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**Recoveries of High-Seas Tags in 2010 and Tag Releases in 2011 from  
High-seas Research Vessel Surveys in the North Pacific Ocean**

by

**Working Group on Salmon Tagging  
Committee on Scientific Research and Statistics  
(CSRS)**

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# **Recoveries of High-Seas Tags in 2010 and Tag Releases in 2011 from High-seas Research Vessel Surveys in the North Pacific Ocean**

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## **ABSTRACT**

High seas tags were recovered from 53 chum salmon in Japan, two chum salmon in Sakhalin, and two sockeye salmon in Bristol Bay, Alaska in 2010. The report also included a tagged pink salmon recaptured in eastern Kamchatka in 2009. In July 2011, tagging operations were conducted by the Japanese research vessel *Hokko maru*, and 49 chum salmon are released with tags (including 30 archival DSTs) in the Bering Sea.

## **INTRODUCTION**

The Working Group on Salmon Tagging (WGST) was established by the Committee on Scientific Research and Statistics (CSRS) at the 15th Annual Meeting in 2007 to manage the INPFC-NPAFC tagging database and to coordinate high seas tagging activities of the Parties. In this report, we summarize releases of tagged high seas salmon in 2011 and recoveries of high seas tags by the Parties in 2010. This report covers updated information since our previous report was compiled (WGST, 2010).

## **MATERIALS AND METHODS**

### **Releases of high seas tags in 2010**

From June to July 2010, the Japanese research vessel (RV) *Wakatake maru* conducted 24 longline (720 hachi) operations for live capture of salmonids for tagging (Ishihara et al. 2010). Two types of disk tags were used: one issued by the Fisheries Agency of Japan (FAJ) and one issued by the North Pacific Anadromous Fish Commission (NPAFC).

### **Releases of high seas tags in 2011**

The Japanese research vessel *Hokko maru* conducted trawl and hook and line operations at 19 stations in the Bering Sea (Morita et al. 2011). Live chum salmon caught in healthy condition were

stocked into a recovery tank. Each fish was tagged with two disk tags, one issued by FAJ and one issued by NPAFC. Both disk tags were placed on one plastic cinch strap and attached to the fish in an area anterior to the dorsal fin. In addition, small archival tags (model DST micro manufactured by Star-Oddi, Reykjavik, Iceland, size, 8.3 × 25.4 mm; weight in air, 3.3 g; number of records, 21,739 per sensor) were used to record seawater temperature and depth experienced by immature chum salmon. Archival tags were attached externally with nickel pins to the dorsal musculature of the fish anterior to the dorsal fin. The fork length was measured before the fish was released to the sea.

### **Recovery of high seas tags**

Scientists at the Pacific Biological Station in Canada, the National Salmon Resources Center in Japan, the Youngdong Inland Fisheries Research Institute in Korea, the Pacific Fisheries Research Centre (TINRO-Centre) and the Kamchatka Scientific Research Institute of Fisheries and Oceanography (KamchatNIRO) in Russia, the Auke Bay Laboratory and the University of Washington in the United States, and the NPAFC Secretariat were designated to collect recovery information. To increase awareness of the tag recovery program for the general public, posters displaying information on types of tags, attachment location, guidelines for collecting important recovery data, and how to report a tag recovery were placed on the NPAFC website ([http://www.npafc.org/new/science\\_fishtag2.html](http://www.npafc.org/new/science_fishtag2.html)).

## **RESULTS**

### **Releases of high seas tags in 2010**

From June to July, 2010, 235 salmonids (18 sockeye, 102 chum, 21 pink, 84 coho, and one Chinook salmon, and nine steelhead trout) in the central North Pacific and 1,166 salmonids (74 sockeye, 1,067 chum, 14 pink, and 11 Chinook salmon) in the Bering Sea were tagged and released (WGST 2010).

### **Releases of high seas tags in 2011**

Thirty chum salmon (336-530 mm in FL) were released with disk and archival DST tags during the late July (Table 1). In addition, 19 disk-tagged chum salmon were released during the *Hokko maru* cruise (Table 1).

