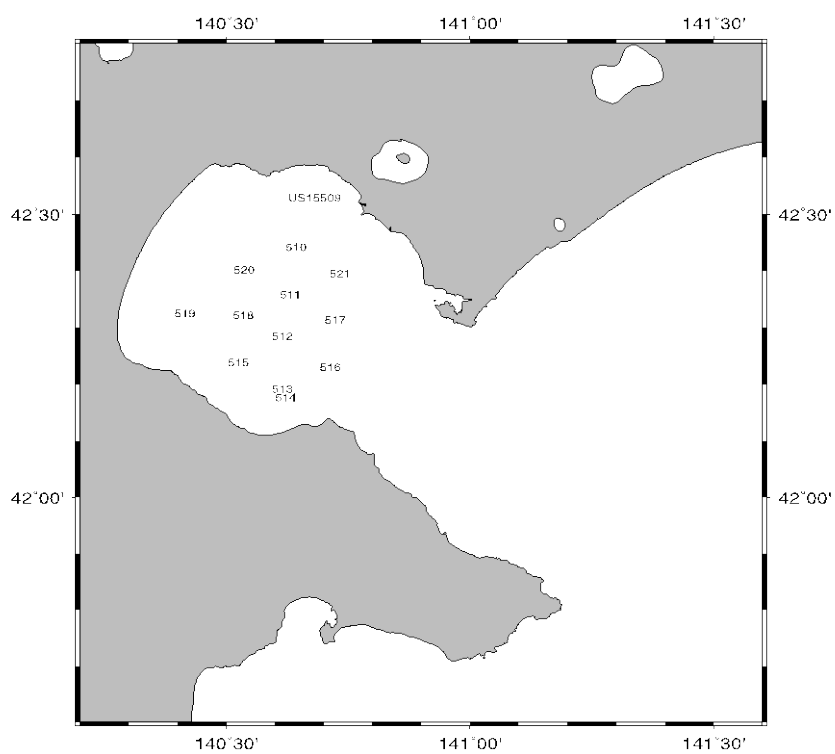


Figure 3. Oceanographic stations (Cruise 350)

