



HOKKAIDO UNIVERSITY

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**THE "OSHOROMARU" CRUISE 261
TO WEST OF THE TOHOKU OFF**

IN OCTOBER 2013

1. Cruise Itinerary

Departure from Hakodate	Oct.	17, 2013
Start hydrographic research (OS13153) and gill-net research for Saury (OSG1304)		18
Arrival at Tokyo		22
Departure from Tokyo		27
Finish hydrographic research (OS13174)		31
Return to Hakodate	Nov.	25
Total coverage 1522.3 miles		

2. Vessel Personnel

Crew:	Captain: Associate Professor	Shogo Takagi
		And 29 men
Research staff:	Professor	
	(Laboratory of Marine Environment and Resource Sensing, Hokkaido University)	
		Yasuzumi Fujimori
	Associate Professor (Laboratory of Marine Environment and Resource Sensing, Hokkaido University)	
		Tohru Mukai
	Associate Professor (Laboratory of Fishing Production Engineering, Hokkaido University)	
		Hiroki Yasuma
	Assistant Professor (Laboratory of Marine Environmental Science, Hokkaido University)	
		Hiromichi Ueno
	Assistant Professor (Laboratory of Marine Environmental Science, Hokkaido University)	
		Hiroji Oonishi
Teaching Assistant:		3 persons
Graduate Students:		1 person
Under Graduate Students:		41 persons
Total 53 persons		

3. Items of Research

Hydrographic observations: (Observation of Temperature, Salinity, and Computed Dynamic Depth Anomaly)

Hydrographic work on deck and the data processing were made by Science officer, the deck officers, crews, research staff and cadets of the “Oshoromaru”. Temperature and salinity were measured by CTD (Seabird SBE-9Plus, SBE-19Plus and XCTD2 or 4). Water and Plankton sampling were also carried out at almost hydrographic stations.

Fig. 1

Table 1, 2

Saury floating gillnet research:

One operation of gillnet Researches were carried out. These operations were supervised by the captain, Deck officer, Science officer, crew, research staff, and cadets were engaged in the work.

