

INCIDENCE OF CODED-WIRE TAGGED SALMONIDS
IN COMMERCIAL AND RESEARCH CATCHES
IN THE NORTH PACIFIC OCEAN
AND BERING SEA, 1992-1993

by

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ABSTRACT

In this document we summarize the results of sampling by scientists on research vessels and by U.S. observers on groundfish vessels in the North Pacific Ocean and Bering Sea from 1 January 1992 through 31 August 1993. Release and recovery information from 178 coded-wire tagged salmonids is reported for the first time: 36 recoveries during 16 September - 31 December 1992, 141 recoveries from 1 January through 31 August 1993, and in addition, the 1990 recovery of a coded-wire tagged chinook salmon.

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 that 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. For example, 44.9 million salmonids were coded-wire tagged and released into the North Pacific Ocean by California, Oregon, Idaho, Washington state, British Columbia, Yukon Territory, and Alaskan agencies in 1991 (PSMFC 1991). More than 2,900 recoveries of CWT salmonids from releases by 35 agencies have been reported from the high seas and U.S. Exclusive Economic Zone (U.S. EEZ) since 1980 (Table 1). The first recovery of a CWT chinook salmon released by Armstrong Keta, Incorporated, also is reported.

In this document we summarize the results of sampling by scientists on research vessels and by U.S. observers on groundfish vessels in the North Pacific Ocean and Bering Sea during 1992 and 1 January-31 August 1993. Coded-wire tag 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 were previously summarized and reported (see Dahlberg *et al.* 1988 for review). Recoveries of CWT salmonids have been reported to the INPFC annually; for example, Dahlberg *et al.* (1992) reported recoveries for 1991 and a portion of 1992. The tables of recoveries of CWT salmonids in this report show all 1992 recoveries and any changes made in release or recovery information

through 1990 (PSMFC 1991). Release and recovery information from 178 coded-wire tagged salmonids is reported for the first time: 36 recoveries during 16 September - 31 December 1992, 141 recoveries from 1 January through 31 August 1993, and in addition, the 1990 recovery of a coded-wire tagged chinook salmon.

An additional 43 salmonids lacking the adipose fin but without a CWT were processed: 3 in late 1992 and 40 from 1 January through 31 August 1993.

RESULTS AND DISCUSSION

Research Vessels

1992

Ito and Ishida (1992) reported the results of sampling steelhead lacking the adipose fin collected from catches of seven Japanese salmon research vessels in 1992. A total of 256 steelhead were caught (Table 2). Of the 56 fish lacking the adipose fin, 35 were examined with a CWT detector; 7 responded positively, but 2 snouts contained fragments of fish hooks and no CWT. Release and recovery information for the five that contained a CWT is reported hereinafter.

1993

A total of 12,460 salmonids were examined during two Fisheries Agency of Japan salmon research cruises. Two CWTs were recovered from two coho salmon lacking the adipose fin; 2 pink salmon and 20 steelhead lacked the adipose fin but did not contain CWTs. All fish examined during 1992 and 1993 cruises were taken from longline, trawl, purse seine, and gill-net catches of Japanese salmon research vessels.

One CWT chinook salmon was caught in U.S. research trawling operations southwest of Kodiak Island on 15 March 1993; the fish had been tagged and released into the Trask River, Oregon, in September 1991.

Groundfish Fishery

Of 33,908 salmonids examined in 1992 by U.S. domestic groundfish observers within the U.S. EEZ, 75 chinook, 3 chum, and 1 coho salmon lacked the adipose fin (Table 3); 70 chinook and 1 coho salmon contained a CWT. The number of chum salmon examined by observers in the Bering Sea - Aleutian Islands area in 1992 was the greatest since 1984, when over 23,000 chum salmon were examined. Although over three times as many chinook salmon were examined in the Bering Sea-Aleutian Islands area as in the Pacific Coast area and Gulf of Alaska, the majority (67%) of the CWT chinook salmon recovered came from the Gulf of Alaska. The number of CWT chinook salmon recovered in the Pacific Coast area decreased from 27 in 1991 to 13 in 1992. In the Gulf of Alaska, the number of CWT chinook salmon recovered increased from 28 in 1991 to

47 in 1992. Ten CWT chinook salmon were recovered in the Bering Sea-Aleutian Islands area in 1992 compared to one in 1991 (Dahlberg *et al.* 1992).

In 1993 (through 31 August), 156 snouts from the salmonid bycatch of groundfish vessels were examined; 138 were from chinook salmon and contained a CWT, the remaining 18 snouts lacked a CWT. Sixteen of the 18 snouts were from chinook salmon; 1 pink and 1 chum salmon snout did not contain a CWT. Two CWT chinook salmon were recovered in processing plants from combined catches of several vessels; therefore, the recovery location was in the vicinity of the fishery (western Gulf of Alaska).

A snout from a chinook salmon sampled in 1990 was found while cleaning out a freezer used to store biological samples. Examination of the snout revealed a CWT; the release and recovery information is reported hereinafter.

Release and Recovery Information

Release and recovery data for previously unreported CWT salmonids recovered from the high seas and groundfish fisheries in 1992 and January through 31 August 1993 appear in Table 4 (chinook salmon), Table 5 (coho salmon), and Table 6 (steelhead). All 1992 recoveries, including those previously reported in Dahlberg *et al.* (1992), appear in Table 7.

Recovery Rates of CWT Steelhead

The recovery rate of CWTs from steelhead lacking the adipose fin changed markedly in the 1980s. During 1980-1985, nearly 60% of the steelhead lacking the adipose fin contained a CWT. In comparison, the percentage decreased to 6% in 1988, then increased slightly in 1989, only to decrease again in 1990 and 1991 (Table 8). In 1992 the recovery rate increased to 14%.

