

Recoveries of High-Seas Tags in Japan in 1999, and Tag Releases and Recoveries of Fin-Clipped Salmon from Japanese Research Vessel Surveys in the North Pacific Ocean in 2000

by

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Recoveries of High-Seas Tags in Japan in 1999, and Tag Releases and Recoveries of Fin-Clipped Salmon from Japanese Research Vessel Surveys in the North Pacific Ocean in 2000

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ABSTRACT

In the fall of 1999, nine tagged chum salmon were recovered along the Japanese coast of Hokkaido from releases of tagged fish in the Bering Sea in 1997, 1998, and 1999. Recoveries included one fish with an external temperature tag, two fish with an internal archival tag, and six fish with disk tags. The nine recoveries were substantially fewer than the 71 tags recovered in 1998, and the recovery rate correspondingly decreased from 9.7% in 1998 to 2.7%. The tag return rate in 1999 was similar to rates from 1995 to 1997 (1.4-3.3%). In the summer of 2000, two Japanese salmon research vessels conducted 40 longline and 3 hook-and-line operations in the North Pacific Ocean and the Bering Sea. A total of 81 salmonids (12 sockeye, 52 chum, 3 pink, 11 coho salmon, and 3 steelhead trout) in the central North Pacific, 601 salmonids (12 sockeye, 575 chum, and 14 chinook salmon) in the Bering Sea, and 32 salmonids (9 chum, 4 pink, 17 coho, and 2 chinook salmon) in the eastern North Pacific were tagged with two disk tags (Fisheries Agency of Japan and Fisheries Research Institute) and released. Of these fish, 12 salmonids with externally-attached FRI archival tags were released in the central North Pacific and the Bering Sea, 27 chum salmon with National Institute of Polar Research archival tags attached were released in the Bering Sea, 20 chum salmon with internally-inserted Hokkaido National Fisheries Research Institute archival tags were released in the Bering Sea, and in the eastern North Pacific, 19 salmonids with FRI archival tags were released. During summer 2000 research surveys, four Japanese salmon research vessels recovered 62 salmonids lacking the adipose fin.

INTRODUCTION

Japanese and U.S. cooperative high-seas tagging experiments were conducted in 1999 and 2000. In this report, we summarize tags recovered from chum salmon that returned to Japanese coastal areas in the fall of 1999, and releases of high seas tags and recoveries of fin-clipped salmon collected by Japanese salmon research vessel surveys in the North Pacific Ocean during the summer of 2000.

MATERIALS AND METHODS

Recovery of high seas tags in 1999

In June and July 1999, 353 salmonids (9 sockeye, 226 chum, 116 pink, and 2 chinook salmon) in the Bering Sea, 106 salmonids (8 sockeye, 29 chum, 39 pink, and 28 coho salmon, and 2 steelhead trout) in the eastern North Pacific, and 45 salmonids (7 sockeye, 15 chum, 18 pink, and 5 coho salmon) in the central North Pacific were tagged and released by two Japanese salmon research vessels, the *Wakatake maru* and *Oshoro maru* (Fukuwaka et al. 1999). Of these releases, 81 fish carried archival tags including 10 fish with external temperature tags released in the central North Pacific and the Bering Sea, 45 fish with Conservation Devices, Inc. (CDI) tags released in the eastern North Pacific, and 26 chum salmon with internally-placed Northwest Marine Technology (NMT) tags released in the Bering Sea.

Fish were tagged with two disk tags: one issued by the Fisheries Agency of Japan (FAJ) and a second disk tag issued by the Fisheries Research Institute, University of Washington (FRI). Both disk tags were placed on one plastic cinch strap and applied to the fish anterior to the dorsal fin. A few of the disk-tagged fish were selected for tagging with archival tags. Two types of external archival tags manufactured by Conservation Devices, Inc., Watertown, MA, were used in 1999: the type used on the *Wakatake maru* was the Kiwi Ready Logger RL-05T that records seawater temperature (temperature tag), and that used on the *Oshoro maru* was the Model 31 temperature and pressure logger (CDI tag).

