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in the North Pacific Ocean, 1998

by

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## ABSTRACT

Two Japanese salmon research vessels conducted 44 longline operations in the North Pacific Ocean and its marginal seas in 1998. A total of 756 salmonids (9 sockeye, 734 chum, 4 pink, and 9 chinook salmon) in the Bering Sea, 28 salmonids (3 sockeye, 7 chum, 13 pink, and 4 coho salmon, and 1 steelhead) in the Gulf of Alaska, and 178 salmonids (15 sockeye, 115 chum, 9 pink, 25 coho, 1 chinook salmon, and 13 steelhead trout) in the central North Pacific Ocean, were tagged and released, respectively. 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 (FRI). Both disk tags were placed on one plastic cinch strap and applied to the fish anterior to the dorsal fin. A subset of the disk-tagged fish was released with an externally attached the temperature-recording archival tag including 12 large steelhead and one sockeye released in the central North Pacific Ocean, 3 sockeye, one chum, 4 pink, 3 coho, and one steelhead released in the Gulf of Alaska, and 23 chum salmon released in the central Bering Sea. Another subset of 25 disk-tagged chum salmon was released in the Bering Sea with an internally inserted the temperature, depth, and location recording archival tag. Four Japanese salmon research vessels conducted a survey for salmonids lacking fins, and two sockeye, 3 chum, 6 coho, one chinook salmon, and 68 steelhead trout lacking the adipose fin and/or other fins were recovered. The percentage of steelhead trout lacking adipose fin in 1998 ( $29.4\% = 68/231$ ; steelhead trout lacking adipose fin/the total steelhead trout catch) was comparatively low in the recent years (21.9% in 1992; 26.1% in 1993; 30.5% in 1994; 37.1% in 1995; 46.1% in 1996; 44.0% in 1997).

## INTRODUCTION

This report describes the tagging experiments conducted in 1998 and summarizes information on salmon lacking adipose fin recovered by Japanese salmon research vessels in the North Pacific Ocean in 1998.

## MATERIALS AND METHODS

Two Japanese salmon research vessels, *Wakatake maru* and *Oshoro maru*, conducted 44 longline operations in the central North Pacific Ocean, the Bering Sea, and the Gulf of Alaska in June and July, 1997. 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 (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 archival tags were used. One type of archival tag, manufactured by the Kiwi Group, North Falmouth, MA, records seawater temperature (Temperature tag). The temperature tag was used by FRI. A second type of archival tag manufactured by Northwest Marine Technology (NWT), Shaw Island, WA, records the fish's internal temperature, seawater temperature, light levels (for location), and depth (NMT tag). The NWT tag was used by FAJ.

Four salmon research vessels, *Wakatake maru*, *Oshoro maru*, *Hokusei maru*, and *Hokko maru*, caught 18,315 salmonids in the western and central North Pacific, the Bering Sea, and the Gulf of Alaska from June to August in 1998. 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

A total of 756 salmonids (9 sockeye, 734 chum, 4 pink, and 9 chinook salmon) in the Bering Sea, 28 salmonids (3 sockeye, 7 chum, 13 pink, and 4 coho salmon, and 1 steelhead) in the Gulf of Alaska, and 178 salmonids (15 sockeye, 115 chum, 9 pink, 25 coho, 1 chinook salmon, and 13 steelhead

trout) in the central North Pacific Ocean, were tagged and released, respectively (Table 1 and 2). A subset of the disk-tagged fish was released with an externally attached the Temperature tag including including 12 large steelhead and one sockeye released in the central North Pacific Ocean, 3 sockeye, one chum, 4 pink, 3 coho, and one steelhead released in the Gulf of Alaska, and 23 chum salmon released in the central Bering Sea (Table 3). Another subset of 25 disk-tagged chum salmon was released in the Bering Sea with an internally inserted the NWT tags (Table 3).

Four Japanese salmon research vessels conducted a survey for salmonids lacking fins, and two sockeye, 3 chum, 6 coho, one chinook salmon, and 68 steelhead trout lacking the adipose fin and/or other fins were recovered (Table 4). The percentage of steelhead trout lacking adipose fin in 1998 ( $29.4\% = 68/231$ ; steelhead trout lacking adipose fin/the total steelhead trout catch) was comparatively low in the recent years (21.9% in 1992; 26.1% in 1993; 30.5% in 1994; 37.1% in 1995; 46.1% in 1996; 44.0% in 1997; Ito and Ishida 1992, 1993; Ito 1994, 1995; Ito and Ishida 1996). Snout samples were collected from these fish and provided to the U.S. for CWT examination (Table 4).

