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Recoveries of High-Seas Tags in 2008-2009 and Tag Releases in 2009 from High-seas Research Vessel Surveys in the North Pacific Ocean

by

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Committee on Scientific Research and Statistics**

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Recoveries of High-Seas Tags in 2008-2009 and Tag Releases in 2009 from High-seas Research Vessel Surveys in the North Pacific Ocean

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ABSTRACT

In 2008 and 2009, high seas tags were recovered from 71 chum salmon in Japan, eleven pink, two chum, and one sockeye salmon in Russia, and one Chinook salmon in the US. The Chinook salmon recaptured in the US also carried a data storage tag. From June to July 2009, a Japanese research vessel, *Wakatake maru*, conducted 24 longline (720 hachi) operations with the purposes of tagging salmonids with disk tags, data storage tags, and passive integrated transponder (PIT) tags. A total of 164 salmonids (three sockeye, 80 chum, 17 pink, 51 coho, and two Chinook salmon, and 11 steelhead trout) in the central North Pacific and 1,335 salmonids (78 sockeye, 207 chum, 1,046 pink, and four Chinook salmon) in the Bering Sea were disk-tagged and released. These releases included six Chinook salmon tagged with data storage tags and 51 coho, two Chinook salmon, and 11 steelhead trout tagged with PIT tags.

INTRODUCTION

The Working Group on Salmon Tagging (WGST) was established by the 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 2009 and recoveries of high seas tags by the Parties in 2008 and 2009. This report includes updated information since our previous report was compiled (WGST, 2008).

MATERIALS AND METHODS

Releases of high seas tags in 2008

From June to July in 2008, 274 salmonids (2 sockeye, 158 chum, 14 pink, 90 coho, and one Chinook salmon, and 9 steelhead trout) in the central North Pacific and 1,696 salmonids (60

sockeye, 1,566 chum, 48 pink, and 20 Chinook salmon, and two Dolly Varden) in the Bering Sea were caught by surface longline during the salmon research cruise of the *Wakatake maru* (WGST, 2008). Of these fish, 224 salmonids (two sockeye, 132 chum, 11 pink, 70 coho, and one Chinook salmon, and eight steelhead trout) in the central North Pacific and 1,292 salmonids (50 sockeye, 1,189 chum, 33 pink, and 18 Chinook salmon and two Dolly Varden) in the Bering Sea were tagged and released. These releases included one Chinook salmon released in the central North Pacific and 18 Chinook salmon released in the Bering Sea with temperature and depth recording data storage tags (DST).

During the 2008 *Wakatake maru* cruise, fish were tagged with disk tags issued by three agencies, including the Fisheries Agency of Japan (FAJ), the University of Washington (UW), and the NPAFC. The DST type (Lotek model LAT 1400; <http://www.lotek.com/lat.htm>) placed on several fish recorded water temperature and the fish's swimming depth. The DST was placed externally in the dorsal musculature of the fish anterior to the dorsal fin using metal pins and disk tags in a manner previously described (WGST 2008).

During September 27, 2008, two live-box trawl sets were completed in the Bering Sea aboard the NOAA Ship *Oscar Dyson* at the same location (55.5N 168.5W) for the purposes of tagging salmon with NPAFC disk tags and temperature and depth-recording DST (Lotek LTD 1100 series) tags. A total of 107 immature salmon was caught and 81 were tagged (59 chum, 18 sockeye, and four Chinook salmon). A total of 63 salmon was released with both DSTs and disk tags (47 chum, 12 sockeye, and four Chinook salmon), one chum salmon was released with just a DST, and 17 salmon (11 chum and six sockeye salmon) were released with a disk tag.

Releases of high seas tags in 2009

From June to July 2009, a Japanese research vessel, *Wakatake maru*, conducted 24 longline (720 hachi) operations for live capture of salmonids for tagging (Kaga and Davis 2009). In 2009 two types of disk tags were used: one issued by the FAJ and one issued by the NPAFC. In addition, Chinook salmon in healthy condition were tagged externally with a temperature and depth-recording DST, identical to the model used in 2008 (Lotek model LAT 1400). Coho and Chinook salmon, and steelhead caught in the central North Pacific were selected for tagging with disk tags and a passive integrated transponder (PIT) tag. The PIT tag was injected into the visceral cavity behind the stomach in the area of the pyloric caecae. The injection site on the body was located approximately halfway between the posterior end of the pectoral fin and the anterior end of the pelvic girdle, 1 - 2 mm away from the ventral midline.

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).

RESULTS

Recovery of high seas tags in 2008-2009

In 2008 and 2009, high seas tags were recovered from 71 chum salmon in Japan, eleven pink, two chum, and one sockeye salmon in Russia, and one Chinook salmon in the US (Table 1). The Chinook salmon recaptured in the US also carried a data storage tag.

