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THE "OSHORO MARU" CRUISE 049
TO THE NANPO SHOTO

IN DECEMBER 2017

Cruise 049

Departure from Hakodate (Leg1)	Dec.	01, 2017
Arrival at Tokyo		04
Departure from Tokyo (Leg2)		07
Start vertical long-line research (OSVL1701) and hydrographic research		09
Finish vertical long-line research (OSVL1705) and hydrographic research		11
Arrival at Yokohama		13

Total coverage 1417.7 miles

Fig. 1-1: Noon Position

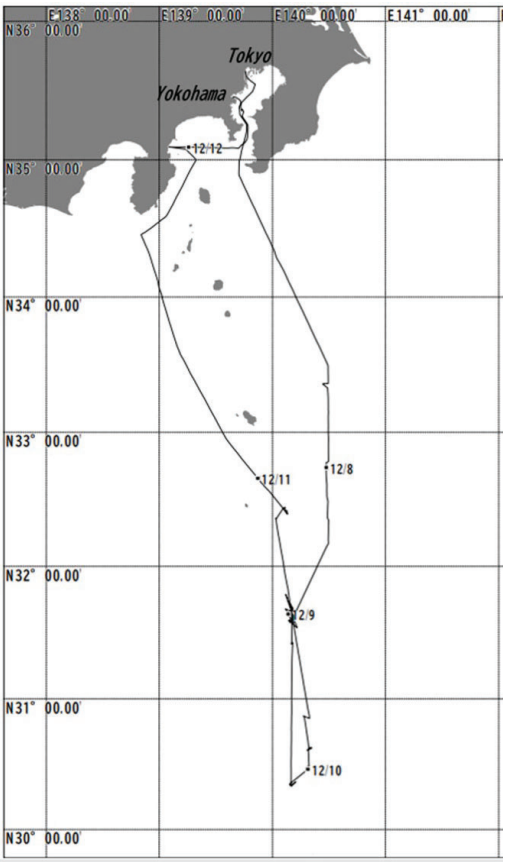

Fig. 1-2: Noon Position

2. Vessel Personnel

Crew: Captain: Associate Professor Shogo Takagi

And 31 persons

Undergraduate instructor:

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

Tokyo-Yokohama Takahito Kojima

Assistant Professor (Department of Marine Science and Resources, Nihon University)

Tokyo-Yokohama Yuya Makiguchi

Professor (Teikyo University of Science and Technology)

Tokyo-Yokohama Kyoichi Mori

Teaching Assistant: 1 person

Undergraduate Student: 44 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 vertical long-line for undergraduate students in Nihon University and Teikyo University of Science and Technology.

Hydrographic observations:

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 SBE-19Plus).Dynamic computations were made using a desk-top computer aboard the "*Oshoromaru*".Water sampling were also carried out at almost every hydrographic stations. Table 1, 2

Biological research for fishes caught by vertical long-line:

Six operations using a vertical long-line were performed. The gear comprised by two types of main line (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 main line. Table 3

4. Data on temperature, salinity and computed dynamic depth anomaly

Table 1 List of Oceanographic station

Station	Lat.	Long.	Date (GMT)	Hour (GMT)	T.Z.	Depth (m)	Col.	Tr.	SST	Wr.	Gear
OS17322	31-34.31N	140-10.62E	12/8	22:16	9	1254	-	-	22.8	c	Sea-Bird SBE19p
OS17323	31-35.81N	140-09.53E	12/9	2:07	9	1372	-	-	22.7	bc	Sea-Bird SBE9
OS17324	31-40.77N	140-10.27E	12/9	13:44	9	1654	-	-	22.6	bc	Sea-Bird SBE19p
OS17325	30-20.50N	140-10.31E	12/9	22:04	9	1649	-	-	21.8	o	Sea-Bird SBE9
OS17326	30-37.52N	140-20.78E	12/10	4:42	9	949	-	-	22.4	c	Sea-Bird SBE9
OS17327	32-25.86N	140-05.65E	12/10	20:33	9	1345	-	-	22.7	c	Sea-Bird SBE9

