



HOKKAIDO UNIVERSITY

Title	2.THE "USHIO MARU" CRUISE 164,165 AND 166 IN FEBRUARY-MARCH 2009
Citation	海洋調査漁業試験要報, 53, 139-146
Issue Date	2010-10-15
Doc URL	https://hdl.handle.net/2115/76736
Type	dataset
File Information	Data.Rec.Oceanogr.Obs.Expl.Fish.53.139.pdf



THE “USHIO MARU”

CRUISE 164

CRUISE 165

CRUISE 166

IN FEBRUARY-MARCH 2009

1. Cruise Itinerary

Cruise 164

Departure from Hakodate	Feb.	23	, 2009
Start hydrographic research (US09063)		23	
Arrival at Muroran		23	
Departure from Muroran		24	
Arrival at and departure from Muroran		25	
Arrival at Hakodate		25	
Departure from Hakodate		26	
Arrival at Fukushima		26	
Departure from Fukushima		27	
Finish hydrographic research (US09102)		27	
Return to Hakodate		28	
Total coverage 383.5 miles			

Cruise 165

Departure from Hakodate	Mar.	9	, 2009
Arrival at and departure from Usujiri		9	
Start hydrographic research (US09103)		9	
Sampling by frame trawl net		9	
Arrival at Usujiri		10	
Departure from Usujiri		12	
Finish hydrographic research (US09107)		12	
Arrival at and departure from Usujiri		12	
Return to Hakodate		13	
Total coverage 209.0 miles			

Cruise 166

Cancellation of leaving port at Hakodate (for rough weather)	Mar.	23	, 2009
---	------	----	--------

2. Vessel Personnel

Captain:		Associate Professor	Hidekazu Yamaguchi
Crew :	Chief Officer	Assistant Professor	Osamu Kimura
	Second Officer	Assistant Professor	Naoto Kobayashi
	And 13 men		

Cruise 164

Research Staff:	Associate Professor	(Laboratory of Marine Environmental Science)	Isao Kudo
	Associate Professor	(Laboratory of Marine Bioresource Science)	Tetsuya Takatsu

Graduate Students:	Chair of Marine Bioresource Science:	3 persons
	Graduate School of Environmental Science:	6 persons

Under Graduate Students:	Department of Marine Biological Science:	5 persons
--------------------------	--	-----------

Cruise 165

Research Staff:	Associate Professor	(Laboratory of Marine Environmental Science)	Isao Kudo
	Associate Professor	(Laboratory of Marine Bioresource Science)	Tetsuya Takatsu
	Associate Professor	(Laboratory of Marine Bioresource and Environment Sensing)	Tohru Mukai

Graduate Students:	Chair of Marine Bioresource Science:	1 person
	Chair of Marine Bioresource and Environment Sensing:	3 persons
	Graduate School of Environmental Science:	1 person

Under Graduate Students:	Department of Marine Biological Science:	3 persons
	Department of Fisheries Oceanography and Marine Science:	2 persons
	Department of Marine Production System Science:	3 persons
	Department of Marine Biology (Third grade):	1 persons

Cruise 166

Research Staff:	Associate Professor	(Laboratory of Marine Bioresource Science)	Tetsuya Takatsu
-----------------	---------------------	--	-----------------

Graduate Students:	Chair of Marine Bioresource Science:	1 person
--------------------	--------------------------------------	----------

Under Graduate Students:	Department of Marine Biological Science:	4 persons
	Department of Marine Biology (Third grade):	1 person

3. 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 SBE9Plus and SBE-19).

Dynamic computations were made using a desk-top computer aboard the “Ushio Maru”.

