

INCIDENCE OF CODED-WIRE TAGGED SALMONIDS
IN COMMERCIAL AND RESEARCH CATCHES
IN THE NORTH PACIFIC OCEAN
AND BERING SEA, 1993-1994

by

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ABSTRACT

In this document we summarize the results of sampling for coded-wire tagged salmonids by scientists on research vessels and by U.S. observers on groundfish vessels in the North Pacific Ocean and Bering Sea from 1 January 1993 through 15 August 1994. Release and recovery information from 147 coded-wire tagged salmonids is reported for the first time: 52 recoveries during 1 September - 31 December 1993, and 95 recoveries from 1 January through 15 August 1994.

INTRODUCTION

During the 27th Annual Meeting of the International North Pacific Fisheries Commission (INPFC) in Anchorage, Alaska, in November 1980, a representative from the Pacific States Marine Fisheries Commission (PSMFC) requested the INPFC coordinate efforts to examine salmonids that might contain a coded-wire tag (CWT) that were caught in convention waters. The matter was referred to the Standing Committee on Biology and Research, which subsequently referred the matter to the Subcommittee on Salmon. Early in March 1981, the Ad Hoc Salmon Research Coordinating Group of the Subcommittee on Salmon met in Tokyo and discussed procedures for sampling. The procedures agreed to by the Group have been used from 1981 to the present (Dahlberg 1981).

The number of CWT salmonids potentially available for sampling has increased greatly since 1980; e.g., 47.2 million salmonids were coded-wire tagged and released into the North Pacific Ocean by California, Oregon, Idaho, Washington state, British Columbia, Yukon Territory, and Alaska agencies in 1993 (PSMFC 1993). More than 3,000 recoveries of CWT salmonids from releases by 37 agencies have been reported from the high seas and U.S. Exclusive Economic Zone (U.S. EEZ) since 1980 (Table 1). Revised CWT release information from the PSMFC resulted in the first recovery record of a CWT coho salmon released by Douglas Island Pink and Chum, Incorporated (PSMFC 1993); the release and recovery data are reported hereinafter.

In this document we summarize the results of sampling for coded-wire tagged salmonids by scientists on research vessels and by U.S. observers on groundfish vessels in the North Pacific Ocean and Bering Sea during 1993 and 1 January-15 August 1994. Information from CWT recoveries from research vessel catches and from groundfish fisheries in the North Pacific Ocean and Bering Sea for 1980-1987 and a portion of 1988 was previously summarized and reported (see Dahlberg *et al.* 1988 for review). Information from recoveries of CWT salmonids has been reported to the INPFC annually through 1992 and to the North Pacific Anadromous Fish Commission since 1992; e.g., Dahlberg *et al.* (1993) reported information for recoveries during 1992 and a

portion of 1993. The tables of release and recovery information for CWT salmonids in this report show data for all 1993 recoveries and any changes made in release or recovery information through 1993 (PSMFC 1993). Release and recovery information from 147 coded-wire tagged salmonids is reported for the first time: 52 recoveries during 1 September - 31 December 1993, and 95 recoveries from 1 January through 15 August 1994.

Snouts from an additional 111 salmonids lacking the adipose fin but without a CWT underwent necropsy: 16 in late 1993 and 95 from 1 January through 15 August 1994.

RESULTS AND DISCUSSION

Research Vessels

1993

During six salmon research cruises with Fisheries Agency of Japan vessels in 1993, 17,312 salmonids were examined for fish lacking the adipose fin; those fish lacking the fin could potentially contain a CWT in the snout. Of 34 salmonids lacking the adipose fin, three CWTs were recovered from 2 coho and 1 chinook salmon; 2 pink salmon, and 29 steelhead lacked the adipose fin but did not contain CWTs (Table 2).

1994

During two Fisheries Agency of Japan salmon research cruises in 1994 U.S. and Japanese scientists examined 13,077 salmonids for fish lacking the adipose fin (Davis and Tadokoro 1994, Walker *et al.* 1994). Six CWTs were recovered from 2 coho salmon and 4 steelhead lacking the adipose fin; 2 pink and 2 coho salmon and 77 steelhead lacked the adipose fin but did not contain CWTs.

Groundfish Fishery

Of 95,095 salmonids examined in 1993 (33,908 in 1992) by groundfish observers within the U.S. EEZ, 210 chinook, 4 chum, and 1 pink salmon lacked the adipose fin (Table 3); 188 chinook and 2 chum salmon contained a CWT. The 65,423 chum salmon examined by observers in the Bering Sea - Aleutian Islands (BSAI) area in 1993 was the highest number ever examined in that area; the penultimate number examined in the BSAI area occurred in 1984 when over 23,000 chum salmon were examined. The two CWT chum salmon recovered in 1993 in the BSAI area are the sixth and seventh CWT chum salmon recovered from that area and mark the third occurrence of British Columbia origin chum salmon in the BSAI area. Two CWT chum salmon of Alaska origin and one CWT chum salmon of Washington state origin were recovered in the BSAI area in the mid 1980s.

Although nearly the same number of chinook salmon were examined from the BSAI and Pacific Coast areas as in the Gulf of Alaska, the majority (87%) of the CWT chinook salmon recovered came from the Gulf of Alaska. The 14 CWT chinook salmon recovered in the Pacific Coast area in 1993 was about the same number as in 1992 when

13 were found. In the Gulf of Alaska, the number of CWT chinook salmon recovered greatly increased from 47 in 1992 to 163 in 1993. Eleven CWT chinook salmon were recovered in the BSAI area in 1993 (10 in 1992), although there were 2,350 fewer fish examined in 1993 than in 1992 (Dahlberg *et al.* 1993).

The occurrence of six steelhead examined from trawl catches in the BSAI area in 1993 marks the third year since 1981 that steelhead have been observed in groundfish catches within the U.S. EEZ. One steelhead was examined in 1982 from a trawl catch in the BSAI area and one steelhead was examined from 1990 trawl catches in the Pacific Coast area; no CWTs were found in the eight steelhead examined thus far.

In 1994 (through 15 August), 104 snouts from the salmonid bycatch of groundfish vessels were examined; 89 from chinook and 1 from a coho salmon contained CWTs, the remaining 14 snouts from chinook salmon lacked CWTs. Information from one CWT chinook salmon does not appear herein as the tag proved extremely difficult to decode; the CWT will be returned to the issuing agency for decoding. Four CWT chinook salmon were recovered in processing plants from combined catches of several vessels; therefore, the recovery locations appear as in the vicinity of the fishery (western Gulf of Alaska) rather than by latitude and longitude.

Release and Recovery Information

Previously unreported CWT release and recovery data for salmonids recovered from high seas research operations and groundfish fisheries in 1993 and January through 15 August 1994 were compiled for chinook (Table 4), chum (Table 5), and coho salmon (Table 6), and steelhead (Table 7). All 1993 recoveries, including those previously reported in Dahlberg *et al.* (1993), appear in Table 8.

Recovery Rates of CWT Steelhead

The recovery rate of CWTs from steelhead lacking the adipose fin has changed markedly since the 1980s. During the early 1980s, nearly 60% of the steelhead lacking the adipose fin contained a CWT, whereas this figure has decreased to less than 10% in the past seven years except for 1992 (Table 9). For the first time since 1980, no CWT steelhead were recovered in sampling on the high seas or in groundfish fisheries in 1993 although 129 fish were examined.

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Table 1.--Tagging agencies that released coded-wire tagged salmonids recovered in commercial and research vessel catches, and total number of tags recovered by agency from January 1980 through 15 August 1994.