Table 1. List of Oceanographic Station

Cruise 348												
Station	Lat. (N)*	Long. (E)*	Date	S.M.T.	Depth (m)	Wave	Swell	Wind	Air Temp.	Sea Temp.	Wr.	Bar. (hPa)
US15483	41-42.9	140-44.7	11/16	0915-1924	82	West-2	East-1	West-3	14.1	16.0	bc	1021.1
US15484	41-40.9	140-47.2	11/16	0942-0956	215	WSW-2	East-1	WSW-4	14.4	16.2	bc	1021.2
US15485	41-38.9	140-49.2	11/16	1013-1033	344	West-2	East-1	West-4	14.6	16.5	bc	1021.2
US15486	41-37.2	140-51.1	11/16	1101-1112	98	West-2	East-1	West-4	14.9	16.6	bc	1021.2
US15487	41-36.0	140-52.8	11/16	1133-1139	49	West-2	East-1	West-3	15.3	16.5	bc	1021.3
US15488	41-26.3	141-15.3	11/16	1338-1347	77	WNW-2	WNW-1	WNW-4	15.5	15.6	bc	1021.1
US15488-2	41-25.9	141-14.4	11/16	1403-1410	71	WNW-2	WNW-1	WNW-4	15.3	15.1	bc	1021.1
US15489	41-26.4	141-20.9	11/16	1451-1458	63	WNW-2	WSW-1	WNW-4	15.6	15.6	bc	1021.5
US15490	41-29.7	141-21.0	11/16	1526-1542	220	WNW-2	NW-1	WNW-4	15.0	15.5	bc	1021.5
US15491	41-30.0	141-29.8	11/16	1626-1634	60	WNW-3	WNW-1	NW-4	14.5	15.6	bc	1022.1
US15492	41-22.8	141-34.8	11/16	1727-1752	460	WNW-3	SE-1	NW-3	14.3	15.3	c	1022.2
US15493	41-26.3	141-34.8	11/16	1820-1842	325	WNW-3	WNW-1	WNW-3	14.2	15.3	bc	1022.5
US15494	41-30.0	141-39.5	11/16	1922-1954	610	WNW-3	WNW-1	WNW-3	13.9	15.7	bc	1022.5
US15495	41-30.0	141-34.8	11/16	2018-2027	111	NW-2	WNW-1	NW-3	13.4	15.7	bc	1022.6
US19496	41-27.5	141-24.1	11/17	0739-0745	50	calm	East-1	calm	13.9	15.9	c	1019.7
US19497	41-28.7	141-23.4	11/17	0758-0807	87	calm	East-1	calm	14.3	15.7	c	1019.6
US15498	41-31.9	141-22.0	11/17	0837-0853	252	calm	East-1	calm	14.6	15.9	bc	1019.2
US15498-2	41-31.7	141-22.0	11/17	0934-0951	245							
US15499	41-34.8	141-20.6	11/17	1016-1035	321	South-1	East-1	South-1	15.8	15.5	bc	1018.6
US15500	41-37.6	141-19.3	11/17	1100-1115	216	SSW-1	East-1	SSW-2	15.8	15.4	bc	1018.2
US15501	41-40.9	141-17.4	11/17	1140-1159	229	West-2	East-1	West-2	15.6	15.5	bc	1018.0
US15502	41-43.8	141-16.1	11/17	1220-1236	229	NW-2	ESE-1	NW-2	15.1	15.5	bc	1017.4
US15503	41-46.9	141-15.1	11/17	1300-1315	209	West-1	ESE-1	calm	15.0	14.5	bc	1016.7
US15504	41-49.2	141-13.6	11/17	1334-1347	181	South-1	ESE-1	South-2	14.8	15.0	c	1016.6
US15504-2	41-49.8	141-13.7	11/17	1420-1434	198							
Cruise 349												
Station	Lat. (N)*	Long. (E)*	Date	S.M.T.	Depth (m)	Wave	Swell	Wind	Air Temp.	Sea Temp.	Wr.	Bar. (hPa)
US15505	42-16.4	140-36.5	11/25	1240-1246	90	NE-1	NE-1	NE-2	3.2	10.8	bc	1024.0
US15506	42-18.7	140-25.6	11/25	1348-1353	68	calm	NE-1	calm	3.2	11.1	s	1023.5
US15507	42-14.0	140-29.8	11/25	1523-1528	77	West-1	North-1	West-2	3.5	11.0	bc	1022.6
US15508	42-11.4	140-34.9	11/25	1625-1628	80	NW-1	North-1	NW-2	3.4	10.9	bc	1023.8
Cruise 350												
Station	Lat. (N)*	Long. (E)*	Date	S.M.T.	Depth (m)	Wave	Swell	Wind	Air Temp.	Sea Temp.	Wr.	Bar. (hPa)
US15509	42-31.3	140-37.6	12/14	1603-1607	60	calm	SE-1	calm	5.8	9.4	bc	1025.6
US15510	42-26.1	140-37.3	12/15	0645-0652	82	ESE-3	ESE-1	SE-3	8.3	9.5	o	1019.6
US15511	42-21.1	140-36.6	12/15	0736-0742	87	SE-3	ESE-1	SE-3	8.1	9.4	o	1019.1
US15512	42-16.7	140-35.6	12/15	0824-0830	91	SE-2	ESE-1	SE-2	7.5	8.5	o	1018.8
US15513	42-11.1	140-35.6	12/15	0957-1001	79	SSE-2	ESE-1	SSE-4	9.4	8.5	c	1017.6
US15514	42-10.2	140-36.0	12/15	1044-1049	75	SSE-2	ESE-1	SSE-4	8.8	9.4	c	1016.6
US15515	42-13.9	140-30.2	12/15	1250-1256	77	SSE-2	ESE-1	SSE-4	10.6	9.4	o	1014.2
US15516	42-13.4	140-41.5	12/15	1526-1532	87	South-2	ESE-2	South-3	10.3	9.5	o	1013.0
US15517	42-18.4	140-42.1	12/16	0653-0658	65	NE-3	East-1	NW-4	7.5	9.9	o	1008.0
US15518	42-18.9	140-30.8	12/16	0801-0807	93	West-2	East-1	West-3	7.3	9.5	c	1008.6
US15519	42-19.1	140-23.6	12/16	0853-0857	56	West-2	East-1	West-3	6.8	9.1	c	1008.1
US15520	42-23.7	140-30.9	12/16	1228-1233	94	ESE-1	ENE-1	ESE-2	6.9	9.4	c	1004.8
US15521	42-23.3	140-42.7	12/16	1342-1347	60	SSE-1	ESE-1	SSE-3	8.0	9.5	c	1004.0