### **Recovery of high seas tags**

In 2010, high seas tags were recovered from 53 chum salmon in Japan, two chum salmon in Sakhalin, Russia, and two sockeye salmon in Bristol Bay, Alaska (Table 2). A pink salmon recaptured in Russia in 2009 was also reported (Table 2). All recovered salmon were originally

released in the Bering Sea during the R/V *Wakatake-maru* cruise, while none of salmonids released in the North Pacific Ocean was recovered in 2010.

## ACKNOWLEDGMENTS

We thank scientists, the captain, officers, and crew onboard the R/V *Wakatake maru* and *Hokko maru* for their careful collection of data and samples. We are grateful to the individuals and agencies who returned tags.

## REFERENCES

- Ishihara, T., J. Seki, T. Koide, and M. Fukuwaka. 2010. International salmon research aboard the R/V *Wakatake maru* in the central North Pacific Ocean and Bering Sea during the summer of 2010. NPAFC Doc. 1265. 16 pp. Hokkaido National Fisheries Research Institute, Fisheries Research Agency (Available at [www.npafc.org](http://www.npafc.org)).
- Morita, K., S. Sato, T. Sato, and T. Ohnuki. 2011. The summer 2011 Japanese salmon research cruise of the R/V *Hokko maru*. NPAFC Doc. xxxx. 14 pp. (Available at [www.npafc.org](http://www.npafc.org)).
- Working Group on Salmon Tagging (WGST), Committee on Scientific Research and Statistics. 2010. 2009 reported recoveries of high-seas tags and tag releases in 2010 from high-seas research vessel surveys in the North Pacific Ocean. NPAFC Doc. 1268. Rev. 1. 8 pp. Working Group on Salmon Tagging, Committee on Scientific Research and Statistics (Available at [www.npafc.org](http://www.npafc.org)).

**Table 1.** Releases of high-seas tagged salmon in 2011. DS tag, data storage tag; HL, hook and line; T, surface trawl; FL, fork length.

No.	Japan tag #	NPAFC tag #	DS tag #	Date	Lat	Long	Gear	Species	FL (mm)
1	CC6301	NA5451		7/26/11	54°00N	174°53E	HL	Chum	520
2	CC6302	NA5452		7/26/11	54°00N	174°53E	HL	Chum	550
3	H1901	NA5402	5594	7/28/11	53°30N	179°58W	HL	Chum	530