The National Salmon Resources Center collected archival tags, disk tags, and data on recovery locations from salmon hatcheries, private fishermen, fishing cooperative unions, or prefectural governments along the coast of northern Japan from chum salmon that returned to Japan coastal areas in the fall of 1999.

The National Research Institute of Far Seas Fisheries (NRIFSF) and the Hokkaido National Fisheries Research Institute (HNFRI) conducted tagging experiments in the Bering Sea

and the central North Pacific using the research vessel *Wakatake maru* from 1995 to 1999. We compared the recovery rate (number of recovered fish / number of tagged-and-released fish) in 1999 with rates from 1995 to 1998 (Ito 1995, Myers et al. 1995-1998, Ito and Ishida 1996, 1998, Walker et al. 1998, Ueno and Ishida 1999, Fukuwaka et al. 1999).

Releases of high seas tags in 2000

In June and July of 2000, two Japanese research vessels, the *Wakatake maru* and *Oshoro maru*, conducted 40 longline (959 hachi) and 3 hook-and-line operations to attach archival and disk tags on Pacific salmon. The disk tags used in 2000 were the same types used in 1999. Three types of archival tags were used (Urawa et al. 2000, Walker et al. 2000). One type of archival tag, manufactured by CDI, records seawater temperature and depth. The tag used by FRI (FRI tag) was attached externally in the dorsal musculature of the fish anterior to the dorsal fin. A second type of archival tag manufactured by the Lotek Marine Technologies Inc. Newfoundland, Canada, records the fish's internal temperature, seawater temperature, light levels (for location), and depth. This tag was used by the HNFRI (HNFRI tag) and was inserted into the peritoneal cavity of fish. The third type of archival tag, manufactured by the Little Leonard Co., Ltd., Japan, records swimming speed, depth, and temperature. This tag was used by the NIPR (NIPR tag) and was attached externally on the dorsal side of the fish in the same location as the FRI tag.

Collection of snouts from adipose fin-clipped salmonids in 2000

Four salmon research vessels, the *Wakatake maru*, *Oshoro maru*, *Hokusei maru*, and *Shoyo maru*, caught 12,231 salmonids in the western and central North Pacific, the Bering Sea, and the Gulf of Alaska from June through August, 2000. Salmon lacking the adipose fin were recovered during biological measurements. Snout samples were collected from these fish for later examination for coded-wire tags (CWT).

RESULTS AND DISCUSSION

Recovery of high seas tags in 1999

In the fall of 1999, 9 tagged chum salmon were recovered from areas along the coast of Hokkaido (Table 1). Recoveries included one fish recovered with an external archival temperature tag, two fish with internal archival tags, and six fish with disk tags. Unfortunately, one of the internal archival tags was lost in transit to our laboratory after recovery. The nine recoveries were substantially fewer than the 71 tags recovered in 1998, and the recovery rate

correspondingly decreased from 9.7% in 1998 to 2.7%. The tag return rate in 1999 was similar to rates from 1995 to 1997 (1.4-3.3%; Table 2).

Releases of high seas tags in 2000

In June and July 2000, 81 salmonids (12 sockeye, 52 chum, 3 pink, 11 coho salmon, and 3 steelhead trout) in the central North Pacific, 601 salmonids (12 sockeye, 575 chum, and 14 chinook salmon) in the Bering Sea, and 32 salmonids (9 chum, 4 pink, 17 coho, and 2 chinook salmon) in the eastern North Pacific were tagged and released by two Japanese salmon research vessels, the *Wakatake maru* and *Oshoro maru* (Table 3). Of these fish, 12 salmonids with FRI archival tags were released in the central North Pacific and the Bering Sea, 27 chum salmon with NIPR tags were released in the Bering Sea, 20 chum salmon with HNFRI tags were released in the Bering Sea, and 19 salmonids with FRI archival tags were released in the eastern North Pacific (Table 4).

Collection of snouts from adipose fin-clipped salmonids in 2000

A total of 67 fin-clipped salmonids (1 chum, 9 coho salmon, and 57 steelhead trout) was recovered by Japanese salmon research vessels (Table 5). Snout samples were collected from these fish and provided to the U.S. for inspection for CWTs.