REFERENCES

- Dahlberg, M. L. 1981. Report of incidence of coded-wire tagged salmonids in catches of foreign commercial and research vessels operating in the North Pacific Ocean during June and July 1980-1981. (INPFC Doc.) Auke Bay Laboratory, Alaska Fish. Sci. Cent., NMFS, NOAA, 11305 Glacier Hwy., Juneau, AK 99801-8626. 6 pp.
- Dahlberg, M., S. Fowler, N. Maloney, and R. Heintz. 1992. Incidence of coded-wire tagged salmonids in commercial and research catches in the North Pacific Ocean and Bering Sea, 1991-1992. (INPFC Doc.) Auke Bay Laboratory, Alaska Fish. Sci. Cent., NMFS, NOAA, 11305 Glacier Hwy., Juneau, AK 99801-8626. 12 pp.
- Dahlberg, M. L., S. Fowler, F. P. Thrower, and R. Heintz. 1988. Incidence of coded-wire tagged salmonids in catches of foreign commercial and research vessels operating in the North Pacific Ocean 1987-1988. (INPFC Doc.) Auke Bay Laboratory, Alaska Fish. Sci. Cent., NMFS, NOAA, 11305 Glacier Hwy., Juneau, AK 99801-8626. 29 pp.
- Ishida, Y. 1993. Outline of Japanese salmon research in the North Pacific Ocean in 1992. Pages 1-4 *in* Reports on the research of salmon resources in the North Pacific Ocean in 1992. (Document submitted to the Annual Meeting of the North Pacific Anadromous Fish Commission, November 1993, Vancouver, Canada.) Nat. Res. Inst. of Far Seas Fisheries, Fisheries Agency of Japan, 7-1, Orido 5 Chome, Shimizu-shi, Shizuoka, 424 Japan.
- Ito, S., and Y. Ishida. 1992. Steelhead trout with missing adipose fin collected by Japanese salmon research vessels in 1992. Pages 142-143 *in* Reports on the research of salmon resources in the North Pacific Ocean. (Document submitted to the International North Pacific Fisheries Commission.) Nat. Res. Inst. of Far Seas Fisheries, Fisheries Agency of Japan, 7-1, Orido 5 Chome, Shimizu-shi, Shizuoka, 424 Japan.
- Light, J. T., S. Fowler, and M. L. Dahlberg. 1988. High seas distribution of North American steelhead as evidenced by recoveries of marked or tagged fish. (INPFC Doc.) Fish. Res. Inst., Univ. Washington, Seattle. 21 pp.
- Pacific States Marine Fisheries Commission, Regional Mark Processing Center. 1991. Pacific salmonid coded-wire tag releases 1985-1991. Portland, Oregon. 230 pp.

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 to 31 August 1993.

Tagging agency code	Number of tags recovered	Agency name
ADFG	49	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	565	California Department of Fish and Game
CDFO	271	Canada Dept. of Fisheries and Oceans - Opr.
CDFR	2	Canada Dept. of Fisheries and Oceans - Res.
CEDC	3	Clatsop Economic Development Council
COOP	13	Washington Department of Fisheries - Coop.
DOMS	1	Domsea Farms, Inc.
ELWA	2	Elwah Indian Tribe
FWS	77	U.S. Fish and Wildlife Service
HOH	6	Hoh Indian Tribe
HVT	5	Hoopa Valley Indian Tribe
IDFG	31	Idaho Department of Fish and Game
LUMM	3	Lummi Indian Tribe
MAKA	1	Makah Indian Tribe
MIC	3	Metlakatla Indian Community
NISQ	3	Nisqually Indian Tribe
NMFS	46	National Marine Fisheries Service
NSRA	8	Northern Southeast Reg. Aquaculture Assoc.
OAF	46	Oregon AquaFoods, Inc.
ODFW	893	Oregon Department of Fish and Wildlife
OPSR	2	Oregon Pacific Salmon Ranch (Formerly BHSR)
QDNR	19	Quinault Department Natural Resources
SJ	1	Sheldon Jackson College
SSC	3	Skagit System Cooperative
SSRA	29	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	644	Washington Department of Fisheries
WDW	38	Washington Department of Wildlife (Formerly WDG)
Total:	2,905	

Table 2.--Incidence of coded-wire tagged salmonids in gill-net, longline, purse seine, and trawl catches observed by Japanese and U.S. scientists on Japanese salmon research vessels in the North Pacific Ocean and Bering Sea in 1992.*

	Number of fish						Total
	Sockeye	Chum	Pink	Coho	Chinook	Steelhead	
Examined	3,663	9,613	7,628	3,124	258	256	24,542
Lacking Ad	0	0	0	0	0	56	56
CWT	0	0	0	0	0	5	5

*Source: Ishida (1993).

Table 3.--Incidence of coded-wire tagged salmonids in incidental catches of salmonids from U.S. domestic groundfish fisheries sampled by U.S. observers within the U.S. EEZ in 1992.

	Number of fish						Total
	Sockeye	Chum	Pink	Coho	Chinook	Steelhead	
WASHINGTON, OREGON, CALIFORNIA							
Examined ^a	0	23	0	28	502	0	553
Lacking Ad	0	0	0	1	15	0	16
CWT	0	0	0	1	13	0	14
GULF OF ALASKA							
Examined ^a	6	3,660	0	14	2,076	0	5,756
Lacking Ad	0	0	0	0	49	0	49
CWT	0	0	0	0	47	0	47
BERING SEA, ALEUTIANS							
Examined ^a	7	19,428	9	30	8,125	0	27,599
Lacking Ad	0	3	0	0	11	0	14
CWT	0	0	0	0	10	0	10

*Source of examined category: J. Wall and M. Guttormsen, REFM Division, Alaska Fisheries Science Center, NMFS, NOAA, Seattle, WA 98115-0070. Pers. commun., September 1993.

Table 4.--Release and recovery information for coded-wire tagged chinook salmon recovered from the North Pacific Ocean & Bering Sea, 6 April 1990 and 16 September 1992 - 31 August 1993.