Releases of high seas tags in 2009

From June to July in 2009, 183 salmonids (three sockeye, 85 chum, 19 pink, 62 coho, and two Chinook salmon, and 12 steelhead trout) in the central North Pacific and 1,616 salmonids (87 sockeye, 254 chum, 1,270 pink, and five Chinook salmon) in the Bering Sea were caught by surface longline during the salmon research cruise of the *Wakatake maru* (Table 2; Kaga and Davis 2009). Of these fish, 164 salmonids (three sockeye, 80 chum, 17 pink, 51 coho, and two Chinook salmon, and 11 steelhead trout) in the central North Pacific and 1,335 salmonids (78 sockeye, 207 chum, 1,046 pink, and four Chinook salmon) in the Bering Sea were tagged and released (Tables 2 and 3). These disk tag releases included six Chinook salmon also tagged with data storage tags (Table 3) and 51 coho, two Chinook salmon, and 11 steelhead trout also tagged with with PIT tags (Table 4).

ACKNOWLEDGMENTS

We thank scientists, the captain, officers, and crew onboard the R/V *Wakatake maru* for their careful collection of data and samples. We are grateful to the individuals and agencies who returned tags. We thank Dave Marvin of the Pacific States Marine Fisheries Commission for PIT tags, loan of PIT tag detectors, and help with the PTAGIS database. Funding for data

storage tags released on Chinook salmon during the R/V *Wakatake maru* survey in 2008 and 2009 was provided to the University of Washington by award # NA04NMF4380162 from the National Oceanic and Atmospheric Administration (NOAA) administered by the Alaska Department of Fish and Game (ADFG) for the Arctic-Yukon-Kuskokwim Sustainable Salmon Initiative (<http://www.aykssi.org>). The statements, finding, conclusions, and recommendations are those of the authors and do not necessarily reflect the views of NOAA, the U.S. Dept. of Comm., ADFG, or any of their sub-agencies.

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- Working Group on Salmon Tagging (WGST), Committee on Scientific Research and Statistics. 2008. Recoveries of high-seas tags in 2007-2008 and tag releases in 2008 from high-seas research vessel surveys in the North Pacific Ocean. NPAFC Doc. 1119. 8 pp. Working Group on Salmon Tagging, Committee on Scientific Research and Statistics (Available at <http://www.npafc.org>).

Table 1. Recoveries of high-seas tagged salmon in 2008 and 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. FL: fork length (mm), BW: body weight (g), -: no data. Release date is the date on the west side of the international dateline.