T.Z.: Time difference between Greenwich Mean Time (G.M.T.) and Ship's Mean Time (S.M.T.)
Col.: Water color in Forel-Ule scale
Tr.: Transparency in meters with Secchi disc
SST: Sea Surface temperature
Wr.: Weather in WMO Code 4501

Table 2 Oceanographic data

Station OS17322
Latitude 31-34.31 N
Longitude 140-10.62 E
Depth(m) 1254

Press.	Temp.	Sal.	SIG-T
5	22.831	34.686	23.744
10	22.849	34.709	23.756
20	22.856	34.710	23.755
30	22.858	34.710	23.755
50	22.857	34.711	23.756
75	22.866	34.712	23.754
100	22.862	34.712	23.755
150	21.445	34.871	24.274
200	19.075	34.859	24.894
300	16.622	34.697	25.371
400	13.359	34.471	25.911
500	10.410	34.341	26.367
600	8.672	34.279	26.606
700	6.001	34.258	26.966
800	4.854	34.263	27.108
900	3.835	34.353	27.288

Station OS17323
Latitude 31-35.81 N
Longitude 140-09.53 E
Depth(m) 1372

Press.	Temp.	Sal.	SIG-T
20	22.768	34.675	23.753
30	22.780	34.672	23.748
40	22.781	34.672	23.748
50	22.781	34.671	23.747
75	22.795	34.675	23.746
100	22.799	34.676	23.746
125	21.558	34.876	24.247
150	20.751	34.846	24.444
175	20.166	34.820	24.580
200	19.434	34.842	24.789

Station OS17324
Latitude 31-40.77 N
Longitude 140-10.27 E
Depth(m) 1654

Press.	Temp.	Sal.	SIG-T
5	22.619	34.633	23.765
10	22.620	34.633	23.764
20	22.623	34.634	23.764
30	22.625	34.634	23.763
50	22.622	34.631	23.762
75	22.610	34.626	23.762
100	22.600	34.623	23.762
150	22.568	34.631	23.777
200	19.717	34.790	24.676
300	17.352	34.734	25.226
400	12.994	34.461	25.976
500	10.192	34.333	26.398
600	7.854	34.257	26.712
700	5.960	34.231	26.950
800	4.765	34.295	27.143
900	3.896	34.336	27.268

Station OS17325
Latitude 30-20.50 N
Longitude 140-10.31 E
Depth(m) 1649

Press.	Temp.	Sal.	SIG-T
5	21.866	34.728	24.048
10	21.868	34.728	24.048
20	21.875	34.728	24.046
30	21.880	34.728	24.044
40	21.846	34.730	24.056
50	21.836	34.729	24.058
75	21.840	34.728	24.056
100	21.826	34.725	24.058
125	21.821	34.733	24.065
150	20.689	34.873	24.481
175	19.461	34.894	24.822
200	18.562	34.842	25.011
250	17.392	34.773	25.246
300	16.488	34.715	25.416
400	13.802	34.482	25.828
500	10.988	34.294	26.228
600	8.250	34.195	26.604
700	5.815	34.122	26.882
800	4.934	34.184	27.036
900	4.283	34.248	27.159
1000	3.882	34.292	27.235

Station OS17326
Latitude 30-37.52 N
Longitude 140-20.78 E
Depth(m) 949

Press.	Temp.	Sal.	SIG-T
5	22.460	34.762	23.908
10	22.468	34.762	23.905
20	22.460	34.760	23.906
30	22.400	34.749	23.914
40	22.185	34.721	23.954
50	22.141	34.718	23.964
75	22.060	34.711	23.982
100	21.882	34.699	24.022
125	21.852	34.700	24.031
150	21.819	34.714	24.051
175	20.483	34.895	24.553
200	19.102	34.876	24.901
250	17.074	34.760	25.312
300	16.579	34.734	25.409
400	14.343	34.528	25.750
500	11.600	34.339	26.151
600	8.847	34.190	26.508
700	6.780	34.160	26.787
800	5.766	34.190	26.942
900	4.865	34.235	27.084

