

**ANNUAL CODED WIRE PROGRAM  
MISSING PRODUCTION GROUPS**

**1994 ANNUAL REPORT**

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## **INTRODUCTION**

In 1989, the U.S. Fish and Wildlife Service (Service) received funding from the Bonneville Power Administration (BPA) to initiate a program of coded-wire tagging production groups of anadromous fish that did not have representative groups marked for evaluation. The purpose of the program is to mark a representative group of fish from each production release.

The three objectives of the program are:

1. To estimate the survival of each release group,
2. To estimate the contribution of each release group to ocean and inriver fisheries, and
3. To estimate the straying rate of hatchery fish.

This information will be used to evaluate hatchery practices and individual broodstocks. It will also enable salmon harvest managers to manage harvest of excess hatchery fish while protecting the threatened or endangered stocks.

In order to meet these objectives, a minimum of one marked group of fish for each production release is necessary for evaluation. The level of marking varies according to the hatchery's location, species of fish, and age at release. All fish released from the various facilities along with mark/unmarked release ratios are reported to the Pacific States Marine Fisheries Commission (PSMFC). All fish recovered in the various fisheries or at the hatchery are sampled to recover coded-wire tags. This information is then reported to the PSMFC along with sampling rates. Contribution to various fisheries and survival of the release groups can then be estimated from this information.

## **RESULTS & DISCUSSION**

Under the 1994 missing production group contract with BPA, the Service, marked a total of 1,042,430 salmon and steelhead. This total represents 32 different tag groups (Table 1). Under a separate contract, BPA funded the marking of 250,352 more salmon. An additional 2,189,709 were marked with Service monies other agencies funded the marking of 400,656 fish at federal hatcheries.

The percent recovery by state for the last 5 completed broodyears is presented in Appendix A for each federal hatchery in the Columbia River Basin. The broods included are as follows: chinook 1984 to 1988; coho 1986 to 1990; and steelhead 1985 to 1989. This information is completely absent or incomplete for many Service hatcheries due to lack of marked groups of fish. Appendix B contains reference documents for these same broodyears.

HATCHERY	SPECIES	BROODYEAR	DATE	GROUPS	NUMBER
Willard NFH	Coho Salmon	92	March 1994	1	50,058
Entiat NFH	Spring Chinook	93	March 1994	2	120,162
Entiat NFH	Spring Chinook "0-Age Release"	93	April 1994	2	200,748
Little White Salmon NFH	Upriver Bright Fall Chinook	93	May 1994	1	50,223
Little White Salmon NFH	Spring Chinook "0-Age Release"	93	June 1993	2	100,342
Little White Salmon NFH	Spring Chinook	93	June 1993	2	50,084
Winthrop NFH	Spring Chinook	93	June 1993	4	200,492
Carson NFH	Spring Chinook	93	June 1993	12	159,998
Eagle Creek NFH	Coho Salmon	93	October 1993	4	60,112
Eagle Creek NFH "CEDC"	Coho Salmon "CEDC"	93	October 1993	2	50,211

Table 1. Fish Marked in CY 94 under Missing Production Groups

These documents were developed using the Service's Columbia River information System database and Tag Summary by Year reports downloaded from the PSMFC database. The following sections discuss the results for each national fish hatchery in the Columbia River, starting downstream.

### **Abernathy Salmon Culture Technology Center**

Abernathy Salmon Culture Technology Center is located 14 miles west of Longview, Washington, on Abernathy Creek, approximately 3 miles upstream from its confluence with the Columbia River. The center was constructed in 1959 and the fish culture operation began the following year. At present, lower river tule fall chinook are the only species reared on a production basis at Abernathy.

There were no releases of marked fish for broodyears 1983 to 1988 from Abernathy. Marking fish with coded-wire tags was resumed for BY 1989 under the missing production group program. Fish marking has continued each year under other programs.

### **Eagle Creek National Fish Hatchery**

Eagle Creek National Fish Hatchery (NFH) is located about 7 miles from Estacada, Oregon on Eagle Creek, approximately 8 miles above its confluence with the Clackamas River. The hatchery was constructed in 1956 under the Columbia River Fishery Development Program (CRFDP). Even though Eagle Creek NFH has raised fall and spring chinook in past years, production is now limited to coho and winter steelhead.

The 1990 brood coho survived at a rate of 0.12 percent. This compares with an average survival of 1.75 percent for BY 1988 through 1990 (Figure 1). The coho were caught primarily off the Washington coast in the sport fishery and contributed to the Columbia River gillnet fishery (Figure 2).

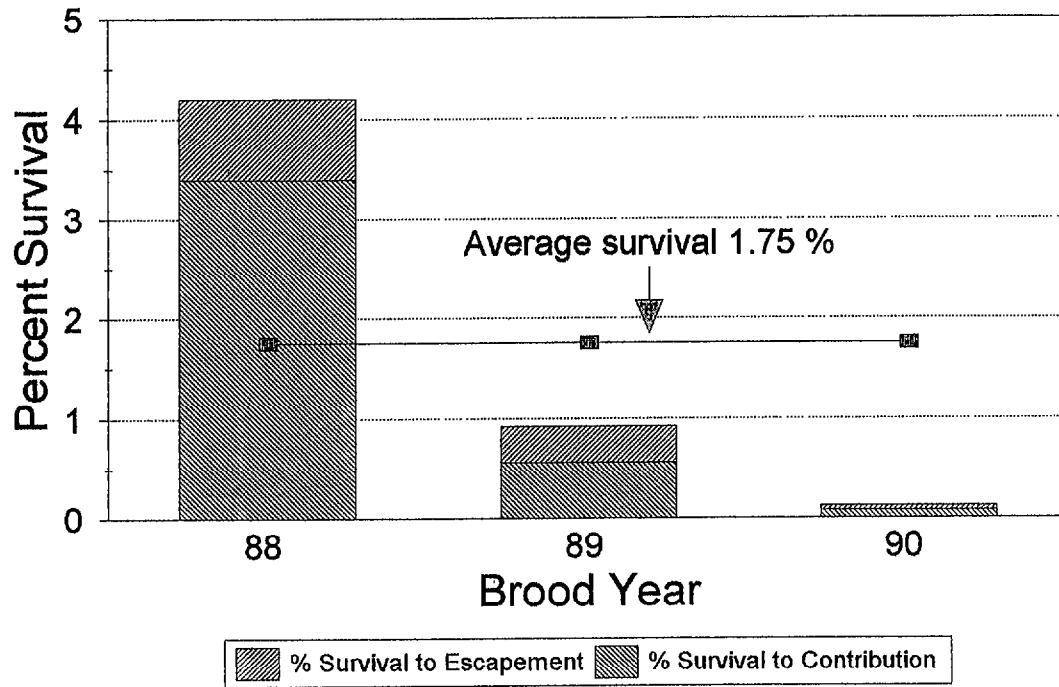
Marking winter steelhead with coded-wire tags began with the 1989 brood. Figure 3 shows survival and contribution for the brood. The values of .77 percent survival and .01 percent contribution are absolute minimums due to the non-existence of a creel program on Eagle Creek. Marking steelhead with a coded-wire tag was discontinued in 1994 since all hatchery steelhead are fin clipped.

### **Carson National Fish Hatchery**

Carson NFH is located 13 miles northwest of Carson, Washington at the confluence of the Wind River and Tyee Springs. Carson NFH began operation in 1938 by rearing and releasing fall chinook salmon and trout. In 1956, the hatchery was remodeled under the

# Eagle Creek NFH

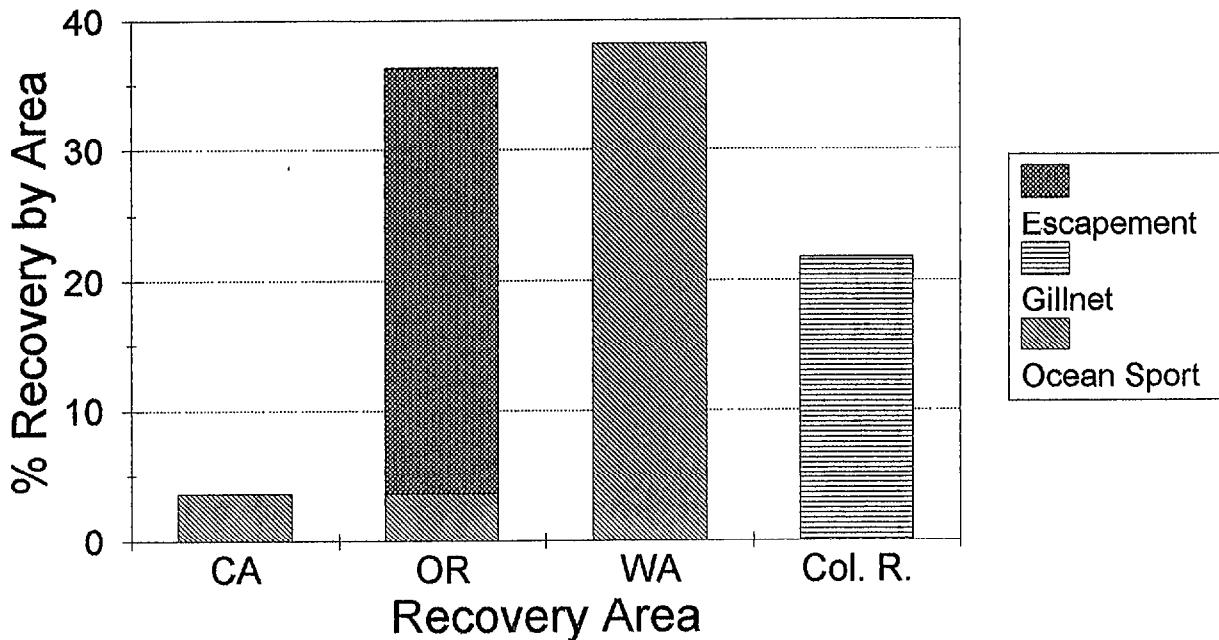
## Coho Salmon



BY	% Escapement	% Contribution
1988	0.80	3.40
1989	0.36	0.56
1990	0.04	0.08

Figure 1. Survival of Eagle Creek NFH Coho by Brood.