Tagging agency code	Number of tags recovered	Agency name
ADFG	50	Alaska Department of Fish and Game
AKI	1	Armstrong Keta, Inc.
ANAD	58	Anadromous, Inc.
BCFW	52	British Columbia Fish and Wildlife
BHSR	3	Burnt Hill Salmon Ranch
CDFG	574	California Department of Fish and Game
CDFO	345	Canada Dept. of Fisheries and Oceans - Opr.
CDFR	2	Canada Dept. of Fisheries and Oceans - Res.
CEDC	3	Clatsop Economic Development Council
COOP	15	Washington Department of Fisheries - Coop.
DIPC	1	Douglas Island Pink and Chum, Inc.
DOMS	1	Domsea Farms, Inc.
ELWA	2	Elwah Indian Tribe
FWS	89	U.S. Fish and Wildlife Service
HOH	8	Hoh Indian Tribe
HVT	5	Hoopla Valley Indian Tribe
IDFG	32	Idaho Department of Fish and Game
LUMM	4	Lummi Indian Tribe
MAKA	1	Makah Indian Tribe
MIC	3	Metlakatla Indian Community
NISQ	4	Nisqually Indian Tribe
NMFS	48	National Marine Fisheries Service
NSRA	16	Northern Southeast Reg. Aquaculture Assoc.
OAF	46	Oregon AquaFoods, Inc.
ODFW	915	Oregon Department of Fish and Wildlife
OPSR	2	Oregon Pacific Salmon Ranch (Formerly BHSR)
QDNR	19	Quinault Department Natural Resources
SJ	3	Sheldon Jackson College
SSC	3	Skagit System Cooperative
SSRA	30	Southern Southeast Reg. Aquaculture Assoc.
SUQ	9	Suquamish Indian Tribe
TULA	11	Tulalip Indian Tribe
UI	5	University of Idaho
UW	2	School of Fisheries, Univ. of Washington
WDF	650	Washington Department of Fisheries
WDFW	3	Washington Department of Fisheries and Wildlife
WDW	38	Washington Department of Wildlife (Formerly WDG)
Total:		3,053

Table 2.--Occurrence of coded-wire tagged salmonids in gill-net, purse seine, and longline catches observed by Japanese and U.S. scientists onboard Japanese salmon research vessels operating in the North Pacific Ocean and Bering Sea in 1993.^a

	Number of fish						Total
	Sockeye	Chum	Pink	Coho	Chinook	Steelhead	
Examined	2,581	6,997	6,282	1,147	182	123	17,312
Lacking Ad	0	0	2	2	1	29	34
CWT	0	0	0	2	1	0	3

^aSource: Fisheries Agency of Japan (1994).

Table 3.--Occurrence of coded-wire tagged salmonids in incidental catches of salmonids from groundfish fisheries sampled by U.S. observers within the U.S. EEZ in 1993.

	Number of fish						Total
	Sockeye	Chum	Pink	Coho	Chinook	Steelhead	
WASHINGTON - OREGON - CALIFORNIA							
Examined ^a	20	6	660	4	1,243	0	1,933
Lacking Ad	0	0	1	0	20	0	21
CWT	0	0	0	0	14	0	14
GULF OF ALASKA							
Examined ^a	4	15,565	192	58	6,107	0	21,926
Lacking Ad	0	0	0	0	176	0	176
CWT	0	0	0	0	163	0	163
BERING SEA - ALEUTIAN ISLANDS							
Examined ^a	7	65,423	3	22	5,775	6	71,236
Lacking Ad	0	4	0	0	14	0	18
CWT	0	2	0	0	11	0	13

^aSource of examined category: J. Wall and M. Guttormsen, REFM Division, Alaska Fisheries Science Center, NMFS, NOAA, Seattle, WA 98115-0070. Pers. commun., August 1994.

Table 4.--Release and recovery information for coded-wire tagged chinook salmon recovered from the North Pacific Ocean and Bering Sea, 1 September 1993 through 15 August 1994, and for two coded-wire tagged chinook salmon recovered in July-August 1993.

RELEASE										RECOVERY										
Y	1	2	3	4	D	YR	SITE	E	V	AGENCY	TOTAL NO. TAGGED	DATE	DATE	LAT D	LONG M	LENGTH TSFT (mm)	BODY WT (g)	GONAD WT (g)	S E X	GEAR
1993																				
020313	91	RAFT	R					BC	CDFO	76220	0592	931013	57 30 N	151 50 W	490	1900	1	F	TRAWL	
020331	90	CHILLIWACK	R					BC	CDFO	23351	0591	930830	56 1 N	169 40 W	704	5750		F	TRAWL	
021039	90	BABINE	R					BC	CDFO	15725	0592	931009	57 41 N	151 59 W	520	2100		M	TRAWL	
021139	90	KITSUMKALUM	R, LWR					BC	CDFO	26624	0591	931005	57 37 N	151 56 W	550	2600		M	TRAWL	
021318	90	CONUMA	R					BC	CDFO	27562	0591	931013	57 36 N	151 50 W	610	3300		F	TRAWL	
021327	90	DOME	CR					BC	CDFO	28349	0492	931013	57 38 N	151 52 W	560	3000		F	TRAWL	
021546	90	CONUMA	ESTUARY					BC	CDFO	52098	0591	930718	56 56 N	153 23 W	630	2900		M	TRAWL	
032219	90	L PORT WALTER	109-10					AK	NMFS	16467	0592	931013	57 30 N	151 50 W	520	2400	1	F	TRAWL	
032232	90	L PORT WALTER	109-10					AK	NMFS	10476	0592	931009	57 41 N	151 59 W	510	2100		M	TRAWL	
043240	88	BEAR COVE	113-41					AK	NSRA	21151	0590	931007	57 37 N	151 53 W	840	10000		F	TRAWL	
043431	88	BEAR COVE	113-41					AK	NSRA	8058	0590	931007	57 37 N	151 53 W	830	9200		F	TRAWL	
043644	90	BEAR COVE	113-41					AK	NSRA	9885	0592	931009	57 39 N	151 56 W	530	2300		F	TRAWL	
043644	90	BEAR COVE	113-41					AK	NSRA	9885	0592	931012	57 41 N	151 56 W	570	2900		F	TRAWL	
043645	90	BEAR COVE	113-41					AK	NSRA	9769	0592	931005	57 8 N	152 27 W	580	2800		M	TRAWL	
043645	90	BEAR COVE	113-41					AK	NSRA	9769	0592	931011	57 38 N	151 53 W	580			F	TRAWL	
043648	90	BEAR COVE	113-41					AK	NSRA	9945	0592	931013	57 30 N	151 50 W	600	3000	1	F	TRAWL	
071457	91	SANTIAM R,	S FK					OR	ODFW	162055	1192	931009	57 36 N	151 53 W	520	2000		M	TRAWL	
071560	91	SALMON R -	OR COAST					OR	ODFW	37763	0892	931013	57 38 N	151 52 W	500	2000		M	TRAWL	
075039	91	TRASK	R					OR	ODFW	9858	0892	931013	57 38 N	151 52 W	470	1600		M	TRAWL	
075626	90	SANTIAM R,	S FK					OR	ODFW	158403	1191	931007	57 35 N	151 52 W	650	3700		M	TRAWL	
180150	91	CLEARWATER R,	LWR B					BC	CDFO	19034	0592	931013	57 30 N	151 50 W	530	2300	1	M	TRAWL	
180201	90	GOLD	R					BC	CDFO	29209	0591	931010	W G OF ALASKA	W	680	4950		F	TRAWL	
180302	90	COLDWATER	R					BC	CDFO	24920	0492	931005	57 37 N	151 56 W	570	2900		F	TRAWL	
180304	90	NICOLA	R					BC	CDFO	24964	0492	931012	57 41 N	151 56 W	540	2100		F	TRAWL	
180305	90	NICOLA	R					BC	CDFO	24932	0492	931007	57 0 N	152 28 W	580	3100	1	F	TRAWL	
180305	90	NICOLA	R					BC	CDFO	24932	0492	931013	57 30 N	151 50 W	500	1900	1	M	TRAWL	
180306	90	NICOLA	R					BC	CDFO	25363	0492	931013	57 30 N	151 50 W	580	3000	1	M	TRAWL	
180306	90	NICOLA	R					BC	CDFO	25363	0492	931014	54 48 N	166 7 W	570	2700	20	F	TRAWL	
180349	91	BONAPARTE	R					BC	CDFO	74949	0492	931009	57 39 N	151 56 W	530	2500		M	TRAWL	
180349	91	BONAPARTE	R					BC	CDFO	74949	0492	931013	57 30 N	151 50 W	540	2200	1	F	TRAWL	
180352	91	NICOLA	R					BC	CDFO	75198	0592	931007	57 0 N	152 28 W	530	2400	1	M	TRAWL	
180352	91	NICOLA	R					BC	CDFO	75198	0592	931009	57 7 N	152 29 W	560	2400		M	TRAWL	
180354	91	ATNARKO R,	UPPER					BC	CDFO	85114	0692	931013	57 38 N	151 52 W	530	2400		M	TRAWL	
180354	91	ATNARKO R,	UPPER					BC	CDFO	85114	0692	931013	57 30 N	151 50 W	500	1900	1	M	TRAWL	
180354	91	ATNARKO R,	UPPER					BC	CDFO	85114	0692	931013	57 36 N	151 50 W	480			M	TRAWL	
180426	91	DEEP COVE						BC	CDFO	24754	0592	931004	57 8 N	152 27 W	550	2300		M	TRAWL	
180426	91	DEEP COVE						BC	CDFO	25754	0592	931013	57 36 N	151 50 W	540	2600		F	TRAWL	
180434	91	CHILLIWACK	R					BC	CDFO	24523	0592	931007	57 0 N	152 28 W	560	2700	1	M	TRAWL	
180434	91	CHILLIWACK	R					BC	CDFO	24523	0592	931013	57 30 N	151 50 W	520	1900	1	F	TRAWL	
180435	91	CHILLIWACK	R					BC	CDFO	24539	0592	931007	57 0 N	152 28 W	550	2600	1	M	TRAWL	
180443	91	CONUMA	ESTUARY					BC	CDFO	26989	0592	931013	57 38 N	151 52 W	500	2100		M	TRAWL	
180460	91	NITINAT	R					BC	CDFO	23881	0592	931013	57 38 N	151 52 W	580	3100		M	TRAWL	
180553	91	YAKOJUN	R					BC	CDFO	16046	0692	931007	57 35 N	151 52 W	480	1800		F	TRAWL	
180554	91	YAKOJUN	R					BC	CDFO	15862	0692	931005	57 34 N	151 50 W	450	1600		M	TRAWL	
180721	91	NITINAT	LAKE					BC	CDFO	32704	0592	931009	57 39 N	151 56 W	510	2200		M	TRAWL	
180804	91	ROBERTSON	CR					BC	CDFO	27574	0592	931013	57 36 N	151 50 W	480	1700		M	TRAWL	
312103	91	DECEPTION	CR 247-41					AK	ADFG	33464	0692	931009	57 39 N	151 56 W	480	1300		M	TRAWL	
634117	90	STEVENS	CR 22-0064					WA	WDF	207589	0791	931005	57 34 N	151 50 W	670	5200		M	TRAWL	
634117	90	STEVENS	CR 22-0064					WA	WDF	207589	0791	931007	57 35 N	151 52 W	560	2700		F	TRAWL	
634315	90	KLICKITAT	R 30-0002					WA	WDF	18864	0592	931013	57 36 N	151 50 W	600	3300		F	TRAWL	