(*): Fixed position by Global Positioning System

Table 2. Oceanographic data

STATION US15483			
LATITUDE 41-42.9 N			
LONGITUDE 140-44.8 E			
DEPTH (m) 82			
Press.	Temp.	Salinity	Sigma-T
5	16.226	33.638	24.648
10	16.205	33.639	24.655
20	16.084	33.663	24.700
30	15.961	33.712	24.766
40	15.697	33.762	24.863
50	15.515	33.755	24.899
75	14.135	33.872	25.287

STATION US15484			
LATITUDE 41-40.9 N			
LONGITUDE 140-17.2 E			
DEPTH (m) 215			
Press.	Temp.	Salinity	Sigma-T
5	16.510	33.607	24.560
10	16.517	33.610	24.560
20	16.294	33.735	24.707
30	15.949	33.805	24.840
40	15.894	33.813	24.859
50	15.869	33.822	24.871
75	15.166	33.869	25.064
100	13.902	33.976	25.416
125	12.787	34.047	25.697
150	12.422	34.097	25.807
175	11.948	34.126	25.920
200	11.585	34.136	25.996

STATION US15485			
LATITUDE 41-38.9 N			
LONGITUDE 140-49.2 E			
DEPTH (m) 344			
Press.	Temp.	Salinity	Sigma-T
5	16.761	33.601	24.496
10	16.564	33.694	24.614
20	16.231	33.729	24.717
30	16.021	33.800	24.820
40	15.965	33.888	24.900
50	15.639	33.909	24.990
75	15.242	33.912	25.080
100	14.012	34.038	25.441
125	13.221	34.088	25.643
150	12.682	34.110	25.766
175	12.318	34.135	25.857
200	11.861	34.159	25.962
250	10.733	34.162	26.170
300	10.639	34.161	26.186

STATION US15486			
LATITUDE 41-37.2 N			
LONGITUDE 140-51.1 E			
DEPTH (m) 98			
Press.	Temp.	Salinity	Sigma-T
5	16.763	33.650	24.534
10	16.750	33.650	24.537
20	16.690	33.666	24.563
30	16.627	33.676	24.586
40	16.348	33.710	24.676
50	15.909	33.785	24.834
75	15.647	33.836	24.932

STATION US15487			
LATITUDE 41-36.0 N			
LONGITUDE 140-52.9 E			
DEPTH (m) 51			
Press.	Temp.	Salinity	Sigma-T
5	16.743	33.648	24.537
10	16.745	33.648	24.536
20	16.617	33.664	24.579
30	16.270	33.725	24.705
40	16.065	33.768	24.786

STATION US15488			
LATITUDE 41-26.3 N			
LONGITUDE 141-15.3 E			
DEPTH (m) 77			
Press.	Temp.	Salinity	Sigma-T
5	15.897	33.774	24.828
10	15.900	33.774	24.827
20	15.809	33.776	24.849
30	15.783	33.780	24.858
40	15.619	33.794	24.906
50	15.413	33.815	24.968

STATION US15488-2			
LATITUDE 41-25.9 N			
LONGITUDE 141-14.4 E			
DEPTH (m) 71			
Press.	Temp.	Salinity	Sigma-T
5	15.894	33.777	24.831
10	15.888	33.775	24.831
20	15.798	33.776	24.852
30	15.663	33.787	24.891
40	15.548	33.797	24.924
50	15.524	33.802	24.933
60	15.480	33.806	24.946

STATION US15489			
LATITUDE 41-26.4 N			
LONGITUDE 141-20.9 E			
DEPTH (m) 63			
Press.	Temp.	Salinity	Sigma-T
5	15.644	33.778	24.888
10	15.644	33.777	24.887
20	15.645	33.777	24.887
30	15.643	33.777	24.887
40	15.640	33.776	24.887
50	15.639	33.777	24.888
55	15.625	33.779	24.892

