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THE "OSHORO MARU" CRUISE 260
TO EAST OF THE TSUGARU STRAIT

IN SEPTEMBER 2013

1. Cruise Itinerary

Departure from Hakodate and start hydrographic research (OS13144)	Sep. 17,	2013
Bottom trowl research (OST1317-OST1318)	18	
Arrival at Muroran	20	
Departure from Muroran	21	
Saury gillnet (OSSG1301) and finish hydrographic research (OS13152)	22	
Return to Hakodate	24	

Total coverage 690.7 miles

2. Vessel Personnel

Crew: Captain: Associate Professor Shogo Takagi

And 29 men

Research Staff:	Associate Professor	(Laboratory of Marine Bio-resources Ecology)	
	Hakodate - Hakodate		Takashi Matsuishi
	Professor	(Laboratory of Marine Bio-resources Science)	
	Hakodate - Muroran		Tetsuya Takatsu
	Associate Professor	(Laboratory of Marine Environmental Science)	
	Hakodate - Hakodate		Atsushi Ooki
	Associate Professor	(Laboratory of Marine Biology and Biodiversity)	
	Hakodate - Muroran		Hisashi Imamura
	Associate Professor	(Laboratory of Marine Biodiversity)	
	Hakodate - Muroran		Atsushi Yamaguchi
	Associate Professor	(Laboratory of Marine Ecology)	
	Muroran - Muroran		Yutaka Watanuki
	Mitsui Engineering & Shipbuilding stuff		2 persons
	Hakodate - Muroran		
	Teaching Assistant:		11 persons
	Cadets:		50 persons

Total 69 persons

3. Items of Research

A short cruise to conduct shipboard training in hydrographic observations, plankton samplings, sighting survey of marine mammals, and biological processing of trawl and floating gillnet catch for undergraduate students in the Department of Marine Biological Science.

Hydrographic observations by CTD: (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).

Water and Plankton sampling were also carried out at almost hydrographic stations.

Fig. 1 Table 1, 2

Bottom trawl observations:

Two operations of the stern otter bottom trawl 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

Saury floating gillnet research:

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

Table 5

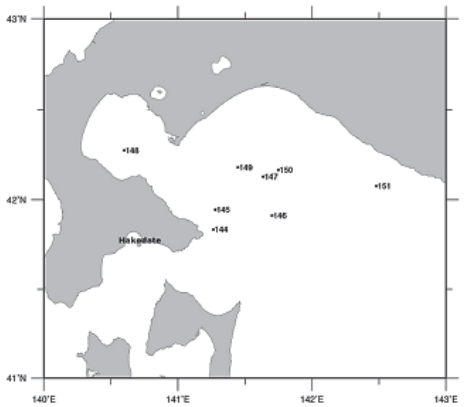

Fig. 1. Oceanographic stations

Table 1. List of Oceanographic station

Station	Lat.	Long.	Date (GMT)	Hour (GMT)	T.Z.	Depth	Col.	Tr.	SST	Wr.	Gear
OS13144	41-50.15N	141-15.95E	9/17	6:40	9	245	-	-	20.5	bc	9plus-0769
OS13145	41-56.74N	141-16.78E	9/17	10:16	9	285	-	-	20.7	bc	9plus-0769
OS13146	41-54.74N	141-42.14E	9/18	9:46	9	893	-	-	19.6	bc	9plus-0769
OS13147	42-07.71N	141-38.20E	9/18	13:35	9	748	-	-	19.5	bc	9plus-0769
OS13148	42-16.48N	140-36.02E	9/18	23:29	9	92	-	-	-	o	9plus-0769
OS13149	42-10.82N	141-26.89E	9/19	3:48	9	507	-	-	21.1	c	9plus-0769
OS13150	42-10.01N	141-45.00E	9/19	7:16	9	795	-	-	19.3	c	9plus-0769
OS13151	42-04.63N	142-28.92E	9/21	9:32	9	568	-	-	20.1	bc	9plus-0769
OS13152	42-38.05N	144-06.57E	9/22	9:33	9	452	-	-	16.5	c	9plus-0769

Table 2. Oceanographic data

Station OS13144
Latitude 41-50.14N
Longitude 141-15.96E
Depth(m) 245

Press.	Temp.	Sal.	SIG-T
5	20.717	32.417	22.604
10	20.841	32.751	22.826
20	19.319	33.320	23.657
30	18.764	33.522	23.951
40	14.483	34.058	25.358
50	12.969	34.076	25.683
75	10.801	33.987	26.022
100	9.073	33.855	26.210
125	6.998	33.685	26.383
150	5.205	33.540	26.494
175	3.884	33.452	26.566
200	2.779	33.417	26.640

