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**Salmon Tagging Experiments and
Recovery of Salmon Lacking Adipose Fin
Collected by Japanese Salmon Research Vessels
in the North Pacific Ocean, 1996**

by

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Salmon Tagging Experiments and Recovery of Salmon Lacking Adipose Fin Collected by Japanese Salmon Research Vessels in the North Pacific Ocean, 1996

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ABSTRACT

Two Japanese salmon research vessels conducted 38 longline operations in the North Pacific Ocean in 1996. A total of 639 salmonids (619 chum, 16 sockeye, and 4 chinook salmon) in the Bering Sea, 50 salmonids (11 pink, 6 chum, 33 coho salmon) in the Gulf of Alaska, and 52 salmonids (15 sockeye, 36 chum, and one coho salmon) in the central North Pacific Ocean, were tagged and released, respectively. Double tagging using Japanese and U.S. disc tags was conducted for some of these fish in order to increase recovery rates.

Four Japanese salmon research vessels conducted a survey for salmonids lacking fins and 59 steelhead trout, four coho, four sockeye, one pink salmon lacking the adipose fin and/or other fins were recovered. The percentage of steelhead trout lacking adipose fin ($46\% = 59/128 = \text{steelhead trout lacking adipose fin} / \text{the total steelhead trout catch}$) was higher in 1996 than in the previous four years (21.9% in 1992; 26.1% in 1993; 30.5% in 1994; 37.1% in 1995). Snout samples were collected from these fish and provided to the U.S.A. for corded wire tag examination.

INTRODUCTION

This report describes the tagging experiments conducted in 1996 and summarizes information on salmon lacking adipose fin recovered by Japanese salmon research vessels in the North Pacific Ocean in 1996.

MATERIALS AND METHODS

Two Japanese salmon research vessels, *Wakatake maru* and *Oshoro maru*, conducted 38 longline operations in the central North Pacific Ocean, the Bering Sea, and the Gulf of Alaska in June and July, 1996. Double tagging using Japanese and U.S. disc tags was conducted for some of these fish in order to increase recovery rates.

Four salmon research vessels, *Wakatake maru*, *Oshoro maru*, *Hokusei maru*, and *Hokko maru*, caught 17,940 salmonids in the western and central North Pacific, the Bering Sea, and the Gulf of Alaska from June to August in 1996. Salmon lacking adipose fin were recovered during biological measurements. Snout samples were collected from these fish for later examination of coded wire tag (CWT).

RESULTS AND DISCUSSION

In the Bering Sea, 639 salmonids (619 chum, 16 sockeye, and 4 chinook salmon) were tagged and released, 50 salmonids (11 pink, 6 chum, and 33 coho salmon) in the Gulf of Alaska, and 52 salmonids (15 sockeye, 36 chum, and one coho salmon) in the central North Pacific Ocean were tagged and released. Double tagging using Japanese and U.S. disc tags was conducted for some of these fish in order to increase recovery rates (Tables 1 and 2).

A total of 59 steelhead trout, four coho, four sockeye, one pink salmon lacking the adipose fin and/or other fins were recovered. The percentage of steelhead trout lacking adipose fin ($46\% = 59/128 = \text{steelhead trout lacking adipose fin} / \text{the total steelhead trout catch}$) was higher in 1996 than in the previous four years (21.9% in 1992; 26.1% in 1993; 30.5% in 1994; 37.1% in 1995) (Ito and Ishida 1992, 1993; Ito 1994, 1995). Snout samples were

collected from these fish and provided to the U.S. for CWT examination (Table 3).

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Table 1. Tagging experiments conducted aboard the *Wakatake maru* in summer, 1996.