STATION US15490			
LATITUDE 42-01.4 N			
LONGITUDE 141-07.0 E			
DEPTH (m) 220			
Press.	Temp.	Salinity	Sigma-T
5	15.811	33.788	24.859
10	15.811	33.787	24.858
20	15.807	33.786	24.858
30	15.793	33.786	24.861
40	15.775	33.785	24.864
50	15.762	33.785	24.867
75	15.737	33.783	24.871
100	14.579	33.891	25.208
125	13.548	34.014	25.519
150	12.762	34.044	25.700
175	11.447	34.068	25.968
200	11.129	34.034	26.000

STATION	US15491		
LATITUDE	41-30.0	N	
LONGITUDE	141-29.8	E	
DEPTH (m)	60		
Press.	Temp.	Salinity	Sigma-T
5	15.588	33.810	24.925
10	15.585	33.809	24.925
20	15.589	33.808	24.923
30	15.570	33.807	24.927
40	15.553	33.806	24.930
50	15.549	33.805	24.930

STATION	US15492		
LATITUDE	41-22.8	N	
LONGITUDE	141-34.8	E	
DEPTH (m)	460		
Press.	Temp.	Salinity	Sigma-T
5	15.557	33.791	24.917
10	15.560	33.790	24.916
20	15.560	33.790	24.916
30	15.556	33.791	24.918
40	15.555	33.791	24.918
50	15.557	33.792	24.918
75	15.560	33.794	24.919
100	15.560	33.795	24.920
125	15.267	33.825	25.007
150	14.866	33.866	25.127
175	13.420	33.946	25.492
200	11.039	33.931	25.936
250	5.016	33.530	26.508
300	3.408	33.635	26.758
400	3.389	33.860	26.939
405	3.386	33.856	26.936

STATION	US15493		
LATITUDE	41-26.3	N	
LONGITUDE	141-34.8	E	
DEPTH (m)	325		
Press.	Temp.	Salinity	Sigma-T
5	15.546	33.794	24.922
10	15.541	33.794	24.923
20	15.516	33.795	24.929
30	15.513	33.796	24.931
40	15.514	33.797	24.932
50	15.514	33.799	24.933
75	15.486	33.802	24.941
100	15.475	33.803	24.944
125	15.474	33.804	24.946
150	15.173	33.831	25.033
175	15.100	33.846	25.060
200	9.496	33.863	26.148
250	4.128	33.549	26.619
300	3.393	33.689	26.803
310	3.363	33.747	26.851

STATION	US15494		
LATITUDE	41-30.0	N	
LONGITUDE	141-39.5	E	
DEPTH (m)	610		
Press.	Temp.	Salinity	Sigma-T
5	15.897	33.766	24.822
10	15.905	33.763	24.818
20	15.808	33.769	24.844
30	15.665	33.782	24.887
40	15.567	33.792	24.916
50	15.545	33.795	24.923
75	15.505	33.800	24.936
100	15.395	33.814	24.971
125	15.144	33.825	25.034
150	14.313	33.896	25.268
175	11.646	33.923	25.819
200	7.950	33.753	26.302
250	5.886	33.622	26.478
300	3.652	33.576	26.688
400	3.267	33.749	26.862
500	3.453	33.933	26.991

STATION	US15495		
LATITUDE	41-30.0	N	
LONGITUDE	141-34.8	E	
DEPTH (m)	111		
Press.	Temp.	Salinity	Sigma-T
5	15.872	33.764	24.826
10	15.875	33.761	24.823
20	15.869	33.759	24.823
30	15.779	33.771	24.852
40	15.595	33.775	24.897
50	15.519	33.776	24.914
75	15.472	33.770	24.920
100	15.340	33.773	24.951

STATION	US15496		
LATITUDE	41-27.5	N	
LONGITUDE	141-24.1	E	
DEPTH (m)	50		
Press.	Temp.	Salinity	Sigma-T
5	15.879	33.767	24.827
10	15.881	33.765	24.825
20	15.857	33.767	24.831
30	15.770	33.770	24.853
40	15.408	33.790	24.950