## Eagle Creek NFH Coho Salmon BY 1990

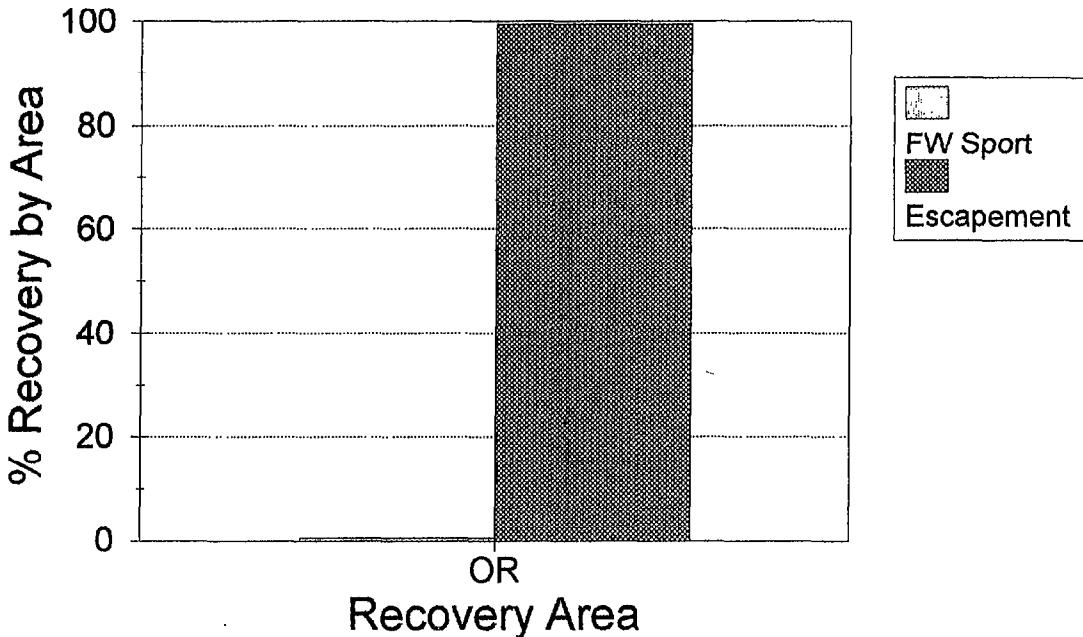


Percent Recovery by Area				
	CA	OR	WA	Col. R.
Net	---	---	---	21.8
Ocean Sport	3.6	3.6	38.2	---
Escapement	32.7	---	---	---

Total Release	1,087,346
# Tags	45,656
% Survival	0.12
% Contribution	0.08

Figure 2. Survival and Contribution for Eagle Creek NFH Coho, BY 1990.

## Eagle Creek NFH Winter Steelhead BY 1989



Percent Recovery by Area	
FW Sport	0.6
Escapement	99.4

Total Release	169,325
# Tags	42,798
% Survival	0.77
% Contribution	0.01

Figure 3. Survival and Contribution for Eagle Creek NFH Winter Steelhead, BY 1989.

Mitchell Act in an attempt to establish a spring chinook return to the Wind River. Current production involves adult collection, egg incubation and rearing of spring chinook salmon.

Broodyears 1983 to 1985 spring chinook from Carson were marked with coded-wire tags for a density study. The average survival of these broods is 0.22 percent. These fish were recovered mainly in the freshwater sport fishery. The 1988 brood survived at a rate of .23 percent (Figure 4). They contributed to the Washington freshwater sport fishery and the treaty ceremonial fishery in the Columbia River (Figure 5).

### **Little White Salmon National Fish Hatchery**

Little White Salmon NFH is located on the Little White Salmon River, 12 miles east of Stevenson, Washington. The hatchery was originally built in 1898 and was remodeled and expanded in 1958. Now operating as part of the CRFDP, hatchery production consists of rearing upriver bright fall chinook and spring chinook salmon.

Both 0-age and yearling spring chinook are released from the hatchery. Broodyears 1983 and 1984 were coded-wire tagged. Average survival for 0-age release fish was 0.11 as compared with a average survival of 0.39 percent for the yearling release. Marking of spring chinook was resumed for broodyear 1988 under the Missing Group Program.

The 1988 brood of spring chinook survived at a rate of .86 percent (Figure 6). This brood contributed mainly to the treaty ceremonial fishery in the Bonneville pool as well as the freshwater sport fishery in Drano Lake (Figure 7).

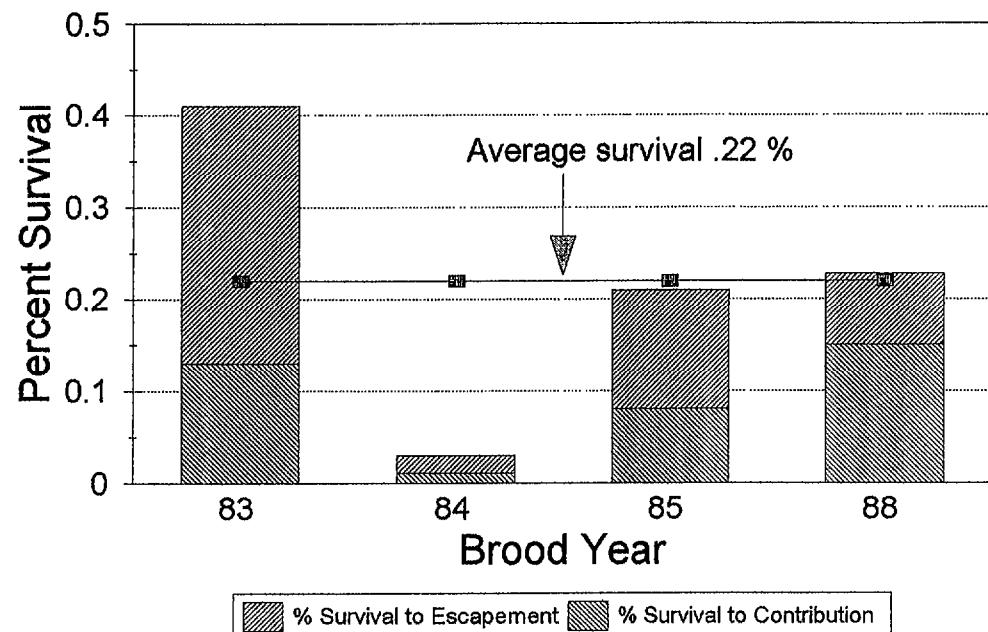
Broodyears 1983 through 1985 upriver brights were marked for both a yearling release and fingerling release. Average percent survival for the fingerling release was 1.1 as compared to the survival of 0.38 for the yearling release. The extended rearing period for upriver brights is no longer in effect.

### **Willard National Fish Hatchery**

Willard NFH is situated 4 miles upstream of Little White Salmon NFH on the Little White Salmon River. Willard NFH was constructed in 1952 under authorization of the Mitchell Act and was originally planned as a fall chinook hatchery. The hatchery was switched to a spring chinook and coho facility because of cold water temperatures. Since the mid-1960s, the hatchery has been used primarily for coho production. All adult coho are trapped and spawned at Little White Salmon NFH.

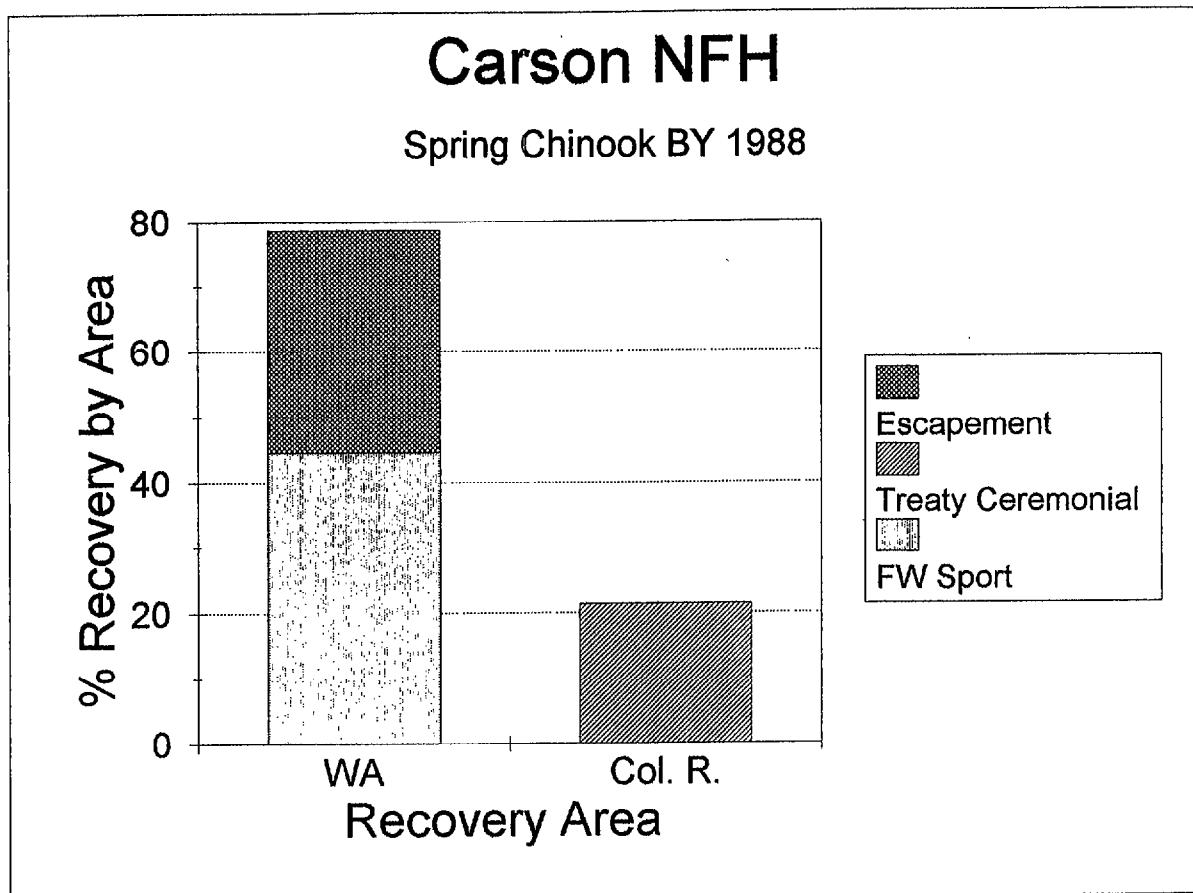
Broodyear 1990 coho survived at a rate of 0.10 percent. This is considerably less than the 3-year average of .70 percent survival (Figure 8). Their main contribution was to the Washington ocean sport fishery and to a lesser extent, the Oregon ocean sport fishery (Figure 9).

## Carson NFH Spring Chinook Salmon



BY	% Escapement	% Contribution
1983	0.28	0.13
1984	0.02	0.01
1985	0.13	0.08
1988	0.08	0.15

Figure 4. Survival of Carson NFH Spring Chinook by Brood.