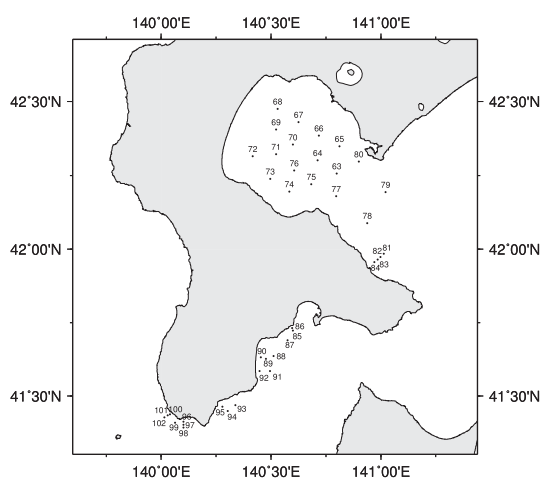


Figure 1: Oceanographic stations (Cruise 164)

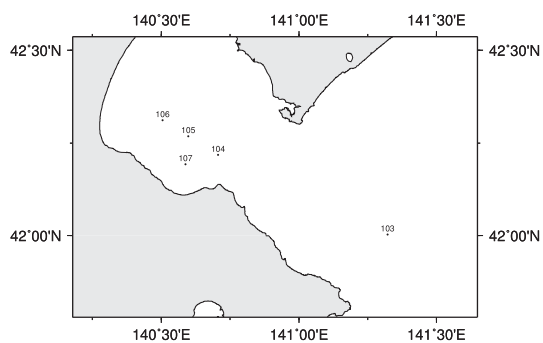


Figure 2: Oceanographic stations (Cruise 165)

