



HOKKAIDO UNIVERSITY

Title	4. The "Oshoro Maru" Cruise 215 to the Northwest Pacific Ocean in May 2010
Citation	海洋調査漁業試験要報, 54, 25-39
Issue Date	2012-03-30
Doc URL	https://hdl.handle.net/2115/77162
Type	dataset
File Information	Data.Rec.Oceanogr.Obs.Expl.Fish.54.25.pdf



THE " OSHORO MARU " CRUISE 215 TO THE NORTHWEST PACIFIC OCEAN

IN MAY 2010

1. Cruise Itinerary

Cruise 215

Departure from Hakodate

Start hydrographic research (OS10052)

Start Gillnet research (OSG1001)

Finish Gillnet research (OSG1004)

Finish hydrographic research (OS10067)

Return to Hakodate

Total coverage 1991.5 miles

May 9 , 2010

10

12

17

19

21

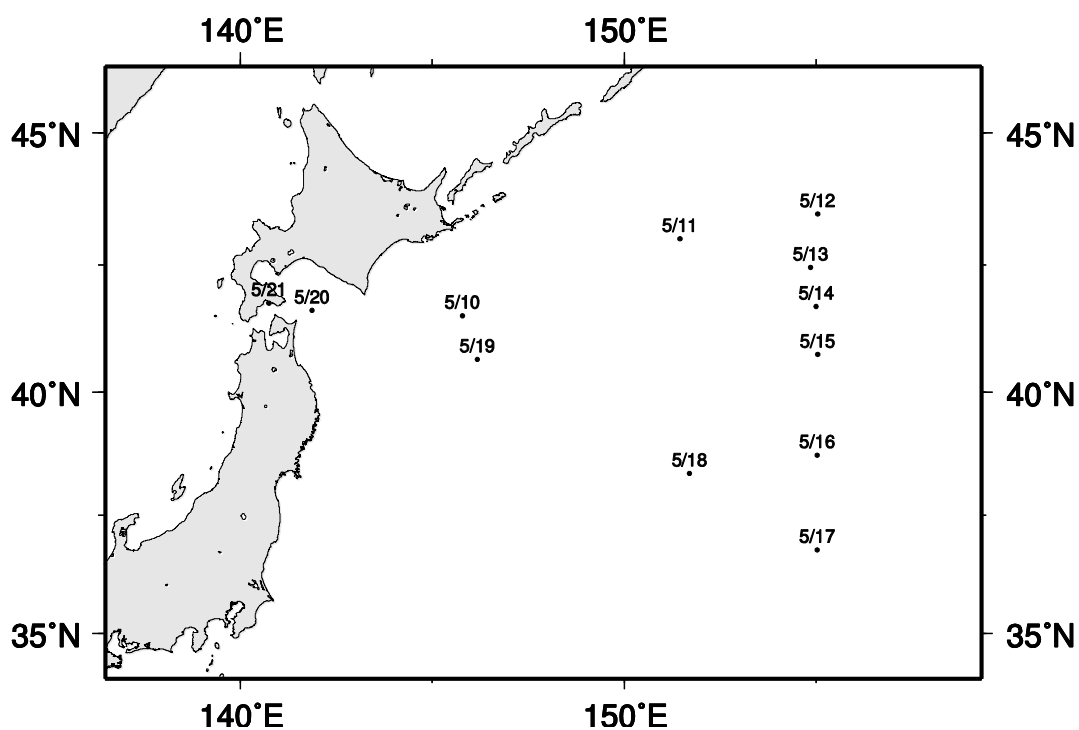


Figure 1. Noon position

2. Vessel Personnel

Captain:		Associate Professor	Shogo Takagi
Crew:	Chief Officer	Instructor	Yoshihiko Kamei
	First Officer	Instructor	Keiichiro Sakaoka
	Second Officer	Technical official	Naoki Hoshi
	Third Officer	Technical official	Takuzo Abe
	Science Officer	Technical official	Keiri Imai
	Chief Engineer	Instructor	Jyunichi Kimura
	And 22 men		

Cruise 215

Research Staff:	Associate Professor	(Laboratory of Strategic Studies on Marine Bioresource Conservation and Management)	Hideaki Kudo
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Research Fellow:	1 Person
Teaching Assistant:	1 Person
Graduate Students:	1 Person
Under Graduate Students:	8 Persons
	Total 12 persons

3. Items of Research

Hydrographic observations:	Fig. 2	Table 1,2
Biological research for fishes caught by non-selective drift gillnets:	Fig. 3	Table 3 - 8
Salmon hook-and-line research:	Fig. 4	Table 9 - 11
Plankton sampling:		Table 12

4. 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 “Oshoro Maru”. Temperature and salinity were measured by CTD (Seabird SBE9Plus and SBE-19). Dynamic computations were made using a desk-top computer aboard the “Oshoro Maru”.

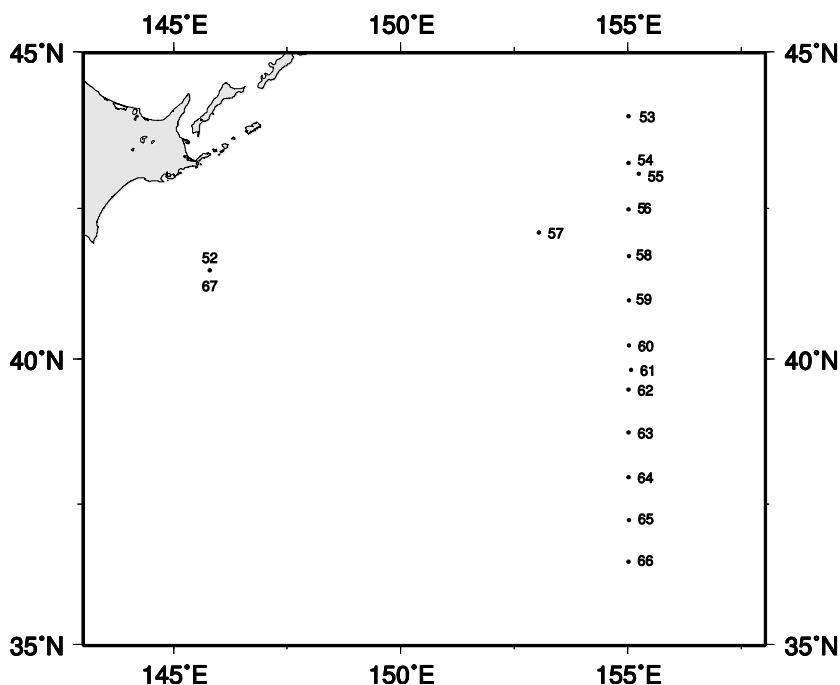


Figure 2. Oceanographic station

Table 1. List of Oceanographic Station

Station	Lat.(*)	Long.(*)	Date	S.M.T	T.Z.	Depth	COL.	TR.	S.S.T.	WR.	Remark
OS10052	41-30.1N	145-46.8E	5/10	0050	9	6950	5	5.5	3.5	b	9Plus-0769
OS10053	44-00.0N	155-00.0E	5/11	-	10	5290	-	-	-	o	19Plus-4636
OS10054	43-15.2N	155-00.0E	5/12	-	10	5490	4	-	-	f	19Plus-4636
OS10055	43-04.9N	155-13.3E	5/12	0842	10	5190	-	-	8.3	o	9Plus-91588
OS10056	42-29.9N	155-00.0E	5/13	0010	10	5155	-	-	7.1	o	19Plus-4636
OS10057	42-07.5N	153-01.5E	5/13	0938	10	5322	-	-	5.6	r	XCTD
OS10058	41-44.3N	155-00.7E	5/14	0304	10	5540	4	17.5	8.6	o	9Plus-91588
OS10059	41-00.0N	155-00.1E	5/14	2311	10	5475	3	13.8	10.6	c	9Plus-91588
OS10060	40-15.0N	155-00.2E	5/15	0452	10	5550	4	12.5	11.9	c	9Plus-91588
OS10061	39-50.2N	155-02.9E	5/15	0901	10	5550	-	-	11.2	c	9Plus-91588
OS10062	39-30.0N	155-00.0E	5/15	2015	10	5620	4	17.5	10.6	c	9Plus-91588
OS10063	38-45.6N	154-59.8E	5/16	0135	10	5775	4	12.4	13.5	c	9Plus-91588
OS10064	37-59.5N	154-59.6E	5/16	0743	10	5970	-	-	12.8	c	9Plus-91588
OS10065	37-14.4N	155-00.4E	5/16	2341	10	5755	4	15.4	14.5	o	XCTD-2
OS10066	36-30.0N	154-59.9E	5/17	0340	10	5705	4	14	17.6	bc	XCTD-2
OS10067	41-30.1N	145-46.8E	5/19	0809	9	6867	-	-	4.3	f	9Plus-91588