Table 3, 4, 5

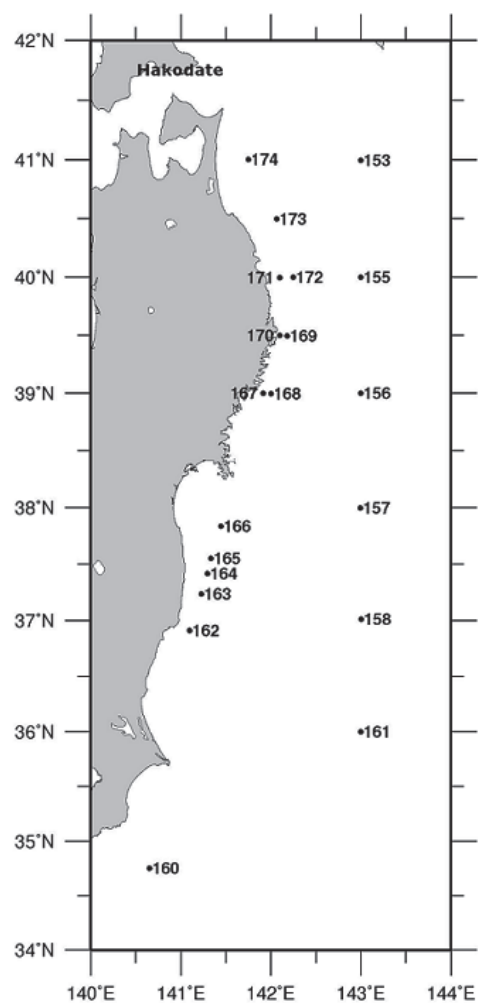


Fig. 1 Oceanographic stations

Table 1. List of Oceanographic station

Station	Lat.	Long.	Date (GMT)	Hour (GMT)	T.Z.	Depth	Col.	Tr.	SST	Wr.	Gear
OS13153	40-59.67N	142-59.90E	10/17	15:02	9	1886	-	-	18.7	bc	19plus-4636
OS13154	40-58.90N	144-30.00E	10/18	7:53	9	5685	-	-	13.8	bc	9plus-0769
OS13155	40-00.11N	142-59.90E	10/19	6:14	9	1290	-	-	20.4	bc	9plus-0769
OS13156	39-00.11N	142-59.98E	10/19	12:52	9	1613	-	-	21.1	bc	9plus-0769
OS13157	37-59.82N	142-59.69E	10/19	19:47	9	1850	-	-	19.9	bc	9plus-0769
OS13158	37-00.53N	143-00.14E	10/20	2:44	9	5101	-	-	-	o	XCTD-2
OS13159	35-00.61N	139-48.74E	10/21	2:18	9	61	-	-	22.1	o	9plus-0769
OS13160	34-45.17N	140-39.14E	10/28	4:20	9	1812	-	-	-	bc	9plus-0769
OS13160	34-44.91N	140-37.06E	10/28	5:46	9	1837	-	-	-	bc	9plus-0769
OS13160	34-46.23N	140-38.69E	10/28	6:56	9	1783	-	-	-	bc	XCTD-2
OS13161	35-59.92N	143-00.06E	10/28	18:32	9	6230	-	-	-	bc	9plus-0769
OS13162	36-54.64N	141-05.90E	10/29	5:29	9	123	-	-	-	o	9plus-0769
OS13163	37-13.98N	141-13.62E	10/29	8:56	9	119	-	-	-	o	9plus-0769
OS13164	37-24.88N	141-17.91E	10/29	11:59	9	117	-	-	-	o	9plus-0769
OS13165	37-32.96N	141-20.25E	10/29	14:30	9	117	-	-	-	o	9plus-0769
OS13166	37-50.05N	141-26.85E	10/29	17:36	9	126	-	-	-	o	9plus-0769
OS13167	39-00.11N	141-54.95E	10/30	3:02	9	134	-	-	-	b	9plus-0769
OS13168	38-59.87N	142-00.06E	10/30	5:16	9	200	-	-	-	bc	9plus-0769
OS13169	39-29.73N	142-11.00E	10/30	8:52	9	231	-	-	-	d	9plus-0769
OS13170	39-29.98N	142-06.01E	10/30	9:53	9	144	-	-	-	r	9plus-0769
OS13171	39-59.92N	142-05.99E	10/30	13:17	9	124	-	-	-	o	9plus-0769
OS13172	40-00.05N	142-15.07E	10/30	14:27	9	235	-	-	-	o	9plus-0769
OS13173	40-29.87N	142-04.08E	10/30	17:37	9	253	-	-	-	o	9plus-0769
OS13174	41-00.04N	141-44.94E	10/30	21:15	9	490	-	-	-	o	9plus-0769

Table 2. Oceanographic data

Station OS13153 Latitude 40-59.67N Longitude 142-59.90E Depth(m) 1886				Station OS13154 Latitude 40-58.88N Longitude 144-30.07E Depth(m) 5685				Station OS13155 Latitude 40-00.12N Longitude 142-59.89E Depth(m) 1290			
Press.	Temp.	Sal.	SIG-T	Press.	Temp.	Sal.	SIG-T	Press.	Temp.	Sal.	SIG-T
75	14.935	34.039	25.245	5	13.854	33.131	24.773	5	20.639	33.804	23.681
100	12.648	34.043	25.721	10	13.832	33.135	24.781	10	20.562	33.790	23.690
150	10.469	33.948	26.050	20	13.831	33.145	24.789	20	19.733	33.728	23.861
200	7.111	33.668	26.354	30	13.835	33.148	24.791	30	19.022	33.701	24.023
300	2.645	33.406	26.643	40	13.852	33.155	24.792	40	16.787	33.611	24.498
400	2.514	33.531	26.754	50	11.246	33.668	25.694	50	15.280	33.670	24.886
500	3.115	33.754	26.880	75	6.682	33.589	26.350	75	14.198	34.398	25.680
600	3.363	33.923	26.992	100	4.137	33.406	26.504	100	11.133	34.103	26.053
700	3.416	34.096	27.125	125	2.994	33.369	26.584	125	9.054	33.959	26.295
800	3.324	34.217	27.230	150	2.668	33.383	26.623	150	8.539	33.983	26.394
900	3.100	34.286	27.306	175	2.659	33.431	26.662	175	8.006	34.048	26.525
1000	2.871	34.329	27.361	200	2.339	33.439	26.695	200	7.889	34.136	26.612
				250	2.333	33.545	26.780	250	7.200	34.128	26.704
				300	2.803	33.675	26.845	300	6.638	34.161	26.807
				400	3.169	33.863	26.962	400	5.185	34.117	26.954
				500	3.732	34.076	27.078	500	4.717	34.178	27.055
				600	3.555	34.158	27.161	600	4.121	34.209	27.145
				700	3.345	34.236	27.243	700	3.746	34.266	27.228
				800	3.162	34.296	27.309	800	3.403	34.311	27.298
				900	2.933	34.347	27.370	900	3.164	34.364	27.362
				1000	2.780	34.397	27.424	1000	2.923	34.411	27.422