Table 1: List of oceanographic stations

Cruise 164

Station	Lat. (N)*	Long. (E)*	Date	S.M.T.	Depth	Wave	Swell	Wind	Air Temp.	Sea Temp.	Wr. Bar. (hPa)
US09063	42-15.4	140-47.9	2/23	1432-1436	73	NW -2	NW -1	NW -4	-1.0	2.8	bc 1019.1
US09064	42-18.1	140-42.7	2/23	1515-1519	65	NNW-2	NW -1	NNW-4	-1.2	3.2	bc 1019.2
US09065	42-20.9	140-48.7	2/24	0648-0651	53	West-2	NW -1	West-4	-1.1	2.3	bc 1023.2
US09066	42-23.1	140-43.1	2/24	0735-0742	59	West-2	NW -1	West-4	-0.6	3.0	bc 1024.0
US09067	42-25.8	140-37.5	2/24	0819-0823	84	West-2	NW -1	West-3	-0.4	3.0	bc 1024.5
US09068	42-28.5	140-31.8	2/24	0905-0910	80	Calm	NW -1	Calm	-0.2	3.0	c 1024.6
US09069	42-24.3	140-31.4	2/24	1000-1005	96	Calm	NW -1	Calm	0.5	2.9	c 1024.2
US09070	42-21.3	140-36.0	2/24	1043-1047	91	Calm	NW -1	Calm	1.2	3.0	c 1023.6
US09071	42-19.3	140-31.4	2/24	1139-1147	96	SE -1	SE -1	SE-3	1.6	2.9	o 1023.2
US09072	42-18.9	140-25.0	2/24	1234-1238	67	ESE-1	SE -1	ESE-3	1.4	2.8	o 1021.6
US09073	42-14.3	140-29.8	2/24	1338-1343	79	SE -2	SE -1	SE -4	1.8	2.7	o 1020.8
US09074	42-11.7	140-35.0	2/24	1439-1449	84	SSE-2	SE -1	SSE-5	1.2	3.1	o 1020.4
US09075	42-13.2	140-41.0	2/24	1539-1545	91	SE -2	SE -1	SE -4	1.0	2.9	s 1019.5
US09076	42-16.0	140-36.3	2/24	1648-1656	92	SE -2	SE -1	SE -4	0.1	3.0	s 1019.6
US09077	42-10.8	140-47.8	2/25	0733-0738	95	West-2	SE -1	West-4	2.9	3.2	r 1011.0
US09078	42-05.3	140-56.3	2/25	0842-0847	86	West-2	SE -1	West-5	3.2	3.2	o 1010.6
US09079	42-11.6	141-01.3	2/25	0936-0943	79	NW -3	SE -1	NW -5	3.3	3.4	o 1010.1
US09080	42-17.8	140-54.0	2/25	1039-1046	57	NW -3	SE -1	NW -5	2.9	3.0	o 1010.2
US09081	41-59.1	141-00.8	2/25	1510-1515	97	NW -3	NW -2	NW -5	1.9	3.6	c 1009.2
US09082	41-58.4	140-59.9	2/25	1521-1526	91	NW -3	NW -2	NW -5	1.9	3.5	c 1009.7
US09083	41-57.9	140-59.1	2/25	1531-1536	87	NW -3	NW -2	NW -5	1.9	3.5	c 1009.7
US09084	41-57.4	140-58.2	2/25	1542-1547	81	NW -3	NW -2	NW -5	1.6	3.5	c 1010.0
US09085	41-43.4	140-36.0	2/26	0750-0753	30	WSW-1	SSW-1	WEW-2	-0.5	7.2	c 1019.5
US09086	41-43.9	140-35.8	2/26	0800-0802	15	West-2	SSW-1	West-3	-0.3	6.8	bc 1019.5
US09087	41-41.4	140-34.5	2/26	0837-0839	43	WNW-2	WSW-1	WNW-4	0.5	7.2	bc 1019.6
US09088	41-38.2	140-30.7	2/26	0923-0925	33	West-3	West-1	West-5	1.1	6.6	bc 1019.8
US09089	41-37.6	140-28.6	2/26	0957-0958	24	WNW-3	West-1	WNW-5	0.9	7.5	bc 1020.2
US09090	41-37.9	140-27.2	2/26	1015-1016	16	WNW-3	West-1	WNW-5	0.9	6.4	bc 1020.1
US09091	41-35.1	140-29.7	2/26	1050-1053	44	WNW-3	West-1	WNW-5	0.6	7.8	bc 1020.1
US09092	41-35.1	140-26.9	2/26	1125-1127	16	WNW-3	SE -1	WNW-5	1.7	7.5	bc 1020.6
US09093	41-28.1	140-20.3	2/26	1236-1240	66	West-3	SW -1	West-5	1.3	7.9	bc 1020.1
US09094	41-26.9	140-18.2	2/26	1312-1316	65	WNW-3	SW -1	WNW-5	1.6	7.9	bc 1019.9
US09095	41-27.8	140-16.7	2/26	1346-1349	38	NW -3	SW -1	NW -5	1.9	7.8	bc 1019.6
US09096	41-24.7	140-06.1	2/27	0806-0809	43	West-3	SW -1	West-5	3.1	6.3	bc 1022.1
US09097	41-24.1	140-06.1	2/27	0822-0826	73	West-3	SW -1	West-5	3.4	6.3	bc 1022.1
US09098	41-23.5	140-06.1	2/27	0841-0845	96	West-3	SW -1	West-5	3.6	6.7	bc 1021.6
US09099	41-24.5	140-03.8	2/27	0917-0921	74	West-3	West-1	West-5	3.7	6.3	bc 1021.6
US09100	41-26.2	140-02.4	2/27	0942-0945	36	West-2	West-1	West-4	4.1	5.8	bc 1021.2
US09101	41-26.0	140-01.8	2/27	0959-1002	58	West-2	West-1	West-4	4.2	5.5	bc 1021.2
US09102	41-25.6	140-00.9	2/27	1028-1033	102	WSW-3	West-1	WSW-5	4.3	6.2	bc 1021.1