(*) : Fixed position by Global Positioning System

Table 2. Oceanographic data

Station OS10052					Station OS10053					Station OS10054					Station OS10055				
Longitude		Latitude		Depth(m)	Longitude		Latitude		Depth(m)	Longitude		Latitude		Depth(m)	Longitude		Latitude		Depth(m)
145-46.8E	41-30.1N	6950	155-00.0E		44-00.0N	5290	155-00.0E	43-15.2N		5490	155-13.3E	43-04.9N	5190						
Press.	Temp.	Sal.	SIG-T		Press.	Temp.	Sal.	SIG-T		Press.	Temp.	Sal.	SIG-T		Press.	Temp.	Sal.	SIG-T	
5	2.382	32.800	26.180		5	3.834	33.112	26.301		5	5.245	33.364	26.351		5	8.198	33.897	26.378	
10	2.422	32.819	26.192		10	3.838	33.112	26.300		10	5.250	33.364	26.350		10	8.191	33.895	26.377	
20	2.153	32.839	26.229		20	3.839	33.112	26.301		20	5.197	33.366	26.357		20	8.169	33.901	26.385	
30	2.011	32.856	26.253		30	3.768	33.106	26.302		30	5.130	33.372	26.370		30	7.491	33.791	26.398	
40	2.410	32.988	26.329		40	3.516	33.080	26.306		40	5.078	33.390	26.390		40	6.611	33.651	26.408	
50	1.508	32.897	26.322		50	3.478	33.083	26.312		50	5.072	33.399	26.398		50	6.641	33.660	26.411	
75	0.494	32.882	26.372		75	3.251	33.123	26.365		75	4.932	33.443	26.449		75	6.284	33.615	26.423	
100	2.211	33.145	26.470		100	3.060	33.251	26.484		100	5.232	33.542	26.493		100	6.559	33.737	26.483	
125	1.550	33.160	26.530		125	2.853	33.398	26.619		125	5.336	33.578	26.509		125	5.951	33.647	26.490	
150	0.549	33.137	26.574		150	2.969	33.461	26.710		150	5.308	33.598	26.528		150	6.392	33.757	26.520	
175	0.912	33.203	26.606		175	2.589	33.555	26.767		175	4.589	33.612	26.620		175	5.759	33.746	26.592	
200	0.830	33.231	26.633		200	2.672	33.635	26.824		200	3.981	33.635	26.702		200	4.727	33.694	26.670	
250	1.247	33.352	26.703		250	2.843	33.740	26.893		250	3.153	33.658	26.800		250	4.562	33.826	26.793	
300	1.703	33.455	26.735		300	3.325	33.907	26.963		300	3.211	33.735	26.856		300	3.658	33.784	26.853	
400	2.040	33.635	26.875		400	3.137	33.980	27.058		400	3.506	33.909	26.967		400	3.491	33.907	26.967	
500	3.301	33.912	26.989		500	3.215	34.107	27.152		500	3.962	34.122	27.092		500	3.394	34.009	27.058	
600	3.404	34.049	27.089		600	3.194	34.208	27.255		600	3.228	34.137	27.175		600	3.276	34.104	27.145	
700	3.261	34.129	27.166		700	3.107	34.284	27.304		700	3.060	34.210	27.249		700	3.108	34.187	27.226	
800	3.194	34.215	27.241		800	2.947	34.330	27.355		800	3.157	34.309	27.319		800	3.156	34.285	27.300	
900	3.147	34.269	27.288		900	2.845	34.371	27.397		900	2.940	34.344	27.367		900	3.252	34.330	27.356	
1000	2.968	34.320	27.345		1000	2.713	34.408	27.438		1000	2.762	34.389	27.418		1000	2.800	34.372	27.402	
1200	2.646	34.372	27.416		1200	2.402	34.457	27.504		1200	2.527	34.449	27.487		1200	2.596	34.441	27.474	
1500	2.443	34.468	27.509		1500	2.196	34.527	27.577		1500	2.270	34.518	27.564		1500	2.290	34.509	27.555	
Station OS10056					Station OS10057					Station OS10058					Station OS10059				
Longitude		Latitude		Depth(m)	Longitude		Latitude		Depth(m)	Longitude		Latitude		Depth(m)	Longitude		Latitude		Depth(m)
155-00.0E	42-29.9N	5155	153-01.5E		42-07.5N	5322	155-00.7E	41-44.3N		5540	155-00.1E	41-00.0N	5475						
Press.	Temp.	Sal.	SIG-T		Press.	Temp.	Sal.	SIG-T		Press.	Temp.	Sal.	SIG-T		Press.	Temp.	Sal.	SIG-T	
5	6.731	33.701	26.432		5	5.623	33.132	26.123		5	8.757	33.901	26.296		5	10.521	34.096	26.156	
10	6.728	33.701	26.432		10	5.623	33.141	26.130		10	8.725	33.896	26.297		10	10.483	34.098	26.165	
20	6.728	33.701	26.432		20	5.613	33.155	26.142		20	8.532	33.879	26.313		20	10.452	34.093	26.166	
30	6.728	33.701	26.432		30	6.463	33.565	26.360		30	8.080	33.845	26.355		30	10.419	34.090	26.170	
40	6.638	33.700	26.443		40	6.632	33.634	26.392		40	7.405	33.825	26.437		40	9.571	33.968	26.217	
50	6.535	33.713	26.467		50	5.994	33.579	26.431		50	6.576	33.708	26.458		50	8.417	33.847	26.306	
75	6.097	33.704	26.517		75	4.251	33.391	26.481		75	6.108	33.686	26.501		75	7.514	33.781	26.387	
100	6.257	33.759	26.559		100	4.182	33.460	26.543		100	6.184	33.723	26.530		100	7.488	33.837	26.434	
125	6.201	33.756	26.544		125	3.824	33.479	26.594		125	5.969	33.698	26.528		125	6.249	33.672	26.472	
150	6.138	33.751	26.548		150	3.172	33.502	26.674		150	5.744	33.673	26.536		150	6.435	33.740	26.501	
175	5.861	33.723	26.561		200	5.469	33.943	26.783		175	5.740	33.691	26.550		175	5.980	33.721	26.545	
200	5.671	33.708	26.572		250	3.979	33.812	26.843		200	5.881	33.761	26.588		200	5.507	33.699	26.585	
250	4.861	33.753	26.698		300	2.878	33.761	26.907		250	4.899	33.767	26.709		250	5.122	33.797	26.679	
300	4.087	33.757	26.788		400	3.713	34.015	27.032		300	4.100	33.766	26.794		300	4.075	33.748	26.783	
400	3.888	33.889	26.914		500	3.206	34.078	27.130		400	4.463	34.003	26.944		400	4.554	33.890	26.916	
500	3.738	34.018	27.031		600	3.352	34.234	27.241		500	3.906	34.066	27.053		500	4.418	34.077	27.008	
600	3.779	34.147	27.130		700	3.110	34.297	27.314		600	3.661	34.144	27.140		600	3.852	34.128	27.108	
700	3.601	34.229	27.213		800	2.908	34.340	27.367		700	3.586	34.243	27.225		700	3.798	34.233	27.197	
800	3.347	34.299	27.293		900	2.782	34.385	27.414		800	3.259	34.274	27.282		800	3.470	34.296	27.279	
900	3.156	34.340	27.344		1000	2.637	34.428	27.461		900	3.057	34.319	27.326		900	3.230	34.335	27.333	
1000	2.866	34.371	27.395							1000	2.874	34.363	27.388		1000	3.016	34.377	27.387	
1200	2.608	34.432	27.466							1200	2.692	34.439	27.465		1200	2.623	34.428	27.462	
1500	2.270	34.504	27.552							1500	2.326	34.503	27.547		1500	2.315	34.506	27.550	
Station OS10060					Station OS10061					Station OS10062					Station OS10063				
Longitude		Latitude		Depth(m)	Longitude		Latitude		Depth(m)	Longitude		Latitude		Depth(m)	Longitude		Latitude		Depth(m)
155-00.2E	40-15.0N	5550	155-02.9E		39-50.2N	5550	155-00.0E	39-30.0N		5620	154-59.8E	38-45.5N	5775						
Press.	Temp.	Sal.	SIG-T		Press.	Temp.	Sal.	SIG-T		Press.	Temp.	Sal.	SIG-T		Press.	Temp.	Sal.	SIG-T	
5	11.748	34.275	26.074		5	11.186	34.212	26.128		5	10.439	34.113	26.184		5	13.476	34.417	25.845	
10	11.710	34.275	26.080		10	11.181	34.214	26.130		10	10.440	34.113	26.184		10	13.403	34.414	25.858	
20	11.646	34.278	26.095		20	11.165	34.212	26.132		20	10.444	34.114	26.184		20	13.311	34.411	25.874	
30	11.634	34.278	26.097		30	11.072	34.212	26.149		30	10.346	34.094	26.186		30	13.276	34.407	25.878	
40	11.629	34.278	26.098		40	11.072	34.214	26.150		40	10.024	34.059	26.213		40	13.248	34.402	25.880	
50	11.619	34.278	26.100		50	11.061	34.212	26.151		50	10.018	34.060	26.215		50	13.213	34.397	25.883	
75	11.162	34.256	26.167		75	10.442	34.135	26.201		75	8.944	34.039	26.375		75	13.121	34.384	25.892	
100	10.825	34.232	26.209		100	7.729	33.798	26.369		100	8.576	34.015	26.413		100	11.905	34.272	26.042	
125	10.477	34.190	26.237		125	6.506	33.714	26.472		125	7.580	33.890	26.463		125	10.935	34.193	26.159	
150	10.151	34.164	26.273		150	6.072	33.662	26.495		150	6.762	33.780	26.490		150	10.374	34.180	26.247	
175	9.689	3																	