4	CC6303	NA5453		7/28/11	53°30N	179°58W	HL	Chum	490
5	H1902	NA5403	5596	7/29/11	54°30N	179°58W	HL	Chum	410
6	CC6304	NA5454		7/29/11	54°30N	179°58W	HL	Chum	528
7	CC6305	NA5455		7/29/11	54°30N	179°58W	HL	Chum	570
8	CC6306	NA5456		7/29/11	54°30N	179°58W	HL	Chum	534
9	H1903	NA5404	5597	7/29/11	55°30N	179°59W	T	Chum	336
10	CC6307	NA5957		7/29/11	55°30N	179°59W	HL	Chum	538
11	H1904	NA5405	5598	7/29/11	55°30N	179°59W	HL	Chum	348
12	H1905	NA5406	5599	7/30/11	56°29N	179°57W	HL	Chum	442
13	CC6308	NA5458		7/30/11	56°29N	179°57W	HL	Chum	535
14	CC6309	NA5459		7/30/11	56°29N	179°57W	HL	Chum	511
15	H1906	NA5407	5600	7/30/11	56°29N	179°57W	HL	Chum	442
16	H1907	NA5408	5601	7/30/11	56°29N	179°57W	HL	Chum	416
17	CC6310	NA5460		7/30/11	56°29N	179°57W	HL	Chum	595
18	CC6311	NA5461		7/30/11	56°29N	179°57W	HL	Chum	478
19	CC6312	NA5462		7/30/11	56°29N	179°57W	HL	Chum	489
20	H1908	NA5409	5602	7/30/11	56°29N	179°57W	T	Chum	405
21	H1909	NA5410	5603	7/30/11	56°29N	179°57W	T	Chum	390
22	H1910	NA5414	5604	7/30/11	56°29N	179°57W	T	Chum	390
23	H1911	NA5601	5605	7/30/11	56°29N	179°57W	T	Chum	380
24	H1912	NA5602	5606	7/30/11	57°28N	179°59E	T	Chum	340
25	H1913	NA5603	5607	7/30/11	57°28N	179°59E	T	Chum	340
26	H1914	NA5604	5608	7/30/11	57°28N	179°59E	T	Chum	340
27	H1915	NA5605	5609	7/30/11	57°28N	179°59E	T	Chum	410
28	CC6313	NA5463		7/30/11	57°28N	179°59E	HL	Chum	470
29	CC6314	NA5464		7/30/11	57°28N	179°59E	HL	Chum	560
30	H1916	NA5606	5610	7/30/11	57°28N	179°59E	HL	Chum	380
31	CC6315	NA5465		7/30/11	57°28N	179°59E	HL	Chum	510
32	CC6316	NA5466		7/30/11	57°28N	179°59E	HL	Chum	550
33	H1917	NA5607	5611	7/30/11	57°28N	179°59E	HL	Chum	460
34	H1918	NA5608	5612	7/30/11	57°28N	179°59E	HL	Chum	435
35	H1919	NA5609	5613	7/30/11	57°28N	179°59E	HL	Chum	392
36	CC6317	NA5467		7/31/11	58°29N	179°59E	HL	Chum	532
37	H1920	NA5610	5614	7/31/11	58°29N	179°59E	HL	Chum	432
38	H1922	NA5612	5616	7/31/11	58°29N	179°59E	HL	Chum	452
39	CC6318	NA5468		7/31/11	58°29N	179°59E	HL	Chum	610
40	H1921	NA5611	5615	7/31/11	58°29N	179°59E	HL	Chum	440
41	H1923	NA5613	5617	7/31/11	58°29N	179°59E	HL	Chum	358