Japan tag #	U.S. tag #	NPAFC tag #	Release						Recovery							
			Date	Lat	Long	Species	FL	Age	Date	Lat	Long	Gear	Sex	FL	BW	Location
*LL6607	-	NA0607	6/29/08	57°34N	179°58W	Chinook	561	x.x	7/10/09	56°53'N	158°56'W	Gillnet	F	-	-	Strogonof Point, North Alaska Peninsula, Alaska
BB2464	-	-	7/4/04	54°35N	179°46E	Chum	420	0.1	9/10/08	44°56N	142°35E	Trap net	M	673	2800	Esashi, Okhotsk Sea coast, Hokkaido
MM4554	LL7454	-	7/9/06	57°30N	180°00	Chum	510	0.3	9/29/08	43°40N	145°08E	Trap net	F	630	2200	Shibetsu, Nemuro Strait, Hokkaido
LL5426	LL8851	-	6/28/07	56°29N	179°58W	Pink	471	0.1	-	-	-	-	-	-	-	Karaginskiy, East Kamtchatka
LL5410	LL8835	-	6/28/07	56°29N	178°58W	Chum	576	0.3	9/2/08	44°56N	142°35E	Trap net	M	610	3000	Esashi, Okhotsk Sea coast, Hokkaido
LL5473	LL8898	-	6/30/07	58°29N	180°00E	Pink	460	0.1	-	-	-	-	-	-	-	Karaginskiy, East Kamtchatka
LL6345	MM3345	NA0345	6/24/08	52°30N	180°00	Chum	648	0.4	9/25/08	44°01N	145°12E	Trap net	-	-	-	Rausu, Nemuro Strait, Hokkaido
LL6429	MM3429	NA0429	6/25/08	53°30N	180°00	Chum	615	0.4	10/27/08	43°55N	144°40E	Trap net	F	650	2700	Shari, Okhotsk Sea coast, Hokkaido
LL6460	MM3460	NA0460	6/27/08	55°33N	179°55W	Chum	618	0.5	9/23/08	46°45N	141°55E	River	F	650	2940	Yasunomorskaya River, Sakhalin
LL6517	MM3517	NA0517	6/28/08	56°32N	179°55W	Chum	595	0.4	9/8/08	44°56N	142°35E	Trap net	M	670	3000	Esashi, Okhotsk Sea coast, Hokkaido
LL6535	MM3535	NA0535	6/28/08	56°32N	179°55W	Chum	610	x.x	9/18/08	43°34N	145°13E	Trap net	M	-	3000	Notsuke, Nemuro Strait, Hokkaido
LL6539	MM3539	NA0539	6/28/08	56°32N	179°55W	Chum	562	0.3	9/29/08	42°57N	144°05E	Trap net	F	590	2100	Shiranuka, Pacific coast, Hokkaido
LL6543	MM3543	NA0543	6/28/08	56°32N	179°55W	Chum	560	x.x	9/29/08	44°04N	145°00E	Trap net	-	-	-	Utoro, Okhotsk Sea coast, Hokkaido
LL6546	MM3546	NA0546	6/28/08	56°32N	179°55W	Chum	627	0.3	9/26/08	43°55N	144°40E	Trap net	F	620	3100	Shari, Okhotsk Sea coast, Hokkaido
LL6568	MM3568	NA0568	6/28/08	56°32N	179°55W	Chum	527	0.4	9/15/08	43°55N	144°40E	Trap net	M	670	3200	Shari, Okhotsk Sea coast, Hokkaido
LL6569	MM3569	NA0569	6/28/08	56°32N	179°55W	Chum	520	0.4	9/22/08	44°01N	144°17E	Trap net	M	655	2500	Abashiri, Okhotsk Sea coast, Hokkaido
LL6584	MM3584	NA0584	6/29/08	57°34N	179°58W	Chum	556	0.3	10/3/08	43°40N	145°08E	Trap net	F	590	-	Shibetsu, Nemuro Strait, Hokkaido
LL6593	MM3593	NA0593	6/29/08	57°34N	179°58W	Chum	713	0.4	9/15/08	43°00N	144°22E	River	M	762	4620	Kushiro River, Hokkaido
LL6619	MM3619	NA0619	6/29/08	57°34N	179°58W	Chum	552	0.2	10/20/08	42°08N	142°53E	Trap net	M	610	1900	Utoma, Pacific coast, Hokkaido
LL6649	MM3649	NA0649	6/30/08	58°30N	179°55E	Chum	553	0.3	10/3/08	44°01N	145°12E	Trap net	M	-	2500	Rausu, Nemuro Strait, Hokkaido
LL6654	MM3654	NA0654	6/30/08	58°30N	179°55E	Chum	604	0.4	7/26/08	58°05N	161°59E	River	F	625	2730	Khaylyulya River, East Kamtchatka
LL6663	MM3663	NA0663	6/30/08	58°30N	179°55E	Chum	590	0.4	9/19/08	42°57N	144°05E	Trap net	M	620	2500	Onbetsu, Pacific coast, Hokkaido
LL6667	MM3667	NA0667	6/30/08	58°30N	179°55E	Chum	568	0.3	9/25/08	43°23N	145°17E	Trap net	F	612	2100	Betsukai, Nemuro Strait, Hokkaido
LL6670	MM3670	NA0689	7/1/08	57°27N	179°12W	Chum	548	0.3	10/7/08	44°01N	145°12E	Trap net	-	-	-	Rausu, Nemuro Strait, Hokkaido
LL6689	MM3689	NA0689	7/1/08	57°27N	179°12W	Chum	548	0.3	10/11/08	43°40N	145°08E	Trap net	M	580	1800	Shibetsu, Nemuro Strait, Hokkaido
LL6691	MM3691	NA0691	7/1/08	57°27N	179°12W	Chum	550	0.3	10/13/08	43°55N	144°40E	Trap net	M	560	2000	Shari, Okhotsk Sea coast, Hokkaido
LL6717	MM3717	NA0717	7/1/08	57°27N	179°12W	Chum	559	0.4	11/25/08	40°35N	141°28E	Trap net	M	670	2200	Hyakkoku, Pacific side, Aomori
LL6727	MM3727	NA0727	7/1/08	57°27N	179°12W	Chum	649	0.5	9/26/08	43°20N	145°35E	Trap net	M	710	3200	Nemuro, Nemuro Strait, Hokkaido

*This fish also carried a temperature and depth-recording data storage tag LAT-0601.

Table 1. (Continued)