## ACKNOWLEDGMENTS

We thank captains, officers and crew of the *Wakatake maru*, *Oshoro maru*, *Hokusei maru*, and *Hokko maru*, for their careful collection of data and samples.

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Table 1. Tagging experiments conducted aboard the *Wakatake-maru* in summer, 1998.

Release		Longline										Number of fish released										Tag No.	Other Remarks								
No.	Date	Location						Hachi	Sock	Chum	Pink	Coho	Chin	Masu	Steel	Dolly	Total	Sock	Chum	Pink	Coho	Chin	Masu	Steel	Dolly	Total	(Missing Tag No.)	(Missing Tag No.)			
ST1	98	6	17	38	58	N	179	59	E	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
ST2	98	6	18	40	1	N	179	54	E	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
ST3	98	6	20	41	0	N	179	57	E	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
ST4	98	6	21	41	57	N	180	0	E	30	0	1	0	1	0	0	0	0	0	2	0	0	0	0	0	0	0				
ST5	98	6	22	42	58	N	179	59	E	30	0	15	2	14	0	0	0	0	0	31	0	10	1	4	0	0	0	15	MM1053-1067	LL2001-2015	
ST6	98	6	24	44	0	N	179	59	E	30	0	3	1	4	0	0	0	0	8	0	1	1	1	0	0	0	3	MM1071-1073	LL2019-2021		
ST7	98	6	25	44	59	N	179	55	W	30	0	26	2	11	0	0	4	0	43	0	10	1	1	0	0	2	0	14	MM1074-1089 (1087,1088)	LL2022-2037 (2035,2036)	
ST8	98	6	26	46	0	N	179	59	W	30	1	24	2	27	0	0	2	0	56	0	9	1	13	0	0	1	0	24	MM1090-1113	LL2038-2061	
ST9	98	6	27	47	0	N	179	58	W	30	6	15	0	2	0	0	4	0	27	3	8	0	0	0	0	3	0	14	MM1116-1129	LL2064-2077	
ST10	98	6	28	47	30	N	179	56	W	30	8	24	1	7	1	0	9	0	50	5	10	0	2	0	0	6	0	23	MM1132-1154	LL2080-2102	
ST11	98	6	29	48	30	N	179	30	W	30	4	26	2	0	4	0	0	0	36	0	10	0	0	1	0	0	0	11	MM1155-1165	LL2103-2113	
ST12	98	6	30	49	30	N	179	30	W	30	8	9	4	4	0	0	1	0	26	2	6	0	0	0	0	1	0	9	MM1168-1176	LL2116-2124	
ST13	98	7	1	50	30	N	179	30	W	30	4	11	0	0	1	0	0	0	16	2	3	0	0	0	0	0	0	5	MM1180-1186 (1184,1185)	LL2128-2134 (2132, 2133)	
ST14	98	7	2	51	30	N	179	30	W	30	1	23	0	0	0	0	0	0	24	1	8	0	0	0	0	0	0	9	MM1188-1196	LL2136-2144	
ST15	98	7	3	52	30	N	179	30	W	30	2	34	1	0	0	0	0	0	37	1	24	1	0	0	0	0	0	26	MM1198-1223	LL2146-2171	
ST16	98	7	4	53	30	N	179	30	W	30	0	107	0	0	0	0	0	0	107	0	52	0	0	0	0	0	0	52	MM1224-1275	LL2172-2223	
ST17	98	7	5	54	30	N	179	30	W	30	2	101	0	0	1	0	0	0	104	1	57	0	0	0	0	0	0	58	MM1276-1333	LL2224-2281	
ST18	98	7	7	55	33	N	179	31	W	30	1	141	1	0	0	0	0	0	143	1	67	0	0	0	0	0	0	68	MM1334-1401	LL2282-2349	
ST19	98	7	7	56	33	N	179	33	W	30	3	117	1	0	7	0	0	3	131	0	57	1	0	1	0	0	0	59	MM1402-1460	LL2350-2408	
ST20	98	7	8	57	31	N	179	26	W	30	0	335	0	0	0	0	0	1	336	0	101	0	0	0	0	0	0	101	MM1461-1561	LL2409-2509	
ST21	98	7	9	58	30	N	179	26	W	30	0	162	2	0	12	0	0	4	180	0	62	1	0	5	0	0	0	68	MM1562-1629	LL2510-2577	
ST22	98	7	10	57	30	N	178	24	W	30	0	202	0	0	3	0	0	4	209	0	80	0	0	0	0	0	0	80	MM1630-1709	LL2578-2657	
ST23	98	7	11	57	30	N	177	28	W	30	2	161	1	0	2	0	0	0	166	1	59	0	0	0	0	0	0	60	MM1710-1769	LL2658-2717	
ST24	98	7	12	56	32	N	177	25	W	30	4	184	0	0	2	0	0	0	190	0	58	0	0	0	0	0	0	58	MM1770-1827	LL2718-2775	
ST25	98	7	13	56	32	N	178	32	W	30	1	47	0	0	2	0	0	0	50	0	17	0	0	1	0	0	0	18	MM1828-1846 (1845)	LL2776-2794 (2793)	
ST26	98	7	14	56	31	N	179	32	E	30	4	84	0	0	4	0	0	0	92	2	26	0	0	0	0	0	0	28	MM1845-1873 (1846)	LL2793-2821 (2794)	
ST27	98	7	15	56	30	N	178	30	E	30	3	88	0	0	3	0	0	0	94	3	37	0	0	2	0	0	0	42	MM1874-1915	LL2822-2863	
ST28	98	7	16	56	30	N	177	36	E	30	6	123	1	0	0	0	0	0	130	0	37	1	0	0	0	0	0	38	MM1916-1953	LL2864-2902 (2878)	
Total											840	60	2063	21	70	42	0	20	12	2288	22	809	8	21	10	0	13	0	883		