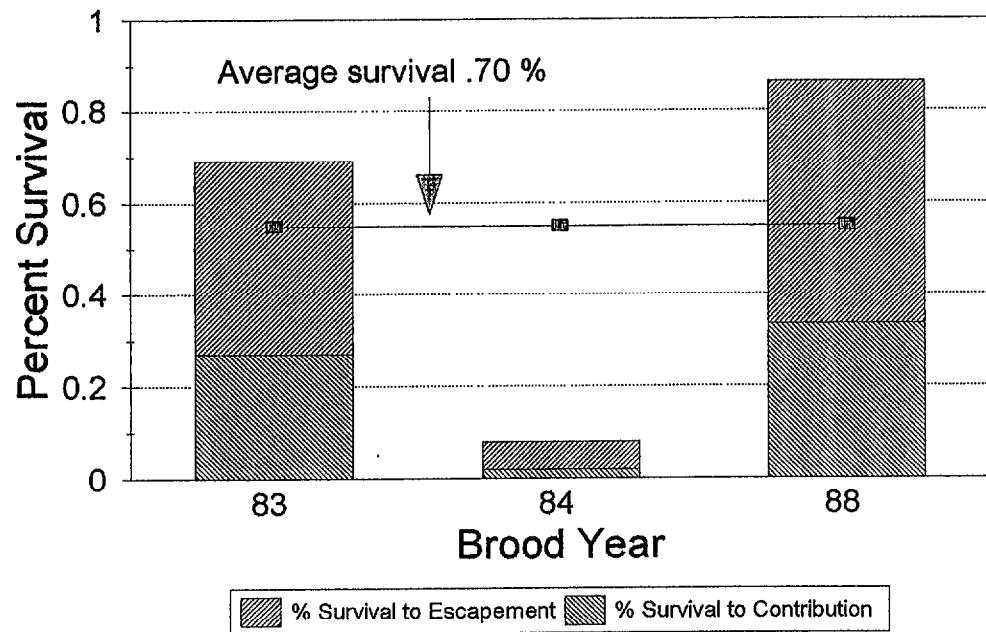


Percent Recovery by Area		
	WA	Col. R.
FW Sport	44.7	---
Escapement	34.0	---
Treaty Ceremonial	---	21.4

Total Release	2,105,281
# Tags	45,258
% Survival	0.228
% Contribution	0.179

Figure 5. Survival and Contribution for Carson NFH Spring Chinook, BY 1988.

## Little White Salmon NFH Spring Chinook Salmon

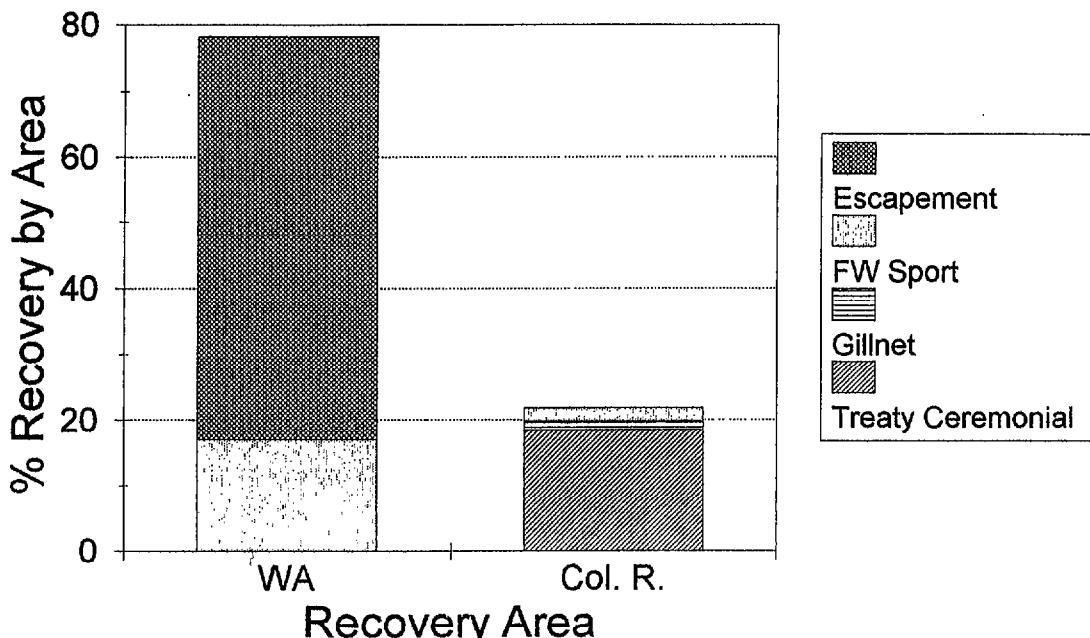


BY	% Escapement	% Contribution
1983	0.42	0.27
1984	0.06	0.02
1988	0.53	0.34

Figure 6. Survival of Little White Salmon NFH Spring Chinook by Brood.

# Little White Salmon NFH

## Spring Chinook BY 1988

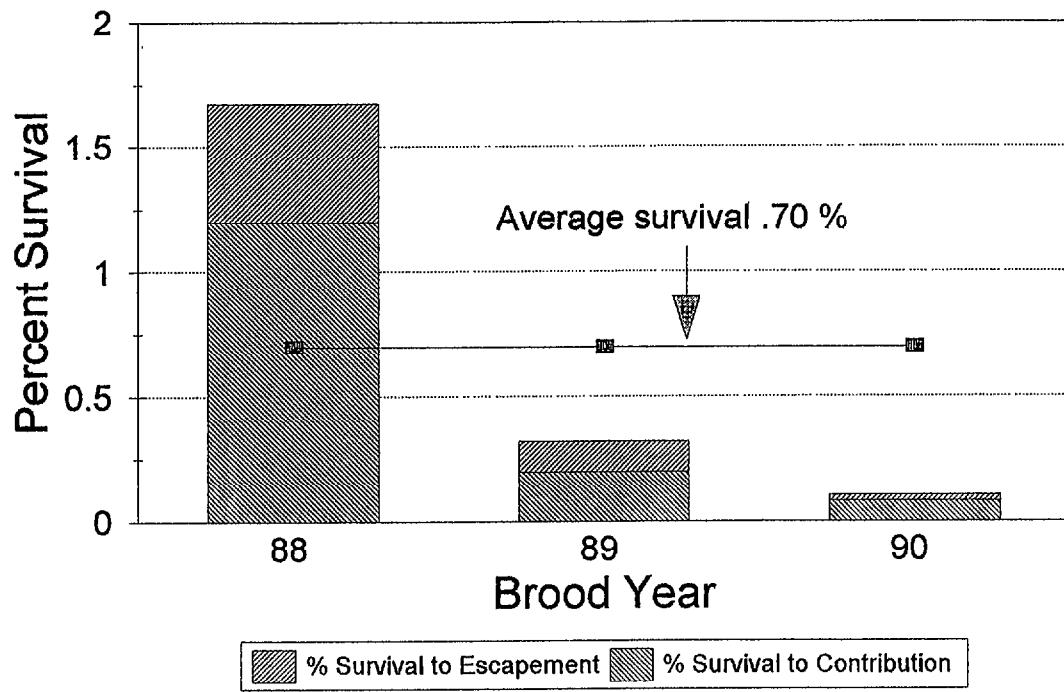


Percent Recovery by Area		
	WA	Col. R.
Treaty Ceremonial	---	18.3
FW Net	---	1.4
FW Sport	16.9	2.1
Escapement	61.3	---

Total Release	461,446
# Tags	49,903
% Survival	0.86
% Contribution	0.33

Figure 7. Survival and Contribution for Little White Salmon NFH Spring Chinook, BY 1988.

## Willard NFH Coho Salmon

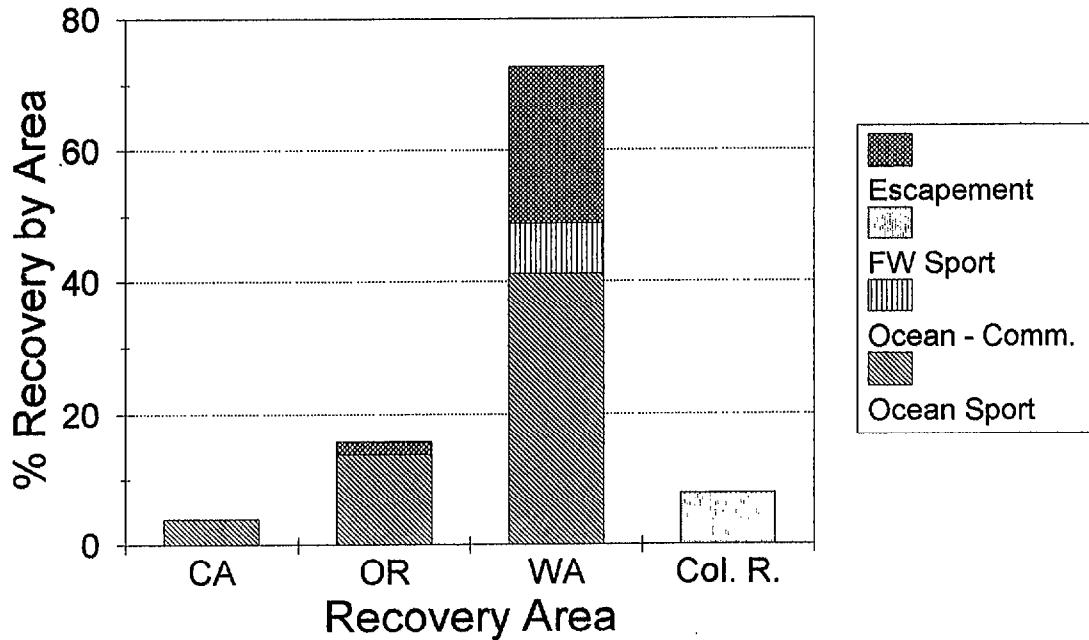


BY	% Escapement	% Contribution
1988	0.47	1.20
1989	0.12	0.20
1990	0.02	0.08

Figure 8. Survival of Willard NFH Coho by Brood.

## Willard NFH

### Coho Salmon BY 1990



Percent Recovery by Area				
	CA	OR	WA	Col. R.
FW Sport	---	---	---	7.8
Escapement	---	2.0	23.5	---
Ocean Sport	3.9	13.7	41.2	---
Ocean Comm.	---	---	7.8	---

Total Release      1,569,287  
 # Tags              49,142  
 % Survival          0.10  
 % Contribution     0.08

Figure 9. Survival and Contribution for Willard NFH Coho, BY 1990.

### **Spring Creek National Fish Hatchery**

Spring Creek NFH is located on the Columbia River at Underwood, Washington, about 30 miles upstream of Bonneville Dam. The hatchery was constructed in 1900 and began operations 1-year later. Spring Creek NFH was remodeled in 1955 under the Mitchell Act and currently produces tule fall chinook.