RELEASE										RECOVERY											
A	D	D	R	B	S						LENGTH	BODY	GONAD								
G	A	A	E	R	T	P						TSFT	WT	WT	SEX	GEAR	SPECIES				
E	T	T	P	O	A	R						(mm)	(g)	(g)							
N	A	A	O	T	O	NUMBER	LAT	LONG													
C	C	D	E	V	AGENCY	TAGGED	DATE	DATE	D	M	D	M									
Y	1	2	D	YR	SITE																
1990																					
074328	86			UMATILLA R	OR	ODFW	26319	0488	900406	57	58	N	149	50	W	590		M	TRAWL	CHINOOK	
1992																					
020246	89			ATNARKO R UPPER	BC	CDFO	24544	0690	921209	54	48	N	165	36	W	710	4200		F	TRAWL	CHINOOK
020442	89			NAHMINT ESTUARY	BC	CDFO	32634	0590	921002	56	48	N	152	22	W	650	3000	10	M	TRAWL	CHINOOK
020657	89			CONUMA ESTUARY	BC	CDFO	27057	0590	921004	57	2	N	152	31	W	690	4600		F	TRAWL	CHINOOK
020658	89			CONUMA R	BC	CDFO	26517	0590	920427	57	45	N	150	10	W	530				TRAWL	CHINOOK
020742	89			SPRING CR - THOM	BC	CDFO	24961	0491	921002	57	6	N	152	30	W	590	3420		M	TRAWL	CHINOOK
020750	90			CHILEOTIN R	BC	CDFO	25218	0591	921225	54	42	N	166	19	W	480	1400		M	TRAWL	CHINOOK
020754R3	90			BLACKWATER R	BC	CDFO	25068	0491	921218	54	41	N	165	57	W	520	1700	20	F	TRAWL	CHINOOK
020754R3	90			BLACKWATER R	BC	CDFO	25068	0491	921225	54	43	N	166	6	W	510	1800		F	TRAWL	CHINOOK
021428	90			ATNARKO R UPPER	BC	CDFO	23746	0691	921227	54	29	N	165	50	W	470	1300		F	TRAWL	CHINOOK
021522	90			ATNARKO R LOWER	BC	CDFO	25368	0691	921222	54	41	N	165	59	W	520	1850		M	TRAWL	CHINOOK
021537	90			SALMON R - THOMPSON	BC	CDFO	55116	0591	921200	54	21	N	165	54	W	580	2400		F	TRAWL	CHINOOK
021546	90			CONUMA ESTUARY	BC	CDFO	52098	0591	921004	57	44	N	154	5	W	490	1850		F	TRAWL	CHINOOK
021557	90			BONAPARTE R THOM	BC	CDFO	75359	0491	921005	57	2	N	152	31	W	520			F	TRAWL	CHINOOK
024911	88			STERLING CR	BC	CDFO	19405	0490	921003	57	6	N	152	25	W	820	8000		F	TRAWL	CHINOOK
025463	88			CARIBOU CR UPPER	BC	CDFO	24567	0489	921005	56	25	N	155	34	W	810	8900		F	TRAWL	CHINOOK
025762	88			CHEHALIS R	BC	CDFO	27421	0589	920419	47	49	N	125	8	W	850				TRAWL	CHINOOK
025956	88			ATNARKO R LOWER	BC	CDFO	27143	0689	921003	56	50	N	152	27	W	960	13600		M	TRAWL	CHINOOK
075211	88			SANTIAM R, S FK	OR	ODFW	16355	0390	921000	56	14	N	155	56	W	620	2920		F	TRAWL	CHINOOK
075346	90			CLACKAMAS R	OR	ODFW	50949	0991	921012	57	59	N	151	30	W	490	1400		M	TRAWL	CHINOOK
180202	90			GOLD R NWVI	BC	CDFO	26674	0691	921014	57	28	N	151	22	W	510	2000		M	TRAWL	CHINOOK
311735	89			NINILCHIK R 244-20	AK	ADFG	39513	0590	920920	54	42	N	166	24	W	670	4030		M	TRAWL	CHINOOK
311854	89			CROOKED CR 244-30	AK	ADFG	26475	0690	920827	54	46	N	166	3	W	630			F	TRAWL	CHINOOK
471609	88			TANGAS CR	AK	MIC	109656	0590	920929	56	49	N	152	21	W	660	3500	20	M	TRAWL	CHINOOK
630232R4	88			SNAKE R, LOWER	WA	WDF	58989	0490	921004	48	12	N	125	2	W	660	4500	20	M	TRAWL	CHINOOK
630856R2	89			METHOW R	WA	WDF	157567	0591	921005	46	59	N	124	41	W	520	1300		M	TRAWL	CHINOOK
634117	90			STEVENS CR-220064	WA	WDF	207589	0791	921012	57	57	N	151	34	W	470	1600		M	TRAWL	CHINOOK
635556R1	89			KLICKITAT R	WA	WDF	19483	0591	921005	57	2	N	152	31	W	540	1500		F	TRAWL	CHINOOK
635650R2	89			COMLITZ R	WA	WDF	33175	0491	921003	47	34	N	124	45	W	610	2950		M	TRAWL	CHINOOK
635655R2	89			COMLITZ R	WA	WDF	34069	0491	921005	46	59	N	124	41	W	570	2400		M	TRAWL	CHINOOK
635655R3	89			COMLITZ R	WA	WDF	34069	0491	921003	47	25	N	124	42	W	580	2500		F	TRAWL	CHINOOK
1993																					
020128	89			KENNEDY R, LWR	BC	CDFO	26873	0690	930209	57	47	N	154	7	W	580	2400		M	TRAWL	CHINOOK
020129	89			KENNEDY R, LWR	BC	CDFO	27258	0690	930323	54	41	N	165	50	W	590	2500		F	TRAWL	CHINOOK
020130	89			KENNEDY R, LWR	BC	CDFO	26979	0690	930323	54	41	N	165	50	W	630	3100		F	TRAWL	CHINOOK
020250	89			ATNARKO R, LWR	BC	CDFO	24780	0690	930623	57	16	N	152	32	W	870	9300		F	TRAWL	CHINOOK
020261R1	89			QUESNEL R	BC	CDFO	75744	1090	930413	56	9	N	153	59	W	620	2800		F	TRAWL	CHINOOK
020434	89			KITIMAT R, LWR	BC	CDFO	27269	0590	930323	54	41	N	165	50	W	660	3500		F	TRAWL	CHINOOK

RELEASE DATA WERE OBTAINED FROM PACIFIC STATES MARINE FISHERIES COMMISSION REGIONAL MARK PROCESSING CENTER.