Table 4.--(Continued).

RELEASE														RECOVERY										
A	D	D	D	R	B			S					LENGTH	BODY	GONAD	S								
G	A	A	A	A	E	R			T	P			TSFT	WT	WT	E								
E	T	T	T	T	P	O			A	R			(mm)	(g)	(g)	X								
N	A	A	A	A	A	O			T	O	DATE	D	M	D	M									
C					C	D			E	V	AGENCY	TAGGED	DATE	DATE	D	M	D	M						
Y	1	2	3	4	D	YR	SITE																	
1994																								
020128						89	KENNEDY R, LOWER	BC	CDFO		26873	0690	940204	55	12	N	164	34	W	660	4100		M	TRAWL
020250						89	ATNARKO R, LOWER	BC	CDFO		24780	0690	940506	47	58	N	125	28	W	974	12780		F	TRAWL
020310						91	KITMAT R, LOWER	BC	CDFO		110660	0592	940204	57	49	N	154	0	W	550	2000		F	TRAWL
020313						91	RAFT R	BC	CDFO		76220	0592	940206	57	38	N	154	24	W	510	1500		F	TRAWL
020314						91	ADAMS R, UPPER	BC	CDFO		75839	0592	940217	57	52	N	152	20	W	520	1800		F	TRAWL
020612						90	SOOKE R	BC	CDFO		20830	0691	940228	54	51	N	164	48	W	660	2950		F	TRAWL
021048						91	MARBLE R	BC	CDFO		20702	0692	940204	57	49	N	154	0	W	540	1750		M	TRAWL
021050						91	MARBLE R	BC	CDFO		21505	0692	940206	57	38	N	154	24	W	500	1250		M	TRAWL
021316						90	CONUMA R	BC	CDFO		26555	0591	940125	54	41	N	165	48	W	630	3300	100	F	TRAWL
021326						90	DOVE CR	BC	CDFO		27839	0492	940221	54	46	N	165	32	W	610	2890	10	F	TRAWL
021428						90	ATNARKO R, UPPER	BC	CDFO		23746	0691	940126	55	3	N	165	55	W	680	4000		M	TRAWL
021445						90	EAGLE R	BC	CDFO		24036	0591	940207	55	7	N	165	0	W	580	3100		F	TRAWL
021546						90	CONUMA ESTUARY	BC	CDFO		52098	0591	940125	55	11	N	165	37	W	680	3900		M	TRAWL
021546						90	CONUMA ESTUARY	BC	CDFO		52098	0591	940204	57	49	N	154	0	W	640	2750		F	TRAWL
021546						90	CONUMA ESTUARY	BC	CDFO		52098	0591	940204	57	48	N	154	7	W	700	4400		F	TRAWL
021552						90	ROBERTSON CR	BC	CDFO		32863	0691	940204	57	49	N	154	0	W	620	2500		F	TRAWL
021553						90	ROBERTSON CR	BC	CDFO		33298	0691	940123	54	47	N	165	43	W	700	5400		M	TRAWL
021558						90	RAFT R	BC	CDFO		74440	0591	940212	54	40	N	165	28	W	620	3600		F	TRAWL
026011						89	CEDAR R/SKEENA	BC	CDFO		18858	0990	940426	55	9	N	164	16	W	760			F	TRAWL
043225						89	SITKA SOUND 113-41	AK	SJ		10088	0591	940219	W	G	OF ALASKA				730	4700			TRAWL
043644						90	BEAR COVE 113-41	AK	NSRA		9885	0592	940206	57	38	N	154	24	W	660	3500		M	TRAWL
043721						90	SITKA SOUND 113-41	AK	SJ		10199	0592	940206	57	38	N	154	24	W	520	1600		F	TRAWL
0501010802						92	BELOW REQ BLUFF DAM	CA	FWS		56721	0393	940503	48	16	N	125	7	W	390	700		F	TRAWL
0501010804						92	COLEMAN NFH	CA	FWS		56131	0493	940420	44	5	N	124	34	W	370	600		F	TRAWL
0501010804						92	COLEMAN NFH	CA	FWS		56131	0493	940427	46	3	N	124	26	W	360	600		M	TRAWL
051649						91	SPRING CR 29.0159	WA	FWS		22862	0592	940427	44	12	N	125	3	W	620	3200	7	F	TRAWL
051649						91	SPRING CR 29.0159	WA	FWS		22862	0592	940505	48	7	N	125	13	W	540	1900		M	TRAWL
052834						91	ABERNATHY CR 25.0297	WA	FWS		21722	0592	940427	46	5	N	124	29	W	570			M	TRAWL
052955						91	HIGH PRAIRIE CR	CA	FWS		16155	0692	940419	44	33	N	124	37	W	490	1400		F	TRAWL
053029						92	ABERNATHY CR 25.0297	WA	FWS		24673	0593	940428	46	11	N	124	26	W	390	660		M	TRAWL
053107						92	SPRING CR 29.0159	WA	FWS		23927	0593	940421	46	1	N	124	29	W	420			M	TRAWL
053122						92	COLEMAN NFH	CA	FWS		155214	0193	940421	46	1	N	124	29	W	490	1400		M	TRAWL
0601020105						90	IRON GATE HATCHERY	CA	CDFG		91075	0591	940503	44	0	N	124	57	W	740	5800	6	M	TRAWL
0601020106						90	IRON GATE HATCHERY	CA	CDFG		95629	0591	940418	44	30	N	124	35	W	690	4200		F	TRAWL
0601020106						90	IRON GATE HATCHERY	CA	CDFG		95629	0591	940425	44	54	N	124	40	W	640	3900	3	M	TRAWL
0601140313						92	MILLER PARK	CA	CDFG		51574	0593	940427	46	5	N	124	9	W	370	700		M	TRAWL
065703						90	IRON GATE, HATCHERY	CA	CDFG		95880	1191	940417	44	36	N	124	37	W	580	3000		F	TRAWL
065703						90	IRON GATE, HATCHERY	CA	CDFG		95880	1191	940424	44	39	N	124	37	W	630	3100	9	M	TRAWL
065733						92	TRINITY R, HATCHERY	CA	CDFG		192032	0693	940420	44	5	N	124		W	350	500		M	TRAWL
066327						90	ELK CR	CA	CDFG		31807	1091	940424	43	50	N	124	38	W	590	2570			TRAWL
070418						92	SALMON R/DR COAST	OR	ODFW		32518	0893	940505	48	11	N	125	13	W	370	640		F	TRAWL
074836						88	CHETCO R	OR	ODFW		25931	1089	940513	44	15	N	124	58	W	770	5500	38	F	TRAWL
074916						R2 90	ROCK CR (N UMPQUA R)	OR	ODFW		22579	0292	940427	46	7	N	124	22	W	680			F	TRAWL
074925						R3 90	JACK CR, CHETCO R	OR	ODFW		23514	0691	940422	44	34	N	124	48	W	610	2500	19	F	TRAWL
075454						90	YOUNGS R & BAY	BC	CDFO		22592	0292	940211	57	11	N	152	59	W	660	3600		F	TRAWL
075607						90	CHETCO R	OR	ODFW		25605	1091	940427	44	12	N	125	3	W	620	3300	17	F	TRAWL
075628						90	SANTIAM R, S FK	OR	ODFW		95559	0392	940513	44	16	N	124	55	W	700	4100	3	M	TRAWL
075652						90	BIG CR - L COL R	OR	ODFW		51043	0891	940423	46	16	N	124	49	W	660	3400		F	TRAWL
075652						90	BIG CR - L COL R	OR	ODFW		51043	0891	940507	44	25	N	124	49	W	640	3600	3	M	TRAWL
075652						90	BIG CR - L COL R	OR	ODFW		51043	0891	940512	44	13	N	125	0	W	660	3800	2	M	TRAWL

Table 4.--(Continued).