Broodyear 1988 fall chinook were recovered primarily in the Columbia River gillnet fishery (Figure 10). They also contributed well to the ocean commercial fishery in Canada. The survival of the 1988 broodyear was .51 percent compared with the latest 5-year average of 0.28 percent (Figure 11).

### **Warm Springs National Fish Hatchery**

Warm Springs NFH is located on the Warm Springs River, approximately 14 miles north of Warm Springs, Oregon. The hatchery was authorized in 1966 and began operations in 1978. The Confederated Tribes of the Warm Springs Indian Reservation of Oregon entered into an agreement with the Service to increase tribal fishing opportunities. Operations at the hatchery presently consist of adult collection, egg incubation, and rearing of spring chinook salmon.

The 1988 brood of spring chinook survived at a rate of .18 percent, slightly better than brood 1987 (Figure 12). They contributed primarily to the freshwater sport fishery in Oregon and the treaty fisheries both in the Columbia and Deschutes rivers (Figure 13).

For specific information concerning ongoing studies at Warm Springs NFH refer to "Warm Springs National Fish Hatchery Evaluation and Anadromous Fish Study on the Warm Springs Indian Reservation of Oregon" progress reports.

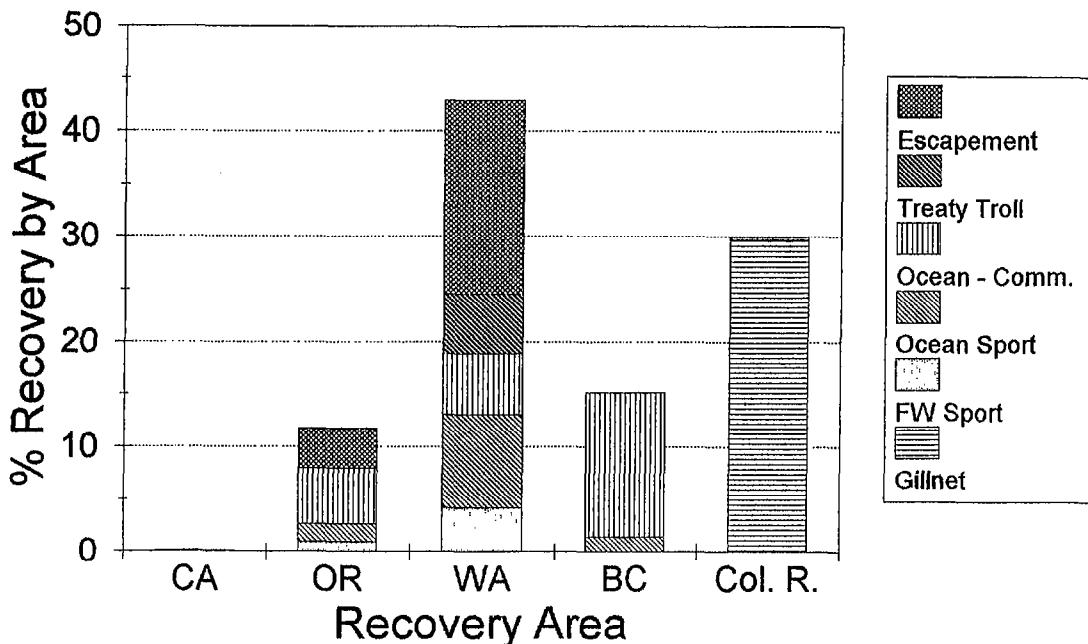
### **Leavenworth National Fish Hatchery**

Leavenworth NFH is located about 40 miles northeast of Leavenworth, Washington along Icicle Creek, a tributary to the Wenatchee River. The hatchery was originally authorized in 1937 by the Grand Coulee Fish Maintenance Project and was re-authorized in 1938 by the Mitchell Act. The facility began operations in 1942 and is currently used for the production of summer steelhead and spring chinook salmon.

None of the summer steelhead at Leavenworth are marked with coded wire tags. The 1988 brood of spring chinook salmon released as yearlings had a total survival of .37 percent, better than the 3-year average of .25 percent (Figure 14). As the previous broodyear, these fish were recovered mainly in the freshwater sport fishery by Washington Department of Fish and Wildlife and the treaty ceremonial fishery in the Columbia River (Figure 15).

## Spring Creek NFH

### Fall Chinook BY 1988

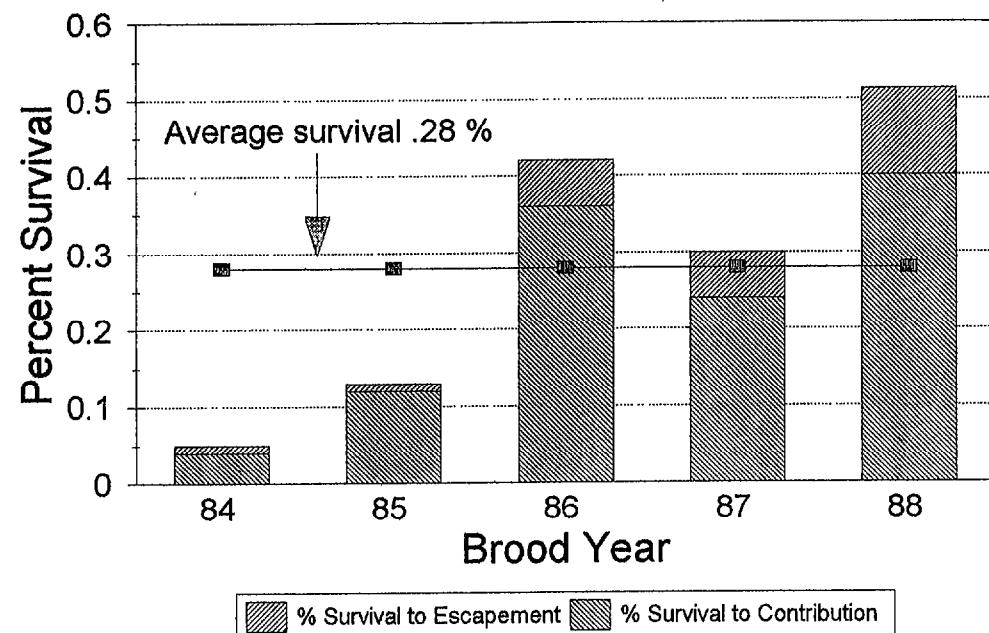


Percent Recovery by Area					
	CA	OR	WA	BC	Col. R.
Net	---	---	---	---	29.7
FW Sport	---	0.9	4.2	---	0.2
Ocean Sport	0.1	1.7	8.9	1.5	---
Ocean - Comm.	---	5.4	5.8	13.7	---
Treaty Troll	---	---	5.7	---	---
Escapement	---	3.8	18.4	---	---

Total Release	15,307,573
# Tags	657,965
% Survival	0.51
% Contribution	0.40

Figure 10. Survival and Contribution for Spring Creek NFH Tule Fall Chinook, BY 1988.

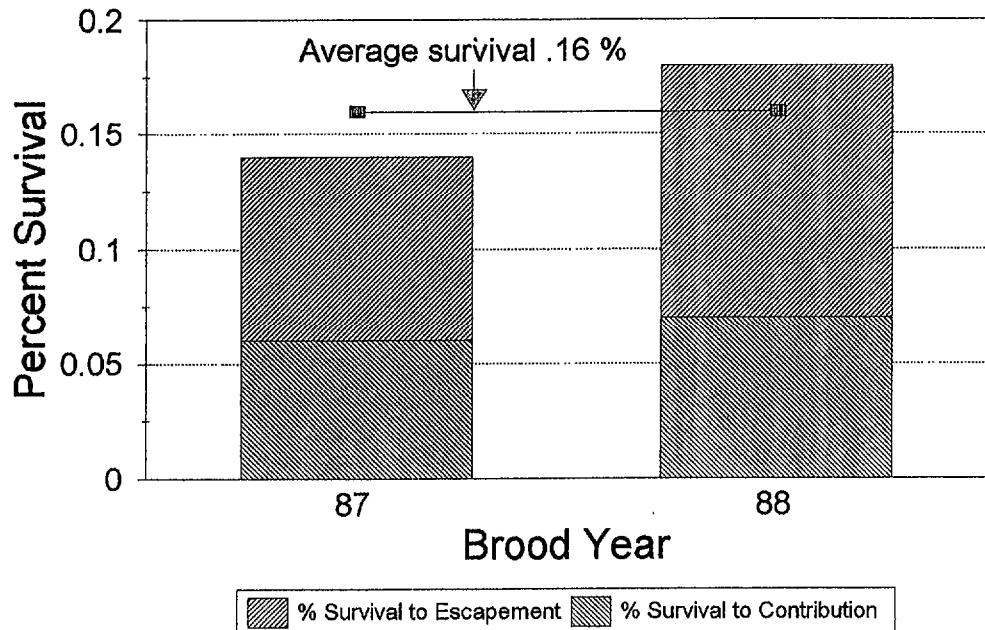
## Spring Creek NFH Tule Fall Chinook Salmon



BY	% Escapement	% Contribution
1984	0.01	0.04
1985	0.01	0.12
1986	0.06	0.36
1987	0.06	0.24
1988	0.11	0.40

Figure 11. Survival of Spring Creek NFH Tule Fall Chinook by Brood.

## Warm Springs NFH Spring Chinook Salmon

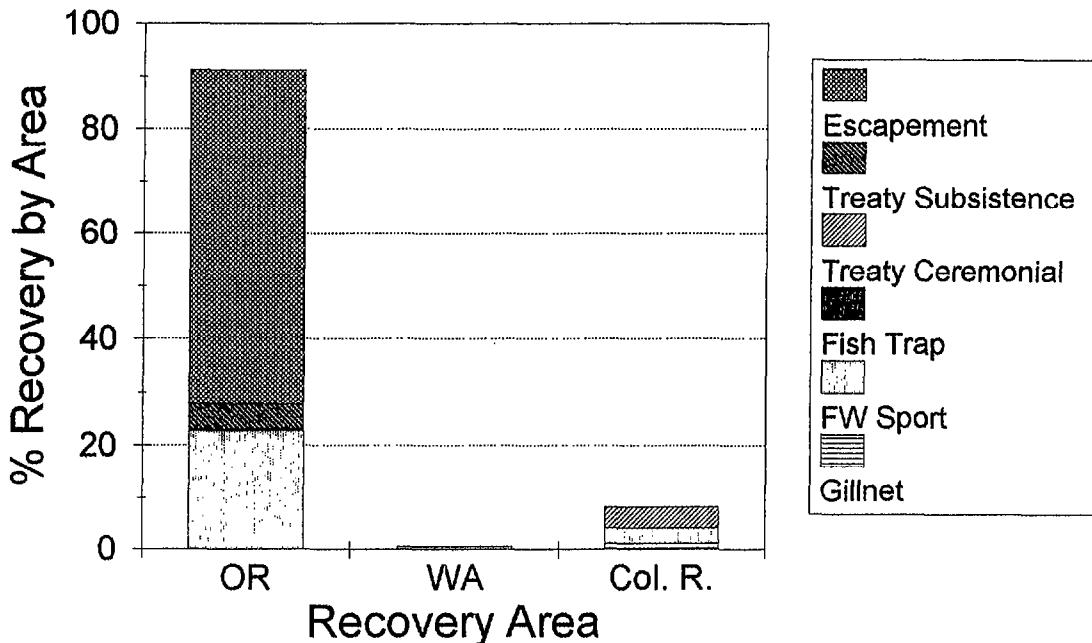


BY	% Escapement	% Contribution
1987	0.08	0.06
1988	0.11	0.07

Figure 12. Survival of Warm Springs NFH Spring Chinook by Brood.