STATION		US15497	
LATITUDE	41-28.7	N	
LONGITUDE	141-23.4	E	
DEPTH (m)	87		
Press.	Temp.	Salinity	Sigma-T
5	16.003	33.740	24.778
10	15.956	33.748	24.795
20	15.857	33.765	24.830
30	15.822	33.768	24.840
40	15.764	33.770	24.855
50	15.641	33.780	24.890
75	14.704	33.898	25.186

STATION		US15498	
LATITUDE	41-31.9	N	
LONGITUDE	141-22.0	E	
DEPTH (m)	252		
Press.	Temp.	Salinity	Sigma-T
5	15.996	33.753	24.790
10	15.999	33.753	24.789
20	15.995	33.754	24.790
30	15.958	33.756	24.800
40	15.966	33.756	24.799
50	15.882	33.763	24.823
75	15.613	33.794	24.907
100	15.397	33.818	24.973
125	14.610	33.877	25.190
150	12.917	33.918	25.571
175	12.384	33.962	25.709
200	11.777	33.898	25.775
240	12.061	34.053	25.842

STATION		US15499	
LATITUDE	41-34.8	N	
LONGITUDE	141-20.6	E	
DEPTH (m)	321		
Press.	Temp.	Salinity	Sigma-T
5	15.437	33.799	24.950
10	15.294	33.823	25.000
20	15.256	33.831	25.015
30	15.151	33.849	25.051
40	15.141	33.852	25.056
50	15.117	33.857	25.065
75	15.104	33.860	25.070
100	15.051	33.865	25.086
125	14.805	33.887	25.157
150	13.357	33.980	25.531
175	12.788	33.940	25.614
200	11.103	33.888	25.891
250	7.267	33.742	26.391
300	3.638	33.626	26.729
310	3.411	33.662	26.779

STATION		US15500	
LATITUDE	41-37.6	N	
LONGITUDE	141-19.3	E	
DEPTH (m)	216		
Press.	Temp.	Salinity	Sigma-T
5	15.332	33.826	24.994
10	14.968	33.851	25.093
20	14.410	33.901	25.251
30	14.243	33.916	25.299
40	14.179	33.923	25.317
50	14.054	33.927	25.347
75	13.967	33.943	25.377
100	13.956	33.961	25.394
125	13.933	33.966	25.402
150	11.164	33.901	25.890
175	7.919	33.774	26.323
200	7.168	33.762	26.421
205	7.121	33.760	26.426

STATION		US15501	
LATITUDE	41-40.9	N	
LONGITUDE	141-17.4	E	
DEPTH (m)	229		
Press.	Temp.	Salinity	Sigma-T
5	15.707	33.804	24.894
10	15.605	33.816	24.926
20	14.810	33.895	25.161
30	14.538	33.921	25.240
40	13.772	33.931	25.409
50	13.557	33.952	25.469
75	12.654	33.951	25.649
100	11.412	33.905	25.848
125	10.530	33.969	26.056
150	8.437	33.816	26.278
175	6.727	33.658	26.398
200	5.790	33.570	26.449
215	5.111	33.530	26.498

STATION		US15502	
LATITUDE	41-43.8	N	
LONGITUDE	141-16.1	E	
DEPTH (m)	229		
Press.	Temp.	Salinity	Sigma-T
5	15.071	33.812	25.040
10	15.053	33.814	25.047
20	14.467	33.874	25.219
30	14.155	33.922	25.322
40	14.000	33.946	25.373
50	13.917	33.947	25.391
75	12.364	33.997	25.740
100	10.367	33.901	26.031
125	9.525	33.861	26.142
150	8.168	33.775	26.287
175	6.144	33.577	26.410
200	5.163	33.522	26.485
215	4.848	33.538	26.533

STATION		US15503	
LATITUDE	41-46.9	N	
LONGITUDE	141-15.1	E	
DEPTH (m)	209		
Press.	Temp.	Salinity	Sigma-T
5	15.124	33.823	25.038
10	15.042	33.827	25.059
20	14.791	33.876	25.151
30	14.641	33.903	25.204
40	14.393	33.904	25.257
50	13.904	33.919	25.371
75	12.640	33.968	25.665
100	11.428	33.986	25.908
125	9.330	33.802	26.127
150	7.743	33.722	26.307
175	6.155	33.609	26.434
200	5.207	33.548	26.500