5. Data on drift gillnet research

Four gillnet researches were performed during this cruise. The operations were supervised by the captain, and were conducted by deck officers, crews and research staff.

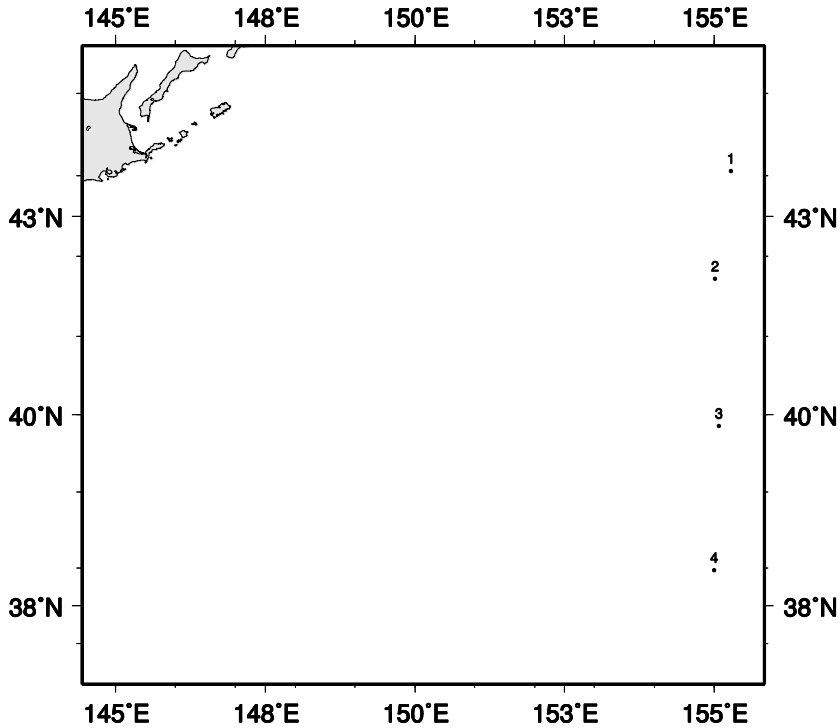


Figure 3. Locations of drift gillnet research

Table 3. Data on drift gillnet research

No. of	Date and Time (S.M.T.)				T.D.	Position			D.D.	Bottom depth(m)	Wr	Wind	S.T. (°C)	Tr (m)
research	Net set		Net haul			Lat.(N)	Long.							
OSG1001	13-May	1745-	14-May	0440-	10	43-04.0	155-16.0 (E)	275	5245	o	ESE-5	8.1	-	
OSG1002	14-May	1745-	15-May	0423-	10	41-44.0	155-00.0 (E)	165	5548	o	NNW-5	7.8	-	
OSG1003	15-May	1810-	16-May	0420-	10	39-52.0	155-04.0 (E)	30	5500	d	North-5	11.2	-	
OSG1004	16-May	1850-	17-May	0423-	10	37-59.0	154-59.0 (E)	230	5970	o	NNE-3	12.8	-	

T.D.: Time Difference between Greenwich Mean Time (G.M.T.) and S.M.T. D.D.: Direction of Drift toward
Wr.: Weather (o: 100% clouded, f: 75-99% clouded, d: drizzling rain) S.T.: Surface temperature Tr: Transparency

Table 4. Nets composition

No. of research	Mesh size (mm)																					Total
	48	55	63	72	82	93	106	121	138	157	112	115	118	121	19	22	25	29	33	37	42	
OSG1001	3	3	3	3	3	3	3	3	3	3	5	5	3	3	0	0	1	1	0	1	0	49
OSG1002	3	3	3	5	5	5	3	3	3	3	5	2	3	0	0	0	1	1	0	1	0	49
OSG1003	3	3	3	3	3	3	3	3	3	3	3	3	3	3	1	1	1	1	1	1	1	49
OSG1004	3	3	3	3	3	3	3	3	3	3	3	3	3	3	1	1	1	1	1	1	1	49

Table 5. Data on catch number of salmonids by drift gillnet research

Sockeye (catch number)

No. of research	Mesh size (mm)																					Total
	48	55	63	72	82	93	106	121	138	157	112	115	118	121	19	22	25	29	33	37	42	
OSG1001	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OSG1002	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OSG1003	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OSG1004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Chum (catch number)

No. of research	Mesh size (mm)																					Total
	48	55	63	72	82	93	106	121	138	157	112	115	118	121	19	22	25	29	33	37	42	
OSG1001	0	0	1	0	2	3	10	12	0	1	17	16	11	7	0	0	0	0	0	0	0	80
OSG1002	0	0	0	2	3	4	15	9	1	0	33	8	11	0	0	0	0	0	0	0	0	86
OSG1003	0	0	0	0	0	2	2	5	3	1	2	3	2	1	0	0	0	0	0	0	0	21
OSG1004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Pink (catch number)

No. of research	Mesh size (mm)																					Total
	48	55	63	72	82	93	106	121	138	157	112	115	118	121	19	22	25	29	33	37	42	
OSG1001	0	0	4	74	54	16	2	1	0	1	2	1	1	0	0	0	0	0	0	0	0	156
OSG1002	0	0	8	97	92	53	3	1	0	0	3	2	1	0	0	0	0	0	0	0	0	260
OSG1003	0	0	0	0	4	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	7
OSG1004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Coho (catch number)

No. of research	Mesh size (mm)																					Total
	48	55	63	72	82	93	106	121	138	157	112	115	118	121	19	22	25	29	33	37	42	
OSG1001	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OSG1002	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OSG1003	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OSG1004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Chinook (catch number)

No. of research	Mesh size (mm)																					Total
	48	55	63	72	82	93	106	121	138	157	112	115	118	121	19	22	25	29	33	37	42	
OSG1001	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OSG1002	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OSG1003	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OSG1004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Steelhead (catch number)

No. of research	Mesh size (mm)																					Total
	48	55	63	72	82	93	106	121	138	157	112	115	118	121	19	22	25	29	33	37	42	
OSG1001	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OSG1002	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OSG1003	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OSG1004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 6. Biological characteristics of salmonids caught by drift gillnet research