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Table 1. Releases and recoveries of high-seas tagged chum salmon returning to Japan in the fall of 1999. A hyphen indicates the information is not available. 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, BW: body weight.

U.S. tag no.	Japan tag no.	Archival tag no.	Release					Recovery							
			Date	Lat	Long	FL (mm)	Age	Date	Lat	Long	Gear	Sex	FL (mm)	BW (g)	Location
LL0616	LL4616	-	Jul 14, 1997	56°30N	178°30W	463	0.2	Sep 16, 1999	43°22N	145°20E	Setnet	F	628	3000	Nemuro St., Hokkaido
LL2472	MM1524	-	Jul 8, 1998	57°30N	179°30W	500	0.3	Sep 20, 1999	44°13N	143°38E	Setnet	M	550	1850	Okhotsk Sea, Hokkaido
LL2594	MM1646	-	Jul 10, 1998	57°30N	178°24W	540	0.3	Sep 20, 1999	43°44N	145°06E	Setnet	M	630	2800	Nemuro St., Hokkaido
LL2983	HH2212	FRI 247	Jul 2, 1999	53°30N	180°00	601	0.3	Oct 26, 1999	44°03N	144°15E	Setnet	M	614	2337	Okhotsk Sea, Hokkaido
LL3080	HH2309	HNFR1 1241	Jul 9, 1999	57°30N	178°00W	540	X.X	Oct 19, 1999	44°02N	145°14E	Setnet	-	-	-	Nemuro St., Hokkaido
LL3159	HH2388	HNFR1 1058	Jul 11, 1999	56°30N	179°00W	616	0.4	Oct 18, 1999	42°34N	143°32E	Setnet	M	665	3050	Pacific, Hokkaido
LL3162	HH2391	-	Jul 11, 1999	56°30N	179°00W	602	0.3	Oct 5, 1999	43°21N	145°21E	Setnet	M	645	2600	Nemuro St., Hokkaido
LL3224	HH2453	-	Jul 12, 1999	56°30N	180°00	544	0.2	Oct 11, 1999	42°53N	140°22E	Gillnet	M	500	2600	Japan Sea, Hokkaido
LL3287	HH2516	-	Jul 14, 1999	56°30N	178°00E	658	0.4	Sep 20, 1999	43°23N	145°19E	Setnet	F	682	3500	Nemuro St., Hokkaido

Table 2. Number of tagged chum salmon released in the Bering Sea and the central North Pacific by the research vessel *Wakatake maru*, and recovered along the Japanese coast in 1995-1999. In 1995, fish were not tagged and released in the central North Pacific. Numbers in parentheses indicate number or recovery rate of archival-tagged fish.

Year	Region	Number of release	Number of recovery	Recovery rate (%)
1995	Bering Sea	128	4	3.1
1996	Bering Sea	619	9	1.4
	Central North Pacific	36	2	5.6
	Total	655	11	1.6
1997	Bering Sea	399	13	3.3
	Central North Pacific	5	0	0
	Total	404	13	3.2
1998	Bering Sea	734 (48)	71 (8)	9.7 (16.7)
	Central North Pacific	75	0	0
	Total	809 (48)	71 (8)	8.8 (16.7)
1999	Bering Sea	226 (31)	6 (3)	2.7 (9.7)
	Central North Pacific	15	0	0
	Total	241 (31)	6 (3)	2.5 (9.7)

Table 3. Number of salmon caught by longline and hook-and-line operations, and number of fish tagged and released by the research vessel *Wakatake maru* and *Oshoro maru* in the summer of 2000. H&L: hook-and-line operation.