Station OS13145
Latitude 41-56.74N
Longitude 141-16.79E
Depth(m) 285

Press.	Temp.	Sal.	SIG-T
5	20.743	32.909	22.971
10	20.932	33.077	23.049
20	21.095	33.502	23.328
30	19.023	33.848	24.135
40	16.307	34.020	24.924
50	13.300	34.040	25.589
75	11.108	34.036	26.006
100	9.804	33.915	26.138
125	7.301	33.707	26.358
150	5.363	33.546	26.481
175	4.098	33.455	26.548
200	3.287	33.418	26.597
250	2.504	33.431	26.675

Station OS13146
Latitude 41-54.7N
Longitude 141-42.18E
Depth(m) 893

Press.	Temp.	Sal.	SIG-T
5	19.563	33.320	23.594
10	19.561	33.320	23.595
20	19.490	33.339	23.628
30	15.702	33.914	24.979
40	13.088	33.947	25.560
50	12.728	34.073	25.728
75	11.281	34.009	25.953
100	10.210	33.936	26.085
125	9.098	33.849	26.201
150	7.628	33.714	26.318
175	5.677	33.551	26.447
200	3.606	33.391	26.545
250	2.544	33.438	26.678
300	2.330	33.494	26.740
400	3.103	33.751	26.879
500	3.468	33.966	27.016
600	3.407	34.106	27.133
700	3.360	34.187	27.202
800	3.248	34.248	27.262

Station OS13147
Latitude 42-07.76N
Longitude 141-38.20E
Depth(m) 748

Press.	Temp.	Sal.	SIG-T
5	20.017	33.373	23.517
10	20.021	33.373	23.516
20	20.001	33.381	23.527
30	18.051	33.699	24.263
40	15.623	34.056	25.107
50	14.403	34.066	25.381
75	12.575	34.071	25.757
100	10.586	33.966	26.044
125	8.154	33.754	26.273
150	5.427	33.540	26.468
175	4.816	33.504	26.510
200	3.044	33.386	26.593
250	2.489	33.451	26.692
300	2.554	33.534	26.753
400	3.037	33.734	26.871
500	3.462	33.966	27.017
600	3.416	34.067	27.102
700	3.382	34.157	27.177

Station OS13148
Latitude 42-16.48N
Longitude 140-36.02E
Depth(m) 92

Press.	Temp.	Sal.	SIG-T
5	20.304	32.087	22.462
10	20.305	32.087	22.462
20	19.983	33.294	23.465
30	17.462	33.339	24.130
40	14.358	33.713	25.117
50	11.174	33.521	25.593
75	3.806	33.194	26.369

Station OS13149
Latitude 42-10.82N
Longitude 141-26.85E
Depth(m) 507

Press.	Temp.	Sal.	SIG-T
5	20.385	33.307	23.370
10	20.299	33.314	23.398
20	20.238	33.357	23.447
30	16.838	33.933	24.734
40	14.905	34.183	25.362
50	13.603	34.077	25.556
75	11.922	34.076	25.886
100	10.773	34.007	26.042
125	8.803	33.831	26.234
150	6.973	33.668	26.373
175	5.071	33.499	26.477
200	3.691	33.409	26.551
250	2.874	33.416	26.632
300	2.511	33.462	26.699
400	2.867	33.705	26.863

Station	OS13150
Latitude	42-10.04N
Longitude	141-44.96E
Depth(m)	795

Press.	Temp.	Sal.	SIG-T
5	20.111	33.560	23.635
10	20.110	33.560	23.635
20	20.003	33.563	23.665
30	19.880	33.575	23.707
40	16.015	34.071	25.030
50	15.209	34.130	25.256
75	11.980	33.904	25.742
100	9.043	33.832	26.197
125	7.572	33.709	26.322
150	5.159	33.492	26.462
175	3.888	33.412	26.534
200	3.142	33.389	26.586
250	2.543	33.440	26.679
300	2.530	33.538	26.758
400	2.991	33.745	26.884
500	3.302	33.911	26.988
600	3.388	34.017	27.065
700	3.406	34.121	27.146

Station	OS13151
Latitude	42-04.63N
Longitude	142-28.92E
Depth(m)	568

Press.	Temp.	Sal.	SIG-T
5	20.038	33.462	23.579
10	20.033	33.465	23.583
20	17.938	33.815	24.380
30	15.577	33.969	25.050
40	13.679	34.044	25.515
50	13.141	34.072	25.646
75	11.795	34.046	25.887
100	9.825	33.915	26.134
125	6.568	33.609	26.381
150	4.544	33.439	26.488
175	3.416	33.381	26.555
200	2.810	33.378	26.607
250	2.455	33.479	26.717
300	2.553	33.562	26.775
400	3.192	33.846	26.946
500	3.370	33.985	27.040

Station	OS13152
Latitude	42-38.04N
Longitude	144-06.56E
Depth(m)	452

Press.	Temp.	Sal.	SIG-T
5	16.38	33.323	24.371
10	16.129	33.328	24.432
20	15.555	33.349	24.578
30	13.05	33.326	25.086
40	11.383	33.283	25.369
50	10.439	33.62	25.800
75	4.759	33.195	26.271
100	3.877	33.252	26.408
125	3.075	33.276	26.502
150	3.099	33.346	26.556
175	2.775	33.362	26.597
200	2.771	33.402	26.629
250	2.183	33.401	26.676
300	2.158	33.475	26.737
400	2.482	33.61	26.820

Table 3: Data on Bottom trawl research during the Oshoromaru Cruise#260.