Cruise 165

Station	Lat. (N)*	Long. (E)*	Date	S.M.T.	Depth	Wave	Swell	Wind	Air Temp.	Sea Temp.	Wr. Bar. (hPa)
US09103	42-00.2	141-19.3	3/9	1618-1630	309	SSE-3	ESE-1	SSE-5	5.4	2.1	bc 1016.7
US09104	42-13.1	140-42.4	3/12	1113-1117	90	NW -3	NW -1	NW -5	2.9	3.0	bc 1026.6
US09105	42-16.1	140-35.9	3/12	1240-1249	92	NW -3	NW -1	NW -4	3.0	3.0	bc 1026.7
US09106	42-18.7	140-30.3	3/12	1418-1426	94	West-2	NW -1	West-4	3.0	3.0	c 1027.0
US09107	42-11.6	140-35.3	3/12	1551-1558	84	WNW-3	NW -1	WNW-5	2.5	3.1	bc 1022.6

Cruise 166 No Data

(*) : Fixed position by Global Positioning System

Table 2: Oceanographic data

STATION US09063 LATITUDE 42-15.4 N LONGITUDE 140-47.9 E DEPTH (m) 73				STATION US09064 LATITUDE 42-18.1 N LONGITUDE 140-42.7 E DEPTH (m) 65				STATION US09065 LATITUDE 42-20.9 N LONGITUDE 140-48.7 E DEPTH (m) 53			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	3.202	33.281	26.495	5	3.633	33.380	26.534	5	2.905	33.321	26.553
10	3.199	33.283	26.496	10	3.616	33.372	26.529	10	2.909	33.318	26.551
20	3.209	33.290	26.502	20	3.554	33.364	26.529	20	2.914	33.319	26.551
30	3.201	33.291	26.503	30	3.553	33.365	26.530	30	2.922	33.320	26.551
40	3.231	33.296	26.505	40	3.560	33.367	26.530	40	3.191	33.380	26.575
50	3.279	33.304	26.506	50	3.583	33.373	26.533	50	3.192	33.377	26.573
STATION US09066 LATITUDE 42-23.1 N LONGITUDE 140-43.1 E DEPTH (m) 59				STATION US09067 LATITUDE 42-25.8 N LONGITUDE 140-37.5 E DEPTH (m) 84				STATION US09068 LATITUDE 42-28.5 N LONGITUDE 140-31.8 E DEPTH (m) 80			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	3.454	33.404	26.570	5	3.350	33.418	26.591	5	3.426	33.416	26.582
10	3.456	33.403	26.569	10	3.350	33.414	26.588	10	3.416	33.415	26.582
20	3.453	33.402	26.568	20	3.361	33.415	26.587	20	3.420	33.417	26.583
30	3.451	33.401	26.568	30	3.361	33.414	26.587	30	3.365	33.465	26.608
40	3.482	33.408	26.570	40	3.585	33.463	26.604	40	3.631	33.476	26.610
50	3.508	33.412	26.571	50	3.558	33.476	26.618	50	4.041	33.583	26.655
				75	4.898	33.768	26.710	75	4.676	33.709	26.688
STATION US09069 LATITUDE 42-24.3 N LONGITUDE 140-31.4 E DEPTH (m) 96				STATION US09070 LATITUDE 42-21.3 N LONGITUDE 140-36.0 E DEPTH (m) 91				STATION US09071 LATITUDE 42-19.3 N LONGITUDE 140-31.4 E DEPTH (m) 96			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	3.306	33.386	26.569	5	3.379	33.444	26.609	5	3.311	33.405	26.584
10	3.290	33.385	26.570	10	3.370	33.443	26.608	10	3.251	33.401	26.586
20	3.272	33.385	26.571	20	3.365	33.442	26.609	20	3.263	33.411	26.593