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Table 2. Tagging experiments conducted aboard the *Oshoro maru* in summer, 1998.

Station	Release		Longline hachi	Numbers of fish collected										Numbers of fish released										Tag No. (Missing Tag No.)	Others Remarks		
	Date	Location		Sock	Chum	Pink	Coho	Chin	Masu	Stee	Doll	Total	Sock	Chum	Pink	Coho	Chin	Masu	Stee	Doll	Total						
L01	980616	4659 N 17958 W	10	0	9	0	0	0	0	0	0	0	0	0	9	0	7	0	0	0	0	0	0	0	0	7 DD6501-6508 (6506)	
L02	980617	5005 N 17955 W	7	1	3	0	0	0	0	0	0	0	0	4	0	3	0	0	0	0	0	0	0	0	0	3 DD6509-6511	LL1109-1111
L03	980624	5240 N 16500 W	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
L04	980626	5002 N 16458 W	10	0	1	1	0	0	0	0	0	0	2	0	1	0	0	0	0	0	0	0	0	0	1 DD6512	LL1112	
L05	980627	4959 N 16456 W	10	0	4	0	0	0	0	0	0	0	4	0	3	0	0	0	0	0	0	0	0	0	3 DD6513-6515	LL1113-1115	
L06	980628	4829 N 16459 W	10	1	2	0	0	0	0	0	0	0	3	1	2	0	0	0	0	0	0	0	0	0	3 DD6516-6518	LL1116-1118	
L07	980629	4700 N 16459 W	10	1	6	1	0	0	0	0	0	0	8	1	4	1	0	0	0	0	0	0	0	0	6 DD6519-6524	LL1119-1124	
L08	980630	4530 N 16459 W	10	0	24	5	11	0	0	0	0	0	40	0	20	4	4	0	0	0	0	0	0	0	28 DD6525-6552	LL1125-1152	
L09	980704	5559 N 14500 W	10	2	5	8	6	0	0	0	0	0	21	1	4	6	3	0	0	0	0	0	0	0	14 DD6553-6566	LL1153-1166	
L10	980705	5459 N 14500 W	10	4	1	5	2	0	0	0	0	0	12	2	1	4	0	0	0	0	0	0	0	0	7 DD6567-6573	LL1167-1173	
L11	980706	5359 N 14458 W	10	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1 DD6574	LL1174	
L12	980707	5301 N 14453 W	10	0	0	2	1	0	0	0	0	0	3	0	0	1	1	0	0	0	0	0	0	0	2 DD6575,6576	LL1175,1176	
L13	980708	5201 N 14458 W	10	0	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	1 DD6577	LL1177	
L14	980709	5059 N 14458 W	10	0	2	1	0	0	0	0	0	0	3	0	1	0	0	0	0	0	0	0	0	0	1 DD6578	LL1178	
L15	980710	4958 N 14458 W	10	0	0	1	0	0	0	0	1	0	2	0	0	1	0	0	0	1	0	0	0	0	2 DD6579,6580	LL1179,1180	
L16	980711	4859 N 14501 W	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total			147	9	58	25	20	0	0	1	0	113	5	47	18	8	0	0	1	0	79						