# Warm Springs NFH

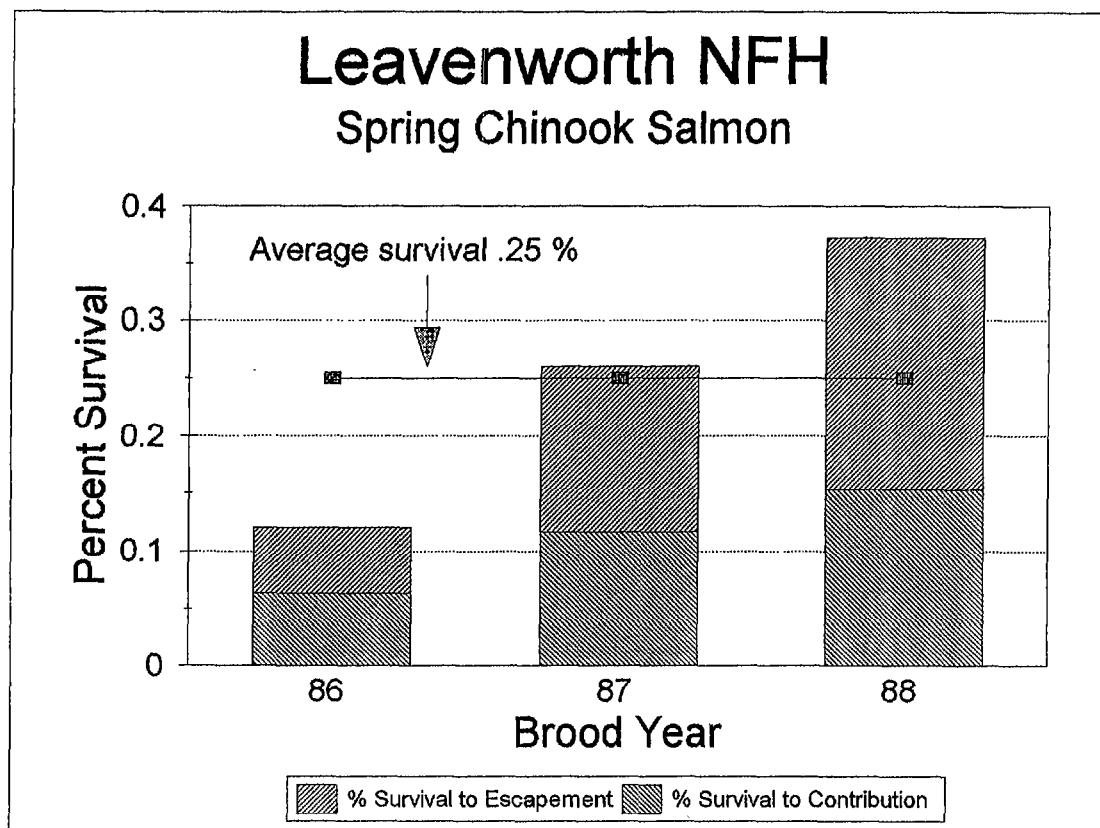
## Spring Chinook BY 1988



Percent Recovery by Area			
	OR	WA	Col. R.
FW Net	---	---	1.2
FW Sport	22.8	0.5	3.1
Fish Trap	0.3	---	---
Treaty Ceremonial	---	---	4.0
Treaty Subsistence	4.6	---	---
Escapement	63.5	---	---

Total Release	731,559
# Tags	558,042
% Survival	0.18
% Contribution	0.07

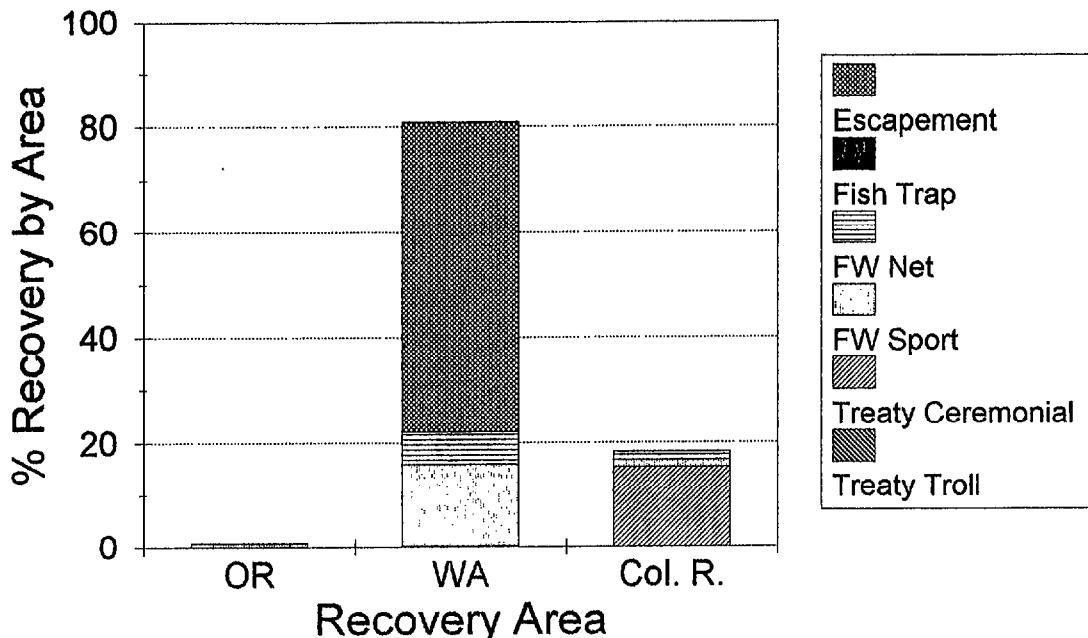
Figure 13. Survival and Contribution for Warm Springs NFH Spring Chinook, BY 1988.



BY	% Escapement	% Contribution
1986	0.06	0.06
1987	0.14	0.12
1988	0.22	0.15

Figure 14. Survival of Leavenworth NFH Spring Chinook by Brood.

## Leavenworth NFH Spring Chinook BY 1988



Percent Recovery by Area			
	OR	WA	Col. R.
Treaty Troll	---	0.3	---
Treaty Ceremonial	---	---	15.4
FW Sport	0.7	15.6	1.3
FW Net	---	6.1	1.6
Fish Trap	0.1	---	---
Escapement	---	58.8	---

Total Release	2,304,237
# Tags	183,989
% Survival	0.37
% Contribution	0.15

Figure 15. Survival and Contribution for Leavenworth NFH Spring Chinook, BY 1988.

Brood year 1988 spring chinook "0- age release" survived only at a rate of .007 percent (Figure 16). These fish contribute mostly to the freshwater sport fishery in the Columbia River (Figure 17).

### **Entiat National Fish Hatchery**

Entiat NFH is located on the Entiat River, east of Entiat, Washington. Construction began in 1940 under authorization of the Mitchell Act and operations began a year later. Present production at the hatchery consists of adult collection, egg incubation, and rearing of spring chinook salmon.

Beginning with brood 1988, the spring chinook at Entiat were coded-wire tagged under the Missing Group Program. This brood survived at a rate of .10 percent, and were recovered mainly in the treaty ceremonial fishery in the Columbia River (Figure 18).

### **Winthrop National Fish Hatchery**

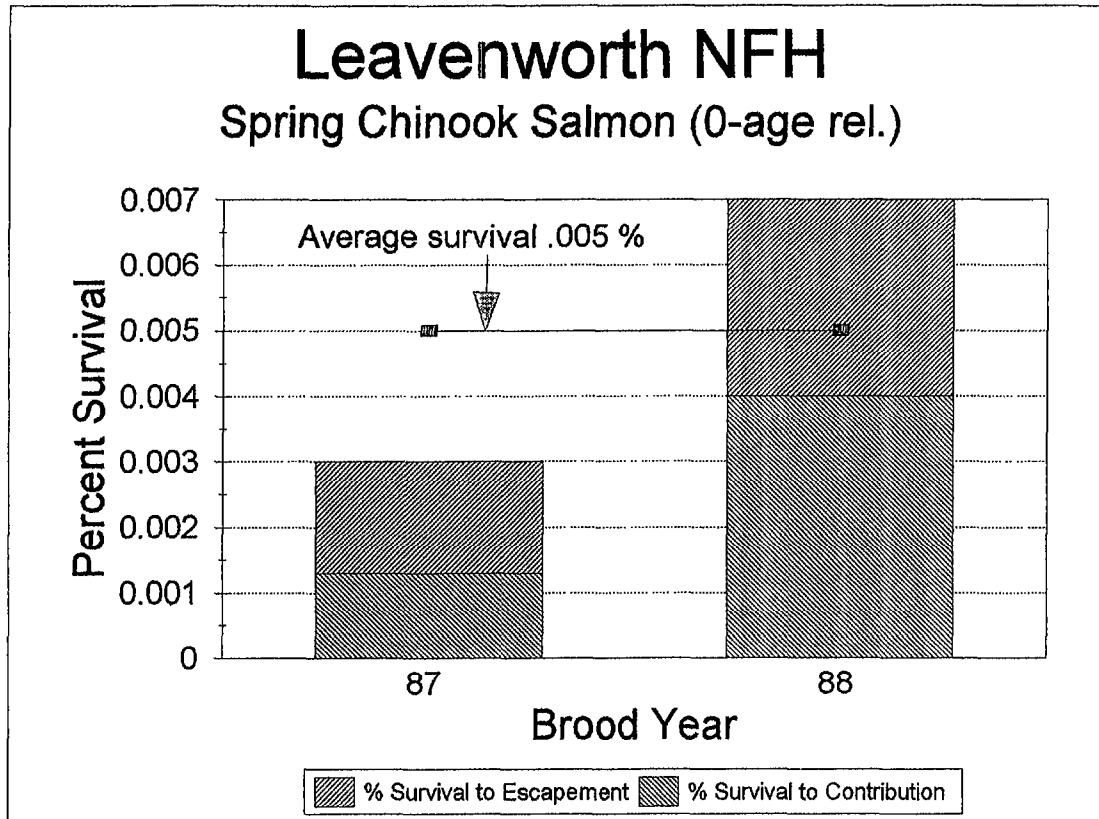
Winthrop NFH is situated along the Methow River, near the town of Winthrop, Washington. The facility began operations in 1942 by trapping adult sockeye, chinook, and steelhead at Rock Island Dam and transporting them to the hatchery. By 1951, the hatchery was rearing sockeye, chinook, steelhead, kokanee, coho and resident trout. Winthrop NFH produces only spring chinook salmon at the present time. Beginning with brood 1989, the spring chinook at Winthrop were marked with coded-wire tags under the Missing Group Program.