No.	Release		Longline		Number of fish caught							Number of fish released							Type of Tag & Tag No. (Missing Tag No.)	Other Remarks			
	Date	Location	Hachi	Sock	Chum	Pink	Coho	Chin	Stee	Masu	Total	Sock	Chum	Pink	Coho	Chin	Stee	Masu			Total		
1	96.6.15	3830N 17925W	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
2	96.6.16	3933N 17926W	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
3	96.6.17	4029N 17927W	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
4	96.6.18	4131N 17928W	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
5	96.6.19	4230N 17929W	30	0	4	0	1	0	0	0	5	0	0	0	0	0	0	0	0	0	0		
6	96.6.20	4329N 17927W	30	0	5	0	1	0	0	0	6	0	0	0	0	0	0	0	0	0	0		
7	96.6.21	4430N 17927W	30	0	0	1	6	0	0	0	7	0	0	0	0	0	0	0	0	0	0		
8	96.6.22	4533N 17928W	30	0	12	1	11	0	0	0	24	0	0	0	0	0	0	0	0	0	0		
9	96.6.23	4632N 17928W	30	0	7	2	15	0	0	0	24	0	0	0	0	0	0	0	0	0	0		
10	96.6.26	4730N 17928W	30	0	23	0	3	0	2	0	28	0	0	0	0	0	0	0	0	0	0		
11	96.6.27	4830N 17930W	30	0	24	0	2	0	0	0	26	0	12	0	1	0	0	0	0	13	Disc. KK2057-KK2069	Disc. KK249-KK261	
12	96.6.28	4930N 17930W	30	1	28	0	0	0	0	0	29	0	10	0	0	0	0	0	10	Disc. KK2070-KK2079	Disc. KK262-KK271		
13	96.6.29	5030N 17930W	30	23	13	1	0	0	6	0	43	15	2	0	0	0	0	0	17	Disc. KK2080-KK2096	Disc. KK272-KK288		
14	96.6.30	5130N 17930W	30	4	23	0	0	0	0	0	27	0	12	0	0	0	0	0	12	Disc. KK2097-KK2108	Disc. KK289-KK300		
15	96.7.02	5230N 17930W	30	3	23	0	0	1	0	0	27	0	3	0	0	0	0	0	3	Disc. KK2109-KK2111	Disc. KK301-KK303		
16	96.7.02	5330N 17930W	30	3	41	0	0	0	0	0	44	0	12	0	0	0	0	0	12	Disc. KK2112-KK2123	Disc. KK304-KK315		
17	96.7.03	5430N 17930W	30	14	108	0	0	0	0	0	122	7	56	0	0	0	0	0	63	Disc. KK2124-KK2186	Disc. KK316-KK378		
18	96.7.04	5528N 17926W	30	1	85	0	0	0	0	0	86	0	44	0	0	0	0	0	44	Disc. KK2187-KK2230	Disc. KK379-KK422		
19	96.7.05	5627N 17930W	30	2	156	1	0	0	0	0	159	0	74	0	0	0	0	0	74	*Disc. KK227 Disc. KK2231-KK2304	Disc. KK423-KK496		
20	96.7.06	5730N 17926W	30	5	148	1	0	0	0	0	154	0	81	0	0	0	0	0	81	Disc. KK2305-KK2385	Disc. KK497-KK499 Disc. EE500-EE577		
21	96.7.07	5831N 17936W	30	4	111	1	0	3	0	0	119	0	54	0	0	0	0	0	54	Disc. KK2386-KK2439	Disc. EE578-EE631		
22	96.7.10	5728N 17837W	30	9	246	0	0	3	0	0	258	0	102	0	0	0	0	0	102	Disc. KK2440-KK2541	Disc. EE632-EE733		
23	96.7.11	5728N 17737W	30	6	136	1	0	5	0	0	148	4	65	0	0	0	0	0	69	Disc. KK2542-KK2610	Disc. EE734-EE802		
24	96.7.12	5630N 17730W	30	4	157	0	0	34	0	0	195	1	75	0	0	3	0	0	79	Disc. KK2611-KK2689	Disc. EE803-EE881		
25	96.7.13	5630N 17830W	30	3	53	1	0	6	0	0	63	0	28	0	0	1	0	0	29	Disc. KK2690-KK2718	Disc. EE882-EE910		
26	96.7.14	5632N 17931E	30	8	44	1	1	2	0	0	56	4	25	0	0	0	0	0	29	Disc. KK2719-KK2747	Disc. EE911-EE939		
Total			780	90	1447	11	40	54	8	0	1650	31	655	0	1	4	0	0	691				

*KK227 corresponds to KK2276, because letter 6 was missing.

Table 2. Tagging experiments conducted aboard the *Oshoro maru* in summer, 1996.