Station OS13156 Latitude 39-00.12N Longitude 142-59.97E Depth(m) 1613				Station OS13157 Latitude 37-59.82N Longitude 142-59.69E Depth(m) 1850				Station OS13158 Latitude 37-00.53N Longitude 143-00.14E Depth(m) 5101			
Press.	Temp.	Sal.	SIG-T	Press.	Temp.	Sal.	SIG-T	Depth	Temp.	Sal.	SIG-T
5	21.346	33.918	23.577	5	20.019	33.862	23.889	5	23.037	33.993	-
10	21.352	33.918	23.575	10	20.027	33.862	23.887	10	23.017	34.023	-
20	21.358	33.919	23.574	20	20.035	33.865	23.887	20	22.803	33.977	-
30	21.341	33.914	23.574	30	20.030	33.880	23.900	30	18.254	33.256	-
40	20.379	33.795	23.743	40	19.898	33.867	23.924	40	16.991	33.371	-
50	17.605	33.994	24.598	50	17.922	33.848	24.409	50	16.466	33.389	-
75	13.514	34.326	25.767	75	13.656	34.224	25.659	75	14.324	33.956	-
100	11.446	34.156	26.037	100	10.449	33.943	26.050	100	12.466	34.032	-
125	7.265	33.570	26.256	125	10.002	34.037	26.200	125	12.809	34.319	-
150	5.635	33.500	26.412	150	3.069	33.125	26.382	150	11.884	34.182	-
175	4.354	33.444	26.512	175	5.138	33.552	26.511	175	9.836	33.937	-
200	3.487	33.426	26.584	200	5.060	33.588	26.549	200	8.216	33.815	-
250	3.147	33.515	26.686	250	6.146	33.915	26.677	250	4.584	33.511	-
300	2.982	33.591	26.762	300	3.741	33.680	26.762	300	4.638	33.709	-
400	3.964	33.903	26.917	400	3.346	33.796	26.893	400	2.999	33.668	-
500	4.781	34.160	27.034	500	4.184	34.121	27.068	500	4.182	34.020	-
600	4.304	34.257	27.163	600	3.994	34.225	27.171	600	3.584	34.081	-
700	3.669	34.284	27.250	700	4.005	34.328	27.251	700	3.612	34.233	-
800	3.285	34.318	27.315	800	3.354	34.344	27.329	800	3.442	34.315	-
900	3.142	34.366	27.366	900	3.062	34.385	27.388	900	3.253	34.357	-
1000	2.881	34.406	27.421	1000	2.877	34.421	27.434	1000	2.989	34.404	-
								1200	2.685	34.470	-
								1500	2.309	34.529	-

Station		OS13159	
Latitude		3500.61N	
Longitude		139-48.74E	
Depth(m)		61	
Press.	Temp.	Sal.	SIG-T
5	22.074	33.858	23.330
10	22.071	33.862	23.333
20	21.803	33.946	23.472
30	21.650	33.978	23.538
40	21.667	34.011	23.559
50	21.657	34.040	23.583

Station		OS13160	
Latitude		34-45.17N	
Longitude		140-39.12E	
Depth(m)		1812	
Press.	Temp.	Sal.	SIG-T
5	25.107	34.327	22.800
10	25.109	34.326	22.799
20	25.102	34.325	22.800
30	25.100	34.325	22.801
40	25.079	34.323	22.805
50	25.066	34.322	22.809
75	23.157	34.402	23.435
100	19.945	34.370	24.295
125	16.760	34.484	25.175
150	14.396	34.432	25.664
175	12.966	34.428	25.956
200	11.859	34.398	26.148
250	10.022	34.331	26.426
300	8.545	34.276	26.622
400	6.427	34.237	26.895
500	5.417	34.258	27.038
600	4.712	34.295	27.149
700	4.220	34.339	27.237
800	3.768	34.380	27.317
900	3.359	34.414	27.383
1000	3.033	34.443	27.437