RELEASE											RECOVERY																						
A	D	D	D	R	B						S																						
G	A	A	A	A	E	R						T	P																				
E	T	T	T	T	P	O						A	R																				
M	A	A	A	A	O						T	O																					
C					C	D						E	V	TOTAL NO.																			
Y	1	2	3	4	D	YR	SITE	E	V	AGENCY	TAGGED	DATE	DATE	D	M	LONG	D	M	LENGTH	BODY	GONAD	S											
1994--Continued																																	
075653						91	BIG CR - L COL R	OR	ODFW	51786	0892	940423	46	15	N	124	33	W	500	1300		F	TRAWL										
075703						90	ELK R	OR	ODFW	34621	1091	940419	44	39	N	124	39	W	590			F	TRAWL										
075808						91	CHEICO R	OR	ODFW	23236	1192	940420	43	49	N	124	36	W	490	1600		F	TRAWL										
075906						91	ROGUE R-4	OR	ODFW	10448	0892	940418	44	35	N	124	37	W	540	2200		F	TRAWL										
075911						91	ROGUE R	OR	ODFW	10135	0992	940417	44	23	N	124	47	W	570	2400		M	TRAWL										
075912						91	ROGUE R-4	OR	ODFW	10252	1092	940425	44	54	N	124	31	W	520	1600	1	M	TRAWL										
075915						91	ROGUE R-4	OR	ODFW	9973	0992	940420	43	57	N	125	1	W	480	1600		M	TRAWL										
075920						91	ROGUE R-4	OR	ODFW	10419	0992	940419	44	32	N	124	37	W	580	2400		M	TRAWL										
075946						92	ELK R	OR	ODFW	21184	1193	940505	48	11	N	125	13	W	310	400		M	TRAWL										
082846						90	NITINAT L	BC	CDFO	5471	0691	940203	57	46	N	154	8	W	655	3002		F	TRAWL										
180201						90	GOLD R	BC	CDFO	29209	0591	940221	54	46	N	165	32	W	700	4340	10	F	TRAWL										
180202						90	GOLD R	BC	CDFO	26674	0691	940209	57	7	N	152	27	W	600			M	TRAWL										
180247						90	KENNEDY LAKE	BC	CDFO	26008	0691	940202	W G OF ALASKA						780	6200		F	TRAWL										
180310						90	COMOK BAY	BC	CDFO	30458	0691	940204	57	42	N	154	14	W	560	1900		M	TRAWL										
180322						90	WOLF CR/YUKN	YK	CDFO	49477	0691	940314	60	6	N	178	58	W	687		1	F	TRAWL										
180343						91	SHUSWAP R, MIDDLE	BC	CDFO	49844	0592	940204	57	49	N	154	0	W	540	1750		M	TRAWL										
180354						91	ATNARKO R, UPPER	BC	CDFO	85114	0692	940203	57	43	N	154	14	W	520	1640		F	TRAWL										
180354						91	ATNARKO R, UPPER	BC	CDFO	85114	0692	940206	57	38	N	154	24	W	530	1800		M	TRAWL										
180354						91	ATNARKO R, UPPER	BC	CDFO	85114	0692	940212	57	12	N	153	1	W	720	4500		F	TRAWL										
180435						91	CHILLIWACK R	BC	CDFO	24539	0592	940223	55	22	N	165	33	W	580	2550		M	TRAWL										
180458						91	NITINAT R	BC	CDFO	31410	0592	940207	W G OF ALASKA						550	2100		M	TRAWL										
180462						91	NITINAT R	BC	CDFO	23927	0592	940215	57	52	N	152	20	W	490	1900		F	TRAWL										
180826						91	ATNARKO R, LOWER	BC	CDFO	58645	0592	940202	57	39	N	154	20	W	550	1750		F	TRAWL										
180827						91	ATNARKO R, LOWER	BC	CDFO	57377	0692	940204	57	42	N	154	14	W	580	2250		M	TRAWL										
180827						91	ATNARKO R, LOWER	BC	CDFO	57377	0692	940206	W G OF ALASKA						590	3000		M	TRAWL										
180835						91	QUESNEL R, HATCHERY	BC	CDFO	53088	0393	940214	57	55	N	152	15	W	580	2400		M	TRAWL										
180851						91	NICOLA R	BC	CDFO	74489	0493	940506	48	4	N	125	17	W	390	710		M	TRAWL										
212010						90	SALMON R 21-0139	WA	COOP	164504	0891	940204	57	42	N	154	14	W	630	3100		M	TRAWL										
212017						90	SLATER SLOUGH 1-0156	WA	LUMM	196873	0591	940417	46	24	N	124	31	W	630	3400	7	M	TRAWL										
212323						92	KALAMA CR 11-0017	WA	NISQ	216185	0593	940510	48	16	N	125	8	W	300	360		M	TRAWL										
630759	R4					89	SIMILKAMEEN R-490325	WA	WDFW	116821	0591	940510	47	53	N	125	16	W	780	6800		F	TRAWL										
634008						90	PEALE PASS @ SS PENS	WA	WDFW	24780	0591	940511	48	25	N	125	54	W	330			F	TRAWL										
634045						90	COWLITZ R 26-0002	WA	WDFW	32529	0492	940505	48	11	N	125	13	W	610	2500		M	TRAWL										
634117						90	STEVENS CR 22-0064	WA	WDF	207589	0791	940222	54	49	N	165	45	W	620	2800		F	TRAWL										
634203						90	SATSOP R 22-0360	WA	WDF	93728	0791	940204	57	49	N	154	0	W	700	4250		F	TRAWL										
634361						91	BILL CR 26-0518	WA	COOP	14085	0593	940426	46	7	N	124	31	W	490	1400		M	TRAWL										
634418						90	METHONE R 48-0002	WA	WDF	371483	0592	940206	57	38	N	154	24	W	550	1900		M	TRAWL										

Release data were obtained from the Pacific States Marine Fisheries Commission Regional Mark Processing Center.

Table 5.--Release and recovery information for coded-wire tagged chum salmon recovered from the North Pacific Ocean and Bering Sea, 1 September 1993 through 15 August 1994.

RELEASE										RECOVERY													
A	D	D	D	D	R	B					S												
G	A	A	A	A	E	R					T	P											
E	T	T	T	T	P	O					A	R											
N	A	A	A	A	O					T	O	TOTAL NO.											
C	C		D					E	V	AGENCY	TAGGED	DATE	DATE	LAT	LONG	LENGTH	BODY	GONAD	S				
Y	1	2	3	4	D	YR	SITE	E	V	AGENCY	TAGGED	DATE	DATE	D	M	D	M	(mm)	(g)	(g)	E		
X	GEAR																						
025914						88	STAVE CR	BC	CDFO	49237	0489	930820	54	48	N	165	54	W	720	6000		M	TRAWL
180320						90	CHEHALIS R	BC	CDFO	35572	0591	930820	54	48	N	165	54	W	500	1350		F	TRAWL

Release data were obtained from the Pacific States Marine Fisheries Commission Regional Mark Processing Center.

Table 6.--Release and recovery information for coded-wire tagged coho salmon recovered from the North Pacific Ocean and Bering Sea, 1 September 1993 through 15 August 1994.

RELEASE										RECOVERY													
A	D	D	D	D	R	B					S												
G	A	A	A	A	E	R					T	P											
E	T	T	T	T	P	O					A	R											
N	A	A	A	A	O					T	O	TOTAL NO.											
C	C		D					E	V	AGENCY	TAGGED	DATE	DATE	LAT	LONG	LENGTH	BODY	GONAD	S				
Y	1	2	3	4	D	YR	SITE	E	V	AGENCY	TAGGED	DATE	DATE	D	M	D	M	(mm)	(g)	(g)	E		
X	GEAR																						
043931						91	NEETS BAY 101-90	AK	SSRA	10610	0693	940708	56	0	N	145	0	W	558	3040	36	F	RESGILL
066325						90	IRON GATE HATCHERY	CA	CDFG	47856	0392	940422	46	12	N	124	39	W	570	2000		M	TRAWL
312015						89	SKILAK R 244-30	AK	ADFG	3684	0991	940701	50	0	N	148	0	W	630	3400	40	M	RESGILL

Release data were obtained from the Pacific States Marine Fisheries Commission Regional Mark Processing Center.