Region	Vessel	Date	Location	Number of fish caught							Number of fish released					
				Hachi	Sock	Chum	Pink	Coho	Chin	Steel	Sock	Chum	Pink	Coho	Chin	Steel
Central		Jun 12	38°59N 179°58W	30	0	0	0	0	0	0	0	0	0	0	0	0
North		Jun 13	39°58N 180°00	30	0	0	0	0	0	0	0	0	0	0	0	0
Pacific		Jun 14	40°57N 180°00	30	0	0	0	0	0	0	0	0	0	0	0	0
		Jun 15	41°59N 179°59W	30	0	3	0	1	0	0	0	2	0	1	0	0
<i>Wakatake maru</i>		Jun 16	43°00N 179°57W	29	0	5	0	1	0	0	0	3	0	1	0	0
		Jun 17	44°01N 179°59W	30	0	11	2	1	0	2	0	7	1	1	0	2
		Jun 18	44°58N 179°59W	30	0	12	1	5	0	1	0	8	1	4	0	1
		Jun 19	46°00N 180°00	30	0	10	1	4	0	0	0	5	1	3	0	0
		Jun 20	47°01N 179°57E	30	0	5	0	0	0	0	0	2	0	0	0	0
		Jun 22	47°28N 179°57E	30	0	5	0	1	0	0	0	4	0	1	0	0
		Jun 23	48°30N 180°00	30	0	16	0	0	0	0	0	12	0	0	0	0
		Jun 24	49°30N 180°00	30	3	10	0	0	0	0	3	7	0	0	0	0
		Jun 25	50°30N 180°00	30	5	0	0	0	0	0	5	0	0	0	0	0
		Jun 26	51°30N 180°00	30	4	2	0	0	0	0	4	2	0	0	0	0
		Total		419	12	79	4	13	0	3	12	52	3	11	0	3
Bering Sea		Jun 27	52°30N 180°00	30	2	6	0	0	0	0	1	3	0	0	0	0
		Jun 28	53°30N 180°00	30	6	220	0	0	0	0	3	105	0	0	0	0
		Jun 29	54°30N 180°00	30	0	42	1	0	0	0	0	31	0	0	0	0
<i>Wakatake maru</i>		Jun 30	55°31N 179°52W	30	0	64	0	0	0	0	0	36	0	0	0	0
		Jul 1	56°30N 179°59E	30	0	72	1	0	0	0	0	51	0	0	0	0
		Jul 2	57°31N 179°53E	30	0	42	0	0	0	0	0	22	0	0	0	0
		Jul 3	58°35N 179°54W	30	0	27	0	0	8	0	0	13	0	0	7	0
		Jul 4	57°34N 178°56W	30	2	120	0	0	7	0	1	70	0	0	2	0
		Jul 6	57°30N 178°07W	30	0	142	0	0	7	0	0	61	0	0	3	0
		Jul 7	56°29N 178°06W	30	1	135	0	0	0	0	1	67	0	0	0	0
		Jul 8	56°32N 178°58W	30	4	37	0	0	2	0	0	22	0	0	2	0
		Jul 9	56°32N 179°04E	30	1	49	0	0	0	0	1	23	0	0	0	0
		Jul 10	56°31N 177°59E	30	9	120	0	0	0	0	5	60	0	0	0	0
		Jul 12	56°32N 176°58E	30	0	35	0	0	0	0	0	11	0	0	0	0
			Total		420	25	1111	2	0	24	0	12	575	0	0	14
Eastern North Pacific		Jun 22	45°32N 164°57W	10	0	0	0	1	0	0	0	0	0	0	0	0
		Jun 24	48°26N 164°54W	10	0	0	0	0	0	0	0	0	0	0	0	0
Pacific		Jun 26	49°58N 165°02W	10	0	1	0	0	0	0	0	1	0	0	0	0
		Jul 4	56°00N 145°00W	H&L	0	0	0	4	1	0	0	0	0	4	1	0
<i>Oshoro maru</i>		Jul 5	55°59N 144°56W	10	0	5	5	3	0	0	0	3	2	3	0	0
		Jul 6	55°01N 144°58W	10	0	2	1	5	0	0	0	1	0	4	0	0
		Jul 7	54°00N 144°52W	10	0	7	2	4	0	0	0	3	1	4	0	0
		Jul 8	53°00N 144°51W	10	0	1	0	1	0	0	0	1	0	1	0	0
		Jul 9	51°58N 144°52W	10	0	1	0	0	0	0	0	0	0	0	0	0
		Jul 9	51°01N 144°55W	H&L	0	0	0	1	1	0	0	0	0	1	1	0
		Jul 10	50°58N 144°57W	10	0	0	1	0	0	0	0	0	0	0	0	0
		Jul 10	49°59N 144°57W	H&L	0	0	1	0	0	0	0	0	1	0	0	0
		Jul 11	49°58N 144°57W	10	0	0	0	0	0	0	0	0	0	0	0	0
		Jul 12	48°59N 144°54W	10	0	0	0	0	0	0	0	0	0	0	0	0
		Jul 13	47°59N 144°57W	10	0	0	0	0	0	0	0	0	0	0	0	0
		Total		120	0	17	10	19	2	0	0	9	4	17	2	0
		Total		959	37	1207	16	32	26	3	24	636	7	28	16	3