**Table 1** (continued).

No.	Japan tag #	NPAFC tag #	DS tag #	Date	Lat	Long	Gear	Species	FL (mm)
42	H1924	NA5614	5618	7/31/11	58°29N	179°59E	HL	Chum	382
43	H1925	NA5615	5620	7/31/11	58°29N	179°59E	HL	Chum	396
44	H1926	NA5616	5622	7/31/11	58°29N	179°59E	HL	Chum	454
45	H1927	NA5617	5624	7/31/11	58°29N	179°59E	HL	Chum	450
46	H1928	NA5618	5626	7/31/11	58°29N	179°59E	HL	Chum	448
47	CC6319	NA5469		7/31/11	58°29N	179°59E	HL	Chum	522
48	H1929	NA5619	5627	7/31/11	58°29N	179°59E	T	Chum	368
49	H1930	NA5620	5628	7/31/11	58°29N	179°59E	T	Chum	356

**Table 2.** Recoveries of high-seas tagged salmon in 2010 and one newly reported recovery from 2009. Age designation is the European method, where the first number is the number of freshwater annuli and the second number is the number of ocean annuli. DS tag, data storage tag; FL, fork length (mm); BW, body weight (g); -, no data.

No.	Japan tag #	NPAFC tag #	DS tag #	Release						Recovery							
				Date	Lat	Long	Species	FL	Age	Date	Lat	Long	Gear	Sex	FL	BW	Location
1	KK3816	NA3316		6/29/09	57°30N	180°00	Pink	472	0.1	2009	58°54N	162°56E	Trap net	M	460	1260	Eastern Kamchatka
2	KK4321	NA4321		6/30/10	53°30N	180°00	Sockeye	564	1.3	7/25/10	56°37N	159°35W	Gill net	-	-	-	Bristol Bay, Port Moller, Alaska
3	KK4575	NA4575		7/3/10	56°30N	180°00	Sockeye	644	2.3	7/30/10	56°29N	159°56W	Gill net	-	-	-	Bristol Bay, Port Moller, Alaska
4	KK4603	NA4603		7/4/10	57°30N	180°00	Chum	748	0.5	9/14/10	49°19N	143°09E	River	M	-	-	Kamenka R. (Poronai R.), East Sakhalin
5	KK5324	NA5324		7/11/10	56°30N	178°00E	Chum	575	0.3	10/29/10	46°47N	141°52E	River	M	580	2300	Asanay R., South-west Sakhalin
6	KK4667	NA4667		7/4/10	57°30N	180°00	Chum	640	0.5	9/17/10	42°01N	143°09E	Trap net	M	700	2700	Erimo, Pacific coast, Hokkaido
7	KK4390	NA4390		7/1/10	54°30N	180°00	Chum	650	0.4	9/22/10	42°01N	143°09E	Trap net	-	660	3300	Erimo, Pacific coast, Hokkaido
8	KK4841	NA4841		7/6/10	57°30N	179°00W	Chum	672	0.4	9/25/10	43°19N	140°40E	Trap net	M	690	3700	Syakotan, Japan Sea coast, Hokkaido
9	KK4693	NA4693		7/4/10	57°30N	180°00	Chum	580	0.2	10/3/10	43°19N	140°40E	Trap net	M	640	2400	Syakotan, Japan Sea coast, Hokkaido
10	KK4517	NA4517		7/2/10	55°30N	180°00	Chum	593	0.3	9/20/10	44°01N	144°17E	Trap net	F	600	2500	Abashiri, Okhotsk Sea coast, Hokkaido
11	KK4267	NA4267		6/29/10	52°30N	180°00	Chum	573	0.3	9/27/10	44°01N	144°17E	Trap net	M	610	2300	Abashiri, Okhotsk Sea coast, Hokkaido
12	KK5021	NA5021		7/9/10	56°30N	179°00W	Chum	610	0.4	9/28/10	44°01N	144°17E	Trap net	F	620	2800	Abashiri, Okhotsk Sea coast, Hokkaido
13	KK4610	NA4610		7/4/10	57°30N	180°00	Chum	662	0.5	9/28/10	44°01N	144°17E	Trap net	F	680	3300	Abashiri, Okhotsk Sea coast, Hokkaido
14	KK4475	NA4475		7/2/10	55°30N	180°00	Chum	583	0.3	9/28/10	44°01N	144°17E	Trap net	M	610	2400	Abashiri, Okhotsk Sea coast, Hokkaido
15	KK4605	NA4605		7/4/10	57°30N	180°00	Chum	641	0.3	9/6/10	44°26N	143°14E	Trap net	F	684	3400	Saru, Okhotsk Sea coast, Hokkaido
16	KK4798	NA4798		7/5/10	58°30N	180°00	Chum	584	0.3	9/27/10	44°08N	144°06E	Trap net	M	625	2910	Tokoro, Okhotsk Sea coast, Hokkaido
17	KK4869	NA4869		7/6/10	57°30N	179°00W	Chum	560	0.3	10/1/10	44°08N	144°06E	Trap net	M	589	2260	Tokoro, Okhotsk Sea coast, Hokkaido
18	KK4468	NA4468		7/2/10	55°30N	180°00	Chum	639	0.4	9/24/10	43°20N	145°45E	Trap net	M	654	2570	Nemuro Strait coast, Hokkaido
19	KK4516	NA4516		7/2/10	55°30N	180°00	Chum	638	0.3	9/27/10	43°22N	145°48E	Trap net	M	-	3000	Nemuro Strait coast, Hokkaido

Table 2 (continued).