Table 7.--Release and recovery information for coded-wire tagged steelhead salmon recovered from the North Pacific Ocean and Bering Sea, 1 September 1993 through 15 August 1994.

RELEASE										RECOVERY													
A	D	D	D	D	R	B					S												
G	A	A	A	A	E	R					T	P											
E	T	T	T	T	P	O					A	R											
N	A	A	A	A	O					T	O	TOTAL NO.											
C	C		D					E	V	AGENCY	TAGGED	DATE	DATE	LAT	LONG	LENGTH	BODY	GONAD	S				
Y	1	2	3	4	D	YR	SITE	E	V	AGENCY	TAGGED	DATE	DATE	D	M	D	M	(mm)	(g)	(g)	E		
X	GEAR																						
104924						92	SALMON R, N FK	ID	IDFG	65637	0493	940624	44	30	N	179	30	W	558	1880	15	F	RESLLINE
212051						91	CHALAAT CR 20.0423	WA	HOH	23603	0592	940626	45	30	N	179	30	W	644	2550	22	F	RESGILL
212302						92	CHALAAT CR 20.0423	WA	HOH	12090	0693	940624	44	30	N	179	30	W	534	1540	6	M	RESLLINE
212303						92	HOH R 20.0422	WA	FWS	11496	0593	940628	50	0	N	157	0	W	570	2000		F	RESEARCH

Release data were obtained from the Pacific States Marine Fisheries Commission Regional Mark Processing Center

Table 8.--Release and recovery information for coded-wire tagged salmon recovered from the North Pacific Ocean and Bering Sea, 1 January 1993 through 31 December 1993.

RELEASE												RECOVERY														
A	D	D	D	D	R	B	S		TOTAL NO.	DATE	DATE	LAT		LONG		LENGTH	BODY	GONAD	S	SPECIES						
G	A	A	A	A	E	R	T	P				AGENCY	TAGGED	D	M	D	M	(mm)	(g)		(g)	E				
E	T	T	T	T	P	O	A	R																		
N	A	A	A	A	O	T	O																			
C					C	D	E	V																		
Y	1	2	3	4	D	YR																				
020128						89	BC	CDFO	26873	0690	930209	57	47	N	154	7	W	580	2400		M	TRAWL	CHINOOK			
020129						89	BC	COFO	27258	0690	930323	54	41	N	165	50	W	590	2500		F	TRAWL	CHINOOK			
020130						89	BC	CDFO	26979	0690	930323	54	41	N	165	50	W	630	3100		F	TRAWL	CHINOOK			
020250						89	BC	CDFO	24780	0690	930623	57	16	N	152	32	W	870	9300		F	TRAWL	CHINOOK			
020261	R1					89	BC	CDFO	75744	1090	930413	56	9	N	153	59	W	620	2800		F	TRAWL	CHINOOK			
020313						91	BC	CDFO	76220	0592	931013	57	30	N	151	50	W	490	1900	1	F	TRAWL	CHINOOK			
020331						90	BC	CDFO	23351	0591	930830	56	1	N	169	40	W	704	5750		F	TRAWL	CHINOOK			
020434						89	BC	CDFO	27269	0590	930323	54	41	N	165	50	W	660	3500		F	TRAWL	CHINOOK			
020434						89	BC	CDFO	27269	0590	930611	57	24	N	152	34	W	810	6100		F	TRAWL	CHINOOK			
020438						89	BC	CDFO	33908	0590	930217	57	50	N	154	2	W	650	4100		F	TRAWL	CHINOOK			
020462						89	BC	CDFO	27509	0690	930319	58	21	N	148	32	W	710	4200		M	TRAWL	CHINOOK			
020636						89	BC	CDFO	28458	0690	930607	57	57	N	151	56	W	770	6000		F	TRAWL	CHINOOK			
020650						89	BC	CDFO	25723	0590	930221	54	45	N	165	1	W	680	4100		F	TRAWL	CHINOOK			
020657						89	BC	CDFO	27057	0590	930714	57	52	N	152	21	W	770	5860	200	F	TRAWL	CHINOOK			
020754	R3					90	BC	CDFO	25068	0491	931005	57	37	N	152	30	W	570	2200		F	TRAWL	CHINOOK			
020756						90	BC	CDFO	25153	0491	930624	57	55	N	151	55	W	543	1840		F	TRAWL	CHINOOK			
020818						89	BC	CDFO	40743	0590	930209	57	46	N	154	9	W	720	5000		F	TRAWL	CHINOOK			
021039						90	BC	CDFO	15725	0592	931009	57	41	N	151	59	W	520	2100		M	TRAWL	CHINOOK			
021139						90	BC	CDFO	26624	0591	931005	57	37	N	151	56	W	550	2600		M	TRAWL	CHINOOK			
021147						90	BC	CDFO	24416	0691	930708	57	59	N	151	59	W	608	2700		M	TRAWL	CHINOOK			
021316						90	BC	CDFO	26555	0591	930218	58	7	N	153	22	W	450	1150		F	TRAWL	CHINOOK			
021317						90	BC	CDFO	28611	0591	930216	57	48	N	154	7	W	460	1300		F	TRAWL	CHINOOK			
021317						90	BC	CDFO	28611	0591	930218	58	7	N	153	22	W	520	1850		F	TRAWL	CHINOOK			
021318						90	BC	CDFO	27562	0591	931013	57	36	N	151	50	W	610	3300		F	TRAWL	CHINOOK			
021319						90	BC	CDFO	25551	0591	930211	57	50	N	154	1	W	500	1600		M	TRAWL	CHINOOK			
021327						90	BC	CDFO	28349	0492	931013	57	38	N	151	52	W	560	3000		F	TRAWL	CHINOOK			
D21441						90	BC	COFO	26670	0591	930324	54	43	N	165	40	W	480	1225		M	TRAWL	CHINOOK			
021446						90	BC	CDFO	26721	0591	930218	54	45	N	165	3	W	460	1100		F	TRAWL	CHINOOK			
021457						90	BC	CDFO	27738	0591	930216	57	59	N	153	38	W	510	1800		M	TRAWL	CHINOOK			
021516						90	BC	CDFO	26522	0591	930218	58	12	N	153	17	W	540	2100		F	TRAWL	CHINOOK			
021518						90	BC	CDFO	26721	0491	930213	57	49	N	153	39	W	590	2200		F	TRAWL	CHINOOK			
021520						90	BC	CDFO	27005	0591	930217	57	43	N	154	10	W	570	2500		M	TRAWL	CHINOOK			
021521						90	BC	CDFO	22021	0691	930218	54	49	N	165	30	W	580	2500		M	TRAWL	CHINOOK			
021522						90	BC	CDFO	25368	0691	930217	57	7	N	153	32	W	500	1600		F	TRAWL	CHINOOK			
021535						90	BC	CDFO	54447	0591	930607	57	55	N	152	0	W	644	3200		F	TRAWL	CHINOOK			
021545						90	BC	CDFO	51234	0591	930215	57	57	N	153	46	W	500	1800		M	TRAWL	CHINOOK			
021545						90	BC	CDFO	51234	0591	930221	57	55	N	153	49	W	490	1500		F	TRAWL	CHINOOK			
021545						90	BC	CDFO	51234	0591	930221	57	54	N	153	49	W	480	1450		F	TRAWL	CHINOOK			
021545						90	BC	CDFO	51234	0591	930224	58	0	N	153		W	490	1300		F	TRAWL	CHINOOK			
021546						90	BC	CDFO	52098	0591	930218	57	53	N	153	55	W	480	1400		F	TRAWL	CHINOOK			
021546						90	BC	CDFO	52098	0591	930221	57	54	N	153	49	W					TRAWL	CHINOOK			
021546						90	BC	CDFO	52098	0591	930222	57	50	N	154	0	W	530	2100		M	TRAWL	CHINOOK			
D21546						90	BC	CDFO	52098	0591	930718	56	56	N	153	23	W	630	2900		M	TRAWL	CHINOOK			
021547						90	BC	CDFO	49040	0491	930501	45	11	N	124	12	W	440			F	TRAWL	CHINOOK			
021549						90	BC	CDFO	33896	0691	930218	57	53	N	153	55	W	440	1000		F	TRAWL	CHINOOK			
021550						90	BC	CDFO	33676	0691	930219	57	44	N	154	12	W	520	1900		F	TRAWL	CHINOOK			
021550						90	BC	CDFO	33676	0691	930224	58	13	N	153	21	W	550	2000			TRAWL	CHINOOK			
021551						90	BC	CDFO	33245	0691	930218	58	13	N	153	15	W	510	1550		F	TRAWL	CHINOOK			
021552						90	BC	CDFO	32863	0691	930209	58	8	N	153	24	W	540	2000		M	TRAWL	CHINOOK			
021552						90	BC	CDFO	32863	0691	930221	58	14	N	153	14	W	470	1700			TRAWL	CHINOOK			
021553						90	BC	CDFO	33298	0691	930219	57	44	N	154	12	W	530	2000		F	TRAWL	CHINOOK			
021558						90	BC	CDFO	74440	0591	930213	57	49	N	153	39	W	564	2600		F	TRAWL	CHINOOK			
021558						90	BC	CDFO	74440	0591	930414	56	10	N	153	59	W	540	2050		F	TRAWL	CHINOOK			
021560						90	BC	CDFO	85955	0591	930215	57	58	N	153	38	W	570	2500		M	TRAWL	CHINOOK			
021560						90	BC	CDFO	85955	0591	930608	58	0	N	154	25	W	620	2800		M	TRAWL	CHINOOK			
D24940						89	BC	CDFO	28636	0590	930211	57	50	N	154	1	W	640	3400		F	TRAWL	CHINOOK			
025246						88	BC	CDFO	10494	0490	930708	57	59	N	151	59	W	818	6790	30	F	TRAWL	CHINOOK			
025632	R3					88	BC	CDFO	48945	0490	930030	W G OF ALASKA													TRAWL	CHINOOK
025635	R1					88	BC	CDFO	48676	0390	930217	54	49	N	165	22	W	720	4760		F	TRAWL	CHINOOK			
026015						90	BC	CDFO	25960	0591	930321	56	0	N	154	0	W	620	3100		M	TRAWL	CHINOOK			