Table 4. Tag numbers of disk tags and archival tags released by the research vessels *Wakatake maru* and *Oshoro maru* in summer of 2000.

Region	Vessel	Date	Location	Disk tag			Archival tag	
				FAJ tag	FRI tag	No. fish	Tag No.	No. Fish
Central		Jun 15	42°00N 180°00	EE4101-4103	LL3308-3310	3		
North		Jun 16	43°00N 180°00	EE4104-4107	LL3311-3314	4		
Pacific		Jun 17	44°00N 180°00	EE4108-4118	LL3315-3325	11		
		Jun 18	45°00N 180°00	EE4119-4132	LL3326-3339	14		
<i>Wakatake maru</i>		Jun 19	46°00N 180°00	EE4133-4141	LL3340-3348	9		
		Jun 20	47°00N 180°00	EE4142-4143	LL3349-3350	2		
		Jun 22	47°30N 180°00	EE4144-4148	LL3351-3355	5	FRI 712	1
		Jun 23	48°30N 180°00	EE4149-4160	LL3356-3367	12	FRI 717	1
		Jun 24	49°30N 180°00	EE4161-4170	LL3368-3377	10	FRI 719	1
		Jun 25	50°30N 180°00	EE4171-4175	LL3378-3382	5	FRI 725, 740, 744	3
		Jun 26	51°30N 180°00	EE4176-4182	LL3383-3389	6	FRI 1077	1
	Bering Sea		Jun 27	52°30N 180°00	EE4183-4186	LL3390-3393	4	FRI 1076
		Jun 28	53°30N 180°00	EE4187-4294	LL3394-3501	108	FRI 1078, 1079	2
<i>Wakatake maru</i>		Jun 29	54°30N 180°00	EE4295-4325	LL3502-3532	31	NIPR 1, 2, HNFRI 1295	3
		Jun 30	55°30N 180°00	EE4326-4361	LL3533-3568	36		
		Jul 1	56°30N 180°00	EE4362-4412	LL3569-3619	51	NIPR 3-5, HNFRI 1521,	5
		Jul 2	57°30N 180°00	EE4413-4434	LL3620-3641	22		
		Jul 3	58°30N 180°00	*EE4435-4455	*LL3642-3662	20	NIPR 6, FRI 1080, 1081, HNFRI 1498	4
		Jul 4	57°30N 179°00W	EE4456-4529	LL3663-3736	74	NIPR 7, HNFRI 1307, 1516	3
		Jul 6	57°30N 178°00W	EE4530-4593	LL3737-3800	64	NIPR 8-11, HNFRI 818, 1152, 1283, 1605	8
		Jul 7	56°30N 178°00W	EE4594-4661	LL3801-3868	68	NIPR 12-16, HNFRI 1154, 1288, 1609, 1613	9
		Jul 8	56°30N 179°00W	EE4662-4685	LL3869-3892	24	NIPR 17, 18, HNFRI 1153,	4
		Jul 9	56°30N 179°00E	EE4686-4709	LL3893-3916	24	NIPR 19, 20, HNFRI 1322,	4
		Jul 10	56°30N 178°00E	EE4710-4774	LL3917-3981	65	NIPR 21-25, HNFRI 1481,	7
		Jul 12	56°30N 177°00E	EE4775-4785	LL3982-3992	11	NIPR 26, 27	2
Eastern North Pacific		Jun 26	49°58N 165°02W	BB6401		1		
Pacific		Jul 4	56°00N 145°00W	BB6402-6406	LL1600-1604	5	FRI 792, 1082-1085	5
		Jul 5	55°59N 144°56W	BB6407-6414	LL1605-1612	8	FRI 85, 793, 1086-1088	5
<i>Oshoro maru</i>		Jul 6	55°02N 144°58W	BB6415-6419	LL1613-1617	5	FRI 1090, 1091	2
		Jul 7	54°01N 144°53W	BB6420-6427	LL1618-1625	8	FRI 86, 87, 1092, 1093	4
		Jul 8	53°00N 144°52W	BB6428-6429	LL1626-1627	2		
		Jul 9	51°01N 144°55W	BB6430-6431	LL1628	2	FRI 88, 1094	2
	Jul 10	49°59N 144°57W	BB6432		1	FRI 89	1	