No.	Japan tag #	NPAFC tag #	DS tag #	Release						Recovery							
				Date	Lat	Long	Species	FL	Age	Date	Lat	Long	Gear	Sex	FL	BW	Location
20	KK4908	NA4908		7/7/10	57°30N	178°00W	Chum	642	0.5	10/1/10	43°24N	145°13E	River	M	686	-	Nishibetsu R., Nemuro Strait coast, Hokkaido
21	KK4803	NA4803		7/5/10	58°30N	180°00	Chum	574	0.3	10/11/10	44°21N	143°22E	Trap net	-	-	2000	Monbetsu, Okhotsk Sea coast, Hokkaido
22	KK5171	NA5171		7/10/10	56°30N	179°00E	Chum	607	0.3	10/6/10	44°55N	144°40E	Trap net	M	-	2000	Shari, Okhotsk Sea coast, Hokkaido
23	KK4944	NA4944		7/7/10	57°30N	178°00W	Chum	688	0.5	10/5/10	44°55N	144°40E	River	F	730	3800	Shari R., Okhotsk Sea coast, Hokkaido
24	KK4709	NA4709		7/5/10	58°30N	180°00	Chum	571	X.X	10/12/10	44°55N	144°40E	Trap net	-	-	-	Shari, Okhotsk Sea coast, Hokkaido
25	KK4437	NA4437		7/1/10	54°30N	180°00	Chum	600	0.3	10/12/10	44°04N	145°00E	Trap net	F	600	3100	Shari, Okhotsk Sea coast, Hokkaido
26	LL6384	NA0384		6/27/08	53°30N	180°00	Chum	460	0.2	10/14/10	44°26N	143°14E	Trap net	F	630	3400	Saru, Okhotsk Sea coast, Hokkaido
27	KK4859	NA4859		7/6/10	57°30N	179°00W	Chum	609	0.3	10/14/10	44°08N	144°06E	Trap net	M	660	2920	Tokoro, Okhotsk Sea coast, Hokkaido
28	KK4339	NA4339		6/30/10	53°30N	180°00	Chum	640	0.4	10/11/10	42°53N	143°56E	Trap net	F	690	4800	Onbetsu, Pacific coast, Hokkaido
29	KK4287	NA4287		6/29/10	52°30N	180°00	Chum	625	0.4	10/6/10	42°25N	143°24E	Trap net	-	-	-	Taiki, Pacific coast, Hokkaido
30	KK5363	NA5363		7/10/10	56°30N	178°00E	Chum	571	0.3	10/6/10	42°25N	143°24E	Trap net	-	-	-	Taiki, Pacific coast, Hokkaido
31	KK4653			7/4/10	57°30N	180°00	Chum	609	0.4	10/5/10	43°23N	145°47E	Trap net	M	650	2660	Nemuro Strait coast, Hokkaido
32	KK4608	NA4608		7/4/10	57°30N	180°00	Chum	576	0.3	9/20/10	43°40N	145°08E	Trap net	F	580	2400	Shibetsu, Nemuro Strait coast, Hokkaido
33	KK4313	NA4313		6/30/10	53°30N	180°00	Chum	562	0.3	9/22/10	43°40N	145°08E	Trap net	M	600	2400	Shibetsu, Nemuro Strait coast, Hokkaido
34	KK4642	NA4642		7/4/10	57°30N	180°00	Chum	658	0.4	10/2/10	44°01N	145°12E	Trap net	-	-	-	Rausu, Nemuro Strait coast, Hokkaido
35	LL6744	NA0744		7/4/08	57°28N	178°05W	Chum	520	0.3	9/13/10	43°23N	145°17E	Trap net	F	-	3100	Bekkai, Nemuro Strait coast, Hokkaido
36	KK4790	NA4790		7/5/10	58°30N	180°00	Chum	601	0.3	10/2/10	43°23N	145°17E	Trap net	F	625	2630	Bekkai, Nemuro Strait coast, Hokkaido
37	KK4273	NA4273		6/29/10	52°30N	180°00	Chum	598	0.4	10/2/10	43°23N	145°17E	Trap net	F	630	2770	Bekkai, Nemuro Strait coast, Hokkaido
38	KK4833	NA4833		7/5/10	58°30N	180°00	Chum	570	X.X	11/3/10	42°56N	143°21E	River	M	590	1950	Tokachi R., Pacific coast, Hokkaido



Table 2 (continued).