Table 8.--(Continued).

RELEASE										RECOVERY											
A	D	D	D	D	R	B	S	T	P	TOTAL NO. TAGGED	DATE	DATE	LAT D M	LONG D M	LENGTH TSFT (mm)	BODY WT (g)	GONAD WT (g)	S E	X	GEAR	SPECIES
G	A	A	A	A	E	R	E	V	AGENCY												
E	T	T	T	T	P	O	A	R													
N	A	A	A	A	O																
C					C	D															
Y	1	2	3	4	D	YR	SITE														
032219						90	L PORT WALTER 109-10	AK	NMFS	16467	0592	931013	57 30 N	151 50 W	520	2400	1	F	TRAWL	CHINOOK	
032232						90	L PORT WALTER 109-10	AK	NMFS	10476	0592	931009	57 41 N	151 59 W	510	2100		M	TRAWL	CHINOOK	
040703						89	BEAR COVE 113-41	AK	NSRA	8977	0591	930608	57 59 N	151 55 W	600	3100		F	TRAWL	CHINOOK	
043240						88	BEAR COVE 113-41	AK	NSRA	21151	0590	931007	57 37 N	151 53 W	840	10000		F	TRAWL	CHINOOK	
043252	R2					88	NEETS BAY 101-90	AK	SSRA	51994	0590	930706	57 8 N	152 23 W	610			F	TRAWL	CHINOOK	
043343						88	FISH CR 111-50	AK	ADFG	9819	0690	930301	54 41 N	165 14 W	729	4500	40	F	TRAWL	CHINOOK	
043356						88	GASTINEAU CH 111-40	AK	ADFG	20358	0690	930319	58 21 N	148 32 W	680	3500		F	TRAWL	CHINOOK	
043403						88	ALUKE BAY 111-50	AK	ADFG	18270	0691	930221	57 54 N	153 49 W					TRAWL	CHINOOK	
043406						88	CRYSTAL CR 106-44	AK	ADFG	20788	0590	930319	57 52 N	149 55 W	670	3710		F	TRAWL	CHINOOK	
043431						88	BEAR COVE 113-41	AK	NSRA	8058	0590	931007	57 37 N	151 53 W	830	9200		F	TRAWL	CHINOOK	
043536						89	THORNE BAY 102-70	AK	ADFG	9552	0591	930409	56 42 N	152 30 W	630	3400		F	TRAWL	CHINOOK	
043540						89	BEAR COVE 113-41	AK	NSRA	10557	0591	930221	57 55 N	153 49 W	580	2600		F	TRAWL	CHINOOK	
043548						89	KASNYKU BAY 112-11	AK	NSRA	9844	0691	930609	56 5 N	156 4 W	640	3100		M	TRAWL	CHINOOK	
043619						89	JETTY CR 109 - 10	AK	AKI	21472	0591	930607	58 2 N	154 21 W	640	3900		M	TRAWL	CHINOOK	
043626						89	BEAR COVE 113-41	AK	NSRA	10358	0591	930212	57 40 N	154 20 W	705	4200		F	TRAWL	CHINOOK	
043628						89	BEAR COVE 113-41	AK	NSRA	6407	0591	930209	57 47 N	154 7 W	680			F	TRAWL	CHINOOK	
043644						90	BEAR COVE 113-41	AK	NSRA	9885	0592	931009	57 39 N	151 56 W	530	2300		F	TRAWL	CHINOOK	
043644						90	BEAR COVE 113-41	AK	NSRA	9885	0592	931012	57 41 N	151 56 W	570	2900		F	TRAWL	CHINOOK	
043645						90	BEAR COVE 113-41	AK	NSRA	9769	0592	931005	57 8 N	152 27 W	580	2800		M	TRAWL	CHINOOK	
043645						90	BEAR COVE 113-41	AK	NSRA	9769	0592	931011	57 38 N	151 53 W	580			F	TRAWL	CHINOOK	
043648						90	BEAR COVE 113-41	AK	NSRA	9945	0592	931013	57 30 N	151 50 W	600	3000	1	F	TRAWL	CHINOOK	
066327						90	ELK CR	CA	CDFG	31807	1091	930420	44 25 N	124 30 W	500			F	TRAWL	CHINOOK	
066327						90	ELK CR	CA	CDFG	31807	1091	930504	45 11 N	124 30 W	540	2160		M	TRAWL	CHINOOK	
066328						90	BLUFF CR	CA	CDFG	40028	1091	930420	43 40 N	124 46 W	510	2100		M	TRAWL	CHINOOK	
071457						91	SANTIAM R, S FK	OR	ODFW	162055	1192	931009	57 36 N	151 53 W	520	2000		M	TRAWL	CHINOOK	
071560						91	SALMON R - OR COAST	OR	ODFW	37763	0892	931013	57 38 N	151 52 W	500	2000		M	TRAWL	CHINOOK	
073646						90	ROGUE R - 4	OR	ODFW	10375	0991	930415	46 40 N	124 50 W	480	1100		F	TRAWL	CHINOOK	
074338						89	BIG CR - L COL R	OR	ODFW	10067	0690	930415	43 13 N	124 44 W	780	6100		F	TRAWL	CHINOOK	
074640						89	YOUNGS R & BAY	OR	CEDC	9884	0890	930430	43 48 N	124 50 W	600	2900		F	TRAWL	CHINOOK	
074642						89	YOUNGS R & BAY	OR	CEDC	9699	0890	930502	45 26 N	124 12 W	550	2300		F	TRAWL	CHINOOK	
074820						90	MORGAN CR (COOS R)	OR	ODFW	26732	0991	930416	56 0 N	154 36 W	530	2100		M	TRAWL	CHINOOK	
074914	R2					90	ROCK CR (UMPOUA R)	OR	ODFW	20146	0991	930428	43 58 N	124 59 W	530	2100		M	TRAWL	CHINOOK	
074925	R1					90	CHETCO R - JACK CR	OR	ODFW	23514	0691	930428	43 58 N	124 59 W	510	1610		F	TRAWL	CHINOOK	
074925	R3					90	CHETCO R - JACK CR	OR	ODFW	23514	0691	930418	44 3 N	124 59 W	540			M	TRAWL	CHINOOK	
075039						91	TRASK R	OR	ODFW	9858	0892	931013	57 38 N	151 52 W	470	1600		M	TRAWL	CHINOOK	
075135						88	SALMON R - OR COAST	OR	ODFW	28200	0889	930319	58 21 N	148 32 W	780	6000		F	TRAWL	CHINOOK	
075433						89	WILLAMETTE R, M FK	OR	ODFW	26424	0890	930606	57 55 N	151 54 W	740	4700		F	TRAWL	CHINOOK	
075458						89	SALMON R - OR COAST	OR	ODFW	39099	0890	930319	58 21 N	148 32 W	720	4400		F	TRAWL	CHINOOK	
075501	R1					89	SANTIAM R, S FK	OR	ODFW	127939	1190	930212	57 49 N	154 3 W	690	4100	1	F	TRAWL	CHINOOK	
075501	R1					89	SANTIAM R, S FK	OR	ODFW	127939	1190	930324	54 30 N	162 28 W	700	3600		M	TRAWL	CHINOOK	
075503						89	WILLAMETTE R & TRIBS	OR	ODFW	31462	0391	930221	57 55 N	153 49 W	540	1900		M	TRAWL	CHINOOK	
075527						89	SANTIAM R, N FK-1	OR	ODFW	15876	0391	930220	57 45 N	154 11 W	640	3200		M	TRAWL	CHINOOK	
075626						90	SANTIAM R, S FK	OR	ODFW	158403	1191	930219	58 11 N	153 18 W	730	5600		M	TRAWL	CHINOOK	
075626						90	SANTIAM R, S FK	OR	ODFW	158403	1191	930220	57 38 N	154 27 W	530	1900		F	TRAWL	CHINOOK	
075626						90	SANTIAM R, S FK	OR	ODFW	158403	1191	930221	57 55 N	153 49 W	500	1600		F	TRAWL	CHINOOK	
075626						90	SANTIAM R, S FK	OR	ODFW	158403	1191	930221	57 55 N	153 49 W	550	2200		M	TRAWL	CHINOOK	
075626						90	SANTIAM R, S FK	OR	ODFW	158403	1191	930224	W G OF ALASKA		500	1600		M	TRAWL	CHINOOK	
075626						90	SANTIAM R, S FK	OR	ODFW	158403	1191	930409	56 42 N	152 30 W	600	2500		M	TRAWL	CHINOOK	
075626						90	SANTIAM R, S FK	OR	ODFW	158403	1191	930409	56 42 N	152 30 W	500	1350		F	TRAWL	CHINOOK	
075626						90	SANTIAM R, S FK	OR	ODFW	158403	1191	931007	57 35 N	151 52 W	650	3700		M	TRAWL	CHINOOK	