Station		OS13161	
Latitude		35-59.92N	
Longitude		143-00.06E	
Depth(m)		6230	
Press.	Temp.	Sal.	SIG-T
5	25.004	34.419	22.901
10	25.004	34.419	22.901
20	25.012	34.419	22.898
30	25.009	34.419	22.900
40	25.015	34.419	22.898
50	25.015	34.419	22.898
75	24.881	34.443	22.956
100	24.158	34.518	23.229
125	21.586	34.737	24.133
150	19.841	34.743	24.608
175	19.514	34.749	24.697
200	19.003	34.752	24.831
250	18.220	34.756	25.031
300	17.473	34.718	25.184
400	15.273	34.577	25.585
500	12.018	34.385	26.108
600	9.232	34.237	26.484
700	6.927	34.134	26.747
800	5.772	34.253	26.991
900	4.368	34.191	27.104
1000	3.881	34.278	27.224

Station		OS13162	
Latitude		36-54.64N	
Longitude		141-05.90E	
Depth(m)		123	
Press.	Temp.	Sal.	SIG-T
5	18.498	33.157	23.739
10	18.611	33.300	23.820
20	18.697	33.385	23.863
30	18.698	33.445	23.909
40	18.621	33.469	23.947
50	18.440	33.455	23.981
75	17.560	33.528	24.252
100	14.298	33.743	25.153

Station		OS13163	
Latitude		37-13.98N	
Longitude		141-13.61E	
Depth(m)		119	
Press.	Temp.	Sal.	SIG-T
5	18.331	33.464	24.015
10	18.319	33.464	24.018
20	18.285	33.463	24.026
30	18.280	33.465	24.028
40	18.334	33.490	24.034
50	18.212	33.477	24.054
75	17.617	33.473	24.196
100	15.158	33.773	24.992

Station		OS13164	
Latitude		37-24.89N	
Longitude		141-17.91E	
Depth(m)		117	
Press.	Temp.	Sal.	SIG-T
5	18.772	33.533	23.958
10	18.772	33.533	23.958
20	18.736	33.539	23.971
30	18.571	33.521	23.999
40	18.393	33.534	24.053
50	18.127	33.571	24.147
75	15.974	33.685	24.742
100	14.608	33.695	25.050

Station		OS13165	
Latitude		37-32.96N	
Longitude		141-20.25E	
Depth(m)		117	
Press.	Temp.	Sal.	SIG-T
5	18.268	33.416	23.993
10	18.267	33.416	23.994
20	18.269	33.418	23.995
30	18.280	33.428	24.000
40	18.288	33.432	24.001
50	18.234	33.433	24.015
75	16.502	33.595	24.552
100	13.786	33.822	25.321

Station		OS13166	
Latitude		37-50.06N	
Longitude		141-26.85E	
Depth(m)		126	
Press.	Temp.	Sal.	SIG-T
5	17.770	33.461	24.150
10	17.771	33.462	24.150
20	17.780	33.464	24.149
30	17.783	33.466	24.151
40	17.785	33.471	24.154
50	17.653	33.491	24.201
75	14.636	33.463	24.865
100	13.727	34.024	25.489

Station		OS13167	
Latitude		39-00.14N	
Longitude		141-54.98E	
Depth(m)		134	
Press.	Temp.	Sal.	SIG-T
5	17.460	33.474	24.234
10	17.432	33.476	24.243
20	17.416	33.502	24.266
30	17.432	33.511	24.269
40	17.464	33.537	24.281
50	17.060	33.494	24.344
75	16.889	33.478	24.373
100	15.010	33.505	24.818
125	14.517	33.599	24.996

Station OS13168			
Latitude 38-59.86N			
Longitude 142-00.06E			
Depth(m) 200			
Press.	Temp.	Sal.	SIG-T
5	17.632	33.447	24.172
10	17.597	33.447	24.181
20	17.416	33.487	24.254
30	17.270	33.489	24.291
40	17.144	33.484	24.317
50	16.976	33.473	24.348
75	15.698	33.487	24.652
100	13.318	33.645	25.280
125	12.305	33.707	25.527
150	12.078	34.046	25.833
175	10.414	33.974	26.080