30	3.268	33.384	26.571	30	3.365	33.443	26.609	30	3.375	33.440	26.606
40	3.270	33.385	26.571	40	3.376	33.445	26.610	40	3.435	33.452	26.610
50	3.289	33.389	26.573	50	3.853	33.538	26.638	50	3.677	33.509	26.633
75	4.465	33.679	26.687	75	4.318	33.637	26.669	75	4.112	33.598	26.659
STATION US09072 LATITUDE 42-18.9 N LONGITUDE 140-25.0 E DEPTH (m) 67				STATION US09073 LATITUDE 42-14.3 N LONGITUDE 140-29.8 E DEPTH (m) 79				STATION US09074 LATITUDE 42-11.7 N LONGITUDE 140-35.0 E DEPTH (m) 84			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	3.211	33.366	26.562	5	3.363	33.430	26.599	5	3.483	33.467	26.618
10	3.145	33.361	26.564	10	3.495	33.458	26.609	10	3.485	33.468	26.618
20	3.142	33.362	26.565	20	3.523	33.463	26.610	20	3.484	33.470	26.619
30	3.164	33.369	26.568	30	3.559	33.475	26.616	30	3.483	33.470	26.620
40	3.462	33.453	26.608	40	3.588	33.482	26.620	40	3.486	33.471	26.620
50	3.581	33.481	26.619	50	3.697	33.504	26.626	50	3.486	33.471	26.620
				75	3.710	33.516	26.635	75	4.135	33.609	26.666
STATION US09075 LATITUDE 42-13.2 N LONGITUDE 140-41.0 E DEPTH (m) 91				STATION US09076 LATITUDE 42-16.0 N LONGITUDE 140-36.3 E DEPTH (m) 92				STATION US09077 LATITUDE 42-10.8 N LONGITUDE 140-47.8 E DEPTH (m) 95			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	3.304	33.399	26.580	5	3.404	33.434	26.598	5	3.656	33.348	26.506
10	3.313	33.399	26.579	10	3.423	33.440	26.601	10	3.669	33.353	26.509
20	3.348	33.416	26.589	20	3.452	33.450	26.606	20	3.695	33.359	26.511
30	3.379	33.426	26.594	30	3.467	33.458	26.612	30	3.672	33.361	26.515
40	3.402	33.433	26.598	40	3.470	33.461	26.614	40	3.671	33.373	26.525
50	3.419	33.436	26.599	50	3.468	33.462	26.615	50	3.595	33.393	26.548
75	3.448	33.442	26.600	75	3.472	33.468	26.619	75	3.600	33.466	26.605
STATION US09078 LATITUDE 42-05.3 N LONGITUDE 140-56.3 E DEPTH (m) 86				STATION US09079 LATITUDE 42-11.6 N LONGITUDE 141-01.3 E DEPTH (m) 79				STATION US09080 LATITUDE 42-17.8 N LONGITUDE 140-54.0 E DEPTH (m) 57			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	3.643	33.344	26.504	5	3.802	33.310	26.462	5	2.895	33.172	26.435
10	3.647	33.346	26.505	10	3.801	33.310	26.462	10	2.907	33.175	26.436
20	3.640	33.355	26.513	20	3.801	33.310	26.462	20	2.931	33.179	26.437
30	3.634	33.361	26.519	30	3.769	33.316	26.470	30	2.955	33.184	26.439
40	3.627	33.374	26.529	40	3.771	33.325	26.477	40	2.957	33.185	26.440
50	3.503	33.384	26.549	50	3.774	33.354	26.500	50	2.907	33.181	26.441
75	3.747	33.484	26.606	75	4.008	33.466	26.566				