No.	Release		Longline		Number of fish caught							Number of fish released							Type of Tag & Tag No. (Missing Tag No.)	Other Remarks		
	Date	Location	Hachi	Sock	Chum	Pink	Coho	Chin	Stee	Masu	Total	Sock	Chum	Pink	Coho	Chin	Stee	Masu			Total	
1	96.06.17	4355N 17956W	10	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0		
2	96.06.18	4456N 17959W	10	0	0	0	14	0	0	0	14	0	0	0	10	0	0	0	0	10	Disc. AA2001-AA2010	Disc. KK647-KK656
3	96.06.19	4558N 17952W	10	0	1	1	4	0	0	0	6	0	0	0	4	0	0	0	0	4	Disc. AA2011-AA2014	Disc. KK657-KK660
4	96.06.20	4657N 17956W	10	0	1	0	5	0	0	0	6	0	0	0	3	0	0	0	0	3	Disc. AA2015-AA2017	Disc. KK661-KK663
5	96.06.22	5037N 17948W	10	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0		
6	96.07.02	5819N 14500W	10	3	2	7	21	0	0	0	33	0	0	5	10	0	0	0	15	Disc. AA2018-AA2032	Disc. KK664-KK678	
7	96.07.04	5600N 14459W	10	6	1	5	12	0	0	0	24	0	0	4	5	0	0	0	9	Disc. AA2033-AA2041	Disc. KK679-KK687	
8	96.07.05	5459N 14457W	10	1	15	2	1	0	0	0	19	0	1	1	0	0	0	0	2	Disc. AA2042-AA2044(-43)	Disc. KK688-KK690(-89)	
9	96.07.07	5302N 14458W	10	0	3	0	0	0	0	0	3	0	2	0	0	0	0	0	2	Disc. AA2045-AA2046	Disc. KK691-KK692	
10	96.07.08	5203N 14456W	13	0	1	0	1	0	0	0	2	0	1	0	1	0	0	0	2	Disc. AA2047-AA2048	Disc. KK693-KK694	
11	96.07.09	5103N 14456W	12	0	2	0	0	0	0	0	2	0	2	0	0	0	0	0	2	Disc. AA2049-AA2050	Disc. KK695-KK696	
12	96.07.11	5114N 14308W	13	1	0	1	0	0	0	0	2	0	0	1	0	0	0	0	1	Disc. AA2054-AA2054	Disc. KK700-KK700	
Total			128	11	27	16	60	0	0	0	114	0	6	11	33	0	0	0	50			

Table 3. Catch location and biological data for salmon with missing adipose and/or other fin caught by Japanese salmon research vessels in 1996.

