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THE "OSHORO MARU" CRUISE 264
IWATE OFF, TO EAST OF HONSHU AND THE OGASAWARA ISLANDS

IN DECEMBER 2013

1. Cruise Itinerary

Departure from Hakodate and start hydrographic research (OS13182)	Dec. 6,	2013
Arrival at Tokyo	9	
Departure from Tokyo	12	
Arrival at Futami	14	
Departure from Futami and start vertical long-line research	16	
Finish hydrographic research (OS13194) and vertical long-line research (OSVL1304)	18	
Return to Tokyo	20	

Total coverage 1717.2 miles

2. Vessel Personnel

Crew: Captain: Associate Professor Shogo Takagi

And 29 men

Under Graduate instructor:

Associate Professor (Department of Marine Science and Resources, Nihon University)
Takahito Kojima

Associate Professor (Teikyo University of Science and Technology)
Kyoichi Mori

Research Assistant (Department of Marine Science and Resources, Nihon University)
Makiguchi Yuya

Guest Scientist: Assistant Professor (The Hokkaido University Museum)
Yoshiharu Fujita

Teaching Assistant:	2 persons	
Under Graduate Students:	41 persons	
(Department of Marine Science and Resources Nihon University		31 persons)
(Teikyo University of Science and Technolory		10 persons)

Total 77 persons

3. Items of research:

Hydrographic Observation (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 and XCTD). Water and Plankton sampling were also carried out at almost hydrographic stations.

Vertical long-line Research

Four operations using a vertical long-line were performed.

The gear comprised by three types of main line (400,500,600m) with a weight attached to one end, a buoy attached to the other end, and six branch lines (18m-for tuna and 4m-for squid) attached to the main line.

These operations were supervised by the captain, Deck officers, Science officer, crews, cadets, and under graduate instructor were engaged in the work

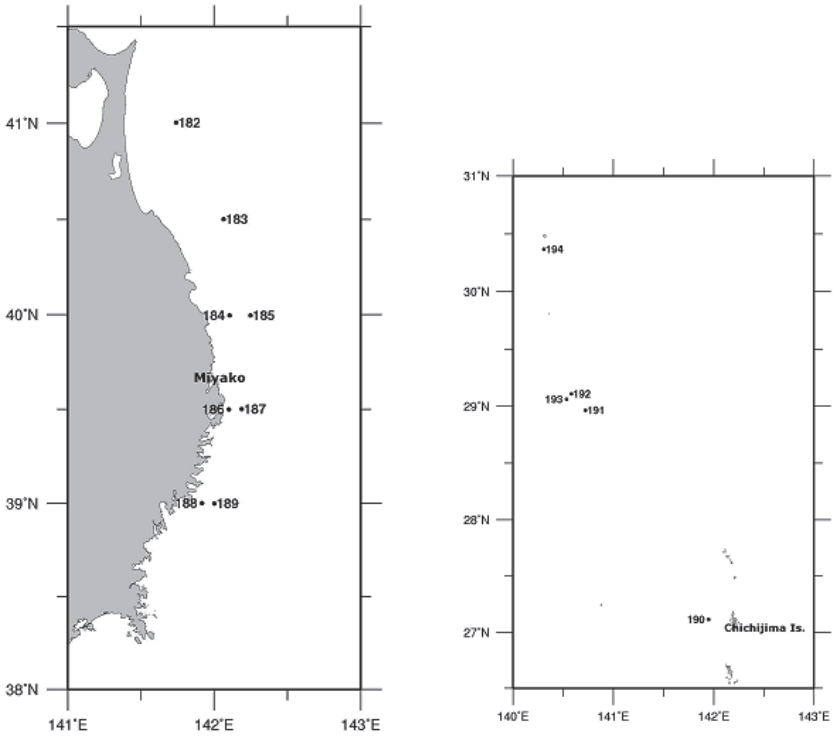
41°N
40°N
39°N
38°N
141°E
142°E
143°E
182
183
184
185
Miyako
186
187
188
189
31°N
30°N
29°N
28°N
27°N
140°E
141°E
142°E
143°E
194
193
192
191
190
Chichijima Is.