STATION		US15504	
LATITUDE	41-49.2	N	
LONGITUDE	141-13.6	E	
DEPTH (m)	181		
Press.	Temp.	Salinity	Sigma-T
5	15.063	33.828	25.055
10	14.729	33.874	25.163
20	14.520	33.912	25.236
30	14.369	33.915	25.271
40	13.332	33.833	25.422
50	13.527	33.926	25.455
75	13.050	33.932	25.556
100	11.381	33.938	25.879
125	9.116	33.811	26.169
150	7.424	33.697	26.334

STATION		US15504-2	
LATITUDE	41-49.8	N	
LONGITUDE	141-13.7	E	
DEPTH (m)	198		
Press.	Temp.	Salinity	Sigma-T
5	15.042	33.828	25.059
10	14.964	33.837	25.083
20	14.890	33.853	25.111
30	14.650	33.891	25.192
40	14.457	33.901	25.242
50	13.358	33.826	25.412
75	12.914	33.843	25.514
100	12.106	33.896	25.712
125	10.748	33.916	25.977
150	7.888	33.735	26.297
175	6.410	33.605	26.398
185	5.973	33.597	26.447

STATION US15505			
LATITUDE 42-16.4 N			
LONGITUDE 140-36.5 E			
DEPTH (m) 90			
Press.	Temp.	Salinity	Sigma-T
5	11.266	33.655	25.680
10	11.267	33.657	25.681
20	11.276	33.663	25.685
30	11.288	33.679	25.695
40	11.266	33.685	25.704
50	11.266	33.692	25.709
75	9.338	33.778	26.107

STATION US15508			
LATITUDE 42-11.4 N			
LONGITUDE 140-34.9 E			
DEPTH (m) 80			
Press.	Temp.	Salinity	Sigma-T
5	11.018	33.578	25.665
10	11.030	33.582	25.666
20	11.187	33.636	25.680
30	11.194	33.637	25.679
40	11.205	33.639	25.679
50	11.219	33.644	25.680
75	8.453	33.707	26.191

STATION US15511			
LATITUDE 42-21.1 N			
LONGITUDE 140-36.6 E			
DEPTH (m) 87			
Press.	Temp.	Salinity	Sigma-T
5	9.746	33.686	25.968
10	9.749	33.686	25.968
20	9.755	33.686	25.967
30	9.753	33.683	25.965
40	9.754	33.681	25.963
50	9.759	33.684	25.964
75	9.768	33.686	25.965
85	9.150	33.678	26.059

STATION US15514			
LATITUDE 42-10.2 N			
LONGITUDE 140-36.0 E			
DEPTH (m) 75			
Press.	Temp.	Salinity	Sigma-T
5	9.763	33.679	25.960
10	9.766	33.679	25.959
20	9.753	33.675	25.959
30	9.758	33.676	25.959
40	9.743	33.672	25.958
50	9.727	33.669	25.958

STATION US15506			
LATITUDE 42-18.7 N			
LONGITUDE 140-25.6 E			
DEPTH (m) 68			
Press.	Temp.	Salinity	Sigma-T
5	11.352	33.708	25.706
10	11.358	33.708	25.705
20	11.361	33.708	25.705
30	11.354	33.707	25.705
40	11.337	33.703	25.705
50	11.333	33.702	25.705
65	11.319	33.714	25.717

STATION US15509			
LATITUDE 42-31.3 N			
LONGITUDE 140-37.6 E			
DEPTH (m) 60			
Press.	Temp.	Salinity	Sigma-T
5	9.512	33.585	25.928
10	9.712	33.641	25.939
20	9.766	33.656	25.942
30	9.770	33.664	25.947
40	9.775	33.667	25.949
50	9.764	33.673	25.955

STATION US15512			
LATITUDE 42-16.7 N			
LONGITUDE 140-35.6 E			
DEPTH (m) 91			
Press.	Temp.	Salinity	Sigma-T
5	9.809	33.713	25.979
10	9.810	33.713	25.979
20	9.814	33.713	25.978
30	9.821	33.715	25.978
40	9.824	33.716	25.979
50	9.826	33.716	25.979
75	9.868	33.729	25.981