CHUM SALMON																	
St.	Gear	F. L.	B. W.	Sex	G. W.	St.	Gear	F. L.	B. W.	Sex	G. W.	St.	Gear	F. L.	B. W.	Sex	G. W.
	(mm)	(mm)	(gr)		(gr)		(mm)	(mm)	(gr)		(gr)		(mm)	(mm)	(gr)		(gr)
G01	A112	560	2020	M	2	G01	C106	542	1854	F	45	G02	A118	512	1700	F	29
G01	A112	616	2890	F	35	G01	C106	592	2304	M	12	G02	A118	551	2025	F	53
G01	A112	511	1550	M	4	G01	C106	536	1603	M	9	G02	A118	550	2040	F	49
G01	A112	580	1860	M	2	G01	C106			F	37	G02	A118	523	1622	M	5
G01	A112	542	1880	M	7	G01	C121	540	1894	F	45	G02	A118	548	1836	F	62
G01	A112	532	1760	M	7	G01	C121	552	1987	M	5	G02	A118	592	2401	F	38
G01	A112	548	1910	M	7	G01	C121	530	1720	M	5	G02	A118	552	1996	F	42
G01	A112	556	1780	F	3	G01	C121	562	2056	M	10	G02	C072	530	1758	F	39
G01	A112	560	1836	M	2	G01	C121	576	2030	M	7	G02	C072	582	1911	M	6
G01	A112	544	1880	F	21	G01	C121	510	1600	M	6	G02	C082	541	1800	F	60
G01	A112	532	1620	F	15	G01	C121	536	1842	M	4	G02	C082	558	1980	F	66
G01	A112	528	1660	F	16	G01	C121	562	2407	M	21	G02	C082	528	1790	F	50
G01	A112	520	1890	F	31	G01	C121	564	2218	M	10	G02	C093	497	1480	F	31
G01	A112	520	1932	F	36	G01	C121	524	1530	F	24	G02	C093	540	1800	M	14
G01	A112	558	1900	F	34	G01	C121	536	1667	F	18	G02	C093	508	1480	F	45
G01	A112	570	2294	M	5	G01	C121	542	1780	M	5	G02	C106	538	2032	F	55
G01	A112	546	1920	F	32	G01	C157	532	1765	M	2	G02	C106	485	1200	F	10
G01	A115	600	2260	M	1	G02	A112	528	1719	M	5	G02	C106	492	1380	M	1
G01	A115	532	1560	F	27	G02	A112	478	1439	M	23	G02	C106	458	1109	M	2
G01	A115	542	1710	F	46	G02	A112	556	2123	M	15	G02	C106	536	1697	F	37
G01	A115	563	2000	F	42	G02	A112	542	1877	F	47	G02	C106	592	2306	M	4
G01	A115	556	1900	F	49	G02	A112	513	1766	M	7	G02	C106	532	1924	F	32
G01	A115	590	2400	F	32	G02	A112	533	1790	F	52	G02	C106	556	2024	F	23
G01	A115	591	2300	F	58	G02	A112	560	2011	M	5	G02	C106	542	1745	F	47
G01	A115	522	1780	F	25	G02	A112	560	1883	M	2	G02	C106	510	1776	M	6
G01	A115	560	2280	F	170	G02	A112	528	1769	M	61	G02	C106	536	1893	M	6
G01	A115	578	2050	F	65	G02	A112	530	2086	F	24	G02	C106	545	1822	M	2
G01	A115	514	1770	F	55	G02	A112	550	1913	F	3	G02	C106	586	2683	M	4
G01	A115	534	1730	F	42	G02	A112	496	1471	M	12	G02	C106	540	1748	F	38
G01	A115	575	1650	F	42	G02	A112	572	2130	M	23	G02	C106	550	1891	M	1
G01	A115	535	1730	F	43	G02	A112	528	1750	M	22	G02	C121	587	2227	M	3
G01	A115	530	1550	F	57	G02	A112	502	1654	M	32	G02	C121	524	1761	F	45
G01	A115	542	1660	M	6	G02	A112	532	1730	F	2	G02	C121	530	1756	M	3
G01	A118	596	2340	F	24	G02	A112	546	1850	M	11	G02	C121	603	2641	F	27
G01	A118	588	2200	F	33	G02	A112	564	2134	M	5	G02	C121	563	2149	M	5
G01	A118	570	2082	M	1	G02	A112	556	1987	M	51	G02	C121	604	2916	M	29
G01	A118	632	2720	M	5	G02	A112	550	1923	M	9	G02	C121	548	2140	F	54
G01	A118	542	1810	F	19	G02	A112	544	2355	M	8	G02	C121	536	2087	F	37
G01	A118	570	2132	M	10	G02	A112	570	2107	M	8	G02	C121	562	2059	M	2
G01	A118	580	2160	F	22	G02	A112	568	1995	M	7	G02	C138	592	2619	F	48
G01	A118	586	2391	F	50	G02	A112	523	1729	M	14	G03	A112	552	1843	F	18
G01	A118	554	1920	M	2	G02	A112	521	1851	F	41	G03	A112	554	2089	M	2
G01	A118	564	1950	F	26	G02	A112	479	1524	F	27	G03	A115	511	1621	F	32
G01	A121	498	1490	F	26	G02	A112	576	2247	F	28	G03	A115	550	2301	F	41
G01	A121	518	1728	M	8	G02	A112	580	2069	M	9	G03	A115	585	2204	F	31
G01	A121	532	1836	M	7	G02	A112	540	1937	F	40	G03	A118	565	2301	M	3
G01	A121	584	2066	M	6	G02	A112	530	1816	M	3	G03	A118	553	2213	M	5
G01	A121	540	1786	F	27	G02	A112	528	1822	M	7	G03	A121	547	2196	F	49
G01	A121	528	1800	F	38	G02	A112	484	1336	O		G03	C093	558	2221	F	70
G01	A121	534	1920	M	12	G02	A115	528	1855	F	39	G03	C093	586	2703	M	34
G01	C063	536	1932	M	32	G02	A115	518	1833	F	40	G03	C106	563	2057	F	20
G01	C082	500	1540	O		G02	A115	500	1715	M	5	G03	C106	521	2004	M	3
G01	C082	466	1200	O		G02	A115	517	1937	M	6	G03	C121	528	1931	F	13
G01	C093	546	1830	M	5	G02	A115	572	2200	F	27	G03	C121	532	2077	M	6
G01	C093	548	1860	M	7	G02	A115	540	1904	F	70	G03	C121	663	3310	M	3
G01	C106			M	6	G02	A115	514	1717	M	5	G03	C121	568	2102	M	1
G01	C106	484	1312	M	2	G02	A115	578	2354	M	9	G03	C121	600	2682	M	2
G01	C106	548	1665	M	9	G02	A118	554	2083	M	6	G03	C138	564	2304	M	5
G01	C106	558	2032	M	18	G02	A118	504	1661	F	36	G03	C138	562	2228	M	3
G01	C106	588	2024	M	5	G02	A118	552	2392	M	11	G03	C138	606	3034	M	12
G01	C106	510	1810	F	60	G02	A118	546	1689	M	4	G03	C157	700	4338	M	6

Table 6. Biological characteristics of salmonids caught by drift gillnet research (continued)