Japan tag #	U.S. tag #	NPAFC tag #	Release						Recovery							
			Date	Lat	Long	Species	FL	Age	Date	Lat	Long	Gear	Sex	FL	BW	Location
LL6736	MM3736	NA0736	7/1/08	57°27N	179°12W	Chum	606	0.4	10/20/08	43°55N	144°40E	Trap net	F	640	2400	Shari, Okhotsk Sea coast, Hokkaido
LL6819	MM3819	NA0819	7/2/08	57°28N	178°05W	Chum	577	0.4	10/25/08	44°04N	145°00E	Trap net	F	600	-	Utoro, Okhotsk Sea coast, Hokkaido
LL6856	MM3856	NA0856	7/2/08	57°28N	178°05W	Chum	634	0.5	10/10/08	43°55N	144°40E	Trap net	F	660	2100	Shari, Okhotsk Sea coast, Hokkaido
LL6866	MM3866	NA0866	7/2/08	57°28N	178°05W	Chum	623	0.3	9/28/08	42°10N	142°46E	Trap net	F	700	3100	Urakawa, Pacific coast, Hokkaido
LL6892	MM3892	NA0892	7/3/08	56°26N	178°09W	Chum	580	0.4	10/17/08	42°17N	143°19E	Trap net	M	-	-	Hiroo, Pacific coast, Hokkaido
LL6898	MM3898	NA0898	7/3/08	56°26N	178°09W	Chum	600	0.4	10/2/08	42°08N	142°55E	Trap net	F	590	1900	Samani, Pacific coast, Hokkaido
LL6909	MM3909	NA0909	7/3/08	56°26N	178°09W	Chum	585	0.4	10/20/08	42°41N	143°38E	Trap net	-	-	-	Urahoro, Pacific coast, Hokkaido
LL6968	MM3968	NA0968	7/4/08	56°26N	179°04W	Chum	568	0.3	/08	43°20N	145°35E	Trap net	-	-	-	Nemuro, Hokkaido
LL6977	MM3977	NA0977	7/4/08	56°26N	179°04W	Chum	675	0.3	9/30/08	42°17N	143°19E	Trap net	M	680	4000	Hiroo, Pacific coast, Hokkaido
-	-	NA1009	7/5/08	56°29N	178°57E	Chum	643	0.4	9/13/08	42°25N	143°24E	Trap net	M	-	-	Taiki, Pacific coast, Hokkaido
-	-	NA1020	7/5/08	56°29N	178°57E	Chum	635	0.4	10/17/08	44°01N	145°12E	Trap net	-	-	-	Rausu, Nemuro Strait, Hokkaido
-	-	NA1023	7/5/08	56°29N	178°57E	Chum	568	0.4	9/27/08	44°14N	143°37E	Trap net	M	600	2300	Yubetsu, Okhotsk Sea coast, Hokkaido
-	-	NA1035	7/5/08	56°29N	178°57E	Chum	448	0.3	9/30/08	44°35N	142°58E	Trap net	M	575	2200	Omu, Okhotsk Sea coast, Hokkaido
-	-	NA1045	7/5/08	56°29N	178°57E	Chum	572	0.4	10/3/08	43°20N	145°35E	Trap net	M	630	2200	Nemuro, Nemuro Strait, Hokkaido
-	-	NA1048	7/5/08	56°29N	178°57E	Chum	588	0.3	10/3/08	44°04N	145°00E	Trap net	M	-	2700	Utoro, Okhotsk Sea coast, Hokkaido
-	-	NA1056	7/5/08	56°29N	178°57E	Chum	544	0.3	10/16/08	43°55N	144°40E	Trap net	M	600	1900	Shari, Okhotsk Sea coast, Hokkaido
-	-	NA1068	7/5/08	56°29N	178°57E	Chum	612	0.4	10/13/08	42°53N	143°56E	River	F	-	-	Onbetsu River, Hokkaido
-	-	NA1072	7/5/08	56°29N	178°57E	Chum	584	0.3	9/22/08	44°01N	144°17E	Trap net	M	630	2500	Abashiri, Okhotsk Sea coast, Hokkaido
-	-	NA1081	7/5/08	56°29N	178°57E	Chum	568	0.3	9/28/08	42°01N	143°09E	Trap net	F	610	2100	Erimo, Pacific coast, Hokkaido
-	-	NA1082	7/5/08	56°29N	178°57E	Chum	551	0.3	10/29/08	44°01N	145°12E	Trap net	F	-	-	Rausu, Nemuro Strait, Hokkaido
-	-	NA1087	7/5/08	56°29N	178°57E	Chum	592	0.4	10/2/08	42°17N	143°19E	Trap net	-	615	2500	Hiroo, Pacific coast, Hokkaido
-	-	NA1094	7/5/08	56°29N	178°57E	Chum	637	0.4	9/25/08	44°01N	144°17E	Trap net	F	680	3400	Abashiri, Okhotsk Sea coast, Hokkaido
-	-	NA1100	7/5/08	56°29N	178°57E	Chum	600	0.3	10/4/08	44°01N	144°17E	Trap net	M	640	2700	Abashiri, Okhotsk Sea side, Hokkaido
-	-	NA1120	7/5/08	56°29N	178°57E	Chum	556	0.3	11/15/08	43°40N	145°08E	River	F	590	1750	Shibetsu River, Hokkaido
-	-	NA1182	7/6/08	56°27N	178°02E	Chum	592	0.4	10/7/08	44°01N	145°12E	Trap net	-	-	-	Rausu, Nemuro Strait, Hokkaido
-	-	NA1202	7/6/08	56°27N	178°02E	Chum	564	0.3	10/20/08	42°57N	144°32E	Trap net	F	-	2200	Konbumori, Pacific coast, Hokkaido
-	-	NA1242	7/7/08	56°32N	177°06E	Chum	604	0.4	10/6/08	44°01N	145°12E	Trap net	-	-	-	Rausu, Nemuro Strait, Hokkaido
-	-	NA1244	7/7/08	56°32N	177°06E	Chum	568	0.4	10/28/08	42°25N	143°24E	Trap net	M	560	1900	Taiki, Pacific coast, Hokkaido
-	-	NA1248	7/7/08	56°32N	177°06E	Chum	610	0.4	9/29/08	44°01N	144°17E	Trap net	F	640	3100	Abashiri, Okhotsk Sea side, Hokkaido
-	-	NA1256	7/7/08	56°32N	177°06E	Chum	584	0.3	10/1/08	43°34N	145°13E	Trap net	F	-	2300	Notsuke, Nemuro Strait, Hokkaido