*chum salmon tagged with disk tag numbers EE4452 and LL3659 died shortly after tagging and, therefore, was not released.

Table 5. Location and biological data for fin-clipped salmonids caught by Japanese salmon research vessels in the summer of 2000. Ad: adipose fin, LV: left ventral fin, RV: right ventral fin.

Research vessel	Date	Location	Mesh (mm)	Species	Fork length (mm)	Body weight (g)	Sex	Gonad weight (g)	Clipped fin
<i>Wakatake maru</i>	Jun 16	42°00N 180°00	115	Steelhead	550	1750	Male	2	Ad
	Jun 17	43°00N 180°00	138	Steelhead	558	1650	Male	4	Ad
	Jun 17	43°00N 180°00	106	Steelhead	611	2100	Male	3	Ad
	Jun 17	43°00N 180°00	115	Steelhead	570	1840	Male	2	Ad
	Jun 17	43°00N 180°00	115	Steelhead	585	1960	Female	3	Ad
	Jun 17	43°00N 180°00	115	Steelhead	580	1930	Male	1	Ad
	Jun 18	44°00N 180°00	115	Steelhead	560	1700	Male	55	Ad
	Jun 19	45°00N 180°00	115	Steelhead	676	3700	Male	17	Ad, LV
	Jun 19	45°00N 180°00	115	Steelhead	688	2710	Female	23	Ad, RV
	Jun 20	46°00N 180°00	138	Steelhead	752	4050	Male	51	Ad
	Jun 23	47°30N 180°00	138	Steelhead	700	4200	Female	28	Ad
	Jun 23	47°30N 180°00	121	Steelhead	720	4050	Male	20	Ad
	Jun 23	47°30N 180°00	138	Steelhead	692	4000	Male	5	Ad
	Jul 5	57°32N 178°20	115	Chum	538	1980	Female	20	Ad
	<i>Oshoro maru</i>	Jun 20	44°00N 165°00W	157	Steelhead	596	2100	Male	16
Jun 20		44°00N 165°00W	72	Steelhead	528	1590	Male	2	Ad
Jun 20		44°00N 165°00W	138	Steelhead	697	3800	Female	19	Ad
Jun 20		44°00N 165°00W	121	Steelhead	494	1180	Female	3	Ad
Jun 20		44°00N 165°00W	115	Steelhead	560	1700	Male	2	Ad
Jun 22		45°30N 165°00W	121	Steelhead	625	2480	Male	3	Ad
Jun 22		45°30N 165°00W	93	Steelhead	574	2000	Female	2	Ad
Jun 22		45°30N 165°00W	115	Steelhead	520	1400	Male	2	Ad
Jul 5		56°00N 144°57W	55	Steelhead	282	100	Female	1	Ad
Jul 5		56°00N 144°57W	72	Steelhead	308	280	Male	1	Ad
Jul 6		55°01N 145°01W	106	Steelhead	576	1940	Female	15	Ad
Jul 6		55°01N 145°01W	121	Coho	530	2270	Male	78	Ad
Jul 6		55°01N 145°01W	82	Steelhead	324	345	Female	1	Ad
Jul 6		55°01N 145°01W	157	Coho	622	3950	Female	145	Ad
Jul 7		54°00N 144°56W	55	Coho	644	3340	Male	100	Ad