### **Dworshak National Fish Hatchery**

Dworshak NFH is located at the confluence of the North Fork Clearwater River and the main stem Clearwater River about 3 miles west of Orofino, Idaho. Dworshak NFH first began operations in 1969 rearing summer steelhead and resident trout. The facility was expanded in 1982 under the Lower Snake River Compensation Program to rear spring chinook salmon. The hatchery is now used to produce spring chinook and summer steelhead.

Brood 1989 summer steelhead released at the hatchery were recovered mainly in the Columbia River gillnet fishery (Figure 19). The 1989 brood survival of .91 percent is just under the 4-year average of 1.07 percent (Figure 20).

No marked groups of spring chinook were released at the hatchery for broods 1983 to 1987. Brood 1988 spring chinook survived at a rate of .07 percent and contributed mainly to the treaty ceremonial fishery in the Columbia River (Figure 21).

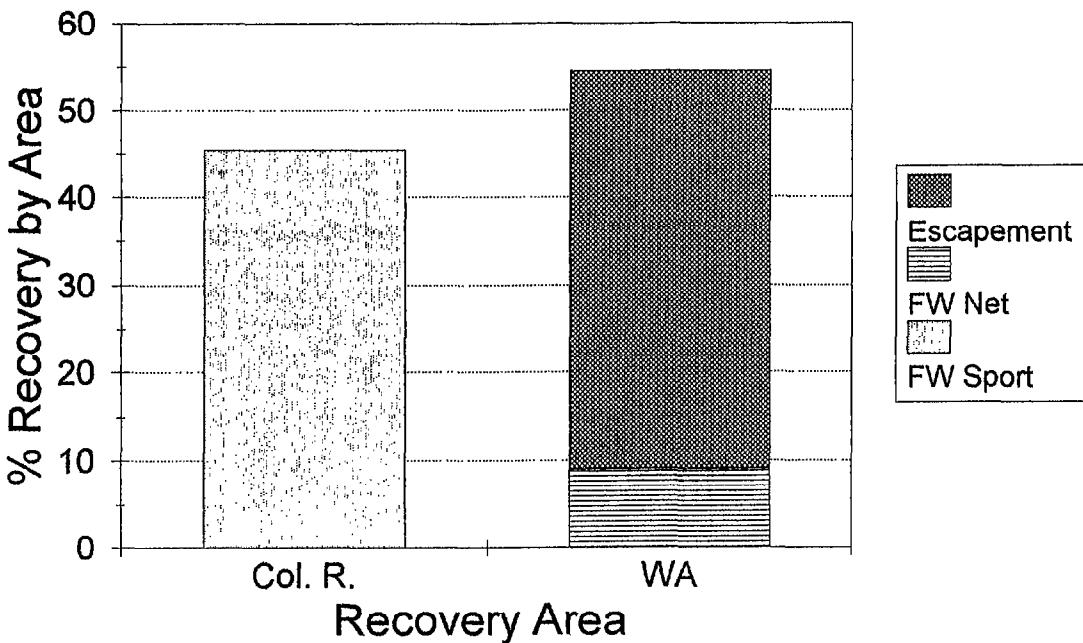


BY	% Escapement	% Contribution
1987	0.002	0.001
1988	0.003	0.004

Figure 16. Survival of Leavenworth NFH Spring Chinook by Brood. (0-age release)

# Leavenworth NFH

## Spring Chinook BY 1988 (0-age release)



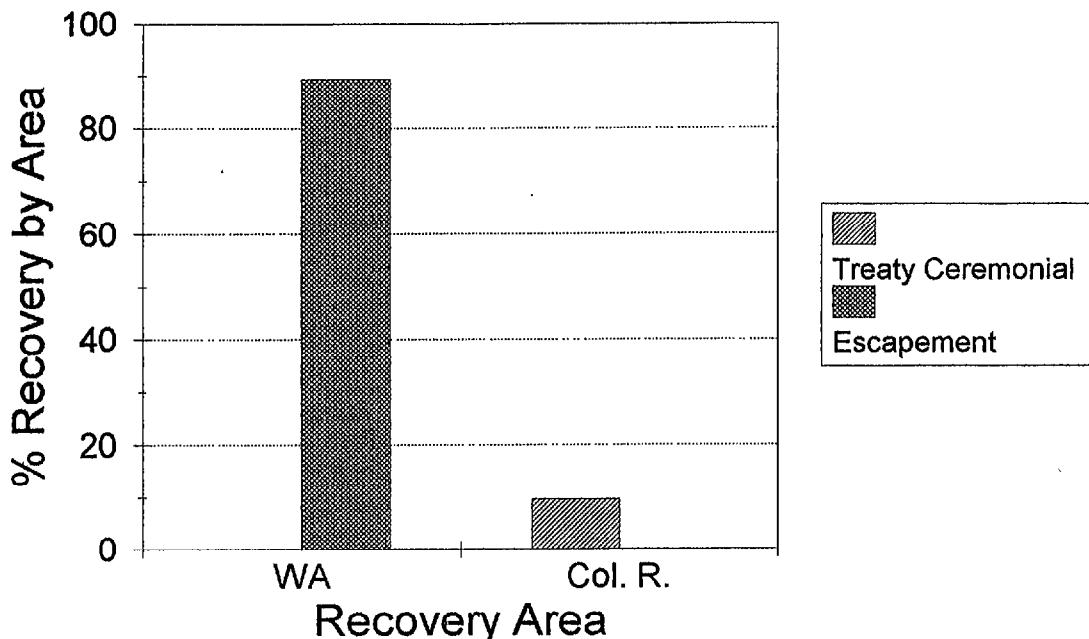
Percent Recovery by Area,		
	WA	Col. R.
FW Sport	---	45.5
FW Net	9.1	---
Escapement	45.5	---

Total Release	1,420,984
# Tags	298,462
% Survival	0.007
% Contribution	0.004

Figure 17. Survival and Contribution for Leavenworth NFH Spring Chinook, BY 1988 (0-age release).

## Entiat NFH

### Spring Chinook BY 1988

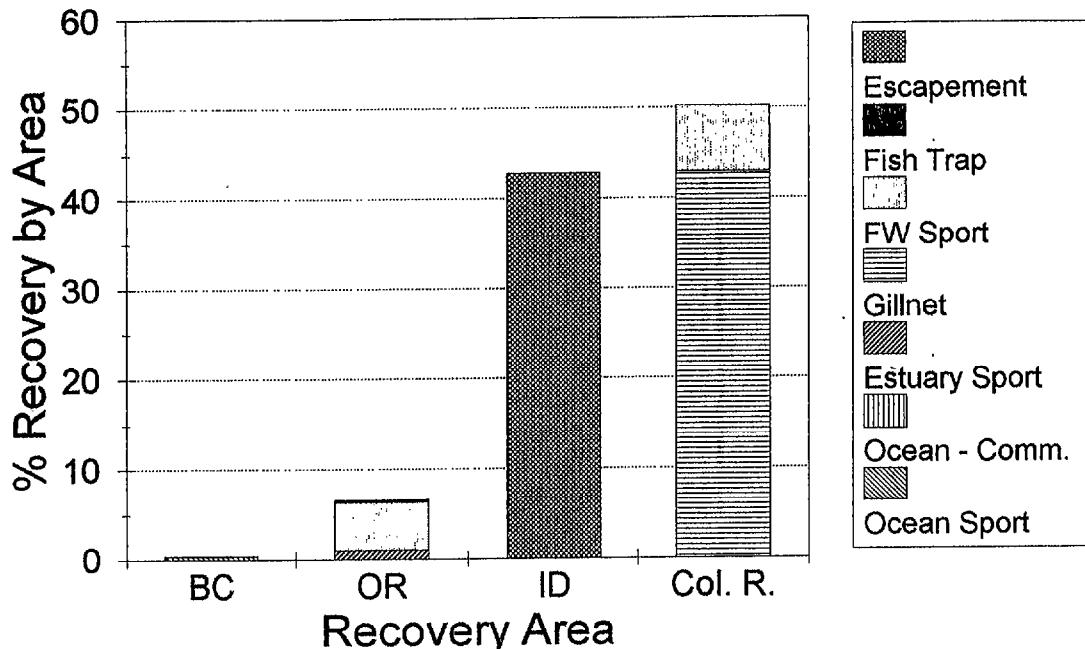


Percent Recovery by Area		
	WA	Col. R.
FW Sport	---	1.1
Treaty Ceremonial	---	9.6
Escapement	89.4	---

Total Release	688,620
# Tags	91,822
% Survival	0.10
% Contribution	0.01

Figure 18. Survival and Contribution for Entiat NFH Spring Chinook, BY 1988.