PINK SALMON																							
St.	Gear (mm)	F. L. (mm)	B. W. (gr)	Sex	G. W. (gr)	St.	Gear (mm)	F. L. (mm)	B. W. (gr)	Sex	G. W. (gr)	St.	Gear (mm)	F. L. (mm)	B. W. (gr)	Sex	G. W. (gr)	St.	Gear (mm)	F. L. (mm)	B. W. (gr)	Sex	G. W. (gr)
G01	C072	350	451			G01	C082	410	700	M	4	G02	C072	341	357	M	1						
G01	C072	372	573	M	4	G01	C082	388	618	M	2	G02	C072	381	522	F	9						
G01	C072	380	616			G01	C082	374	612	F	18	G02	C072	368	453	F	9						
G01	C072	370	550			G01	C082	380	604	M	3	G02	C072	388	637	F	5						
G01	C072	378	531			G01	C082	344	460	M	1	G02	C072	362	467	F	5						
G01	C072	360	482			G01	C082	382	608	F	22	G02	C072	346	385	F	8						
G01	C072	388	688			G01	C082	390	671	F	13	G02	C072	406	654	F	8						
G01	C072	408	733	F	12	G01	C082	392	626	M	5	G02	C072	392	616	F	7						
G01	C072	324	402	M	1	G01	C082	558	524	M	5	G02	C072	402	656	F	7						
G01	C072	336	398	F	4	G01	C082	360	516	F	39	G02	C072	397		M	1						
G01	C072	370	552	M	2	G01	C082	370	588	F	8	G02	C072	370	540	M	2						
G01	C072	378	630			G01	C082	384	620	F	8	G02	C072	409	684	M	3						
G01	C072	368	568			G01	C082	676	532	F	8	G02	C072	378	531	F	8						
G01	C072	368	610			G01	C082	362	552	F	6	G02	C072	368	491	M	3						
G01	C072	372	565			G01	C082	392	693	M	2	G02	C072	389	564	F	5						
G01	C072	360	532			G01	C082	390	664	F	11	G02	C072	370	556	F	4						
G01	C072	362	514			G01	C082	380	595	M	1	G02	C072	401	683	F	16						
G01	C072	372	601			G01	C082	368	582	M	3	G02	C072	368	549	M	2						
G01	C072	362	532			G01	C082	432	838	M	3	G02	C072	418	743	F	17						
G01	C072	354	467			G01	C082	402	752	F	10	G02	C072	397	651	F	7						
G01	C072	388	605			G01	C082	408	715	M	2	G02	C072	436		M	5						
G01	C072	342	472			G01	C082	382	619	F	10	G02	C072	368	524	F	7						
G01	C072	388	614			G01	C082	394	710	M	2	G02	C072	354	414	M	1						
G01	C072	404	702			G01	C082	392	615	F	11	G02	C072	383		F	9						
G01	C072	356	467			G01	C082	394	653	M	4	G02	C072	390	620	F	7						
G01	C072	360	470			G01	C093			M	5	G02	C072	360	466	F	9						
G01	C072	410	706			G01	C093			M	7	G02	C072	386	638	F	14						
G01	C072	344	489			G01	C093	394	696	M	2	G02	C072	382	581	F	9						
G01	C072	354	484			G01	C093	398	680	M	6	G02	C072	363	506	M	2						
G01	C072	336	484			G01	C093	394	680	M	3	G02	C072	396	605	M	1						
G01	C072	366	547			G01	C093	470	1160	M	5	G02	C072	361	363	M	2						
G01	C072	392	615			G01	C093	410	782	F	14	G02	C072	374	433	F	7						
G01	C072	350	471	F	5	G01	C093	448	955	M	7	G02	C072	388	575	F	18						
G01	C072	368	617			G01	C093	372	694	F	21	G02	C072	406	582	F	13						
G01	C072	404	732	F	13	G01	C093	446	840	M	5	G02	C072	426	855	M	3						
G01	C072	362	482	F	6	G01	C093	386	660	F	13	G02	C072	396	650	M	5						
G01	C072	364	568	F	8	G01	C093	382	621	F	13	G02	C072	348	400	M	3						
G01	C072	366	463	M	2	G01	C093	426	625	M	5	G02	C072	382	520	F	5						
G01	C072	384	620	M	3	G01	C093	376	638	M	5	G02	C072	398	620	F	7						
G01	C072	360	551	F	8	G01	C093	420	808	M	6	G02	C072	388	656	F	2						
G01	C072	384	547	M	3	G01	C093	400	695	M	5	G02	C072	346	420	M	3						
G01	C072	368	527	F	8	G01	C106	440	976	M	6	G02	C072	368	560	F	12						
G01	C072	402	694	F	12	G01	C106	386	607	F	10	G02	C072	412	720	F	22						
G01	C072	348	476	M	2	G01	C121	374	570	M	4	G02	C072	363	460	F	11						
G01	C072	398	660	M	4	G01	C157	402	688	F	10	G02	C072	383	530	M	4						
G01	C072	372	471	F	8	G02	A112	456	1129	M	7	G02	C072	417	830	F	18						
G01	C072	400	691	M	4	G02	A112	496	1423	F	7	G02	C082	405	669	F	6						
G01	C072	366	520	M	2	G02	A112	398	710	F	13	G02	C082	368	515	F	2						
G01	C072	394	647	M	4	G02	A115	399		M	2	G02	C082	416	731	M	1						
G01	C072	364	598	F	10	G02	A115	378	522	M	2	G02	C082	403		F	11						
G01	C072	358	503	F	10	G02	A118	400	682	M	6	G02	C082	395	618	M	1						
G01	C072	364	528	F	8	G02	C063	358	463	F	5	G02	C082	382	616	F	9						
G01	C072	354	490	F	4	G02	C063	372	519	F	6	G02	C082	398	807	M	3						
G01	C082	358	532	M	2	G02	C063	355	446	F	3	G02	C082	414	705	M	1						
G01	C082	360	546	F	16	G02	C063	336	405	F	1	G02	C082	401	663	M	2						
G01	C082	384	586	F	11	G02	C063	336	397	M	1	G02	C082	370	557	F	10						
G01	C082	382	609	F	8	G02	C072	378	528	F	11	G02	C082	442	868	M	3						
G01	C082	358	542	F	6	G02	C072	363	542	M	1	G02	C082	392	574	F	6						
G01	C082	336	462	F	12	G02	C072	396	635	M	3	G02	C082	370	545	F	6						
G01	C082	430	816	M	1	G02	C072	362	533	F	16	G02	C082	432	815	M	2						
G01	C082	380	612	M	3	G02	C072	391	554	M	2	G02	C082	370	443	F	6						
G01	C082	376	695	F	11	G02	C072	376	488	F	3	G02	C082	382	599	M	2						
G01	C082	358	542	F	7	G02	C072	408	697	F	15	G02	C082	400	633	M	2						
G01	C082	384	620	M	2	G02	C072	340	424	F	5	G02	C082	404	676	F	14						
G01	C082	370	584	M	2	G02	C072	395	630	M	2	G02	C082	358	507	F	3						
G01	C082	424	790	M	2	G02	C072	346	416	M	2	G02	C082	376	630	F	10						
G01	C082	388	674	F	5	G02	C072	367	523	M	6	G02	C082	395	719	F	14						
G01	C082	364	546	F	4	G02	C072	358	504	M	1	G02	C082	367	607	M	3						
G01	C082	400	702	F	24	G02	C072	374	507	M	2	G02	C082	384	651	M	2						
G01	C082	400	620	M	2	G02	C072	388	604	M	6	G02	C082	382	505	M	1						

Table 6. Biological characteristics of salmonids caught by drift gillnet research (continued)

PINK SALMON																	
St.	Gear	F. L.	B. W.	Sex	G. W.	St.	Gear	F. L.	B. W.	Sex	G. W.	St.	Gear	F. L.	B. W.	Sex	G. W.
(mm)	(mm)	(mm)	(gr)		(gr)	(mm)	(mm)	(mm)	(gr)		(gr)	(mm)	(mm)	(mm)	(gr)		(gr)
G02	C082	391	691	F	23	G02	C082	386	573	F	10	G02	C093	422	760	F	12
G02	C082	420	702	F	5	G02	C082	402	708	F	21	G02	C093	406	780	M	2
G02	C082	382	605	M	5	G02	C082	369	557	F	10	G02	C093	396	710	M	2
G02	C082	420	755	M	7	G02	C082	377	555	M	2	G02	C093	402	640	F	10
G02	C082	390	679	M	2	G02	C082	396	654	M	2	G02	C093	391	600	M	5
G02	C082	395	665	F	10	G02	C093	409	700	F	13	G02	C093	409	680	F	13
G02	C082	408	754	M	4	G02	C093	429	720	M	6	G02	C093	410	700	F	16
G02	C082	462	1081	M	5	G02	C093	380	550	F	10	G02	C093	392	600	F	11
G02	C082	406	748	M	8	G02	C093	408	650	F	10	G02	C093	396	620	F	10
G02	C082	375	584	M	56	G02	C093	370		F	8	G02	C093	425	630	M	4
G02	C082	380	660	F	10	G02	C093	421		F	20	G02	C093	380	560	M	4
G02	C082	354	525	F	9	G02	C093	398		M	7	G02	C093	416	750	F	10
G02	C082	423	769	M	7	G02	C093	431		M	4	G02	C093	400	670	F	14
G02	C082	381	638	F	10	G02	C093	382		F	14	G02	C093	408	720	M	5
G02	C082	412	808	F	38	G02	C093	419		F	13	G02	C093	374	560	F	11
G02	C082	388	585	F	12	G02	C093	400		M	6	G02	C093	410	690	M	5
G02	C082	422	758	M	1	G02	C093	468	1060	M	9	G02	C093	408	700	M	7
G02	C082	405	694	M	2	G02	C093	402	680	F	10	G02	C093	470	1040	M	6
G02	C082	384	592	M	1	G02	C093	460	1060	M	8	G02	C093	414	700	F	14
G02	C082	377	633	M	6	G02	C093	402	640	M	4	G02	C106	432	925	M	2
G02	C082	380	560	M	1	G02	C093	405	840	F	20	G02	C106	420	857	M	5
G02	C082	410	712	M	3	G02	C093	406	660	F	15	G02	C106	450	937	M	3
G02	C082	393	696	M	3	G02	C093	428	780	M	5	G02	C121	393	642	M	3
G02	C082	408	705	M	5	G02	C093	424	780	M	4	G03	A112	469	1140	M	5
G02	C082	374	529	F	8	G02	C093	418	700	M	7	G03	A112	501	1541	M	4
G02	C082	410	750	F	16	G02	C093	400	680	M	3	G03	A112	502	1604	M	5
G02	C082	396	647	F	17	G02	C093	398	600	F	9	G03	C082	376	627	F	14
G02	C082	385	595	F	8	G02	C093	422	800	M	7	G03	C082	395	555	M	1
G02	C082	446	938	M	5	G02	C093	418	720	F	12	G03	C082	415	768	F	9
G02	C082	391	640	F	10	G02	C093	450	840	M	8	G03	C082	364	521	F	5
G02	C082	370	577	F	15	G02	C093	422	820	F	25						

Table 7. The number of organisms caught by drift gillnet during the Oshoro maru Cruise # 215 in May, 2010. CPUE and (%) indicate numerical catch per tan and percentage of total catch by C-gear gillnet at the station, respectively.