Jul 7		54°00N 144°56W	115	Coho	645	2980	Male	28	Ad
Jul 7		54°00N 144°56W	121	Coho	676	3730	Male	19	Ad
Jul 7		54°00N 144°56W	115	Coho	578	2700	Female	150	Ad
Jul 7		54°00N 144°56W	121	Steelhead	623	2580	Female	2	Ad
Jul 7		54°00N 144°56W	121	Steelhead	606	2180	Female	17	Ad
Jul 8		53°00N 144°58W	55	Steelhead	283	240	Male	1	Ad
Jul 8		53°00N 144°58W	63	Steelhead	338	320	Male	1	Ad
Jul 8		53°00N 144°58W	72	Steelhead	330	350	Female	2	Ad
Jul 8		53°00N 144°58W	121	Steelhead	700	3320	Female	15	Ad
Jul 9		51°59N 144°59W	63	Steelhead	320	320	Male	1	Ad
Jul 9		51°59N 144°59W	63	Steelhead	327	305	Female	1	Ad
Jul 9		51°59N 144°59W	55	Coho	540	2150	Female	80	Ad
Jul 9		51°59N 144°59W	121	Steelhead	700	3790	Female	32	Ad
Jul 9		51°59N 144°59W	121	Steelhead	634	2650	Female	16	Ad
Jul 9		51°59N 144°59W	121	Steelhead	536	1840	Female	4	Ad
Jul 9		51°59N 144°59W	55	Steelhead	630	2350	Female	16	Ad
Jul 9		51°59N 144°59W	55	Steelhead	330	335	Male	1	Ad
Jul 9		51°59N 144°59W	55	Steelhead	319	260	Female	1	Ad
Jul 9		51°59N 144°59W	72	Steelhead	323	320	Female	2	Ad
Jul 9		51°59N 144°59W	115	Steelhead	570	2140	Male	3	Ad
Jul 9		51°59N 144°59W	82	Steelhead	502	1270	Male	1	Ad
Jul 9		51°59N 144°59W	93	Steelhead	576	2060	Female	3	Ad
Jul 10		50°59N 144°59W	63	Steelhead	308	295	Male	1	Ad
Jul 10		50°59N 144°59W	63	Steelhead	325	300	Male	1	Ad
Jul 10		50°59N 144°59W	138	Steelhead	340	390	Male	1	Ad
Jul 10		50°59N 144°59W	115	Steelhead	669	2000	Female	19	Ad
Jul 11		49°59N 144°59W	63	Steelhead	320	290	Female	2	Ad
Jul 11	49°59N 144°59W	115	Coho	650	3290	Female	68	Ad	
Jul 12	48°59N 144°59W	115	Coho	641	3250	Male	17	Ad	
Jul 12	48°59N 144°59W	72	Steelhead	349	380	Male	1	Ad	
Jul 12	48°59N 144°59W	121	Steelhead	578	2450	Female	19	Ad	
Jul 13	47°59N 145°00W	121	Steelhead	583	2440	Male	6	Ad	
Jul 13	47°59N 145°00W	121	Steelhead	562	2210	Female	11	Ad	
Jul 13	47°59N 145°00W	115	Steelhead	531	1720	Male	40	Ad	
Jul 13	47°59N 145°00W	115	Steelhead	520	1860	Female	12	Ad	
Jul 13	47°59N 145°00W	115	Steelhead	541	1960	Male	1	Ad	
Jul 14	47°00N 144°59W	115	Steelhead	572	2150	Male	3	Ad	
Jul 14	47°00N 144°59W	115	Steelhead	559	2050	Male	3	Ad	