## Dworshak NFH Summer Steelhead BY 1989

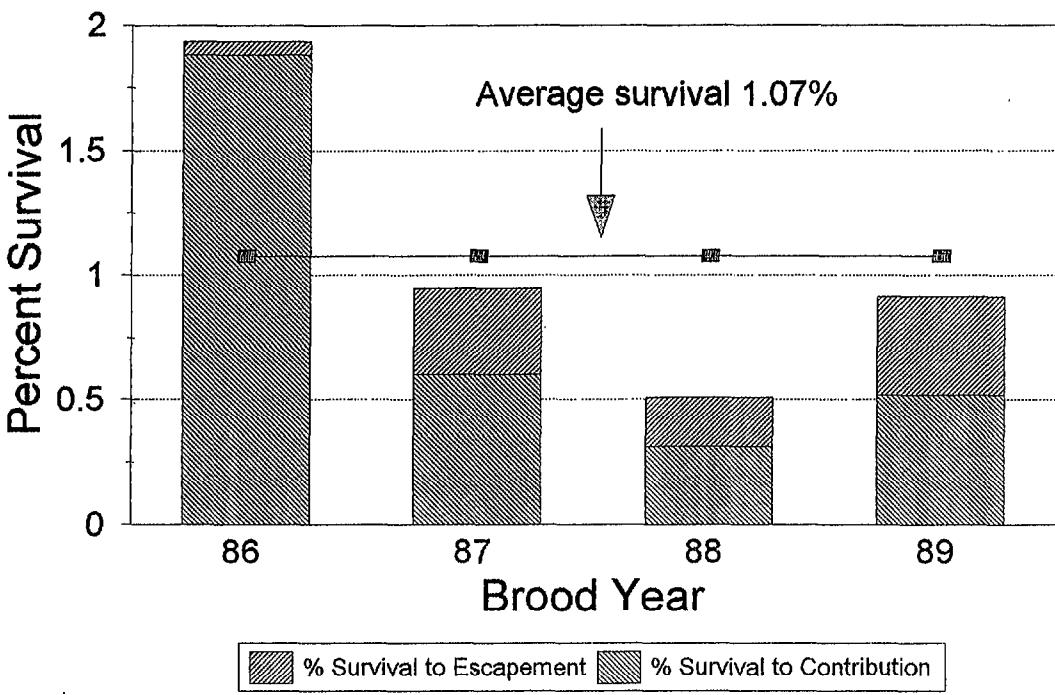


Percent Recovery by Area				
	BC	OR	ID	Col. R.
Gillnet	—	—	—	43.0
FW Sport	—	5.3	—	7.2
Estuary Sport	—	1.0	—	—
Ocean Sport	0.4	—	—	—
Ocean - Comm.	0.1	—	—	—
Fish Trap	—	0.3	—	—
Escapement	—	—	42.8	—

Total Release            1,166,664  
# Tags                    123,657  
% Survival                0.91  
% Contribution           0.52

Figure 19. Survival and Contribution for Dworshak NFH Summer Steelhead, BY 1989.

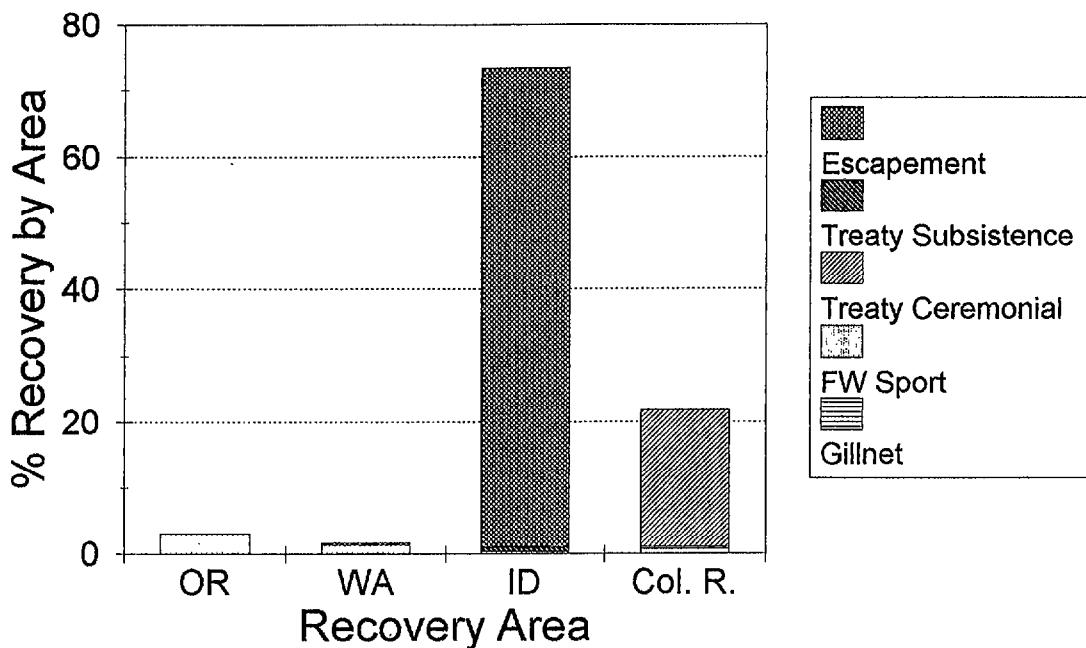
## Dworshak NFH Summer Steelhead Trout



BY	% Escapement	% Contribution
1986	0.05	1.88
1987	0.35	0.60
1988	0.20	0.31
1989	0.39	0.52

Figure 20. Survival of Dworshak NFH Summer Steelhead Trout by Brood.

## Dworshak NFH Spring Chinook BY 1988



Percent Recovery by Area				
	OR	WA	ID	Col. R.
Gillnet	---	---	---	1.0
FW Sport	3.1	1.4	0.3	---
Treaty Ceremonial	---	---	---	20.7
Treaty Subsistence	---	---	0.7	---
Escapement	---	0.3	72.4	---

Total Release      1,192,457  
# Tags                413,659  
% Survival            0.07  
% Contribution       0.02

Figure 21. Survival and Contribution for Dworshak NFH Spring Chinook, BY 1988.

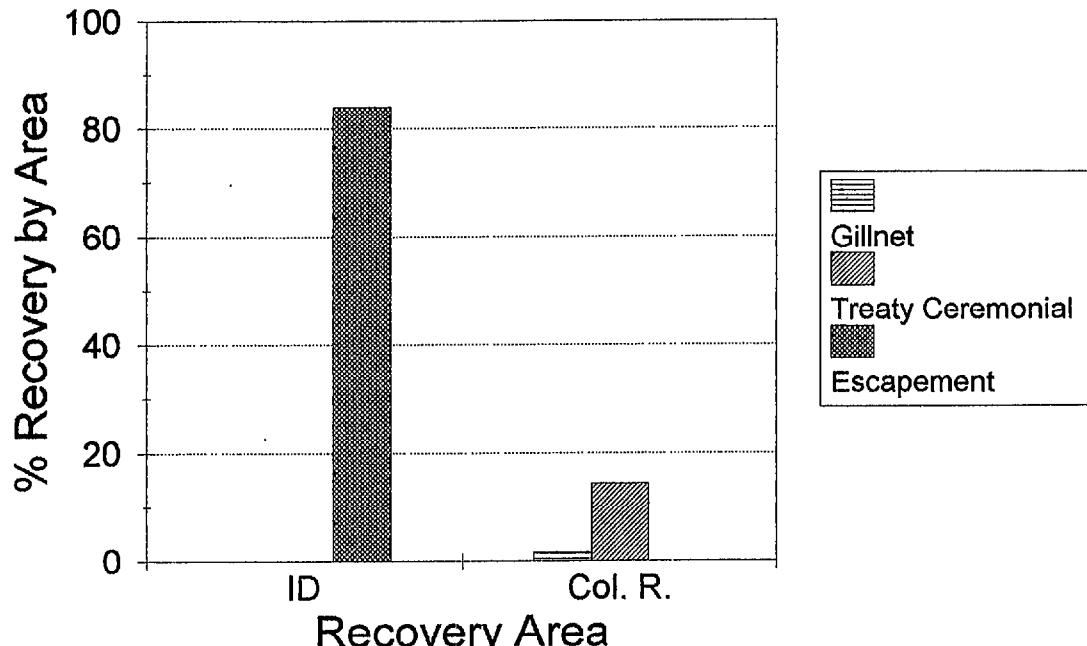
## **Kooskia National Fish Hatchery**

Kooskia NFH is situated along Clear Creek, just upstream of the confluence with the Middle Fork Clearwater River. It is located approximately 75 miles southeast of Lewiston, Idaho. The hatchery was authorized in 1961 and is currently used for adult collection and rearing of spring chinook salmon.

No marked groups of fish were released at Kooskia until brood 1988 were marked with coded-wire tags under the Missing Group Program. Figure 22 shows all fish were recovered in the Columbia River. Of the total recoveries, over 80 percent were at the hatchery.

Fish marking at Kooskia NFH has continued each year under other programs. For further information regarding the various programs at Dworshak and Kooskia NFHs, refer to "A Review of Coded-Wire Tagged Fish Released from Dworshak, Kooskia, and Hagerman National Fish Hatcheries."

## Kooskia NFH Spring Chinook BY 1988



Percent Recovery by Area		
	ID	Col. R.
Gillnet	---	1.6
Treaty Ceremonial	---	14.3
Escapement	84.0	---

Total Release	403,701
# Tags	114,822
% Survival	0.27
% Contribution	0.04

Figure 22. Survival and Contribution for Kooskia NFH Spring Chinook, BY 1988.

## **APPENDIX A**

**Appendix Table 1. Average Percent Recovery for Coho Salmon**

Eagle Creek NFH Coho Salmon															
BY	Tagged	Total Release	Percent Survival	Percent Recovery by Area								WA	OR	Col. R.	Esc.
				AK	BC	Ocean WA	OR	CA	WA	OR	Col. R.				
88	48,314	1,012,793	4.20	0.0	2.1	21.5	26.4	10.9	0.6	7.7	12.8	18.1			
89	55,593	1,199,000	0.92	0.0	2.2	15.8	33.8	1.6	0.0	3.3	3.9	39.3			
90	45,656	1,087,346	0.12	0.0	0.0	38.2	3.6	3.6	0.0	0.0	21.8	32.7			
		<b>AVERAGE</b>	1.75	0.0	1.4	25.2	21.3	5.4	0.2	3.7	12.8	30.0			

Willard NFH Coho Salmon															
BY	Tagged	Total Release	Percent Survival	Percent Recovery by Area								WA	OR	Col. R.	Esc.
				AK	BC	Ocean WA	OR	CA	WA	OR	Col. R.				
88	45,240	2,898,140	1.67	0.0	3.0	17.0	25.8	10.7	0.0	6.6	11.4	25.5			
89	47,743	2,573,323	0.32	0.0	0.0	20.8	37.7	0.0	0.0	9.1	5.8	26.6			
90	49,142	1,569,287	0.10	0.0	0.0	49.0	13.7	3.9	0.0	0.0	7.8	25.5			
		<b>AVERAGE</b>	0.70	0.0	1.0	28.9	25.7	4.9	0.0	5.2	8.3	25.9			