Common name	Scientific name	Station Gear	OSG 1001				OSG 1002				OSG 1003				OSG 1004			
			C		A	F	C		A	F	C		A	F	C		A	F
			CPUE (%)	Total			CPUE (%)	Total			CPUE (%)	Total			CPUE (%)	Total		
Sockeye salmon	<i>Oncorhynchus nerka</i>		0 0.0 (0.0)	0	0	0	0 0.0 (0.0)	0	0	0	0 0.0 (0.0)	0	0	0	0 0.0 (0.0)	0	0	0
Chum salmon	<i>Oncorhynchus keta</i>		29 1.0 (14.3)	51	0	80	34 9.9 (9.5)	86	52	0	13 4.4 (25.5)	8	0	21	0 0.0 (0.0)	0	0	0
Pink salmon	<i>Oncorhynchus gorbuscha</i>		152 5.1 (74.9)	4	0	156	254 7.1 (70.9)	260	6	0	4 0.1 (7.8)	3	0	7	0 0.0 (0.0)	0	0	0
Coho salmon	<i>Oncorhynchus kisutch</i>		0 0.0 (0.0)	0	0	0	0 0.0 (0.0)	0	0	0	0 0.0 (0.0)	0	0	0	0 0.0 (0.0)	0	0	0
Chinook salmon	<i>Oncorhynchus tshawytscha</i>		0 0.0 (0.0)	0	0	0	0 0.0 (0.0)	0	0	0	0 0.0 (0.0)	0	0	0	0 0.0 (0.0)	0	0	0
Steelhead	<i>Oncorhynchus mykiss</i>		0 0.0 (0.0)	0	0	0	0 0.0 (0.0)	0	0	0	0 0.0 (0.0)	0	0	0	0 0.0 (0.0)	0	0	0
Boreal clubhook squid	<i>Onychoteuthis borealijaponica</i>		20 0.7 (9.9)	0	0	20	60 1.7 (16.8)	60	13	0	0.4 (25.5)	0	0	13	4 0.1 (21.1)	0	11	15
Eight-armed squid	<i>Gonatopsis borealis</i>		0 0.0 (0.0)	0	0	0	2 0.1 (0.6)	2	7	0	0.2 (13.7)	0	0	7	0 0.0 (0.0)	0	0	0
Flying squid	<i>Onmmastrephes bartramii</i>		0 0.0 (0.0)	0	0	0	0 0.0 (0.0)	0	0	0	0 0.0 (0.0)	0	0	0	1 0.0 (5.3)	0	0	1
Blue shark	<i>Prionace glauca</i>		0 0.0 (0.0)	0	0	0	0 0.0 (0.0)	0	0	0	0 0.0 (0.0)	0	0	0	0 0.0 (0.0)	1	0	1
Salmon shark	<i>Lamna ditropis</i>		0 0.0 (0.0)	0	0	0	0 0.0 (0.0)	0	0	0	0 0.0 (0.0)	1	0	1	0 0.0 (0.0)	0	0	0
Spiny dogfish	<i>Squalus acanthias</i>		1 0.0 (0.5)	1	0	2	0 0.0 (0.0)	0	0	0	0 0.0 (0.0)	0	0	0	0 0.0 (0.0)	0	0	0
Japanese scaled sardine	<i>Sardinops melanostictus</i>		0 0.0 (0.0)	0	0	0	0 0.0 (0.0)	0	0	0	0 0.0 (0.0)	0	0	0	0 0.0 (0.0)	0	2	2
Japanese anchovy	<i>Engraulis japonicus</i>		0 0.0 (0.0)	0	0	0	0 0.0 (0.0)	0	0	0	0 0.0 (0.0)	0	0	0	13 0.4 (68.4)	4	836	8378
Lantern fishes	Myctophidae		0 0.0 (0.0)	0	0	0	0 0.0 (0.0)	0	0	0	0 0.0 (0.0)	0	8	8	0 0.0 (0.0)	0	0	0
Pacific saury	<i>Cololabis saira</i>		0 0.0 (0.0)	0	0	0	0 0.0 (0.0)	0	0	0	0 0.0 (0.0)	0	0	0	0 0.0 (0.0)	0	6	6
Pilotfish	<i>Naucrates ductor</i>		0 0.0 (0.0)	0	0	0	0 0.0 (0.0)	0	0	0	0 0.0 (0.0)	0	0	0	1 0.0 (5.3)	0	0	1
Pacific pomfret	<i>Brama japonica</i>		0 0.0 (0.0)	0	0	0	0 0.0 (0.0)	0	0	0	14 0.5 (27.5)	7	1	22	0 0.0 (0.0)	0	0	0
Chub mackerel	<i>Scomber japonicus</i>		0 0.0 (0.0)	0	0	0	0 0.0 (0.0)	0	0	0	0 0.0 (0.0)	0	0	0	0 0.0 (0.0)	0	1	1
Smalleye squaretail	<i>Tetragnonurus atlanticus</i>		0 0.0 (0.0)	0	0	0	2 0.1 (0.6)	2	0	0	0 0.0 (0.0)	0	0	0	0 0.0 (0.0)	0	0	0
Atka mackerel	<i>Pleurogrammus monopterygius</i>		0 0.0 (0.0)	0	0	0	0 0.0 (0.0)	0	0	0	0 0.0 (0.0)	0	0	0	0 0.0 (0.0)	0	0	0
Common Murre	<i>Uria aalge</i>		0 0.0 (0.0)	0	0	0	0 0.0 (0.0)	0	0	0	0 0.0 (0.0)	0	0	0	0 0.0 (0.0)	0	0	0
Short-tailed shearwater	<i>Puffinus tenuirostris</i>		1 0.0 (0.5)	0	0	1	6 0.2 (1.7)	6	0	0	0 0.0 (0.0)	0	0	0	0 0.0 (0.0)	0	0	0
Horned puffin	<i>Fratercula corniculata</i>		0 0.0 (0.0)	0	0	0	0 0.0 (0.0)	1	0	1	0 0.0 (0.0)	0	0	0	0 0.0 (0.0)	0	0	0