Table 1. List of Oceanographic station

Station	Lat.	Long.	Date (GMT)	Hour (GMT)	T.Z.	Depth	Col.	Tr.	SST	Wr.	Gear
OS13182	41-00.23N	141-44.40E	12月6日	13:01	9	476	-	-	-	bc	9plus-0769
OS13183	40-30.02N	142-03.91E	12月6日	16:54	9	250	-	-	-	bc	9plus-0769
OS13184	39-59.82N	142-06.28E	12月6日	20:01	9	125	-	-	-	bc	9plus-0769
OS13185	39-59.77N	142-14.94E	12月6日	21:30	9	222	-	-	-	bc	9plus-0769
OS13186	39-29.96N	142-06.00E	12月7日	0:27	9	145	-	-	-	b	9plus-0769
OS13187	39-30.07N	142-11.26E	12月7日	1:20	9	237	-	-	-	bc	9plus-0769
OS13188	39-00.08N	141-55.05E	12月7日	4:35	9	136	-	-	-	c	9plus-0769
OS13189	39-00.00N	142-00.04E	12月7日	5:25	9	198	-	-	-	bc	9plus-0769
OS13190	27-06.94N	141-56.94E	12月14日	2:52	9	1338	-	-	-	bc	XCTD-1
OS13191	28-57.94N	140-43.40E	12月16日	22:14	9	3250	-	-	21.9	bc	9plus-0769
OS13192	29-06.60N	140-34.89E	12月17日	3:33	9	2594	-	-	21.9	bc	9plus-0769
OS13193	29-03.77N	140-32.04E	12月17日	9:04	9	654	-	-	21.7	bc	9plus-0769
OS13194	30-22.12N	140-18.48E	12月17日	20:42	9	1520	-	-	21.3	r	9plus-0769

Table 2. Oceanographic data

Station OS13182
Latitude 41-00.23N
Longitude 141-44.40E
Depth(m) 476

Press.	Temp.	Sal.	SIG-T
5	14.441	33.538	24.965
10	14.417	33.542	24.973
20	14.411	33.544	24.976
30	14.390	33.548	24.984
40	14.380	33.551	24.988
50	14.382	33.551	24.988
75	14.381	33.552	24.988
100	14.361	33.552	24.993
125	14.285	33.553	25.009
150	14.062	33.572	25.071
175	11.234	33.699	25.721
200	7.682	33.717	26.312
250	2.625	33.334	26.587
300	2.308	33.446	26.703
400	3.154	33.774	26.893

Station OS13183
Latitude 40-30.04N
Longitude 142-03.93E
Depth(m) 250

Press.	Temp.	Sal.	SIG-T
5	14.618	33.414	24.831
10	14.625	33.413	24.830
20	14.627	33.413	24.829
30	14.629	33.413	24.829
40	14.627	33.414	24.830
50	14.629	33.414	24.829
75	14.623	33.416	24.832
100	14.600	33.422	24.841
125	14.499	33.430	24.870
150	14.176	33.543	25.024
175	13.849	33.525	25.079
200	12.247	33.805	25.614
250	3.724	33.599	26.699

Station OS13184
Latitude 39-59.78N
Longitude 142-06.29E
Depth(m) 125

Press.	Temp.	Sal.	SIG-T
5	13.636	33.590	25.172
10	13.638	33.591	25.173
20	13.646	33.598	25.176
30	14.033	33.852	25.293
40	14.230	33.979	25.350
50	14.236	33.986	25.354
75	14.246	33.995	25.359
100	14.236	33.998	25.363

Station OS13185
Latitude 39-59.76N
Longitude 142-14.94E
Depth(m) 222

Press.	Temp.	Sal.	SIG-T
5	13.582	33.636	25.219
10	13.582	33.636	25.219
20	13.887	33.813	25.293
30	14.233	33.971	25.343
40	14.223	33.971	25.345
50	14.201	33.967	25.347
75	13.035	33.733	25.404
100	11.368	33.827	25.796
125	9.936	33.782	26.012
150	8.317	33.747	26.243
175	7.347	33.715	26.359
200	6.760	33.731	26.451

Station OS13186
Latitude 39-29.96N
Longitude 142-06.01E
Depth(m) 145

Press.	Temp.	Sal.	SIG-T
5	14.235	33.526	24.999
10	14.240	33.524	24.997
20	14.232	33.528	25.001
30	14.203	33.534	25.012
40	14.070	33.547	25.050
50	13.983	33.551	25.071
75	13.407	33.578	25.210
100	13.511	33.828	25.382
125	12.812	33.705	25.427