No.	Japan tag #	NPAFC tag #	DS tag #	Release						Recovery							
				Date	Lat	Long	Species	FL	Age	Date	Lat	Long	Gear	Sex	FL	BW	Location
39	KK4804	NA4804		7/5/10	58°30N	180°00	Chum	553	0.4	10/22/10	44°08N	144°06E	Trap net	F	614	2470	Tokoro, Okhotsk Sea coast, Hokkaido
40	KK4557			7/3/10	56°30N	180°00	Chum	535	0.2	10/24/10	42°25N	139°51E	River		585	2000	Toshibetsu R., Japan Sea coast, Hokkaido
41	KK4700	NA4700		7/4/10	57°30N	180°00	Chum	580	0.3	10/1/10	44°01N	144°17E	Trap net	F	610	2300	Abashiri, Okhotsk Sea coast, Hokkaido
42	KK4498	NA4498		7/2/10	55°30N	180°00	Chum	585	0.3	10/2/10	44°01N	144°17E	Trap net	F	620	2600	Abashiri, Okhotsk Sea coast, Hokkaido
43	KK4784	NA4784		7/5/10	58°30N	180°00	Chum	601	0.3	10/2/10	44°01N	144°17E	Trap net	F	630	2800	Abashiri, Okhotsk Sea coast, Hokkaido
44	KK4425	NA4425		7/1/10	54°30N	180°00	Chum	590	0.3	10/4/10	44°01N	144°17E	Trap net	M	610	2700	Abashiri, Okhotsk Sea coast, Hokkaido
45	KK4904	NA4904		7/7/10	57°30N	178°00W	Chum	568	0.3	10/7/10	44°01N	144°17E	Trap net	F	610	2600	Abashiri, Okhotsk Sea coast, Hokkaido
46	KK5157	NA5157		7/10/10	56°30N	179°00E	Chum	572	X.X	10/25/10	44°01N	144°17E	Trap net	M	580	1800	Abashiri, Okhotsk Sea coast, Hokkaido
47	KK4715	NA4715		7/5/10	58°30N	180°00	Chum	640	0.4	10/16/10	45°20N	142°10E	Trap net	-	-	-	Sarufutsu, Okhotsk Sea coast, Hokkaido
48	KK4788	NA4788		7/5/10	58°30N	180°00	Chum	580	0.3	10/?/10	43°22N	145°48E	Trap net	M	-	3500	Nemuro Strait coast, Hokkaido
49	KK4886	NA4886		7/6/10	57°30N	179°00W	Chum	566	X.X	10/29/10	43°40N	145°08E	Trap net	F	610	2000	Shibetsu, Nemuro Strait coast, Hokkaido
50	KK4773	NA4773		7/5/10	58°30N	180°00	Chum	553	X.3	11/22/10	43°40N	145°08E	Trap net	F	600	2000	Shibetsu, Nemuro Strait coast, Hokkaido
51	KK4397	NA4397		7/1/10	54°30N	180°00	Chum	532	0.2	11/3/10	39°09N	139°54E	River	M	560	1100	Kawabukuro R., Japan Sea coast, Akita
52	KK4888	NA4888		7/7/10	57°30N	178°00W	Chum	608	0.4	11/22/10	40°45N	140°08E	Trap net	M	600	2000	Fukaura, Japan Sea coast, Aomori
53	KK4951	NA4951		7/7/10	57°30N	178°00W	Chum	633	0.4	11/12/10	44°07N	144°05E	River	M	663	2660	Tokoro R., Okhotsk Sea coast, Hokkaido
54	KK4998	NA4998		7/9/10	56°30N	179°00W	Chum	593	0.4	11/8/10	44°55N	144°40E	Trap net	-	-	-	Shari, Okhotsk Sea coast, Hokkaido
55	KK5018	NA5018		7/9/10	56°30N	179°00W	Chum	533	0.3	11/5/10	44°55N	144°40E	Trap net	-	-	-	Shari, Okhotsk Sea coast, Hokkaido
56	KK4641	NA4641		7/4/10	57°30N	180°00	Chum	590	0.4	11/8/10	44°55N	144°40E	Trap net	-	-	-	Shari, Okhotsk Sea coast, Hokkaido
57	KK5016	NA5016		7/9/10	56°30N	179°00W	Chum	522	0.2	11/24/10	42°22N	141°20E	Trap net	-	-	4000	Noushi, Pacific coast, Aomori
58	KK5244	NA5244		7/10/10	56°30N	179°00E	Chum	566	X.X	12/19/10	42°07N	140°37E	Trap net	F	605	1900	Ojironai, Pacific coast, Hokkaido