Table 3. Archival tags released on salmonids caught by longline fishing operations conducted by Japanese research vessels in June and July, 1998. FAJ=Fisheries Agency of Japan, FRI=Fisheries Research Institute. X=unreadable age.

Tag No.	Tag Type	R/V	Release Date		Release Location		Species	Disk Tag Numbers		FL	Age
			Year	Month Day	Latitude	Longitude		FAJ	FRI		
207	Temperature	Wakatake-maru	98	6 25	45°00'N	180°00'	steelhead	MM1086	LL2034	649	X.2
208	Temperature	Wakatake-maru	98	6 25	45°00'N	180°00'	steelhead	MM1089	LL2037	570	1.1
210	Temperature	Wakatake-maru	98	6 26	46°00'N	180°00'	steelhead	MM1113	LL2061	652	1.2
220	Temperature	Wakatake-maru	98	6 27	47°00'N	180°00'	steelhead	MM1120	LL2068	549	3.1
221	Temperature	Wakatake-maru	98	6 27	47°00'N	180°00'	steelhead	MM1129	LL2077	568	X.1
227	Temperature	Wakatake-maru	98	6 28	47°30'N	180°00'	steelhead	MM1136	LL2084	574	X.1
228	Temperature	Wakatake-maru	98	6 28	47°30'N	180°00'	steelhead	MM1137	LL2085	710	X.2
230	Temperature	Wakatake-maru	98	6 28	47°30'N	180°00'	steelhead	MM1138	LL2086	756	2.2
238	Temperature	Wakatake-maru	98	6 28	47°30'N	180°00'	steelhead	MM1149	LL2097	554	X.1
241	Temperature	Wakatake-maru	98	6 28	47°30'N	180°00'	steelhead	MM1153	LL2101	662	3.2
242	Temperature	Wakatake-maru	98	6 28	47°30'N	180°00'	steelhead	MM1154	LL2102	570	X.1
243	Temperature	Wakatake-maru	98	6 30	49°30'N	179°30'W	steelhead	MM1176	LL2124	706	X.2
246	Temperature	Wakatake-maru	98	7 2	51°30'N	179°30'W	chum	MM1188	LL2136	596	0.3
248	Temperature	Wakatake-maru	98	7 2	51°30'N	179°30'W	chum	MM1195	LL2143	632	0.3
257	Temperature	Wakatake-maru	98	7 3	52°30'N	179°30'W	chum	MM1220	LL2168	526	0.3
258	Temperature	Wakatake-maru	98	7 3	52°30'N	179°30'W	chum	MM1221	LL2169	584	0.3
259	Temperature	Wakatake-maru	98	7 3	52°30'N	179°30'W	chum	MM1222	LL2170	622	0.3
255	Temperature	Wakatake-maru	98	7 4	53°30'N	179°30'W	chum	MM1274	LL2222	560	0.3
269	Temperature	Wakatake-maru	98	7 5	54°30'N	179°30'W	chum	MM1330	LL2278	568	0.3
272	Temperature	Wakatake-maru	98	7 5	54°30'N	179°30'W	chum	MM1331	LL2279	638	0.5
271	Temperature	Wakatake-maru	98	7 6	55°30'N	179°30'W	chum	MM1400	LL2348	592	0.3
274	Temperature	Wakatake-maru	98	7 7	56°30'N	179°30'W	chum	MM1455	LL2403	680	0.4
275	Temperature	Wakatake-maru	98	7 7	56°30'N	179°30'W	chum	MM1456	LL2404	624	0.4
276	Temperature	Wakatake-maru	98	7 7	56°30'N	179°30'W	chum	MM1457	LL2405	586	0.3
277	Temperature	Wakatake-maru	98	7 8	57°30'N	179°30'W	chum	MM1560	LL2508	614	0.4
282	Temperature	Wakatake-maru	98	7 8	57°30'N	179°30'W	chum	MM1561	LL2509	545	0.3
286	Temperature	Wakatake-maru	98	7 9	58°30'N	179°30'W	chum	MM1627	LL2575	558	0.3
287	Temperature	Wakatake-maru	98	7 10	57°30'N	178°30'W	chum	MM1707	LL2655	556	0.3
288	Temperature	Wakatake-maru	98	7 11	57°30'N	177°30'W	chum	MM1764	LL2712	586	0.4
289	Temperature	Wakatake-maru	98	7 11	57°30'N	177°30'W	chum	MM1765	LL2713	568	0.3
296	Temperature	Wakatake-maru	98	7 11	57°30'N	177°30'W	chum	MM1766	LL2714	589	0.3
297	Temperature	Wakatake-maru	98	7 12	56°30'N	177°30'W	chum	MM1822	LL2770	539	0.3