Table 4.--Continued.

RELEASE										RECOVERY					
ADDR	B			S					LENGTH	BODY	GONAD				
G A A E R				T P					TSFT	WT	WT				
E T T P O				A R					(mm)	(g)	(g)	SEX	GEAR	SPECIES	
N A A O				T O	NUMBER	DATE	LAT	LONG							
C C D				E V	AGENCY	TAGGED	DATE	D M	D M						
Y 1 2 D	YR	SITE													
1993 --Continued															
020434	89	KITIMAT R, LWR	BC	CDFO	27269	0590	930611	57 24	N 152 34	W 810	6100		F TRAWL	CHINOOK	
020438	89	HIRSCH CR	BC	CDFO	33908	0590	930217	57 50	N 154 2	W 650	4100		F TRAWL	CHINOOK	
020462	89	MARBLE R	BC	CDFO	27509	0690	930319	58 21	N 148 32	W 710	4200		M TRAWL	CHINOOK	
020636	89	NITINAT R	BC	CDFO	28458	0690	930607	57 57	N 151 56	W 770	6000		F TRAWL	CHINOOK	
020650	89	ADAMS R, UPPER	BC	CDFO	25723	0590	930221	54 45	N 165 1	W 680	4100		F TRAWL	CHINOOK	
020657	89	CONUMA R - ESTUARY	BC	CDFO	27057	0590	930714	57 52	N 152 21	W 770	5860	200	F TRAWL	CHINOOK	
020754R3	90	BLACKWATER R	BC	CDFO	25068	0491	930220	58 1	N 152 30	W 570	2200		F TRAWL	CHINOOK	
020756	90	BLACKWATER R	BC	CDFO	25153	0491	930624	57 55	N 151 55	W 543	1840		F TRAWL	CHINOOK	
020818	89	NAHMIT R	BC	CDFO	40743	0590	930209	57 46	N 154 9	W 720	5000	5	F TRAWL	CHINOOK	
021147	90	CLEARWATER R, UP B	BC	CDFO	24416	0691	930708	57 59	N 151 59	W 608	2700		M TRAWL	CHINOOK	
021316	90	CONUMA R	BC	CDFO	26555	0591	930218	58 7	N 153 22	W 450	1150		F TRAWL	CHINOOK	
021317	90	CONUMA R	BC	CDFO	28611	0591	930216	57 48	N 154 7	W 460	1300		F TRAWL	CHINOOK	
021317	90	CONUMA R	BC	CDFO	28611	0591	930218	58 7	N 153 22	W 520	1850		F TRAWL	CHINOOK	
021319	90	CONUMA R	BC	CDFO	25551	0591	930211	57 50	N 154 1	W 500	1600		M TRAWL	CHINOOK	
021441	90	EAGLE R	BC	CDFO	26670	0591	930324	54 43	N 165 40	W 480	1225		M TRAWL	CHINOOK	
021446	90	SALMON R/THOMPSON	BC	CDFO	26721	0591	930218	54 45	N 165 3	W 460	1100		F TRAWL	CHINOOK	
021457	90	NITINAT R	BC	CDFO	27738	0591	930216	57 59	N 153 38	W 510	1800		M TRAWL	CHINOOK	
021516	90	DEEP COVE	BC	CDFO	26522	0591	930218	58 12	N 153 17	W 540	2100		F TRAWL	CHINOOK	
021518	90	HIRSCH CR	BC	CDFO	26721	0491	930213	57 49	N 153 39	W 590	2200		F TRAWL	CHINOOK	
021520	90	HIRSCH CR	BC	CDFO	27005	0591	930217	57 43	N 154 10	W 570	2500		M TRAWL	CHINOOK	
021521	90	ATMARKO R LWR	BC	CDFO	22021	0691	930218	54 49	N 165 30	W 580	2500		M TRAWL	CHINOOK	
021522	90	ATMARKO R	BC	CDFO	25368	0691	930217	57 7	N 153 32	W 500	1600		F TRAWL	CHINOOK	
021535	90	EAGLE R	BC	CDFO	54447	0591	930607	57 55	N 152 0	W 644	3200		F TRAWL	CHINOOK	
021545	90	CONUMA ESTUARY	BC	CDFO	51234	0591	930215	57 57	N 153 46	W 500	1800		M TRAWL	CHINOOK	
021545	90	CONUMA ESTUARY	BC	CDFO	51234	0591	930221	57 55	N 153 49	W 490	1500		F TRAWL	CHINOOK	
021545	90	CONUMA ESTUARY	BC	CDFO	51234	0591	930221	57 54	N 153 49	W 480	1450		F TRAWL	CHINOOK	
021545	90	CONUMA ESTUARY	BC	CDFO	51234	0591	930224	58 0	N 153	W 490	1300		F TRAWL	CHINOOK	
021546	90	CONUMA ESTUARY	BC	CDFO	52098	0591	930218	57 53	N 153 55	W 480	1400		F TRAWL	CHINOOK	
021546	90	CONUMA ESTUARY	BC	CDFO	52098	0591	930221	57 54	N 153 49	W			TRAWL	CHINOOK	
021546	90	CONUMA ESTUARY	BC	CDFO	52098	0591	930222	57 50	N 154 0	W 530	2100		M TRAWL	CHINOOK	
021547	90	CHEHALIS R	BC	CDFO	49040	0491	930501	45 11	N 124 12	W 440			F TRAWL	CHINOOK	
021549	90	ROBERTSON CR	BC	CDFO	33896	0691	930218	57 53	N 153 55	W 440	1000		F TRAWL	CHINOOK	
021550	90	ROBERTSON CR	BC	CDFO	33676	0691	930219	57 44	N 154 12	W 520	1900		F TRAWL	CHINOOK	
021550	90	ROBERTSON CR	BC	CDFO	33676	0691	930224	58 13	N 153 21	W 550	2000		TRAWL	CHINOOK	
021551	90	ROBERTSON CR	BC	CDFO	33245	0691	930218	58 13	N 153 15	W 510	1550		F TRAWL	CHINOOK	
021552	90	ROBERTSON CR	BC	CDFO	32863	0691	930209	58 8	N 153 24	W 540	2000		M TRAWL	CHINOOK	
021552	90	ROBERTSON CR	BC	CDFO	32863	0691	930221	58 14	N 153 14	W 470	1700		TRAWL	CHINOOK	
021553	90	ROBERTSON CR	BC	CDFO	33298	0691	930219	57 44	N 154 12	W 530	2000		F TRAWL	CHINOOK	
021558	90	RAFT R	BC	CDFO	74440	0591	930213	57 49	N 153 39	W 564	2600		F TRAWL	CHINOOK	
021558	90	RAFT R	BC	CDFO	74440	0591	930414	56 10	N 153 59	W 540	2050		F TRAWL	CHINOOK	
021560	90	KITIMAT R, LWR	BC	CDFO	85955	0591	930215	57 58	N 153 38	W 570	2500		M TRAWL	CHINOOK	
021560	90	KITIMAT R	BC	CDFO	85955	0591	930608	58 0	N 154 25	W 620	2800		M TRAWL	CHINOOK	
024940	89	GOLD R	BC	CDFO	28636	0590	930211	57 50	N 154 1	W 640	3400		F TRAWL	CHINOOK	
025246	88	DOVE CR	BC	CDFO	10494	0490	930708	57 59	N 151 59	W 818	6790	30	F TRAWL	CHINOOK	
025632R3	88	QUESNEL R	BC	CDFO	48945	0490	W. G. OF ALASKA							TRAWL	CHINOOK
025635R1	88	QUESNEL R	BC	CDFO	48676	0390	930217	54 49	N 165 22	W 720	4760		F TRAWL	CHINOOK	
026015	90	SALMON R, PR GEROG	BC	CDFO	25960	0591	930321	56 0	N 154 0	W 620	3100		M TRAWL	CHINOOK	
040703	89	BEAR COVE 113 - 41	AK	NSRA	8995	0591	930608	57 59	N 151 55	W 600	3100		F TRAWL	CHINOOK	
043252R2	88	NEETS BAY 101-90	AK	SSRA	51994	0590	930706	57 8	N 152 23	W 610			F TRAWL	CHINOOK	