Table 8. Biological characteristics of fishes caught by drift gillnet

NEON FLYING SQUID															
St.	Gear	M. L.	B. W.	St.	Gear	M. L.	B. W.	St.	Gear	M. L.	B. W.	St.	Gear	M. L.	B. W.
(mm)	(mm)	(mm)	(gr)	(mm)	(mm)	(mm)	(gr)	(mm)	(mm)	(mm)	(gr)	(mm)	(mm)	(mm)	(gr)
				G04	C093	345	1319								
BOREAL CLUBHOOK SQUID															
St.	Gear	M. L.	B. W.	St.	Gear	M. L.	B. W.	St.	Gear	M. L.	B. W.	St.	Gear	M. L.	B. W.
(mm)	(mm)	(mm)	(gr)	(mm)	(mm)	(mm)	(gr)	(mm)	(mm)	(mm)	(gr)	(mm)	(mm)	(mm)	(gr)
G01	C072	316	640	G02	C072	302	494	G02	C093	310					
G01	C072	298	550	G02	C072	294	486	G02	C093	300					
G01	C072	332	710	G02	C072	316	681	G02	C093	318					
G01	C072	312	650	G02	C072	312	595	G02	C093	308					
G01	C072	292	600	G02	C072	312	547	G02	C093	314					
G01	C072	304	590	G02	C072	294	569	G02	C093	284	422				
G01	C072	304	580	G02	C072	296	479	G02	C093	314	325				
G01	C072	312	580	G02	C072	318	706	G02	C106	288					
G01	C072	335	620	G02	C072	284	477	G02	C055	224					
G01	C082	292	600	G02	C072	306	566	G03	C055	208					
G01	C082	304	610	G02	C072	296	513	G03	C055	228	213				
G01	C082	304	600	G02	C072	284	456	G03	C055	214	190				
G01	C082	314	580	G02	C072	306		G03	C055	221	212				
G01	C082	310	570	G02	C072	322		G03	C063	228	237				
G01	C082	314	680	G02	C072	308		G03	C063	234	255				
G01	C082	314	680	G02	C072	306		G03	C063	258	334				
G01	C082	318	700	G02	C072	298		G03	C072	278	470				
G01	C082	326	600	G02	C072	388		G03	C072	286	445				
G01	C082	290	560	G02	C082	298	643	G03	C072	274	393				
G01	C138	312	620	G02	C082	302	608	G03	C072	271	416				
G02	C063	282	504	G02	C082	388	469	G03	C082	324	679				
G02	C063	292	503	G02	C082	394	492	G04	C048	186	162				
G02	C063			G02	C082	294	605	G04	C048	208	209				
G02	C072	306		G02	C082	316		G04	C055	160	152				
G02	C072	286		G02	C082	310	593	G04	C072	260	431				
G02	C072	306		G02	C082	320	584	G04	F025	102	40				
G02	C072	252		G02	C082	332	670	G04	F029	103	29				
G02	C072	308	552	G02	C082	308	554	G04	F029	110	31				
G02	C072	284	495	G02	C082	306	543	G04	F033	122	55				
G02	C072	320	623	G02	C082	324	690	G04	F037	160	100				
G02	C072	304	563	G02	C082	342	768	G04	F037	165	103				
G02	C072	306	545	G02	C082	300	549	G04	F037	178	130				
G02	C072	318	605	G02	C082	318	494	G04	F042	142	83				
G02	C072	202	437	G02	C082	314	638	G04	F042	178	125				
G02	C072	300		G02	C093	320	630	G04	F042	164	112				
G02	C072	304	618	G02	C093	291	542	G04	F042	193	147				
PACIFIC SAURY															
St.	Gear	F. L.	B. W.	St.	Gear	F. L.	B. W.	St.	Gear	F. L.	B. W.	St.	Gear	F. L.	B. W.
(mm)	(mm)	(mm)	(gr)	(mm)	(mm)	(mm)	(gr)	(mm)	(mm)	(mm)	(gr)	(mm)	(mm)	(mm)	(gr)
G04	F019	150	12	G04	F033	282	96	G04	F033	280	90				
G04	F033	260	82	G04	F033	268	85	G04	F033	283	94				
PACIFIC POMFRET															
St.	Gear	F. L.	B. W.	St.	Gear	F. L.	B. W.	St.	Gear	F. L.	B. W.	St.	Gear	F. L.	B. W.
(mm)	(mm)	(mm)	(gr)	(mm)	(mm)	(mm)	(gr)	(mm)	(mm)	(mm)	(gr)	(mm)	(mm)	(mm)	(gr)
G03	A115	402	1107	G03	C121	474	1759	G03	C138	460	1610				
G03	A115	400	1176	G03	C121	402	1343	G03	C157	436	1675				
G03	A121	450	1377	G03	C121	401	1162	G03	C157	406	1143				
G03	A121	412	1149	G03	C121	428	1290	G03	C157	460	1616				
G03	A121	406	1157	G03	C138	406	1118	G03	C157	459	1712				
G03	A121	418	1569	G03	C138	449	1617	G03	F029	415	1270				
G03	A121	407	1158	G03	C138	456	1595								
G03	C055	458	1583	G03	C138	418	1208								

6. Data on salmon hook-and-line Research

To collect salmon, hook-and-line gears were used along 155°E line in the Central North Pacific during Cruise#215. Five to ten anglers were engaged in the work. These samplings were mainly conducted with observations when ship was under drifting.

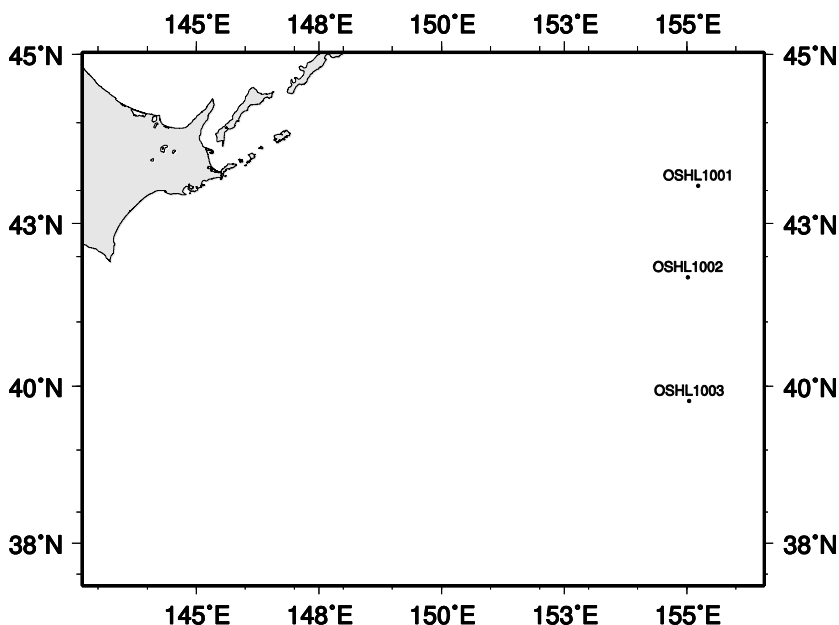


Figure 4. Locations of salmon hook-and-line Research

Table 9. List of hook-and-line sampling (OSHL 10XX) station during the "Oshoro Maru" Cruise #215

Station	Date and Time (S.M.T.)					Set Position		D.S.	No. of hooks	Wr.	Wind (Force)	Oceanographic Station No.
	Line set		Line haul		T.D.	Lat.	Long.					
OSHL 1001	13-May	20:30-	14-May	03:30-	10	43-05.0N	155-13.0E	-	-	d	East-5	OS10055
OSHL 1002	15-May	20:35-	16-May	03:15-	10	41-42.0N	155-00.0E	-	-	o	NNW-5	OS10058
OSHL 1003	16-May	21:30-	17-May	01:30-	10	39-47.0N	155-02.0E	-	-	d	NNW-4	OS10061

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

T.D.: Time Difference between Greenwich Mean Time (G.M.T.) and S.M.T.

D.S. : Direction in which line was set Wr.: Weather (o: 100% clouded, f fog, d: drizzling rain)

Table 10. The catch number of each salmonid at each station where salmonids were collected by hook-and-line gear, surface longline

Station Name	Sampling gear	Species name						Total
		Sockeye	Chum	Pink	Coho	Chinook	Stellhead	
Cruise #215								
OSHL 1001	Hook-and-line	0	12	51	0	0	0	63
OSHL 1002	Hook-and-line	0	6	439	0	0	0	445
OSHL 1003	Hook-and-line	0	4	0	0	0	0	4
total		0	22	490	0	0	0	512

Table 11. Biological characteristics of salmonids caught by hook-and-line research