298	Temperature	Wakatake-maru	98	7 12	56°30'N	177°30'W	chum	MM1823	LL2771	525	0.3
299	Temperature	Wakatake-maru	98	7 12	56°30'N	177°30'W	chum	MM1824	LL2772	577	0.3
304	Temperature	Wakatake-maru	98	7 15	56°30'N	178°30'E	chum	MM1912	LL2860	550	0.3
164	NMT	Wakatake-maru	98	7 3	5230N	17930W	chum	MM1223	LL2171	619	0.4
181	NMT	Wakatake-maru	98	7 4	5330N	17930W	chum	MM1275	LL2223	612	0.4
209	NMT	Wakatake-maru	98	7 5	5430N	17930W	chum	MM1332	LL2280	585	0.4
256	NMT	Wakatake-maru	98	7 5	5430N	17930W	chum	MM1333	LL2281	670	0.4
282	NMT	Wakatake-maru	98	7 6	5530N	17930W	chum	MM1401	LL2349	632	0.4
286	NMT	Wakatake-maru	98	7 7	5630N	17930W	chum	MM1458	LL2406	580	0.3
319	NMT	Wakatake-maru	98	7 7	5630N	17930W	chum	MM1459	LL2407	625	0.4
293	NMT	Wakatake-maru	98	7 7	5630N	17930W	chum	MM1460	LL2408	575	0.3
328	NMT	Wakatake-maru	98	7 8	5730N	17930W	chum	MM1544	LL2492	575	X.X
654	NMT	Wakatake-maru	98	7 9	5830N	17930W	chum	MM1629	LL2577	590	0.3
844	NMT	Wakatake-maru	98	7 10	5730N	17824W	chum	MM1708	LL2656	585	X.X
837	NMT	Wakatake-maru	98	7 10	5730N	17824W	chum	MM1709	LL2657	565	X.X
871	NMT	Wakatake-maru	98	7 11	5730N	17730W	chum	MM1767	LL2715	575	0.3
843	NMT	Wakatake-maru	98	7 11	5730N	17730W	chum	MM1768	LL2716	630	0.3
846	NMT	Wakatake-maru	98	7 11	5730N	17730W	chum	MM1769	LL2717	590	0.3
895	NMT	Wakatake-maru	98	7 12	5630N	17730W	chum	MM1825	LL2773	590	0.3
894	NMT	Wakatake-maru	98	7 12	5630N	17730W	chum	MM1826	LL2774	570	0.3
885	NMT	Wakatake-maru	98	7 12	5630N	17730W	chum	MM1827	LL2775	615	0.4
897	NMT	Wakatake-maru	98	7 13	5632N	17832W	chum	MM1846	LL2794	560	0.3
909	NMT	Wakatake-maru	98	7 15	5630N	17830E	chum	MM1913	LL2861	590	0.3
912	NMT	Wakatake-maru	98	7 15	5630N	17830E	chum	MM1914	LL2862	530	0.4
922	NMT	Wakatake-maru	98	7 15	5630N	17830E	chum	MM1915	LL2863	630	0.4
924	NMT	Wakatake-maru	98	7 16	5630N	17736E	chum	MM1951	LL2900	555	0.3
926	NMT	Wakatake-maru	98	7 16	5630N	17736E	chum	MM1952	LL2901	580	0.3
929	NMT	Wakatake-maru	98	7 16	5630N	17736E	chum	MM1953	LL2902	590	0.3
8	Temperature	Oshoro-maru	98	6 28	4829N	16459W	sockeye	DD6517	LL1117	480	
28	Temperature	Oshoro-maru	98	7 4	5559N	14500W	chum	DD6553	LL1153	686	
52	Temperature	Oshoro-maru	98	7 4	5559N	14500W	coho	DD6556	LL1156	592	
157	Temperature	Oshoro-maru	98	7 4	5559N	14500W	coho	DD6558	LL1158	630	
158	Temperature	Oshoro-maru	98	7 4	5559N	14500W	pink	DD6560	LL1160	445	
167	Temperature	Oshoro-maru	98	7 4	5559N	14500W	sockeye	DD6562	LL1162	596	
189	Temperature	Oshoro-maru	98	7 4	5559N	14500W	pink	DD6565	LL1165	495	
164	Temperature	Oshoro-maru	98	7 5	5459N	14500W	pink	DD6567	LL1167	510	
184	Temperature	Oshoro-maru	98	7 5	5459N	14500W	sockeye	DD6569	LL1169	646	
191	Temperature	Oshoro-maru	98	7 5	5459N	14500W	sockeye	DD6572	LL1172	612	
196	Temperature	Oshoro-maru	98	7 7	5301N	14453W	coho	DD6576	LL1176	592	
198	Temperature	Oshoro-maru	98	7 10	4958N	14458W	steelhead	DD6579	LL1179	690	
199	Temperature	Oshoro-maru	98	7 10	4958N	14458W	pink	DD6580	LL1180	529	