Date	Location	Length	Weight	Sex	Gonad	Vessel	Sample		Species	Remarks
					Weight	Code	Gear	No.		
960703	5559N 14459W	620	3600	F	135	R05	A115	72;10	1	
960703	5559N 14459W	514	1540	M	22	R05	A115	74;08	3	
960703	5559N 14459W	591	3200	M	95	R05	A115	75;23	4	
960703	5559N 14459W	616	3100	F	24	R05	A115	75;28	7	
960703	5559N 14459W	504	1900	M	36	R05	A121	80;08	4	
960703	5559N 14459W	548	2300	F	62	R05	C063	84;01	1	
960704	5500N 14500W	611	3000	F	71	R05	A121	104;12	1	
960704	5500N 14500W	578	2850	F	58	R05	A121	107;01	4	
960704	5500N 14500W	608	3220	M	14	R05	A121	107;09	4	
960704	5500N 14500W	586	1920	F	25	R05	A121	107;20	7	
960705	5400N 14459W	364	640	M	1	R05	A115	130;19	1	
960705	5400N 14459W	324	420	F	1	R05	C063	138;04	7	
960706	5300N 14500W	310	280	M	1	R05	C055	154;01	7	
960706	5300N 14500W	298	240	M	1	R05	C055	154;02	7	
960706	5300N 14500W	310	300	M	1	R05	C063	155;04	7	
960706	5300N 14500W	354	480	M	1	R05	C063	155;05	7	
960706	5300N 14500W	306	340	F	3	R05	C063	155;06	7	
960706	5300N 14500W	342	440	M	1	R05	C082	157;13	7	
960706	5300N 14500W	522	1740	F	5	R05	C093	158;26	7	
960707	5200N 14500W	532	1880	F	3	R05	A115	166;14	7	
960707	5200N 14500W	302	260	F	3	R05	A121	168;20	7	
960707	5200N 14500W	580	2120	M	18	R05	A121	168;22	7	
960707	5200N 14500W	298	220	F	3	R05	C055	170;04	7	
960707	5200N 14500W	318	300	F	3	R05	C063	171;07	7	
960707	5200N 14500W	312	280	F	3	R05	C063	171;08	7	
960707	5200N 14500W	338	400	M	1	R05	C063	171;09	7	
960707	5200N 14500W	328	300	F	1	R05	C072	172;24	7	
960707	5200N 14500W	330	280	M	1	R05	C072	172;25	7	
960708	5059N 14500W	298	450	F	1	R05	C055	183;02	7	
960709	5000N 14400W	518	1580	F	4	R05	C093	196;06	7	
960711	5220N 14115W	338	540	M	1	R05	C055	215;02	7	
960711	5220N 14115W	298	250	F	3	R05	C063	216;04	7	
960711	5220N 14115W	320	360	M	1	R05	C063	216;05	7	
960711	5220N 14115W	278	220	M	1	R05	C063	216;06	7	
960711	5220N 14115W	304	470	M	1	R05	C063	216;07	7	
960711	5220N 14115W	578	2000	M	14	R05	C093	219;30	7	
960711	5220N 14115W	382	540	M	1	R05	C138	222;01	7	
960705	5100N 16500E	484	1420	F	105	R08	A115	40;07	3	Left pelvic fin
960711	4700N 16500E	750	2700	M	2	R08	C106	131;01	7	
960711	4700N 16500E	674	1950	M	5	R08	A115	143;12	7	
960711	4700N 16500E	536	1920	M	12	R08	A115	143;13	7	
960619	4130N 17930W	562	1920	M	4	R32	C157	2;01	7	
960621	4330N 17930W	569	1820	M	1	R32	A115	8;04	7	
960621	4330N 17930W	547	1620	F	4	R32	C106	12;04	7	
960622	4430N 17930W	594	1940	F	5	R32	A115	23;01	7	
960623	4530N 17930W	550	1620	M	1	R32	A115	30;27	7	Left pelvic fin
960623	4530N 17930W	540	1540	F	10	R32	A115	30;28	7	
960624	4630N 17930W	548	1500	F	5	R32	C093	35;09	7	
960624	4630N 17930W	570	1770	M	1	R32	C093	35;10	7	
960624	4630N 17930W	558	1260	M	2	R32	A115	40;21	7	Left pelvic fin
960624	4630N 17930W	555	1840	M	5	R32	A115	40;22	7	
960624	4630N 17930W	542	1600	F	8	R32	C106	42;09	7	
960626	4730N 17928W	646	2150	M	2	R32	B	44;03	7	
960627	4730N 17930W	565	1850	M	2	R32	A115	51;24	7	
960627	4730N 17930W	585	2040	M	2	R32	A115	51;25	7	
960627	4730N 17930W	512	1220	M	2	R32	A115	51;27	7	
960629	5030N 17930W	730	4000	F	48	R32	B	58;03	7	
960629	5030N 17930W	742	4510	M	48	R32	B	58;13	7	
960731	4801N 17327E	620	1980	M	3	R06	A118	54;09	7	
960731	4801N 17327E	612	2240	F	5	R06	A118	54;10	7	
960731	4801N 17327E	594	1860	M	3	R06	A118	54;11	7	
960731	4801N 17327E	610	2820	F	6	R06	C121	59;20	7	
960731	4801N 17327E	648	2840	F	5	R06	C121	59;21	7	
960731	4801N 17327E	608	2500	M	3	R06	C121	59;22	7	
960731	4801N 17327E	632	3200	M	3	R06	C121	59;23	7	
960803	4900N 16916E	614	2540	M	2	R06	A118	77;13	7	
960804	4930N 16708E	636	2900	M	3	R06	A112	90;26	7	
960805	5000N 16500E	690	3800	F	28	R06	A118	110;29	7	
960805	5000N 16500E	644	2870	M	3	R06	C138	122;16	7	