RELEASE DATA WERE OBTAINED FROM PACIFIC STATES MARINE FISHERIES COMMISSION REGIONAL MARK PROCESSING CENTER.

Table 4.--Continued.

RELEASE										RECOVERY											
A	D	D	R	B	S						LENGTH	BODY	GONAD								
G	A	A	E	R	T						TSFT	WT	WT								
E	T	P	O	A						(mm)	(g)	(g)	SEX	GEAR	SPECIES						
N	A	A	O	R						D	M	D	M								
C	C	D	T	O	NUMBER																
Y	1	2	D	YR	SITE	E	V	AGENCY	TAGGED	DATE	DATE	D	M	D	M						
1993 --Continued																					
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			AUKE BAY 111-50	AK	ADFG	18270	0691	930221	57	54	N	153	49	W				F	TRAWL	CHINOOK
043406	88			CRYSTAL CR 106-44	AK	ADFG	20788	0590	930319	57	52	N	149	55	W	670	3710		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			KASHYKU 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	10527	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
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
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
074914R2	90			ROCK CR (LMPQUA R)	OR	ODFW	20146	0991	930428	43	58	N	124	59	W	530	2100		M	TRAWL	CHINOOK
074925R1	90			CHETCO R - JACK CR	OR	ODFW	23514	0691	930428	43	58	N	124	59	W	510	1610		F	TRAWL	CHINOOK
074925R3	90			CHETCO R - JACK CR	OR	ODFW	23514	0691	930418	44	3	N	124	59	W	540			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
075501R1	89			SANTIAM R, S FK	OR	ODFW	127939	1190	930212	57	49	N	154	3	W	690	4100		F	TRAWL	CHINOOK
075501R1	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, M 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	550	2200		M	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	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	500	1350		F	TRAWL	CHINOOK
075626	90			SANTIAM R, S FK	OR	ODFW	158403	1191	930409	56	42	N	152	30	W	600	2500		M	TRAWL	CHINOOK
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	5530	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

RELEASE DATA WERE OBTAINED FROM PACIFIC STATES MARINE FISHERIES COMMISSION REGIONAL MARK PROCESSING CENTER.

Table 4.--Continued.