Table 4. Catch location and biological data for salmon with missing adipose and/or other fin caught by Japanese salmon research vessels in 1998.

Date	Location	HL	Weight	Sex	Gonad weight	Vessel Code	Gear	Sample No.	Species Code	Remarks
980614	4300N	18000	570	1660	M	3 R05	A121	2:14		7
980614	4300N	18000	555	1740	F	10 R05	A121	2:15		7
980614	4300N	18000	565	1780	M	2 R05	C048	3:1		7
980614	4300N	18000	560	1740	M	5 R05	C106	9:7		7
980614	4300N	18000	725	3450	F	48 R05	C138	11:1		7
980615	4500N	18000	720	2550	M	2 R05	C106	19:2		7
980615	4500N	18000	695	3400	F	21 R05	C121	20:1		7
980615	4500N	18000	650	2600	F	20 R05	C138	21:3		7
980628	4830N	16500W	605		M	5 R05	A115	58:5		7
980628	4830N	16500W	580	2020	M	14 R05	A115	58:6		7
980628	4830N	16500W	521	1300	F	11 R05	C093	64:14		7
980630	4530N	16500W	573	1940	F	32 R05	C093	90:12		7
980704	5600N	14500W	614	2480	M	1 R05	A115	96:1		2 0.3
980704	5600N	14500W	614	3150	F	61 R05	A121	103:7		4 X.1
980705	5500N	14500W	358	480	F	4 R05	C055	124:3		7
980705	5500N	14500W	634	3550	F	51 R05	C121	131:8		4 2.1
980706	5400N	14500W	608	3400	F	135 R05	A115	138:1		4
980706	5400N	14500W	596	3150	F	23 R05	A121	143:10		5 X.2
980706	5400N	14500W	648	3800	M	16 R05	C055	145:5		4 3.1
980706	5400N	14500W	575	2600	M	92 R05	C121	153:3		1 2.3
980706	5400N	14500W	632	3650	M	96 R05	C138	156:1		1 1.3
980707	5300N	14500W	339	440	M	1 R05	C072	169:5		7
980708	5200N	14500W	473	1300	F	14 R05	A115	179:23		2 0.3
980708	5200N	14500W	313	320	M	1 R05	C055	185:3		7
980708	5200N	14500W	313	300	M	1 R05	C055	185:4		7
980708	5200N	14500W	321	325	F	2 R05	C063	186:5		7
980708	5200N	14500W	369	580	F	2 R05	C063	186:6		7
980708	5200N	14500W	323	310	F	1 R05	C072	187:12		7
980708	5200N	14500W	321	330	M	1 R05	C072	187:13		7
980708	5200N	14500W	320	290	M	1 R05	C072	187:14		7
980708	5200N	14500W	622	3350	F	32 R05	C082	189:2		4
980709	5100N	14500W	604	3200	M	40 R05	A121	198:18		4
980709	5100N	14500W	334	440	M	1 R05	C063	201:2		7
980709	5100N	14500W	321	290	M	1 R05	C063	201:3		7
980709	5100N	14500W	353	390	M	1 R05	C063	201:4		7
980709	5100N	14500W	331	340	M	1 R05	C072	202:10		7
980710	5000N	14500W	300	255	F	4 R05	C055	214:1		7
980710	5000N	14500W	548	1920	F	9 R05	C093	218:7		7