Table 8.--(Continued).

RELEASE										RECOVERY													
A	D	D	D	D	R	B																	
G	A	A	A	A	E	R		S															
E	T	T	T	T	P	O		T	P														
N	A	A	A	A	O			A	R														
C								T	O														
Y	1	2	3	4	D	YR	SITE	E	V	AGENCY	TOTAL NO. TAGGED	DATE	DATE	LAT D M	LONG D M	LENGTH TSFT (mm)	BODY WT (g)	GONAD WT (g)	S E X	GEAR	SPECIES		
075652						90	BIG CR - L COL R	OR	ODFW		51043	0891	930429	43 53 N	124 59 W	620				F	TRAWL	CHINOOK	
075652						90	BIG CR - L COL R	OR	ODFW		51043	0891	930502	45 27 N	124 26 W	520	1960			M	TRAWL	CHINOOK	
075706						90	SALMON R - OR COAST	OR	ODFW		41394	0891	930222	57 50 N	154 0 W	500	1800			F	TRAWL	CHINOOK	
075707						90	SALMON R - OR COAST	OR	ODFW		37516	0891	930405	57 44 N	150 7 W	570	2400				TRAWL	CHINOOK	
075708						90	SALMON R - OR COAST	OR	ODFW		39382	0891	930221	57 55 N	153 49 W	510	1650			F	TRAWL	CHINOOK	
075745						90	TRASK R	OR	ODFW		22474	0991	930315	56 19 N	156 7 W	443	1240			F	RESTRAWL	CHINOOK	
082847						90	NITINAT LAKE	BC	CDFO		5509	0691	930406	57 53 N	150 7 W	630	3150			M	TRAWL	CHINOOK	
082849						89	NITINAT LAKE	BC	CDFO		5455	0691	930219	58 13 N	153 16 W	520	1750				TRAWL	CHINOOK	
082854						90	NITINAT LAKE	BC	CDFO		5558	0691	930219	57 44 N	154 12 W	490	1650			F	TRAWL	CHINOOK	
082855						90	NITINAT LAKE	BC	CDFO		5530	0691	930220	57 45 N	154 11 W	520	1850			M	TRAWL	CHINOOK	
180150						91	CLEARWATER R, LWR B	BC	CDFO		19034	0592	931013	57 30 N	151 50 W	530	2300	1		M	TRAWL	CHINOOK	
180201						90	GOLD R	BC	CDFO		29209	0591	930221	58 8 N	153 22 W	550	2000			F	TRAWL	CHINOOK	
180201						90	GOLD R	BC	CDFO		29209	0591	930221	58 14 N	153 14 W	500	2000			M	TRAWL	CHINOOK	
180201						90	GOLD R	BC	CDFO		29209	0591	931010	W G OF ALASKA		680	4950			F	TRAWL	CHINOOK	
180202						90	GOLD R NWVI	BC	CDFO		26674	0691	930207	54 42 N	154 15 W	500	1700			M	TRAWL	CHINOOK	
180202						90	GOLD R NWVI	BC	CDFO		26674	0691	930212	57 49 N	154 3 W	520	1800			M	TRAWL	CHINOOK	
180202						90	GOLD R NWVI	BC	CDFO		26674	0691	930220	58 1 N	152 30 W	510	1700				TRAWL	CHINOOK	
180202						90	GOLD R NWVI	BC	CDFO		26674	0691	930220	57 30 N	153 40 W	500	1700			F	TRAWL	CHINOOK	
180203						90	GOLD R	BC	CDFO		27070	0691	930218	58 13 N	153 15 W	470	1300			M	TRAWL	CHINOOK	
180224						90	CHINA CR	BC	CDFO		26202	0591	930221	57 55 N	153 49 W	530	2000			M	TRAWL	CHINOOK	
180224						90	CHINA CR	BC	CDFO		26202	0591	930606	58 2 N	154 21 W	510	1700			F	TRAWL	CHINOOK	
180226						90	ROBERTSON CR	BC	CDFO		26708	0591	930211	57 47 N	154 8 W	520	1600			M	TRAWL	CHINOOK	
180227						90	ROBERTSON CR	BC	CDFO		26415	0591	930216	57 59 N	153 36 W	460	1600			F	TRAWL	CHINOOK	
180247						90	KENNEDY LAKE	BC	CDFO		26008	0691	930414	56 10 N	153 59 W	500	1500			F	TRAWL	CHINOOK	
180302						90	COLDWATER R	BC	CDFO		24920	0492	931005	57 37 N	151 56 W	570	2900			F	TRAWL	CHINOOK	
180304						90	NICOLA R	BC	CDFO		24964	0492	931012	57 41 N	151 56 W	540	2100			F	TRAWL	CHINOOK	
180305						90	NICOLA R	BC	CDFO		24932	0492	931007	57 0 N	152 28 W	580	3100	1		F	TRAWL	CHINOOK	
180305						90	NICOLA R	BC	CDFO		24932	0492	931013	57 30 N	151 50 W	500	1900	1		M	TRAWL	CHINOOK	
180306						90	NICOLA R	BC	CDFO		25363	0492	931013	57 30 N	151 50 W	580	3000	1		M	TRAWL	CHINOOK	
180306						90	NICOLA R	BC	CDFO		25363	0492	931014	54 48 N	166 7 W	570	2700	20		F	TRAWL	CHINOOK	
180327						90	NITINAT R	BC	CDFO		55109	0691	930209	57 50 N	154 0 W	480	1750	2		F	TRAWL	CHINOOK	
180327						90	NITINAT R	BC	CDFO		55109	0691	930224	58 13 N	153 22 W	540	1750			M	TRAWL	CHINOOK	
180328						90	NITINAT R	BC	CDFO		54724	0591	930405	57 52 N	150 9 W	520	1800			M	TRAWL	CHINOOK	
180335						91	CHEHALIS R	BC	CDFO		53575	0492	930624	57 58 N	151 48 W	439	990			M	TRAWL	CHINOOK	
180349						91	BONAPARTE R	BC	CDFO		74949	0492	930704	57 56 N	151 41 W	440	1100			F	TRAWL	CHINOOK	
180349						91	BONAPARTE R	BC	CDFO		74949	0492	931009	57 39 N	151 56 W	530	2500			M	TRAWL	CHINOOK	
180349						91	BONAPARTE R	BC	CDFO		74949	0492	931013	57 30 N	151 50 W	540	2200	1		F	TRAWL	CHINOOK	
180352						91	NICOLA R	BC	CDFO		75198	0592	931007	57 0 N	152 28 W	530	2400	1		M	TRAWL	CHINOOK	
180352						91	NICOLA R	BC	CDFO		75198	0592	931009	57 7 N	152 29 W	560	2400			M	TRAWL	CHINOOK	
180354						91	ATNARKO R, UPPER	BC	CDFO		85114	0692	931013	57 36 N	151 50 W	480				M	TRAWL	CHINOOK	
180354						91	ATNARKO R, UPPER	BC	CDFO		85114	0692	931013	57 30 N	151 50 W	500	1900	1		M	TRAWL	CHINOOK	
180354						91	ATNARKO R, UPPER	BC	CDFO		85114	0692	931013	57 38 N	151 52 W	530	2400			M	TRAWL	CHINOOK	
180426						91	DEEP COVE	BC	CDFO		24754	0592	931004	57 8 N	152 27 W	550	2300			M	TRAWL	CHINOOK	
180426						91	DEEP COVE	BC	CDFO		25754	0592	931013	57 36 N	151 50 W	540	2600			F	TRAWL	CHINOOK	
180433						91	KILDALA R	BC	CDFO		28814	0492	930718	56 24 N	153 45 W	430	1140			M	TRAWL	CHINOOK	
180434						91	CHILLIWACK R	BC	CDFO		24523	0592	931007	57 0 N	152 28 W	560	2700	1		M	TRAWL	CHINOOK	
180434						91	CHILLIWACK R	BC	CDFO		24523	0592	931013	57 30 N	151 50 W	520	1900	1		F	TRAWL	CHINOOK	
180435						91	CHILLIWACK R	BC	CDFO		24539	0592	931007	57 0 N	152 28 W	550	2600	1		M	TRAWL	CHINOOK	
180443						91	CONUMA ESTUARY	BC	CDFO		26989	0592	931013	57 38 N	151 52 W	500	2100			M	TRAWL	CHINOOK	
180460						91	NITINAT R	BC	CDFO		23881	0592	931013	57 38 N	151 52 W	580	3100			M	TRAWL	CHINOOK	
180553						91	YAKOON R	BC	CDFO		16046	0692	931007	57 35 N	151 52 W	480	1800			F	TRAWL	CHINOOK	
180554						91	YAKOON R	BC	CDFO		15862	0692	931005	57 34 N	151 50 W	450	1600			M	TRAWL	CHINOOK	
180721						91	NITINAT LAKE	BC	CDFO		32704	0592	931009	57 39 N	151 56 W	510	2200			M	TRAWL	CHINOOK	
180804						91	ROBERTSON CR	BC	CDFO		27574	0592	931013	57 36 N	151 50 W	480	1700			M	TRAWL	CHINOOK	
212010						90	SALMON R 21-0139	WA	COOP		164504	0891	930319	57 52 N	149 55 W	480	1420			M	TRAWL	CHINOOK	
212010						90	SALMON R 21-0139	WA	COOP		164504	0891	930410	57 40 N	150 13 W	470	1400			F	TRAWL	CHINOOK	
212028						90	QUINAULT R 21-0398	WA	QDNR		27929	0991	930216	58 3 N	153 36 W	540	1900			M	TRAWL	CHINOOK	
212028						90	QUINAULT R 21-0398	WA	QDNR		27929	0991	930221	57 54 N	153 49 W	480	1550			M	TRAWL	CHINOOK	