STATION US09081 LATITUDE 41-59.1 N LONGITUDE 141-00.8 E DEPTH (m) 97				STATION US09082 LATITUDE 41-58.4 N LONGITUDE 140-59.9 E DEPTH (m) 91				STATION US09083 LATITUDE 41-57.9 N LONGITUDE 140-59.1 E DEPTH (m) 87			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	3.953	33.324	26.457	5	3.944	33.330	26.463	5	3.964	33.338	26.468
10	3.955	33.327	26.460	10	3.944	33.329	26.463	10	3.964	33.338	26.468
20	3.952	33.330	26.463	20	3.952	33.330	26.463	20	3.973	33.338	26.467
30	3.940	33.331	26.464	30	3.949	33.329	26.462	30	3.988	33.343	26.469
40	3.933	33.330	26.465	40	3.975	33.333	26.463	40	3.994	33.345	26.470
50	3.937	33.332	26.465	50	4.085	33.353	26.468	50	3.996	33.348	26.472
75	3.912	33.351	26.483	75	4.061	33.366	26.480	75	3.375	33.371	26.551
STATION US09084 LATITUDE 41-57.4 N LONGITUDE 140-58.2 E DEPTH (m) 81				STATION US09085 LATITUDE 41-43.4 N LONGITUDE 140-36.0 E DEPTH (m) 30				STATION US09086 LATITUDE 41-43.9 N LONGITUDE 140-35.8 E DEPTH (m) 15			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	3.876	33.330	26.470	5	7.510	34.005	26.564	5	7.290	33.731	26.379
10	3.877	33.329	26.469	10	7.535	34.005	26.560	10	7.515	33.992	26.553
20	3.878	33.329	26.469	20	7.696	34.046	26.569				
30	3.894	33.332	26.470								
40	3.917	33.335	26.470								
50	4.013	33.383	26.499								
75	3.365	33.372	26.553								
STATION US09087 LATITUDE 41-41.4 N LONGITUDE 140-34.5 E DEPTH (m) 43				STATION US09088 LATITUDE 41-38.2 N LONGITUDE 140-30.7 E DEPTH (m) 33				STATION US09089 LATITUDE 41-37.6 N LONGITUDE 140-28.6 E DEPTH (m) 24			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	7.597	33.974	26.526	5	7.182	33.954	26.570	5	7.467	33.881	26.472
10	7.647	33.998	26.539	10	7.199	33.952	26.565	10	7.486	33.986	26.552
20	7.647	33.993	26.534	20	7.187	33.950	26.566	20	7.469	33.982	26.551
30	7.618	34.005	26.548	30	6.973	33.953	26.597				
40	7.772	34.060	26.569								
STATION US09090 LATITUDE 41-37.9 N LONGITUDE 140-27.2 E DEPTH (m) 16				STATION US09091 LATITUDE 41-35.1 N LONGITUDE 140-29.7 E DEPTH (m) 44				STATION US09092 LATITUDE 41-35.1 N LONGITUDE 140-26.9 E DEPTH (m) 16			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	6.649	33.893	26.594	5	8.215	33.874	26.357	5	7.862	33.944	26.465
10	6.649	33.877	26.582	10	8.266	34.060	26.496	10	8.045	34.017	26.495
				20	8.257	34.056	26.494				
				30	8.236	34.059	26.500				
				40	8.146	34.062	26.515				
STATION US09093 LATITUDE 41-28.1 N LONGITUDE 140-20.3 E DEPTH (m) 66				STATION US09094 LATITUDE 41-26.9 N LONGITUDE 140-18.2 E DEPTH (m) 65				STATION US09095 LATITUDE 41-27.8 N LONGITUDE 140-16.7 E DEPTH (m) 38			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	8.311	34.077	26.502	5	8.274	34.069	26.502	5	8.254	34.049	26.489
10	8.319	34.068	26.494	10	8.275	34.064	26.498	10	8.250	34.045	26.487
20	8.314	34.062	26.490	20	8.248	34.059	26.497	20	8.172	34.040	26.494
30	8.176	34.060	26.509	30	8.177	34.054	26.504	30	8.098	34.041	26.506
40	8.028	34.057	26.529	40	8.117	34.050	26.510				
50	7.996	34.058	26.534	50	8.081	34.049	26.515				
STATION US09096 LATITUDE 41-24.7 N LONGITUDE 140-06.1 E DEPTH (m) 43				STATION US09097 LATITUDE 41-24.1 N LONGITUDE 140-06.1 E DEPTH (m) 73				STATION US09098 LATITUDE 41-23.5 N LONGITUDE 140-06.1 E DEPTH (m) 96			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	6.545	34.081	26.756	5	6.871	34.102	26.729	5	7.049	34.108	26.709
10	6.556	34.098	26.768	10	6.827	34.096	26.730	10	7.069	34.101	26.701
20	6.505	34.094	26.772	20	5.613	34.055	26.854	20	7.067	34.096	26.698
30	6.078	34.085	26.820	30	5.258	34.086	26.921	30	7.035	34.095	26.701
40	5.050	34.081	26.941	40	5.192	34.090	26.932	40	6.837	34.090	26.724
				50	5.138	34.091	26.939	50	5.753	34.075	26.853
								75	4.845	34.088	26.970