CHUM SALMON																			
St.	F. L. (mm)	B. W. (gr)	Sex	G. W. (gr)	St.	F. L. (mm)	B. W. (gr)	Sex	G. W. (gr)	St.	F. L. (mm)	B. W. (gr)	Sex	G. W. (gr)	St.	F. L. (mm)	B. W. (gr)	Sex	G. W. (gr)
HL01	572	2360	F	55	HL01	482	1258	M	2	HL02	582	2190	F	20					
HL01	539	1980	M	4	HL01	454	1037	F	12	HL02	532	1563	M	4					
HL01	534	1764	M	5	HL01	452	1080	F	11	HL03	590	2000	F	28					
HL01	558	2130	M	5	HL01	554	1860	F	64	HL03	540	2100	M	12					
HL01	508	1620	M	6	HL02	595	2459	M	3	HL03	587	2530	M	23					
HL01	604	2840	M	3	HL02	600	2390	M	2	HL03	610	2750	M	12					
HL01	530	1980	F	40	HL02	529	1700	M	3										
HL01	568	2360	F	56	HL02	470	1208	M	2										
PINK SALMON																			
St.	F. L. (mm)	B. W. (gr)	Sex	G. W. (gr)	St.	F. L. (mm)	B. W. (gr)	Sex	G. W. (gr)	St.	F. L. (mm)	B. W. (gr)	Sex	G. W. (gr)	St.	F. L. (mm)	B. W. (gr)	Sex	G. W. (gr)
HL01	380	590	F	6	HL01	391	500	M	4	HL02	438	930	M	5					
HL01	400	720	M	4	HL01	389	600	F	7.3	HL02	422	830	M	2					
HL01	402	730	M	2	HL01	370	500	M	1	HL02	385	651	F	9					
HL01	397	633	M	2	HL01	378	537	M	1	HL02	410	650	F	7					
HL01	352	594	O		HL01	430	777	M	4	HL02	405	660	M	4					
HL01	382	630	F	9	HL01	391	610	M	1.3	HL02	368	570	M	2					
HL01	405	727	M	2	HL01	400	630	M	1.9	HL02	378	569	F	5					
HL01	364	541	F	5	HL01	408	650	M	6.7	HL02	418	837	F	16					
HL01	414	729	M	3	HL01	378	520	M	0.9	HL02	380	574	F	6					
HL01	485	574	M	2	HL01	376	580	M	1.7	HL02	400	657	F	14					
HL01	400	683	M	3	HL01	420	730	M	0.7	HL02	382	598	M	3					
HL01	365	540	F	4	HL01	355	415	F	4.2	HL02	390	577	F	8					
HL01	390	600	F	10	HL01	387	600	M	1.5	HL02	385	623	F	13					
HL01	386	641	M	2	HL01	380	570	F	10	HL02	392	728	F	12					
HL01	490	510	F	5	HL02	391	670	F	12	HL02	393	690	F	10					
HL01	370	570	F	6	HL02	355	470	F	4	HL02	395	459	M	2					
HL01	415	766	F	10	HL02	379	617	F	9	HL02	401	688	M	2					
HL01	429	805	M	2	HL02	390	709	F	14	HL02	391	655	F	9					
HL01	360	551	F	7	HL02	392	632	F	7	HL02	363	528	M	2					
HL01	383	584	M	2	HL02	391	665	F	6	HL02	336	426	M	2					
HL01	352	462	M	1	HL02	397	670	M	4	HL02	329	430	F	12					
HL01	394	660	F	11	HL02	382	634	F	11	HL02	374	514	M	2					
HL01	382	641	M	2	HL02	388	566	F	10	HL02	386	548	F	9					
HL01	375	573	F	5	HL02	389	666	M	3	HL02	400	752	M	4					
HL01	376	530	M	3	HL02	411	676	M	1	HL02	398	680	F	9					
HL01	400	659	M	3	HL02	377	559	M	2	HL02	370	541	F	8					
HL01	408	700	M	4	HL02	358	525	M	2	HL02	409	663	F	8					
HL01	421	770	F	21.7	HL02	394	683	F	9	HL02	400	655	F	14					
HL01	387	600	F	11.8	HL02	374	587	F	6	HL02	388	622	F	10					
HL01	411	750	M	2.3	HL02	420	769	M	2	HL02	362	497	M	1					
HL01	396	595	M	1.2	HL02	401	676	F	10	HL02	376	564	F	9					
HL01	420	770	F	18.8	HL02	409	738	M	3	HL02	399	643	M	4					
HL01	404	690	F	13.2	HL02	361	461	F	6	HL02	401	742	M	6					
HL01	371	540	F	6.6	HL02	408	712	F	13	HL02	400	725	F	16					
HL01	398	640	M	1.5	HL02	418	795	M	4	HL02	435	830	M	4					
HL01	404	670	F	27.8	HL02	386	564	M	2	HL02	400	661	M	3					
HL01	372	560	M	1.4	HL02	375	565	F	8	HL02	419	686	M	2					

7. Data on plankton collected by vertical hauls with twin NORPAC net.

Vertical hauls with twin-NORPAC net were made at hydrographic stations. This net was composed of 45 cm mouth diameter and 180 cm long conical one which was made of GG54 and XX13 having 0.33 mm and 0.10 mm mesh, respectively. The net was lowered to the estimated depth of 150 m, 500 m or near the bottom when the bottom depth was shallower than 150 m, and immediately hauled to the surface at a speed about 1 m s⁻¹. A flowmeter was mounted at the center of mouth of the net to estimate the volume water filtered. Sampling was conducted by research staffs and measurement of wet weight of the samples were made by A. Yamaguchi, K. Ishii, K. Matsuno, R. Saito, K. Ohgi, Y. Onishi, T. Homma, R. Ohashi, C. Tsukazaki, A. Kuroda, Y. Abe, M. Kawaguchi, T. Shiota, S. Mizuhara, K. Moribe and J. Fukuda (Laboratory of Marine Biology).

Table 12. Data on plankton samples collected by vertical hauls with twin NORPAC net.

GG54: 0.33 mm mesh, XX13: 0.10 mm mesh.

Station no.	Position			S.M.T.		Length of wire (m)	Angle of wire (°)	Depth estimated by wire angle (m)	Kind of cloth	Flowmeter		Estimated volume of water filtered (m ³)	Wet weight (g)		Sample no.
	Lat. (N)	Lon.		Date	Hour					No.	Reading		per haul	per 1000 m ³	
OS10052 (Site H)	41-30	145-47	E	10 May	11:20	150	1	150	GG54	2562	1420	22.33	23.0	1031	1) 10101
									XX13	3006	1161	16.84			1) 10102
					11:36	500	1	500	GG54	2562	4746	74.62	29.2	391	1) 10103
									XX13	3006	4356	63.20			1) 10104
OS10053 (St. KNOT)	44-00	155-00	E	12 May	4:26	152	9	150	GG54	2562	1827	28.73	15.3	532	10105
									XX13	3006	1811	26.27			10106
OS10054	43-15	155-00	E	12 May	13:52	152	10	150	GG54	2562	1720	27.04	12.4	459	10107
									XX13	3006	1598	23.18			10108
OS10055	43-04	155-14	E	12 May	20:21	151	5	150	GG54	2562	1642	25.82	10.7	413	10109
									XX13	3006	1568	22.75			10110
OS10058	41-45	155-00	E	14 May	14:42	163	23	150	GG54	2562	2074	32.61	6.5	200	10111
									XX13	3006	2056	29.83			10112
OS10059	41-00	155-00	E	15 May	10:35	152	10	150	GG54	2562	1758	27.64	4.3	155	10113
									XX13	3006	1640	23.79			10114
OS10060	40-15	155-00	E	15 May	15:52	151	8	150	GG54	2562	1678	26.38	8.0	304	2) 10115
									XX13	3006	1766	25.62			10116
OS10061	39-48	155-02	E	15 May	21:04	151	8	150	GG54	2562	1587	24.95	11.3	452	10117
									XX13	3006	1642	23.82			10118
OS10062	39-30	155-00	E	16 May	7:34	154	13	150	GG54	2562	1613	25.36	8.5	333	10119
									XX13	3006	1471	21.34			10120
OS10063	38-45	155-00	E	16 May	12:47	154	13	150	GG54	2562	1688	26.54	3.5	130	10121
									XX13	3006	1219	17.69			10122
OS10064	38-00	155-00	E	16 May	16:50	154	13	150	GG54	2562	1705	26.81	6.1	229	10123
									XX13	3006	1164	16.89			10124
OS10065	37-15	155-00	E	17 May	9:29	156	15	151	GG54	2562	1750	27.52	9.9	361	5) 10125
									XX13	3006	1717	24.91			10126
OS10066	36-30	155-00	E	17 May	13:51	151	5	150	GG54	2562	1498	23.55	5.9	252	10127
									XX13	3006	1333	19.34			10128
OS10067	41-30	145-47	E	19 May	18:30	153	11	150	GG54	2562	1500	23.59	28.6	1215	1) 10129
									XX13	3006	950	13.78			1) 10130
					18:45	518	15	500	GG54	2562	5180	81.45	31.6	389	1) 10131
									XX13	3006	4425	64.20			1) 10132

1) Exclusively phytoplankton

2) Including some fragments of medusae.

3) *Neocalanus* abundant.

4) Gelatinous zooplankton abundant.

5) *Salpida* abundant.

6) Chaetognaths abundant.

8. Data on Calibration of Flowmeters

Flowmeters used for plankton nets were calibrated once in the cruise.

Table 13. Calibration data on flowmeters used for a twin or single NORPAC net and other kind of nets.

100-m wire out at St. OS10067, 19 May 2010.

Flowmeter No.	Wire length (m)	Revolution						
		1	2	3	4	5	6	Mean
RG2562	100	1028	1003	1097*	977*	999	1016	1012
RG3006	100	1125*	1115	1091	1082*	1096	1083	1096

*: omitted from calculation