Table 8.--(Continued).

RELEASE										RECOVERY												
A	D	D	D	D	R	B																
G	A	A	A	A	E	R	S															
E	T	T	T	T	P	O	T	P														
N	A	A	A	A	O	A	R															
C					C	D	T	O														
Y	1	2	3	4	D	YR	SITE	E	V	AGENCY	TOTAL NO. TAGGED	DATE	DATE	LAT D M	LONG D M	LENGTH TSFT (mm)	BODY WT (g)	GONAD WT (g)	S E	X	GEAR	SPECIES
312103						91	DECEPTION CR 247-41	AK		ADFG	33464	0692	931009	57 39 N	151 56 W	480	1300			M	TRAWL	CHINOOK
471609						88	TANGAS CR	AK		MIC	109656	0590	930319	57 52 N	149 55 W	690	3850			F	TRAWL	CHINOOK
630732	R1					89	COLUMBIA R AT PRIEST	WA		WDF	194530	0690	930405	57 48 N	150 3 W	700	5000			F	TRAWL	CHINOOK
630756	R4					89	STEVENS CR 22-0064	WA		WDF	203892	0790	930413	56 9 N	153 59 W	660	3450			F	TRAWL	CHINOOK
630759	R3					89	SIMILKAMEEN R-490325	WA		WDF	116821	0591	930209	57 47 N	154 7 W	580	2300			F	TRAWL	CHINOOK
631119	R2					89	WENATCHEE R 45-0030	WA		WDF	144905	0591	930217	57 43 N	154 10 W	570	2500			F	TRAWL	CHINOOK
631437	R1					89	COWLITZ R, 26-0002	WA		WDF	34003	0491	930423	45 27 N	124 25 W	610	2800			F	TRAWL	CHINOOK
633933						90	WISHKAH R 22-0191	WA		COOP	48635	0392	930405	57 52 N	150 9 W	510	1600			M	TRAWL	CHINOOK
633933						90	WISHKAH R 22-0191	WA		COOP	48635	0392	930407	58 42 N	150 20 W	590	2000			M	TRAWL	CHINOOK
634057						90	COLUMBIA R AT PRIEST	WA		WDF	199469	0691	930218	58 13 N	153 15 W	510	1550			F	TRAWL	CHINOOK
634115						90	HANFORD REACH	WA		WDF	198056	0691	930216	58 10 N	153 24 W	540	2200			M	TRAWL	CHINOOK
634117						90	STEVENS CR 22-0064	WA		WDF	207589	0791	930220	57 45 N	154 11 W	480	1400			F	TRAWL	CHINOOK
634117						90	STEVENS CR 22-0064	WA		WDF	207589	0791	930324	56 44 N	152 25 W	560	2500			M	TRAWL	CHINOOK
634117						90	STEVENS CR 22-0064	WA		WDF	207589	0791	930414	56 10 N	153 59 W	500	1450			M	TRAWL	CHINOOK
634117						90	STEVENS CR 22-0064	WA		WDF	207589	0791	931005	57 34 N	151 50 W	670	5200			M	TRAWL	CHINOOK
634117						90	STEVENS CR 22-0064	WA		WDF	207589	0791	931007	57 35 N	151 52 W	560	2700			F	TRAWL	CHINOOK
634203						90	SATSOP R 22-0360	WA		WDF	93728	0791	930210	57 57 N	153 45 W	480	1800			M	TRAWL	CHINOOK
634203						90	SATSOP R 22-0360	WA		WDF	93728	0791	930220	58 1 N	152 30 W	480	1500				TRAWL	CHINOOK
634315						90	KLICKITAT R 30-0002	WA		WDF	18864	0592	931013	57 36 N	151 50 W	600	3300			F	TRAWL	CHINOOK
635259	R2					88	STEVENS CR 22-0064	WA		WDF	206735	0789	930320	58 53 N	148 47 W	750	5600			F	TRAWL	CHINOOK
635904	R1					89	WASHOUGAL R 28-0159	WA		WDF	93542	0690	930407	58 42 N	150 20 W	600	2300			M	TRAWL	CHINOOK
025914						88	STAVE CR	BC		CDFO	49237	0489	930820	54 48 N	165 54 W	720	6000			M	TRAWL	CHUM
180320						90	CHEHALIS R	BC		CDFO	35572	0591	930820	54 48 N	165 54 W	500	1350			F	TRAWL	CHUM
043835						90	GASTINEAU CH 114-40	AK		DIPC	16276	0692	930704	55 13 N	146 0 W	618	2580	37		F	RESGILL	COHO
312003						90	BIRD CR 247-60	AK		ADFG	18669	0592	930704	55 13 N	146 0 W	650	3400	150		F	RESGILL	COHO

Release data were obtained from the Pacific States Marine Fisheries Commission Regional Mark Processing Center.

Table 9.--Incidence of steelhead lacking the adipose fin and coded-wire tagged steelhead in catches of commercial and research vessels operating in the North Pacific Ocean and Bering Sea, 1980 through 1993. (Modified from Table 2 in Light *et al.* 1988).

Year	Number examined	Number lacking the adipose fin	Steelhead containing a coded-wire tag	
			Number	Percent
1980	42	3	3	100
1981	151	16	11	69
1982	762	5	4	80
1983	531	20	5	25
1984	1,735	62	32	52
1985	1,733	116	30	26
1986	613	56	9	16
1987	566	106	10	9
1988	660	195	11	6
1989	620	210	17	8
1990	1,009	122	9	7
1991	833	270	14	5
1992 ^a	256	56 (35)	5	14
1993	129	29	0	0

^aAlthough 56 fish lacked the adipose fin, only 35 were checked with a CWT detector (Ito and Ishida 1992).