980711	4900N	14500W	653	3100	M	52 R05	A115	225:5		7
980711	4900N	14500W	608	2640	M	21 R05	A121	229:3		7
980711	4900N	14500W	612	2660	M	7 R05	C121	235:19		7
980711	4900N	14500W	612	2780	F	22 R05	C138	236:7		7
980726	4930N	16708E	698	3800	F	20 R06	C055	32:5		7
980727	4901N	16918E	660	3200	M	40 R06	A118	53:28		7
980801	4800N	17326E	580	2300	F	33 R06	C121	75:15		7
980801	4800N	17326E	540	2050	M	5 R06	C121	75:16		7
980801	4800N	17326E	600	2400	F	3 R06	C121	75:17		7
980802	4730N	17530E	548	2240	M	3 R06	A112	78:15		7
980802	4730N	17530E	568	2080	M	14 R06	A118	79:5		7
980802	4730N	17530E	628	3050	M	5 R06	C106	83:04		7
980708	4759N	16500E	638	2500	F	20 R08	A115	89:5		7
980708	4759N	16500E	512	1600	F	2 R08	A115	89:6		7
980708	4759N	16500E	528	1440	M	2 R08	C121	108:22		7
980709	4701N	16502E	580	1940	F	14 R08	A115	113:28		7
980711	4501N	16500E	544	1660	M	1 R08	A115	145:28		7
980623	4300N	18000	508	1320	F	5 R32	C082	9:5		7
980623	4300N	18000	462	1600	M	3 R32	C106	13:5		7
980625	4400N	18000	576	1840	M	3 R32	C121	21:8		7
980625	4459N	17955W	580	1820	M	5 R32	B000	22:17		7
980625	4459N	17955W	534	1440	F	5 R32	B000	22:27		7
980626	4500N	18000	762	4250	M	12 R32	C138	27:9		7
980626	4500N	18000	538	1390	M	2 R32	A115	33:04		7
980626	4500N	18000	582	1680	M	1 R32	A115	33:05		7
980627	4600N	18000	526	1280	F	5 R32	A115	42:10		7
980627	4600N	18000	640	2520	F	26 R32	A115	42:14		7
980628	4700N	18000	592	2000	F	3 R32	B000	49:7		7
980628	4700N	18000	680	2900	F	25 R32	C138	53:8		7
980628	4700N	18000	740	4300	M	2 R32	A115	55:12		7
980628	4700N	18000	680	3300	F	62 R32	A115	55:13		7
980628	4700N	18000	654	3050	M	2 R32	A115	55:14		7
980628	4700N	18000	670	2450	F	38 R32	A115	55:15		7
980628	4700N	18000	582	1620	M	4 R32	A115	55:16		7
980629	4730N	18000	590	2100	F	7 R32	B000	66:18		7
980629	4730N	18000	664	2400	F	54 R32	C121	71:9		7
980629	4730N	18000	576	2100	F	15 R32	C082	73:4		7
980629	4730N	18000	716	3650	M	10 R32	A115	76:14		7
980629	4730N	18000	656	3000	F	24 R32	A115	76:16		7
980629	4730N	18000	691	3450	F	40 R32	A115	76:17		7
980629	4730N	18000	544	1680	F	14 R32	A115	76:18		7
980710	5830N	17930W	560	1860	F	155 R32	C106	156:21		2 pelvic fin