Station OS13187
Latitude 39-30.01N
Longitude 142-11.34E
Depth(m) 237

Press.	Temp.	Sal.	SIG-T
5	14.163	33.535	25.021
10	14.164	33.535	25.021
20	14.177	33.539	25.021
30	14.179	33.539	25.021
40	14.031	33.560	25.068
50	13.863	33.572	25.112
75	13.987	33.823	25.280
100	13.936	33.946	25.386
125	13.834	33.930	25.395
150	13.301	33.829	25.425
175	11.651	33.691	25.638
200	6.670	33.704	26.442

Station OS13188
Latitude 39-00.09N
Longitude 141-55.05E
Depth(m) 136

Press.	Temp.	Sal.	SIG-T
5	14.155	33.615	25.085
10	14.164	33.616	25.083
20	14.160	33.616	25.084
30	14.141	33.615	25.087
40	14.148	33.615	25.086
50	14.192	33.622	25.083
75	14.135	33.632	25.102
100	14.010	33.727	25.201
125	12.609	33.960	25.664

Station OS13189
Latitude 38-59.99N
Longitude 142-00.04E
Depth(m) 198

Press.	Temp.	Sal.	SIG-T
5	14.946	33.833	25.084
10	14.954	33.835	25.084
20	14.948	33.833	25.084
30	15.014	33.851	25.083
40	15.020	33.852	25.083
50	15.093	33.876	25.085
75	15.199	33.908	25.087
100	15.277	33.932	25.088
125	15.289	33.935	25.088
150	13.700	33.816	25.335
175	12.372	34.201	25.898

Station OS13190
Latitude 27-06.94N
Longitude 141-56.94E
Depth(m) 1338

Depth	Temp.	Sal.	SIG-T
5	23.166	34.611	-
10	23.156	34.616	-
20	23.137	34.626	-
30	23.127	34.630	-
40	23.137	34.634	-
50	23.127	34.635	-
75	23.127	34.637	-
100	22.271	34.654	-
125	19.953	34.686	-
150	18.528	34.671	-
175	18.059	34.674	-
200	17.693	34.689	-
250	17.090	34.662	-
300	16.239	34.607	-
400	13.650	34.434	-
500	10.145	34.213	-
600	7.830	34.109	-
700	5.966	34.078	-
800	4.916	34.168	-
900	4.114	34.268	-
1000	3.735	34.320	-

Station OS13191
Latitude 28-57.93N
Longitude 140-43.40E
Depth(m) 3250

Press.	Temp.	Sal.	SIG-T
10	21.174	34.701	24.219
20	21.186	34.700	24.215
30	21.186	34.701	24.215
40	21.185	34.701	24.216
50	21.188	34.701	24.215
75	21.195	34.702	24.214
100	21.169	34.710	24.227
125	19.645	34.756	24.668
150	18.903	34.772	24.871
175	18.463	34.768	24.980
200	18.178	34.755	25.040
250	17.507	34.724	25.181
300	16.722	34.676	25.331
400	15.061	34.565	25.623
500	12.275	34.404	26.073
600	8.126	34.212	26.636
700	6.352	34.204	26.879
800	5.162	34.204	27.026
900	4.365	34.253	27.153
1000	3.694	34.332	27.285

Station OS13192
Latitude 29-06.58N
Longitude 140-34.90E
Depth(m) 2594

Press.	Temp.	Sal.	SIG-T
20	21.143	34.683	24.214
30	21.071	34.701	24.247
40	20.987	34.712	24.278
50	20.940	34.714	24.292
75	20.922	34.718	24.300
100	20.911	34.721	24.306
125	19.921	34.760	24.600
150	19.022	34.761	24.833
175	18.228	34.765	25.036
200	17.922	34.749	25.099
250	17.227	34.715	25.242
300	16.877	34.693	25.308
400	15.205	34.571	25.596
500	12.281	34.398	26.068
600	9.383	34.256	26.474
700	7.053	34.197	26.779
800	5.078	34.209	27.039
900	4.674	34.291	27.150
1000	3.746	34.322	27.273

Station OS13193
Latitude 29-03.76N
Longitude 140-32.05E
Depth(m) 654

Press.	Temp.	Sal.	SIG-T
5	20.953	34.705	24.282
10	20.956	34.705	24.281
20	20.958	34.705	24.281
30	20.955	34.707	24.283
40	20.932	34.709	24.291
50	20.936	34.711	24.291
75	20.926	34.715	24.297
100	20.825	34.724	24.331
125	20.712	34.728	24.365
150	19.523	34.766	24.708
175	18.826	34.763	24.884
200	18.203	34.756	25.035
250	17.388	34.717	25.205
300	16.741	34.682	25.332
400	14.721	34.541	25.679
500	10.974	34.312	26.245