RELEASE										RECOVERY													
A	D	D	R	B	S						LENGTH	BODY	GONAD										
G	A	A	E	R	T	P						TSFT	WT	WT									
E	T	T	P	O	A	R						(mm)	(g)	(g)	SEX	GEAR	SPECIES						
N	A	A	O	T	O	NUMBER	LAT	LONG															
C	C	D	Y	1	2	D	YR	SITE	E	V	AGENCY	TAGGED	DATE	DATE	D	M	D	M					
1993 --Continued																							
082855	90			NITINAT LAKE	BC	CDFO	5530	0691	930220	57	45	N	154	11	W	520	1850	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			
180202	90			GOLD R	BC	CDFO	26674	0691	930207	54	42	N	154	15	W	500	1700	M	TRAWL	CHINOOK			
180202	90			GOLD R	BC	CDFO	26674	0691	930212	57	49	N	154	3	W	520	1800	M	TRAWL	CHINOOK			
180202	90			GOLD R	BC	CDFO	26674	0691	930220	58	1	N	152	30	W	510	1700		TRAWL	CHINOOK			
180202	90			GOLD R	BC	CDFO	26674	0691	930211	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			
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			SPIUS CR	BC	CDFO	74949	0492	930704	57	56	N	151	41	W	440	1100	F	TRAWL	CHINOOK			
180433	91			KITINAT R	BC	CDFO	28814	0492	930718	56	24	N	153	45	W	430	1140	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			QUINULT R 21-0398	WA	QDNR	27929	0991	930216	58	3	N	153	36	W	540	1900	M	TRAWL	CHINOOK			
212028	90			QUINULT R 21-0398	WA	QDNR	27929	0991	930221	57	54	N	153	49	W	480	1550	M	TRAWL	CHINOOK			
471609	88			TAMGAS CR	AK	MIC	109656	0590	930319	57	52	N	149	55	W	690	3850	F	TRAWL	CHINOOK			
630732R1	89			COLUMBIA R	WA	WDF	194530	0690	930405	57	48	N	150	3	W	700	5000	F	TRAWL	CHINOOK			
630756R4	89			STEVENS CR 22-0064	WA	WDF	203892	0790	930413	56	9	N	153	59	W	660	3450	F	TRAWL	CHINOOK			
630759R3	89			SIMILKAMEEN R - 49	WA	WDF	116821	0591	930209	57	47	N	154	7	W	580	2300	F	TRAWL	CHINOOK			
631119R2	89			WENATCHEE R 45-0030	WA	WDF	144905	0591	930217	57	43	N	154	10	W	570	2500	F	TRAWL	CHINOOK			
631437R1	89			COMLITZ R, 26-0002	WA	WDF	34003	0491	930423	45	27	N	124	25	W	610	2800	F	TRAWL	CHINOOK			
633933	90			WISHKAH R	WA	COOP	48635	0791	930405	57	52	N	150	9	W	510	1600	M	TRAWL	CHINOOK			
633933	90			WISHKAH R	WA	COOP	48635	0791	930407	58	42	N	150	20	W	590	2000	M	TRAWL	CHINOOK			
634057	90			COL R, NEAR BASIN 36	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			
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			
635259R2	88			STEVENS CR 22-0064	WA	WDF	206735	0789	930320	58	53	N	148	47	W	750	5600	F	TRAWL	CHINOOK			
635904R1	89			WASHOUGAL R	WA	WDF	93542	0690	930407	58	42	N	150	20	W	600	2300	M	TRAWL	CHINOOK			

RELEASE DATA WERE OBTAINED FROM PACIFIC STATES MARINE FISHERIES COMMISSION REGIONAL MARK PROCESSING CENTER.

Table 5.--Release and recovery information for coded-wire tagged coho salmon recovered from the North Pacific Ocean and Bering Sea, 16 September 1992 - 31 August 1993.

RELEASE											RECOVERY											
A	D	D	R	B																		
G	A	A	E	R	S																	
E	T	T	P	O	T	P																
N	A	A	O	A	R								LENGTH	BODY	GONAD							
C	C	D	T	O	NUMBER																	
Y	1	2	D	YR	SITE	E	V	AGENCY	TAGGED	DATE	DATE	D	M	D	M	(mm)	(g)	(g)	SEX	GEAR	SPECIES	
1992																						
020219	89				CHILLIWACK R, LW FK	BC	CDFO	9938	0591	921007	48	26	N	124	52	W	578	2338	210	TRAWL	COHO	
1993																						
043835	90				GASTINEAU CHANNEL	AK	ADFG	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 PACIFIC STATES MARINE FISHERIES COMMISSION REGIONAL MARK PROCESSING CENTER.

Table 6.--Release and recovery information for coded-wire tagged steelhead recovered from the North Pacific Ocean and Bering Sea, 16 September 1992 - 31 August 1993.

RELEASE										RECOVERY									
ADDR	B																		
G A A E R		S																	
E T T P O		T P																	
N A A O		A R								LENGTH	BODY	GONAD							
C C D		T O								TSFT	WT	WT							
Y 1 2 D	YR	SITE	E V	AGENCY	NUMBER	TAGGED	DATE	DATE	D	M	D	M	(mm)	(g)	(g)	SEX	GEAR	SPECIES	
1992																			
052424	90	CLEARWATER R, MAIN	ID	FWS	19773	0591	920624	44	30	N	179	30	W	577	1700	1	M	RESGILL	STEELHEAD
052425	90	CLEARWATER R, MAIN	ID	FWS	20320	0591	920621	42	30	N	179	30	W	596	2200	1	M	RESLLINE	STEELHEAD
104316	90	SALMON R, E FK	ID	IDFG	20312	0491	920708	46	1	N	177	32	W	592	1830	1	M	RESGILL	STEELHEAD
211903	90	QUINAULT R 21-0398	WA	QDNR	29507	0491	920624	45	30	N	179	30	W	558	1650	2	F	RESLLINE	STEELHEAD
213519R4	89	CHALAAT CR 20-0423	WA	HOH	43523	0490	920724	48	51	N	164	29	E	772	4750	87		RESGILL	STEELHEAD

RELEASE DATA WERE OBTAINED FROM PACIFIC STATES MARINE FISHERIES COMMISSION REGIONAL MARK PROCESSING CENTER.

Table 7.--Release and recovery information for coded-wire tagged salmonids recovered from the North Pacific Ocean and Bering Sea, 1 January 1992 - 31 December 1992.