No. of research	Date and time of net tow (S.M.T.*1)	Position		T.D.*2	D.S.*3	Speed of tow (K't)	Bottom depth (m)	Wr.*4	Wind	S.T.*5 (℃)
		Lat. (N)	Long. (E)							
OST1316	Sep. 18 0730-0955	42-09.9	141-38.2	+9h	180	5.5	725	bc	West-5	20.2
OST1317	Sep. 18 1114-1342	41-56.8	141-40.1	+9h	150	4.0-4.5	788	bc	WNW-5	19.8

*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 tow.
*4 Wr. : Weather (bc: 25-75% clouded).
*5 S.T. : Surface temperature

Table 4: Data on catches by bottom trawl research during the Oshoromaru Cruise#260

Japanese name	Scientific Name	OST1316		OST1317	
		Number	Weight (kg)	Number	Weight (kg)
Gangiei-rui	*Bathyraja* spp.	6	2.11	-	-
Irakoanago	*Synaphobranchus kaupii*	37	7.61	11	8.50
Yukihoraanago	*Ilyophis nigeli*	3	0.04	3	0.12
Sokoiwashi-rui	Microstomatidae	4	0.17	8	0.43
Yokoeso	*Sigmops gracile*	-	-	1	0.01
Horaieso	*Chauliodus sloani*	1	0.03	1	0.08
Hoteieso	*Photonectes albipennis*	-	-	2	0.32
Hadakaiwashi-rui	Myctophidae	5	0.09	-	-
Nagahadaka	*Symbolophorus californiensis*	-	-	1	0.06
Mamehadaka	*Lampanyctus jordani*	-	-	6	0.13
Hutasujinamehadaka	*Lestrolepis intermedia*	1	0.06	-	-
Okuchiiwashi	*Notoscopelus japonicus*	-	-	1	0.07
Karasudara	*Halargyreus johnsonii*	-	-	2	0.59
Kanadadara	*Antimora microlepis*	23	6.91	50	20.00
Itohikidara	*Laemonema longipes*	210	315.25	55	36.94
Munedara	*Coryphaenoides pectoralis*	1	2.72	2	1.51
Ibarahige	*Coryphaenoides acrolepis*	-	-	7	0.99
Karafutosokodara	*Coryphaenoides cinereus*	74	16.75	119	27.50
Nezumiginpo	*Lumpenella longirostris*	12	0.50	12	0.73
Norogenge	*Bothrocara hollandi*	-	-	1	0.06
Shirogenge	*Bothrocana molle*	175	47.30	139	63.35
Kantenngenge	*Bothorocara tanakae*	6	2.11	2	0.83
Nyuudoukajika	*Psychrolutes phrictus*	-	-	2	0.92
Kichiji	*Sebastolobus macrochir*	103	21.13	65	5.71
Ganko	*Dasycottus setiger*	4	2.34	3	1.17
Kusauo-rui	Liparidae sp.	-	-	1	0.06
Hirainkiuo	*Paraliparis grandis*	2	2.24	-	-
Tako-rui	Octopuses	54	14.60	60	22.50
Mendako	*Opisthoteuthis depressa*	10	3.40	-	-
Ika-rui	Squids	-	-	31	6.94
Dosuika	*Berryteuthis magister*	19	3.57	-	-
Ezobai spp.	*Buccinidae* spp.	-	-	65	1.97
Benizuwaigani	*Chionoecetes japonicus*	6	1.72	12	10.00
Hitode-rui	Asteroidea	-	-	434	56.00
Namako-rui	Holothuroidea	-	-	534	54.50

Table 5 Data on floating gill net research during the "Oshoro Maru" Cruise #260

No. of research		OSSG 1301-01	OSSG 1301-02	OSSG 1301-03
Date		22-Sep	22-Sep	22-Sep
position of net set	Lat. (N)	42-35.6	42-29.7	42-33.8
	Long. (E)	144-03.6	144-07.0	144-01.3
Time(S.M.T.*1)	net set	2028	2104	2126
	net houl	2037	2109	2132
Mesh size(mm)		42	42	42
Wr.*2		c	c	c
S.T.*3 (℃)		16.5	16.5	16.5
Wind (force)		NNE-4	NNE-4	NNE-3
Pacific saury		5	5	2
Japanese sardine		1	-	-

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

*2 Wr. : Weather (c: over 75-99% clouded).

*3 S.T. : Surface temperature