Station OS13169			
Latitude 39-29.72N			
Longitude 142-11.00E			
Depth(m) 231			
Press.	Temp.	Sal.	SIG-T
5	17.647	33.463	24.181
10	17.649	33.469	24.185
20	17.320	33.448	24.247
30	17.121	33.455	24.300
40	16.664	33.458	24.409
50	16.491	33.444	24.439
75	14.589	33.671	25.036
100	13.862	33.995	25.440
125	11.885	34.002	25.836
150	8.475	33.798	26.259
175	6.928	33.676	26.386
200	5.694	33.554	26.448

Station OS13170			
Latitude 39-29.96N			
Longitude 142-06.01E			
Depth(m) 144			
Press.	Temp.	Sal.	SIG-T
5	17.421	33.353	24.151
10	17.439	33.368	24.158
20	17.306	33.434	24.241
30	17.242	33.440	24.260
40	17.203	33.445	24.274
50	17.100	33.458	24.308
75	16.338	33.476	24.499
100	15.462	33.608	24.798
125	14.019	33.908	25.339

Station OS13171			
Latitude 39-59.91N			
Longitude 142-06.00E			
Depth(m) 124			
Press.	Temp.	Sal.	SIG-T
5	17.171	33.484	24.311
10	17.145	33.483	24.316
20	16.983	33.476	24.349
30	16.769	33.469	24.394
40	16.700	33.482	24.420
50	16.505	33.509	24.485
75	14.848	33.588	24.916
100	13.385	34.053	25.582

Station OS13172			
Latitude 40-00.04N			
Longitude 142-15.07E			
Depth(m) 235			
Press.	Temp.	Sal.	SIG-T
5	17.495	33.801	24.476
10	17.474	33.795	24.477
20	17.104	33.724	24.511
30	16.791	33.657	24.533
40	16.255	33.548	24.573
50	16.295	33.612	24.613
75	14.420	33.969	25.302
100	13.296	34.055	25.601
125	12.669	34.284	25.904
150	11.297	34.223	26.116
175	9.501	34.025	26.273
200	8.708	34.041	26.413

Station OS13173			
Latitude 40-29.87N			
Longitude 142-04.09E			
Depth(m) 253			
Press.	Temp.	Sal.	SIG-T
5	17.860	33.478	24.141
10	17.872	33.479	24.139
20	17.873	33.478	24.138
30	17.873	33.478	24.138
40	17.857	33.484	24.146
50	17.798	33.484	24.160
75	17.454	33.483	24.242
100	16.941	33.472	24.355
125	16.684	33.610	24.521
150	13.777	33.926	25.403
175	7.842	33.702	26.277
200	5.758	33.716	26.568

Station OS13174			
Latitude 41-00.03N			
Longitude 141-44.93E			
Depth(m) 490			
Press.	Temp.	Sal.	SIG-T
5	17.674	33.460	24.172
10	17.679	33.460	24.170
20	17.667	33.458	24.172
30	17.403	33.479	24.252
40	17.002	33.489	24.354
50	16.578	33.511	24.470
75	15.433	33.696	24.871
100	12.961	33.631	25.340
125	11.406	33.934	25.872
150	8.212	33.785	26.288
175	5.336	33.484	26.435
200	4.319	33.413	26.491
250	3.578	33.437	26.585
300	2.923	33.450	26.655
400	3.005	33.726	26.868

Table 3. Position and research conditions of surface drift gillnet sampling at each station during the *Oshoro maru* Cruise #261, 2013.

Station	Date and Time (S.M.T.*1)		T.D.*2	Set Position		D.S.*3	bottom depth(m)	Wr*4	Wind (Force)	S.T.*5 (°C)	Oceano-graphic
	Net set	Net haul		Lat.	Long.						
OSG1304	Oct 18 1617-1622	Oct 19 0629-0635	+9h	40-59.7N	144-30.9 E	286	5623	b	NW-3	13.9	OS13154

*1 S.M.T. : Ship's Mean Time.

*2 T.D. : Time Difference between Greenwich Mean Time (G.M.T.) and Ship's Mean Time (S.M.T.).

*3 D.S. : Direction of net set.

*4 Wr : Weather (b: 0-25% clouded).

*5 S.T. : Surface temperature

Table 4. Net information

Stations	Mesh size (mm)	25	33	37	42	48	Total
OSG1304	Number of tan	1	1	1.5	1	0.5	5

Table 5. Data on catches by gill net research

Japanese name	Scientific Name	Number
Sanma	<i>Cololabis saira</i>	2
Masaba	<i>Scomber japonicus</i>	7
Ishigakidai	<i>Oplegnathus punctatus</i>	1