Station OS17327
Latitude 32-25.86 N
Longitude 140-05.65 E
Depth(m) 1345

Press.	Temp.	Sal.	SIG-T
5	22.775	34.796	23.844
10	22.771	34.796	23.845
20	22.777	34.793	23.841
30	22.726	34.786	23.850
40	22.666	34.777	23.860
50	22.506	34.752	23.887
75	22.318	34.728	23.922
100	22.294	34.720	23.922
125	22.249	34.706	23.924
150	21.759	34.644	24.014
175	20.421	34.768	24.473
200	19.229	34.779	24.794
250	17.185	34.700	25.240
300	15.726	34.626	25.522
400	12.157	34.426	26.113
500	9.314	34.325	26.539
600	7.123	34.277	26.832
700	5.375	34.271	27.054
800	4.775	34.302	27.148
900	3.815	34.367	27.302
1000	3.345	34.410	27.382

5. Data on vertical long line research

Table 3 Data on vertical long line research

No. of research		OSVL 1701-01	OSVL 1701-02	OSVL 1701-03	OSVL 1701-04
Date		9-Dec			
position of	Lat. (N)	31-35.4	31-55.1	31-34.8	31-34.6
line set	Long. (E)	140-08.8	140-09.2	140-09.5	140-09.9
Time	Line set	0627	0633	0638	0643
(S.M.T.)	Line haul	0905-1042			
Length of main line(m)		500	500	500	600
Depth(m)		1260-1374			
Surface temp. (°C)		22.6			
Wether		bc			
Wind		NW-5			
Sickle pomfret			1		

No. of research		OSVL 1702-01	OSVL 1702-02	OSVL 1702-03	OSVL 1702-04	OSVL 1702-05	OSVL 1702-06
Date		9-Dec					
position of	Lat. (N)	31-40.6	31-40.4	31-40.2	31-40.0	31-39.9	31-39.7
line set	Long. (E)	140-07.3	140-07.7	140-08.2	140-08.8	140-09.3	140-09.8
Time	Line set	1227	1232	1237	1241	1246	1251
(S.M.T.)	Line haul	1445-1654					
Length of main line(m)		400	400	500	500	500	500
Depth(m)		1646-1656					
Surface temp. (°C)		22.5					
Wether		bc					
Wind		WNW-5					
Flying squid			1				1
Swordfish						1	

No. of research		OSVL 1703-01	OSVL 1703-02	OSVL 1703-03	OSVL 1703-04	OSVL 1703-05
Date		10-Dec				
position of	Lat. (N)	30-21.8	30-21.5	30-21.3	30-21.0	30-20.7
line set	Long. (E)	140-12.1	140-11.7	140-11.3	140-10.9	140-10.5
Time	Line set	0624	0629	0634	0639	0643
(S.M.T.)	Line haul	0903-1046				
Length of main line(m)		400	400	400	500	500
Depth(m)		1420-1569				
Surface temp. (°C)		21.7				
Wether		c				
Wind		NE-3				
Flying squid					1	1
Sickle pomfret				2		

No. of research		OSVL 1704-01	OSVL 1704-02	OSVL 1704-03	OSVL 1704-04
Date		10-Dec			
position of	Lat. (N)	30-36.5	30-36.7	30-37.1	30-37.5
line set	Long. (E)	140-19.2	140-19.3	140-19.5	140-19.7
Time	Line set	1255	1259	1303	1308
(S.M.T.)	Line haul	1506-1612			
Length of main line(m)		400	400	500	500
Depth(m)		923-988			
Surface temp. (°C)		21.7			
Wether		c			
Wind		SE-3			
Flying squid				1	1
Sickle pomfret					1

No. of research		OSVL 1705-01	OSVL 1705-02	OSVL 1705-03	OSVL 1705-04	OSVL 1705-05	OSVL 1705-06
Date		11-Dec					
position of	Lat. (N)	32-22.0	32-22.2	32-22.7	32-23.4	32-23.4	32-23.8
line set	Long. (E)	140-02.6	140-02.7	140-03.1	140-03.4	14-03.7	140-03.9
Time	Line set	0421	0427	0432	0437	0441	0445
(S.M.T.)	Line haul	0757-0952					
Length of main line(m)		300	500	500	400	400	300
Depth(m)		1295-1463					
Surface temp. (°C)		22.7					
Wether		bc					
Wind		SW-5					
Flying squid				1			
Escolra			1				
Atlantic mako shark						1	

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

Weather (bc: 25-75% clouded, c: over 75-99% clouded).