STATION US15515			
LATITUDE 42-13.9 N			
LONGITUDE 140-30.2 E			
DEPTH (m) 77			
Press.	Temp.	Salinity	Sigma-T
5	8.923	33.369	25.853
10	9.788	33.681	25.958
20	10.002	33.727	25.958
30	10.022	33.730	25.957
40	10.044	33.738	25.959
50	9.896	33.706	25.960

STATION US15507			
LATITUDE 42-14.0 N			
LONGITUDE 140-29.8 E			
DEPTH (m) 77			
Press.	Temp.	Salinity	Sigma-T
5	11.285	33.703	25.714
10	11.284	33.702	25.714
20	11.287	33.702	25.713
30	11.290	33.702	25.713
40	11.268	33.697	25.713
50	11.253	33.695	25.713

STATION US15510			
LATITUDE 42-26.1 N			
LONGITUDE 140-37.3 E			
DEPTH (m) 82			
Press.	Temp.	Salinity	Sigma-T
5	9.726	33.860	25.913
10	9.727	33.860	25.914
20	9.729	33.862	25.916
30	9.743	33.863	25.917
40	9.746	33.863	25.919
50	9.738	33.860	25.921
75	9.734	33.687	25.971

STATION US15513			
LATITUDE 42-11.1 N			
LONGITUDE 140-35.6 E			
DEPTH (m) 79			
Press.	Temp.	Salinity	Sigma-T
5	9.717	33.676	25.966
10	9.730	33.677	25.964
20	9.732	33.676	25.963
30	9.728	33.674	25.962
40	9.734	33.676	25.962
50	9.735	33.676	25.963
70	9.874	33.732	25.983

STATION US15516			
LATITUDE 42-13.4 N			
LONGITUDE 140-41.5 E			
DEPTH (m) 87			
Press.	Temp.	Salinity	Sigma-T
5	9.814	33.720	25.983
10	9.825	33.730	25.989
20	9.825	33.727	25.988
30	9.866	33.739	25.990
40	9.867	33.739	25.990
50	9.859	33.738	25.990
75	9.696	33.819	26.081
85	9.516	33.844	26.130

STATION	US15517		
LATITUDE	42-18.4	N	
LONGITUDE	140-42.1	E	
DEPTH (m)	65		
Press.	Temp.	Salinity	Sigma-T
5	10.242	33.820	25.989
10	10.244	33.820	25.989
20	10.241	33.818	25.988
30	10.236	33.816	25.988
40	10.212	33.812	25.988
50	10.167	33.802	25.988

STATION	US15520		
LATITUDE	42-23.7	N	
LONGITUDE	140-30.9	E	
DEPTH (m)	94		
Press.	Temp.	Salinity	Sigma-T
5	9.723	33.690	25.975
10	9.721	33.690	25.976
20	9.724	33.691	25.976
30	9.725	33.691	25.976
40	9.724	33.691	25.976
50	9.725	33.692	25.976
75	9.729	33.692	25.976

STATION	US15518		
LATITUDE	42-18.9	N	
LONGITUDE	140-30.8	E	
DEPTH (m)	93		
Press.	Temp.	Salinity	Sigma-T
5	9.864	33.712	25.969
10	9.868	33.712	25.968
20	9.872	33.712	25.967
30	9.887	33.713	25.966
40	9.885	33.712	25.966
50	9.885	33.711	25.965
75	9.883	33.715	25.968

STATION	US15521		
LATITUDE	42-23.3	N	
LONGITUDE	140-42.7	E	
DEPTH (m)	60		
Press.	Temp.	Salinity	Sigma-T
5	9.856	33.720	25.976
10	9.854	33.721	25.978
20	9.843	33.724	25.982
30	9.844	33.725	25.983
40	9.850	33.728	25.984
50	9.876	33.736	25.986

STATION	US15519		
LATITUDE	42-19.1	N	
LONGITUDE	140-23.6	E	
DEPTH (m)	56		
Press.	Temp.	Salinity	Sigma-T
5	9.326	33.584	25.958
10	9.318	33.584	25.958
20	9.314	33.582	25.958
30	9.327	33.584	25.957
40	9.315	33.581	25.957
50	9.409	33.607	25.962
55	9.424	33.610	25.962