STATION US09099 LATITUDE 41-24.5 N LONGITUDE 140-03.8 E DEPTH (m) 74				STATION US09100 LATITUDE 41-26.2 N LONGITUDE 140-02.4 E DEPTH (m) 36				STATION US09101 LATITUDE 41-26.0 N LONGITUDE 140-01.8 E DEPTH (m) 58			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	6.257	34.091	26.802	5	5.946	34.081	26.833	5	5.766	34.091	26.864
10	6.155	34.091	26.814	10	5.894	34.080	26.839	10	5.796	34.092	26.861
20	5.600	34.086	26.880	20	5.619	34.077	26.870	20	5.787	34.090	26.860
30	5.318	34.086	26.913	30	4.586	34.075	26.988	30	5.749	34.087	26.863
40	4.927	34.086	26.959					40	5.542	34.087	26.888
50	4.834	34.089	26.972					50	5.325	34.089	26.915
STATION US09102 LATITUDE 41-25.6 N LONGITUDE 140-00.9 E DEPTH (m) 102				STATION US09103 LATITUDE 42-00.2 N LONGITUDE 141-19.3 E DEPTH (m) 309				STATION US09104 LATITUDE 42-13.1 N LONGITUDE 140-42.4 E DEPTH (m) 90			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	6.614	34.097	26.760	5	2.498	33.032	26.356	5	3.389	33.371	26.550
10	6.607	34.099	26.762	10	2.364	33.033	26.368	10	3.358	33.374	26.555
20	6.086	34.074	26.810	20	2.371	33.041	26.373	20	3.347	33.377	26.558
30	5.622	34.089	26.880	30	2.376	33.044	26.376	30	3.351	33.379	26.559
40	5.292	34.084	26.915	40	2.444	33.056	26.380	40	3.331	33.380	26.562
50	4.996	34.081	26.947	50	2.648	33.097	26.396	50	3.322	33.384	26.566
75	4.394	34.077	27.011	75	3.982	33.332	26.461	75	3.348	33.439	26.607
100	3.194	34.080	27.133	100	4.887	33.501	26.500				
				125	5.612	33.626	26.514				
				150	5.292	33.584	26.519				
				175	5.524	33.673	26.562				
				200	4.708	33.599	26.597				
				250	3.424	33.523	26.667				
STATION US09105 LATITUDE 42-16.1 N LONGITUDE 140-35.9 E DEPTH (m) 92				STATION US09106 LATITUDE 42-18.7 N LONGITUDE 140-30.3 E DEPTH (m) 94				STATION US09107 LATITUDE 42-11.6 N LONGITUDE 140-35.3 E DEPTH (m) 84			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	3.518	33.441	26.593	5	3.410	33.428	26.593	5	3.393	33.428	26.594
10	3.518	33.467	26.614	10	3.418	33.443	26.604	10	3.390	33.428	26.595
20	3.427	33.466	26.622	20	3.348	33.441	26.609	20	3.379	33.426	26.595
30	3.410	33.466	26.624	30	3.320	33.441	26.612	30	3.313	33.423	26.598
40	3.398	33.467	26.625	40	3.319	33.441	26.612	40	3.311	33.425	26.600
50	3.388	33.467	26.626	50	3.318	33.442	26.612	50	3.318	33.426	26.600
75	3.382	33.468	26.627	75	3.321	33.443	26.613	75	3.308	33.425	26.600