RELEASE										RECOVERY											
A D D R B	G A A E R	E T T P O	N A A O	C C D	Y 1 2 D YR	SITE	S	T P	A R	T O	NUMBER	DATE	DATE	LAT	LONG	LENGTH	BODY	GONAD	SEX	GEAR	SPECIES
							E V	AGENCY	TAGGED	DATE	DATE	D M	D M	D M	(mm)	(g)	(g)				
1992																					
020230	89	CHINA CR	BC	CDFO	17104	0590					920204	57 30 W	153 W	470	1140				F	TRAWL	CHINOOK
020246	89	ATNARKO R UPPER	BC	CDFO	24544	0690					921209	54 48 N	165 36 W	710	4200				F	TRAWL	CHINOOK
020442	89	NAHMINT ESTUARY	BC	CDFO	32634	0590					921002	56 48 N	152 22 W	650	3000	10			M	TRAWL	CHINOOK
020518	89	YAKOUN R	BC	CDFO	25983	0690					920709	56 53 N	155 5 W	520	1850	2			F	TRAWL	CHINOOK
020630	89	NITINAT R	BC	CDFO	27145	0590					920312	56 35 N	152 18 W	500	1700				F	TRAWL	CHINOOK
020657	89	CONUMA ESTUARY	BC	CDFO	27057	0590					921004	57 2 N	152 31 W	690	4600				F	TRAWL	CHINOOK
020658	89	CONUMA R	BC	CDFO	26517	0590					920427	57 45 N	150 10 W	530						TRAWL	CHINOOK
020658	89	CONUMA R	BC	CDFO	26517	0590					920613	57 15 N	152 30 W	652	4200				M	TRAWL	CHINOOK
020742	89	SPRING CR - THOM	BC	CDFO	24961	0491					921002	57 6 N	152 30 W	590	3420				M	TRAWL	CHINOOK
020750	90	CHILCOTIN R	BC	CDFO	25218	0591					921225	54 42 N	166 19 W	480	1400				M	TRAWL	CHINOOK
020754R3	90	BLACKWATER R	BC	CDFO	25068	0491					921218	54 41 N	165 57 W	520	1700	20			F	TRAWL	CHINOOK
020754R3	90	BLACKWATER R	BC	CDFO	25068	0491					921225	54 43 N	166 6 W	510	1800				F	TRAWL	CHINOOK
020818	89	NAHMINT R	BC	CDFO	40743	0590					920129	58 10 N	153 24 W	500	1850				F	TRAWL	CHINOOK
021428	90	ATNARKO R UPPER	BC	CDFO	23746	0691					921227	54 29 N	165 50 W	470	1300				F	TRAWL	CHINOOK
021522	90	ATNARKO R LOWER	BC	CDFO	25368	0691					921222	54 41 N	165 59 W	520	1850				M	TRAWL	CHINOOK
021537	90	SALMON R - THOMPSON	BC	CDFO	55116	0591					921200	54 21 N	165 54 W	580	2400				F	TRAWL	CHINOOK
021546	90	CONUMA ESTUARY	BC	CDFO	52098	0591					921004	57 44 N	154 5 W	490	1850				F	TRAWL	CHINOOK
021557	90	BONAPARTE R THOM	BC	CDFO	75359	0491					921005	57 2 N	152 31 W	520					F	TRAWL	CHINOOK
024911	88	STERLING CR	BC	CDFO	19405	0490					921003	57 6 N	152 25 W	820	8000				F	TRAWL	CHINOOK
025009	87	BABINE R	BC	CDFO	24132	0489					920201	53 24 N	166 2 W	580	2450				F	TRAWL	CHINOOK
025009	87	BABINE R	BC	CDFO	24132	0489					920709	56 53 N	155 5 W	570	2000				M	TRAWL	CHINOOK
025462	88	CARIBOU CR UPPER	BC	CDFO	25683	0489					920312	56 35 N	152 18 W	740	6300				F	TRAWL	CHINOOK
025463	88	CARIBOU CR UPPER	BC	CDFO	24567	0489					921005	56 25 N	155 34 W	810	8900				F	TRAWL	CHINOOK
025520	88	CHILKO R	BC	CDFO	50249	0589					920309	59 15 N	146 16 W	800	6600					TRAWL	CHINOOK
025635R3	88	QUESNEL R	BC	CDFO	48676	0390					920312	56 35 N	152 18 W	590	2700				M	TRAWL	CHINOOK
025741	88	CHILLIWACK R	BC	CDFO	26958	0589					920312	56 35 N	152 18 W	690	4500				M	TRAWL	CHINOOK
025760	88	DEEP COVE	BC	CDFO	25495	0589					920503	43 26 N	124 43 W	860	9000				F	TRAWL	CHINOOK
025762	88	CHEHALIS R	BC	CDFO	27421	0589					920419	47 49 N	125 8 W	850						TRAWL	CHINOOK
025801	88	CHEHALIS R	BC	CDFO	26630	0589					920312	53 35 N	152 18 W	700	5600				F	TRAWL	CHINOOK
025832	88	CONUMA R	BC	CDFO	27020	0689					920312	56 35 N	152 18 W	720	5200				F	TRAWL	CHINOOK
025837	88	ROBERTSON CR	BC	CDFO	25026	0689					920312	56 35 N	152 18 W	690	4300				F	TRAWL	CHINOOK
025956	88	ATNARKO R LOWER	BC	CDFO	27143	0689					921003	56 50 N	152 27 W	960	13600				M	TRAWL	CHINOOK
026006	88	HITCHIE CR	YK	CDFO	24839	0689					920325	56 44 N	173 15 W	620	2900				F	TRAWL	CHINOOK
026044	88	KITSUMKALUM R	BC	CDFO	26849	0489					920402	56 29 N	155 56 W	740	4700				M	TRAWL	CHINOOK
026059	88	NAPOLEON CR	BC	CDFO	25538	0589					920320	57 46 N	154 7 W	700	4260				M	TRAWL	CHINOOK
026310	88	BABINE R	BC	CDFO	24191	0590					920312	56 35 N	152 18 W	630	3200				M	TRAWL	CHINOOK
026313	88	BULKLEY R	BC	CDFO	26397	0590					920312	56 35 N	152 18 W	630	3300				F	TRAWL	CHINOOK
042737	87	CRYSTAL CR 106-44	AK	ADFG	26395	0589					920120	57 32 N	154 44 W	680	3720				M	TRAWL	CHINOOK
043202	87	EARL WEST COV 107-40	AK	ADFG	48105	0589					920711	56 45 N	155 59 W	805	8150				M	TRAWL	CHINOOK
043255R3	88	NEETS BAY 101-90	AK	SSRA	51016	0590					920312	56 35 N	152 18 W	640	3200				M	TRAWL	CHINOOK
043428	88	BEAR COVE 113-41	AK	NSRA	10493	0590					920129	58 10 N	153 24 W	530	1930				M	TRAWL	CHINOOK
043431	88	BEAR COVE 113-41	AK	NSRA	8058	0590					920125	57 30 N	154 W	570					F	TRAWL	CHINOOK
062810	88	ELK CR	CA	CDFG	21265	1089					920430	44 0 N	125 0 W	700					M	TRAWL	CHINOOK
066148	88	TRINITY R, HATCHERY	CA	CDFG	98820	1089					920425	45 53 N	124 48 W	720	5200				F	TRAWL	CHINOOK
075047R1	87	SANTIAM R, N FK-1	OR	ODFW	30076	0389					920215	57 11 N	152 31 W	850	8000				M	TRAWL	CHINOOK
075141	88	INDIAN CR - ROGUE	OR	ODFW	53193	0989					920424	48 7 N	125 10 W	660	4000	30			F	TRAWL	CHINOOK
075211	88	SANTIAM R, S FK	OR	ODFW	16355	0390					921000	56 14 N	155 56 W	620	2920				F	TRAWL	CHINOOK

RELEASE DATA WERE OBTAINED FROM PACIFIC STATES MARINE FISHERIES COMMISSION REGIONAL MARK PROCESSING CENTER.