Table 1. (Continued)

Japan tag #	U.S. tag #	NPAFC tag #	Release						Recovery							
			Date	Lat	Long	Species	FL	Age	Date	Lat	Long	Gear	Sex	FL	BW	Location
-	-	NA1272	7/7/08	56°32N	177°06E	Chum	585	0.4	10/4/08	43°40N	145°08E	Trap net	M	620	2400	Shibetsu, Nemuro Strait, Hokkaido
-	-	NA1274	7/7/08	56°32N	177°06E	Chum	626	0.4	10/13/08	42°59N	144°23E	Trap net	F	-	-	Kushiro, Pacific coast, Hokkaido
-	-	NA1275	7/7/08	56°32N	177°06E	Chum	604	0.4	9/18/08	43°34N	145°13E	Trap net	M	-	2700	Notsuke, Nemuro Strait, Hokkaido
-	-	NA1312	7/7/08	56°32N	177°06E	Chum	622	0.4	10/22/08	43°40N	145°08E	Trap net	M	-	2600	Shibetsu, Nemuro Strait, Hokkaido
-	-	NA1321	7/7/08	56°32N	177°06E	Chum	556	0.3	9/29/08	44°01N	145°12E	Trap net	-	-	-	Rausu, Nemuro Strait, Hokkaido
-	-	NA1347	7/8/08	57°29N	176°57E	Chum	534	0.3	11/7/08	43°55N	144°40E	Trap net	M	570	1400	Shari, Okhotsk Sea coast, Hokkaido
-	-	NA1381	7/9/08	57°29N	176°07E	Chum	604	0.4	10/28/08	44°01N	145°12E	Trap net	-	-	-	Rausu, Nemuro Strait, Hokkaido
-	-	NA1389	7/9/08	57°29N	176°07E	Chum	530	0.3	11/6/08	43°20N	145°45E	Trap net	M	-	-	Habomai, Pacific coast, Hokkaido
-	-	NA1391	7/9/08	57°29N	176°07E	Chum	544	0.4	11/19/08	44°01N	144°17E	Trap net	-	-	-	Abashiri, Okhotsk Sea side, Hokkaido
-	-	NA1406	7/9/08	57°29N	176°07E	Chum	514	0.2	10/15/08	44°14N	143°37E	Trap net	M	560	1800	Yubetsu, Okhotsk Sea coast, Hokkaido
-	-	NA1431	7/9/08	57°29N	176°07E	Chum	602	0.4	10/1/08	43°34N	145°13E	Trap net	F	-	2100	Notsuke, Nemuro Strait, Hokkaido
-	-	NA1432	7/9/08	57°29N	176°07E	Chum	640	0.5	9/30/08	43°55N	144°40E	Trap net	M	800	4500	Shari, Okhotsk Sea coast, Hokkaido
-	-	NA1441	7/9/08	57°29N	176°07E	Chum	580	0.3	10/6/08	43°55N	144°40E	Trap net	M	580	2300	Shari, Okhotsk Sea coast, Hokkaido
-	-	NA1442	7/9/08	57°29N	176°07E	Chum	590	0.4	10/9/08	42°00N	143°10E	H&L	M	630	3600	Utabetu, Pacific coast, Hokkaido
-	-	NA1460	7/9/08	57°29N	176°07E	Chum	541	0.3	10/8/08	44°01N	144°17E	Trap net	M	570	2100	Abashiri, Okhotsk Sea side, Hokkaido
-	-	NA1463	7/9/08	57°29N	176°07E	Chum	650	0.4	9/29/08	42°38N	141°37E	Trap net	-	-	-	Tomakomai, Pacific coast, Hokkaido
-	-	NA1483	7/9/08	57°29N	176°07E	Chum	631	0.4	10/25/08	44°01N	145°12E	Trap net	F	-	-	Rausu, Nemuro Strait, Hokkaido
-	-	NA1485	7/9/08	57°29N	176°07E	Chum	594	0.3	10/31/08	44°23N	143°19E	Trap net	F	612	1711	Shokotsu, Okhotsk Sea side, Hokkaido
MM3940	-	NA3940	7/7/09	57°30N	177°00E	Pink	463	0.1	07/29/09	58°45N	162°35E	Trap net	F	500	1160	3.17 km south from mouth of r. Dranka, Karaginskiy bay, East Kamtchatka
MM3788	-	NA3788	7/5/09	56°30N	179°00E	Pink	456	0.1	07/26/09	58°25N	162°10E	Trap net	M	450	1140	15.8 km north from mouth r. Rusakova, Karaginskiy bay, East Kamtchatka
MM3743	-	NA3743	7/5/09	56°30N	179°00E	Pink	444	0.1	07/25/09	58°44N	162°32E	Trap net	F	420	960	5.9 km south from mouth of r. Dranka, Karaginskiy bay, East Kamtchatka
MM3674	-	NA3674	7/4/09	56°30N	179°00W	Pink	431	0.1	07/29/09	58°45N	162°35E	Trap net	M	500	920	3.17 km south from mouth of r. Dranka, Karaginskiy bay, East Kamtchatka
KK3740	-	NA3240	6/29/09	57°30N	180°00	Pink	446	0.1	07/09/09	59°30N	163°10E	Trap net	F	425	880	2.9 km north from mouth r. Timlat, Karaginskiy bay, East Kamtchatka
MM3720	-	NA3720	7/5/09	56°30N	179°00E	Pink	452	0.1	08/01/09	58°05N	161°56E	River	F	-	-	r. Hailula, Karaginskiy bay, East Kamtchatka
KK3538	-	NA3038	6/26/09	54°30N	180°00	Pink	442	0.1	07/22/09	58°10N	162°05E	Trap net	F	445	1020	Trap net near from mouth of r. Hailula, Karaginskiy bay, East Kamtchatka
MM3786	-	NA3786	7/5/09	56°30N	179°00E	Pink	448	0.1	07/21/09	60°29N	169°22E	Trap net	F	440	1030	Karaginskiy bay, East Kamtchatka