Station OS13194
Latitude 30-22.11N
Longitude 140-18.45E
Depth(m) 1520

Press.	Temp.	Sal.	SIG-T
20	20.549	34.731	24.411
30	20.556	34.735	24.412
40	20.558	34.734	24.411
50	20.561	34.734	24.410
75	20.527	34.737	24.421
100	19.961	34.757	24.586
125	18.980	34.774	24.853
150	18.332	34.761	25.007
175	17.926	34.745	25.095
200	17.463	34.715	25.185
250	16.972	34.695	25.287
300	16.074	34.634	25.449
400	14.210	34.503	25.759
500	11.430	34.339	26.182
600	8.914	34.217	26.519
700	6.971	34.163	26.763
800	5.381	34.191	26.990
900	4.452	34.291	27.174
1000	3.832	34.364	27.297

Table 3 Data on vertical long line research

No. of research		OSVL 1301-1	OSVL 1301-2	OSVL 1301-3	OSVL 1301-4	OSVL 1301-5
Date				16-Dec		
position of	Lat. (N)	27-08.0	27-07.7	27-07.3	27-06.9	27-06.5
line set	Long. (E)	141-56.5	141-56.6	141-56.8	141-56.9	141-57.7
Time	Line set	1157	1203	1207	1211	1216
(S.M.T.)	Line haul			1328-1542		
Length of main line(m)		500	500	400	400	500
Depth(m)				1296-1048		
Surface temp. (°C)				22.9		
Wether				bc		
Wind				NW-6		
Blue shark					1	
Pelagic thresher		2	1	1	1	

No. of research		OSVL 1302-1	OSVL 1302-2	OSVL 1302-3	OSVL 1302-4	OSVL 1302-5	OSVL 1302-6
Date				17-Dec			
position of	Lat. (N)	28-56.9	28-57.1	28-57.4	28-57.5	28-57.9	28-58.2
line set	Long. (E)	140-43.4	140-43.3	140-43.2	140-43.1	140-43.0	140-42.9
Time	Line set	0625	0631	0636	0640	0645	0649
(S.M.T.)	Line haul			0852-1047			
Length of main line(m)		500	500	400	600	500	500
Depth(m)				3255-3280			
Surface temp. (°C)				21.1			
Wether				bc			
Wind				North-5			
Flying squid		1					
Diamondback squid						1	

No. of research		OSVL 1303-1	OSVL 1303-2	OSVL 1303-3	OSVL 1303-4	OSVL 1303-5	OSVL 1303-6
Date				17-Dec			
position of	Lat. (N)	29-04.7	29-04.9	29-05.4	29-05.6	29-05.9	29-06.2
line set	Long. (E)	140-35.8	140-35.8	140-35.5	140-35.4	140-35.2	140-35.1
Time	Line set	1155	1201	1206	1210	1215	1217
(S.M.T.)	Line haul			1357-1635			
Length of main line(m)		500	500	500	600	500	500
Depth(m)				2516			
Surface temp. (°C)				21.1			
Wether				bc			
Wind				NW-4			
Flying squid						1	2
Diamondback squid		1				1	1
Sickle pomfret			1	1			

No. of research		OSVL 1304-1	OSVL 1304-2	OSVL 1304-3	OSVL 1304-4	OSVL 1304-5	OSVL 1304-6
Date		18-Dec					
position of	Lat. (N)	30-22.4	30-22.4	30-22.3	30-22.3	30-22.2	30-22.2
line set	Long. (E)	140-22.1	140-21.6	140-21.2	140-20.7	140-20.3	140-19.9
Time	Line set	0458	0503	0507	0512	0517	0521
(S.M.T.)	Line haul	0755-0945					
Length of main line(m)		500	500	500	500	500	500
Depth(m)		1430					
Surface temp. (°C)		20.8					
Wether		r					
Wind		East-5					

Flying squid	2	2			
Swordfish					1
Oilfish		1		1		1

S.M.T. : Ship's Mean Time.
Weather (bc: 25-75% clouded, c: over 75-99% clouded, o: 100% clouded, r: rain, d: drizzling rain, f: fog).