Table 7.--Continued.

RELEASE										RECOVERY											
A	D	D	R	B	S						LENGTH	BODY	GONAD								
G	A	A	E	R	T	P						TSFT	WT	WT	SEX	GEAR	SPECIES				
E	T	T	P	O	A	R						(mm)	(g)	(g)							
N	A	A	O	T	O	NUMBER	LAT	LONG													
C	C	D	E	V	AGENCY	TAGGED	DATE	DATE	D	M	D	M									
Y	1	2	D	YR	SITE																
1992																					
075346	90			CLACKAMAS R	OR	ODFW	50949	0991	921012	57	59	N	151	30	W	490	1400		M	TRAWL	CHINOOK
075348	89			WILLAMETTE R, M FK	OR	ODFW	15045	1190	920312	56	35	N	152	18	W	530	1700		F	TRAWL	CHINOOK
180202	90			GOLD R NWVI	BC	CDFO	26674	0691	921014	57	28	N	151	22	W	510	2000		M	TRAWL	CHINOOK
211834	89			COOK CR (GUIN)	WA	FWS	187402	0790	920606	56	58	N	152	31	W	490	1500		F	TRAWL	CHINOOK
211835	89			SALMON R 21-0139	WA	QDNR	120787	0990	920120	57	41	N	154	30	W	470	1500			TRAWL	CHINOOK
211846	89			QUINAULT R 21-0398	WA	QDNR	93091	0690	920312	56	35	N	152	18	W	560	2000		M	TRAWL	CHINOOK
311735	89			NINILCHIK R 244-20	AK	ADFG	39513	0590	920920	54	42	N	166	24	W	670	4030		M	TRAWL	CHINOOK
311854	89			CROOKED CR 244-30	AK	ADFG	26475	0690	920827	54	46	N	166	3	W	630			F	TRAWL	CHINOOK
471609	88			TANGAS CR	AK	MIC	109656	0590	920929	56	49	N	152	21	W	660	3500	20	M	TRAWL	CHINOOK
603957	88			SOUTH BEACH	OR	OAF	19602	0889	920418	44	41	N	124	37	W	930	11500		M	TRAWL	CHINOOK
630232R4	88			SNAKE R, LOWER	WA	WDF	58989	0490	921004	48	12	N	125	2	W	660	4500	20	M	TRAWL	CHINOOK
630856R2	89			METHOW R	WA	WDF	157567	0591	921005	46	59	N	124	41	W	520	1300		M	TRAWL	CHINOOK
634117	90			STEVENS CR-220064	WA	WDF	207589	0791	921012	57	57	N	151	34	W	470	1600		M	TRAWL	CHINOOK
635247R3	88			LEWIS R	WA	WDF	113890	0490	920405	57	4	N	152	22	W	570	2600		M	TRAWL	CHINOOK
635247R3	88			LEWIS R	WA	WDF	113890	0490	920424	47	2	N	124	56	W	630	3300	1	M	TRAWL	CHINOOK
635259R1	88			STEVENS CR	WA	WDF	206735	0789	920312	56	35	N	152	18	W	590	2900		F	TRAWL	CHINOOK
635259R3	88			STEVENS CR	WA	WDF	206735	0789	920312	56	35	N	152	18	W	660	4200		F	TRAWL	CHINOOK
635259R4	88			STEVENS CR	WA	WDF	206735	0789	920502	57	40	N	150	9	W	705	4800	50	F	TRAWL	CHINOOK
635502R1	87			CAPITOL LK-MCLANE CR	WA	WDF	49294	0589	920505	46	38	N	124	41	W	750	5000		F	TRAWL	CHINOOK
635556R1	89			KLICKITAT R	WA	WDF	19483	0591	921005	57	2	N	152	31	W	540	1500		F	TRAWL	CHINOOK
635650R2	89			COMLITZ R	WA	WDF	33175	0491	921003	47	34	N	124	45	W	610	2950		M	TRAWL	CHINOOK
635655R2	89			COMLITZ R	WA	WDF	34069	0491	921005	46	59	N	124	41	W	570	2400		M	TRAWL	CHINOOK
635655R3	89			COMLITZ R	WA	WDF	34069	0491	921003	47	25	N	124	42	W	580	2500		F	TRAWL	CHINOOK
020219	89			CHILLIWACK R, LW FK	BC	CDFO	9938	0591	921007	48	26	N	124	52	W	578	2338	210.		TRAWL	COHO
052424	90			CLEARWATER R, MAIN	ID	FWS	19773	0591	920624	44	30	N	179	30	W	577	1700	1	M	RESGILL	STEELHEAD
052425	90			CLEARWATER R, MAIN	ID	FWS	20320	0591	920621	42	30	N	179	30	W	596	2200	1	M	RESLLINE	STEELHEAD
104316	90			SALMON R, E FK	ID	IDFG	20312	0491	920708	46	1	N	177	32	W	592	1830	1	M	RESGILL	STEELHEAD
211903	90			QUINAULT R 21-0398	WA	QDNR	29507	0491	920624	45	30	N	179	30	W	558	1650	2	F	RESLLINE	STEELHEAD
213519R4	89			CHALAAT CR 20-0423	WA	HOH	43523	0490	920724	48	51	N	164	29	E	772	4750	87		RESGILL	STEELHEAD

RELEASE DATA WERE OBTAINED FROM PACIFIC STATES MARINE FISHERIES COMMISSION REGIONAL MARK PROCESSING CENTER.

Table 8.--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 - 31 December 1992. (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

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