Table. 1. (Continued)

Japan tag #	U.S. tag #	NPAFC tag #	Release						Recovery							
			Date	Lat	Long	Species	FL	Age	Date	Lat	Long	Gear	Sex	FL	BW	Location
KK3416	-	NA2916	6/26/09	54°30N	180°00	Pink	453	0.1	07/15/09	58°10N	162°05E	Trap net	M	445	1030	Trap net near from mouth of r. Hailula, Karaginskiy bay, East Kamtchatka
KK3573		NA3073	6/27/09	55°30N	180°00	Sockeye	620	1.3	08/15/09	52°55N	157°10E	River	M	~500	-	r. Plotnikova, Central part of south Kamtchatka

Table 2. Number of salmon caught by longline and number of fish tagged and released by the research vessels through September, 2009. LL: longline (30 hachi/operation), BS: Bering Sea, CNP: Central North Pacific. Date is the date on the west side of the international dateline.

Region/ Vessel	Date	Latitude	Longitude	Gear	Number of fish caught						Number of fish released							
					Sock	Chum	Pink	Coho	Chin	SteelDoll	Sock	Chum	Pink	Coho	Chin	SteelDoll		
CNP	6/12	43°00N	180°00	LL	0	2	0	0	0	0	0	0	2	0	0	0	0	0
<i>Wakatake</i>	6/13	44°00N	180°00	LL	0	4	0	2	0	2	0	0	4	0	1	0	1	0
<i>maru</i>	6/16	45°00N	180°00	LL	0	9	1	20	0	5	0	0	9	1	16	0	5	0
	6/17	46°00N	180°00	LL	0	18	0	13	0	3	0	0	18	0	11	0	3	0
	6/18	47°00N	180°00	LL	0	1	1	0	0	0	0	0	1	1	0	0	0	0
	6/19	47°30N	180°00	LL	1	27	1	14	2	1	0	1	24	1	11	2	1	0
	6/20	48°30N	180°00	LL	0	3	2	6	0	0	0	0	3	1	5	0	0	0
	6/21	49°30N	180°00	LL	0	3	4	7	0	1	0	0	3	3	7	0	1	0
	6/22	50°30N	180°00	LL	2	18	10	0	0	0	0	2	16	10	0	0	0	0
	Total				3	85	19	62	2	12	0	3	80	17	51	2	11	0
BS	6/23	51°30N	180°00	LL	0	2	4	0	0	0	0	0	2	4	0	0	0	0
<i>Wakatake</i>	6/24	52°30N	180°00	LL	11	16	57	0	1	0	0	11	13	52	0	1	0	0
<i>maru</i>	6/25	53°30N	180°00	LL	19	40	81	0	0	0	0	18	30	56	0	0	0	0
	6/26	54°30N	180°00	LL	4	46	186	0	0	0	0	4	37	151	0	0	0	0
	6/27	55°30N	180°00	LL	4	6	28	0	0	0	0	4	5	23	0	0	0	0
	6/28	56°30N	180°00	LL	3	5	114	0	0	0	0	3	4	92	0	0	0	0
	6/29	57°30N	180°00	LL	3	10	198	0	0	0	0	3	9	176	0	0	0	0
	6/30	58°30N	180°00	LL	8	4	112	0	1	0	0	8	4	96	0	1	0	0
	7/01	57°30N	179°00W	LL	1	9	44	0	1	0	0	1	9	42	0	0	0	0
	7/02	57°30N	178°00W	LL	5	14	67	0	0	0	0	5	12	60	0	0	0	0
	7/03	56°30N	178°00W	LL	3	10	35	0	0	0	0	3	8	28	0	0	0	0
	7/04	56°30N	179°00W	LL	3	28	47	0	1	0	0	2	20	47	0	1	0	0
	7/05	56°30N	179°00E	LL	8	21	167	0	0	0	0	8	21	146	0	0	0	0
	7/06	56°30N	178°00E	LL	5	15	22	0	0	0	0	4	14	19	0	0	0	0
	7/07	57°30N	177°00E	LL	10	28	108	0	1	0	0	4	19	54	0	1	0	0
	Total				87	254	1270	0	5	0	0	78	207	1046	0	4	0	0
Total					90	339	1289	62	7	12	0	81	287	1063	51	6	11	0

Table 3. Numbers of disk tags, data storage tags, and passive integrated transponder (PIT) tags placed on Pacific salmon and steelhead trout and released through September, 2009. BS: Bering Sea, CNP: central North Pacific. Release date is the date on the west side of the international dateline.

Region/ vessel	Date	Location		Disk tags		N. fish	Data storage tag		PIT tag N. fish	
				FAJ	NPAFC		Tag No.	N. fish		
CNP	6/12	43°00N	180°00	KK3001-3002	NA2501-2502	2				
<i>Wakatake maru</i>	6/13	44°00N	180°00	KK3003-3008	NA2503-2508	6			2	
	6/16	45°00N	180°00	KK3009-3039	NA2509-2539	31			21	
	6/17	46°00N	180°00	KK3040-3072*	NA2540-2672*	32			14	
	6/18	47°00N	180°00	KK3073-3074	NA2573-2574	2				
	6/19	47°30N	180°00	KK3075-3114	NA2575-2614	40	LAT0614, 0615	2	14	
	6/20	48°30N	180°00	KK3115-3123	NA2615-2623	9			5	
	6/21	49°30N	180°00	KK3124-3137	NA2624-2637	14			8	
	6/22	50°30N	180°00	KK3138-3165	NA2638-2665	28				
	Total						164		2	64
	BS	6/23	51°30N	180°00	KK3166-3171	NA2666-2671	6			
<i>Wakatake maru</i>	6/24	52°30N	180°00	KK3172-3248	NA2672-2748	77	LAT0766	1		
	6/25	53°30N	180°00	KK3249-3352	NA2749-2852	104				
	6/26	54°30N	180°00	KK3353-3544	NA2853-3044	192				
	6/27	55°30N	180°00	KK3545-3576	NA3045-3076	32				
	6/28	56°30N	180°00	KK3577-3675	NA3077-3175	99				
	6/29	57°30N	180°00	KK3676-3863	NA3176-3363	188				
	6/30	58°30N	180°00	KK3864-3972	NA3364-3472	109	LAT0767	1		
	7/01	57°30N	179°00W	KK3973-4000	NA3473-3524	52				
	7/02	57°30N	178°00W	MM3501-3524	NA3525-3601	77				
	7/03	56°30N	178°00W	MM3602-3640	NA3602-3640	39				
7/04	56°30N	179°00W	MM3641-3710	NA3641-3710	70	LAT0770	1			
7/05	56°30N	179°00E	MM3711-3885	NA3711-3885	175					
7/06	56°30N	178°00E	MM3886-3922	NA3886-3922	37					
7/07	57°30N	177°00E	MM3923-4000	NA3923-4000	78	LAT0771	1			
Total						1335		4	0	
Total						1499		6	64	

*KK3064, NA2564 not used.

Table 4. Disk-tagged coho and Chinook salmon and steelhead released after placing a PIT tag in the visceral cavity. These tagging operations were conducted onboard the R/V *Wakatake maru* in 2009 in the central North Pacific. DST=temperature and depth-recording data storage tag. It was noted when a fish had a clipped adipose fin, which likely indicated the fish originated in a hatchery. Release date is the date on the west side of the international dateline.

PIT Tag No.	FAJ Disk No	NPAFC Disk No	DST No	Species	Release Date	Release Location	Fork Length (mm)	Comment
1BF127032F	KK3007	NA2507	-	coho	20090613	44°00N 180°00	540	
1BF1270158	KK3008	NA2508	-	steelhead	20090613	44°00N 180°00	602	
1BF1279072	KK3015	NA2515	-	steelhead	20090616	45°00N 180°00	544	Adipose Clip
1BF127A6A1	KK3016	NA2516	-	steelhead	20090616	45°00N 180°00	591	Adipose Clip
1BF1270772	KK3017	NA2517	-	steelhead	20090616	45°00N 180°00	520	Adipose Clip
1BF126F576	KK3018	NA2518	-	steelhead	20090616	45°00N 180°00	658	Adipose Clip
1BF126EE3C	KK3020	NA2520	-	coho	20090616	45°00N 180°00	511	
1BF126EF10	KK3021	NA2521	-	coho	20090616	45°00N 180°00	503	
1BF12702A0	KK3023	NA2523	-	coho	20090616	45°00N 180°00	536	
1BF126EEE3	KK3025	NA2525	-	coho	20090616	45°00N 180°00	544	
1BF126FD36	KK3026	NA2526	-	coho	20090616	45°00N 180°00	573	
1BF126F37A	KK3027	NA2527	-	coho	20090616	45°00N 180°00	524	
1BF127BAB2	KK3028	NA2528	-	coho	20090616	45°00N 180°00	534	
1BF126EC00	KK3029	NA2529	-	steelhead	20090616	45°00N 180°00	565	Adipose Clip
1BF1279C7A	KK3030	NA2530	-	coho	20090616	45°00N 180°00	505	
1BF1273324	KK3032	NA2532	-	coho	20090616	45°00N 180°00	536	
1BF127A893	KK3033	NA2533	-	coho	20090616	45°00N 180°00	524	
1BF1279569	KK3034	NA2534	-	coho	20090616	45°00N 180°00	483	
1BF126F322	KK3035	NA2535	-	coho	20090616	45°00N 180°00	510	
1BF1272F26	KK3036	NA2536	-	coho	20090616	45°00N 180°00	506	
1BF126F9CF	KK3037	NA2537	-	coho	20090616	45°00N 180°00	526	
1BF126FBB1	KK3038	NA2538	-	coho	20090616	45°00N 180°00	470	
1BF1279B53	KK3039	NA2539	-	coho	20090616	45°00N 180°00	480	
1BF126FB6D	KK3044	NA2544	-	steelhead	20090617	46°00N 180°00	569	Adipose Clip
1BF126F548	KK3045	NA2545	-	coho	20090617	46°00N 180°00	482	
1BF127AB5D	KK3050	NA2550	-	coho	20090617	46°00N 180°00	563	
1BF127A24C	KK3051	NA2551	-	coho	20090617	46°00N 180°00	518	
1BF127069A	KK3052	NA2552	-	steelhead	20090617	46°00N 180°00	629	Adipose Clip
1BF127BD58	KK3053	NA2553	-	coho	20090617	46°00N 180°00	473	
1BF1265E63	KK3055	NA2555	-	coho	20090617	46°00N 180°00	500	
1BF1274B20	KK3062	NA2562	-	coho	20090617	46°00N 180°00	464	
1BF127A9AB	KK3063	NA2563	-	coho	20090617	46°00N 180°00	498	
1BF127B3DA	KK3066	NA2566	-	steelhead	20090617	46°00N 180°00	718	Adipose Clip
1BF1270423	KK3067	NA2567	-	coho	20090617	46°00N 180°00	490	
1BF12701A7	KK3068	NA2568	-	coho	20090617	46°00N 180°00	535	
1BF1270F12	KK3069	NA2569	-	coho	20090617	46°00N 180°00	467	
1BF1279C85	KK3070	NA2670	-	coho	20090617	46°00N 180°00	502	
1BF1271207	KK3080	NA2580	-	coho	20090619	47°30N 180°00	498	
1BF126EE70	KK3081	NA2581	-	coho	20090619	47°30N 180°00	465	
1BF126F802	KK3084	NA2584	-	coho	20090619	47°30N 180°00	481	
1BF1267BB6	KK3086	NA2586	614	Chinook	20090619	47°30N 180°00	558	
1BF1278C20	KK3091	NA2591	-	coho	20090619	47°30N 180°00	475	
1BF126F7A5	KK3092	NA2592	-	coho	20090619	47°30N 180°00	436	
1BF127A138	KK3096	NA2596	-	coho	20090619	47°30N 180°00	466	
1BF127A6A7	KK3097	NA2597	-	coho	20090619	47°30N 180°00	556	
1BF126EEED	KK3098	NA2598	-	coho	20090619	47°30N 180°00	560	

Table 4. (Continued)

PIT Tag No.	FAJ Disk No	NPAFC Disk No	DST No	Species	Release Date	Release Location	Fork Length (mm)	Comment
1BF127941E	KK3099	NA2599	-	coho	20090619	47°30N 180°00	516	
1BF1279FE5	KK3100	NA2600	-	coho	20090619	47°30N 180°00	453	
1BF127A510	KK3101	NA2601	615	Chinook	20090619	47°30N 180°00	696	
1BF127ADCD	KK3102	NA2602	-	steelhead	20090619	47°30N 180°00	516	
1BF127EB11	KK3110	NA2610	-	coho	20090619	47°30N 180°00	554	
1BF126F325	KK3115	NA2615	-	coho	20090620	48°30N 180°00	555	
1BF1271096	KK3117	NA2617	-	coho	20090620	48°30N 180°00	474	
1BF126ED7C	KK3118	NA2618	-	coho	20090620	48°30N 180°00	482	
1BF127DEB6	KK3119	NA2619	-	coho	20090620	48°30N 180°00	464	
1BF1279D44	KK3121	NA2621	-	coho	20090620	48°30N 180°00	543	
1BF12745E8	KK3125	NA2625	-	coho	20090621	49°30N 180°00	529	
1BF127B62D	KK3126	NA2626	-	coho	20090621	49°30N 180°00	620	
1BF127EE9E	KK3127	NA2627	-	coho	20090621	49°30N 180°00	504	
1BF127BB01	KK3128	NA2628	-	coho	20090621	49°30N 180°00	472	
1BF126FC69	KK3130	NA2630	-	coho	20090621	49°30N 180°00	499	
1BF127D4FC	KK3132	NA2632	-	coho	20090621	49°30N 180°00	581	
1BF126FB73	KK3133	NA2633	-	steelhead	20090621	49°30N 180°00	562	Adipose Clip
1BF126EAA9	KK3135	NA2635	-	coho	20090621	49°30N 180°00	545	