**Appendix Table 2. Average Percent Recoveries for Fall Chinook Salmon**

Spring Creek NFH Tule Fall Chinook Salmon													
BY	Tagged	Total Release	Percent Survival	Percent Recovery by Area							Freshwater OR	Col. R.	Esc.
				AK	BC	Ocean WA	OR	CA	WA				
84	259,933	13,905,417	0.05	0.0	20.3	29.7	4.2	0.0	0.0	0.0	27.1	18.6	
85	566,555	10,594,893	0.13	0.0	29.2	18.5	6.0	1.2	3.2	0.6	34.0	7.5	
86	574,908	10,640,406	0.42	0.0	17.9	19.7	9.1	0.0	1.9	0.7	33.2	17.5	
87	553,561	8,850,757	0.30	0.0	26.7	20.6	4.2	0.2	2.4	0.5	24.3	21.0	
88	657,965	15,307,573	0.51	0.0	15.2	20.4	7.0	0.1	4.2	0.9	29.9	22.2	
		AVERAGE	0.28	0.0	21.9	21.8	6.1	0.3	2.3	0.5	29.7	17.4	

Little White NFH Upriver Bright Fall Chinook Salmon (0-age release)													
BY	Tagged	Total Release	Percent Survival	Percent Recovery by Area							Freshwater OR	Col. R.	Esc.
				AK	BC	Ocean WA	OR	CA	WA				
83	94,847	929,771	0.97	10.0	26.5	2.8	1.9	0.0	0.0	0.5	46.3	12.0	
84	186,061	1,045,722	1.97	8.7	26.5	2.8	1.9	0.1	0.6	0.5	39.2	19.7	
85	195,310	1,169,825	0.41	13.9	17.4	2.1	0.6	0.0	2.3	0.0	36.8	26.8	
		AVERAGE	1.12	10.9	23.5	2.6	1.5	0.0	1.0	0.3	40.8	19.5	

Little White Salmon NFH Upriver Bright Fall Chinook Salmon (extended rearing)													
BY	Tagged	Total Release	Percent Survival	Percent Recovery by Area							Freshwater OR	Col. R.	Esc.
				AK	BC	Ocean WA	OR	CA	WA				
83	91,549	95,364	0.69	4.9	39.7	7.0	3.7	0.0	0.0	1.0	33.0	10.7	
84	75,389	85,830	0.03	14.8	14.8	0.0	0.0	0.0	0.0	0.0	51.9	18.5	
85	83,132	93,734	0.44	7.4	26.9	7.7	0.2	0.0	0.0	0.8	35.2	21.8	
		AVERAGE	0.39	9.0	27.1	4.9	1.3	0.0	0.0	0.6	40.0	17.0	

**Appendix Table 3. Average Percent Recovery for Spring Chinook Salmon**

Little White Salmon NFH Spring Chinook Salmon (0-age release)												
BY	Tagged	Total Release	Percent Survival	Ocean					Freshwater			
				AK	BC	WA	OR	CA	WA	OR	Col. R.	Esc.
83	97,594	573,621	0.04	0.0	0.0	0.0	0.0	0.0	9.3	0.0	9.3	81.1
84	49,535	665,939	0.17	0.0	0.0	0.0	0.0	0.0	18.8	0.0	4.7	76.5
	AVERAGE		0.11	0.0	0.0	0.0	0.0	0.0	14.1	0.0	7.0	78.8

Little White Salmon NFH Spring Chinook (yearling release)												
BY	Tagged	Total Release	Percent Survival	Ocean					Freshwater			
				AK	BC	WA	OR	CA	WA	OR	Col. R.	Esc.
83	47,849	1,354,959	0.70	0.0	0.0	0.0	0.0	0.0	23.1	0.0	15.9	60.9
84	48,373	412,212	0.08	0.0	0.0	0.0	0.0	0.0	21.0	0.0	7.9	71.0
88	49,903	461,446	0.86	0.0	0.0	0.0	0.0	0.0	16.9	0.0	0.0	61.3
	AVERAGE		0.55	0.0	0.0	0.0	0.0	0.0	20.3	0.0	7.9	64.4

Carson NFH Spring Chinook Salmon												
BY	Tagged	Total Release	Percent Survival	Ocean					Freshwater			
				AK	BC	WA	OR	CA	WA	OR	Col. R.	Esc.
83	326,282	2,390,971	0.41	0.0	0.2	0.0	0.0	0.0	15.3	0.0	15.4	69.1
84	389,854	2,392,468	0.03	0.0	0.0	0.0	0.0	0.0	25.2	0.0	4.2	70.5
85	442,289	2,339,164	0.21	0.3	0.3	0.2	0.0	0.0	29.0	0.0	9.9	60.1
88	45,258	2,105,281	0.23	0.0	0.0	0.0	0.0	0.0	44.7	0.0	21.4	34.0
	AVERAGE		0.22	0.1	0.1	0.1	0.0	0.0	28.5	0.0	12.7	58.4

**Appendix Table 3. (Cont.)**

Warm Springs NFH Spring Chinook Salmon														
BY	Tagged	Total Release	Percent Survival	Percent Recovery by Area							WA	OR	Col. R.	Esc.
				AK	BC	Ocean WA	OR	CA	WA					
87	514,633	661,019	0.14	0.0	0.0	0.0	0.0	0.0	0.0	31.6	8.5	59.7		
88	558,042	731,559	0.18	0.0	0.0	0.0	0.0	0.0	0.5	27.7	8.3	63.5		
	AVERAGE		0.16	0.0	0.0	0.0	0.0	0.0	0.2	29.6	8.4	61.6		

Leavenworth NFH Spring Chinook (0-age release)														
BY	Tagged	Total Release	Percent Survival	Percent Recovery by Area							WA	OR	Col. R.	Esc.
				AK	BC	Ocean WA	OR	CA	WA					
87	236,200	939,426	0.00	0.0	0.0	0.0	0.0	0.0	42.9	0.0	0.0	57.1		
88	298,462	1,420,984	0.01	0.0	0.0	0.0	0.0	0.0	9.1	0.0	45.5	45.5		
	AVERAGE		0.01	0.0	0.0	0.0	0.0	0.0	26.0	0.0	22.7	51.3		

Leavenworth NFH Spring Chinook (yearling release)														
BY	Tagged	Total Release	Percent Survival	Percent Recovery by Area							WA	OR	Col. R.	Esc.
				AK	BC	Ocean WA	OR	CA	WA					
86	323,740	2,207,294	0.12	0.0	0.0	0.0	0.0	0.0	32.8	0.0	20.7	46.5		
87	318,765	2,239,677	0.26	0.0	0.5	0.0	0.0	0.0	20.6	0.0	23.2	55.7		
88	183,989	2,304,237	0.37	0.0	0.0	0.3	0.0	0.0	21.8	0.9	18.3	58.8		
	AVERAGE		0.25	0.0	0.2	0.1	0.0	0.0	25.1	0.3	20.7	53.7		

**Appendix Table 3. (Cont.)**

Entiat NFH Spring Chinook												
Percent Recovery by Area												
BY	Tagged	Total Release	Percent Survival	Ocean					Freshwater			
				AK	BC	WA	OR	CA	WA	OR	Col. R.	Esc.
88	91,822	688,620	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.6	89.4

Dworshak NFH Spring Chinook												
Percent Recovery by Area												
BY	Tagged	Total Release	Percent Survival	Freshwater					Ocean			
				WA	OR	ID	Col. R.	Esc.	NMFS	BC	WA	OR
88	413,659	1,192,457	0.07	1.4	3.1	1.0	21.7	72.7	0.0	0.0	0.0	0.0

Kooskia NFH Spring Chinook												
Percent Recovery by Area												
BY	Tagged	Total Release	Percent Survival	Freshwater					Ocean			
				WA	OR	ID	Col. R.	Esc.	NMFS	BC	WA	OR
88	114,822	403,701	0.27	0.0	0.0	0.0	16.0	84.0	0.0	0.0	0.0	0.0

**Appendix Table 4. Percent Recovery for Steelhead Trout**

Eagle Creek NFH Winter Steelhead											
BY	Tagged	Total Release	Percent Survival	Percent Recovery by Area							
				AK	BC	Ocean WA	OR	CA	WA	Freshwater OR	Col. R.
89	42,798	169,325	0.77	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0

Dworshak NFH Summer Steelhead											
BY	Tagged	Total Release	Percent Survival	Percent Recovery by Area					Ocean		
				Freshwater					NMFS	BC	WA
86	78,175	1,206,581	1.93	0.0	0.2	44.5	29.7	25.7	0.1	0.0	0.0
87	218,724	1,289,494	0.95	0.1	1.3	29.2	31.3	37.2	0.6	0.3	0.0
88	155,685	1,073,900	0.51	0.0	3.9	0.0	56.2	39.4	0.3	0.0	0.1
89	123,657	1,166,664	0.91	0.0	6.3	0.0	50.2	43.1	0.0	0.4	0.0
<b>AVERAGE</b>				1.07					0.0		

## **APPENDIX B**

Stock Assessment Reference Document from CRIS and PSMFC TS1      04/10/95  
 Broodyear 88 Coho      raised at Eagle Creek NFH  
                           and released Eagle Creek

	Number	#/lb	Tagged	CWT	AT
04/27/90	283,890	14.6	0	07-43-05	Eagle Creek NFH
05/01/90	403,832	14.2	24,144	07-43-05	Eagle Creek NFH
04/27/90	<u>325,071</u>	12.2	<u>24,170</u>	07-43-06	Eagle Creek NFH
Totals	1,012,793		48,314		
expansion factor			20.96		

total OBSD      858

Where Recovered	expanded	=====	PSC	expanded	numbers	====	
		2s	3s	4s	5s	6s	Total
Columbia River Gillnet	ODFW	5,073	4	238			242
Estuary Sport	ODFW	3,270		156			156
Freshwater Sport	WDF	252		12			12
Hatchery	FWS	7,589	96	266			362
Hatchery	ODFW	21		1			1
Mixed Net and Seine	CDFO	84		4			4
Ocean Sport	CDFG	2,306		110			110
Ocean Sport	ODFW	5,932	3	280			283
Ocean Sport	WDF	147		7			7
Ocean Troll (Non-treaty)	CDFG	2,264		108			108
Ocean Troll (Non-treaty)	CDFO	797		38			38
Ocean Troll (Non-treaty)	ODFW	5,157		246			246
Ocean Troll (Non-treaty)	WDF	650		31			31
Sport (Charter)	WDF	1,195	2	55			57
Sport (Jetty)	WDF	482		23			23
Sport (Private)	WDF	6,498		310			310
Test Fishery Net	ODFW	293		14			14
Treaty Troll	WDF	<u>63</u>		3			3
Totals		42,073	105	1,902			2,007

88 EC COS

		% of	% of
		total	release
Ocean contribution	25,575	61	2.5252
Escapement to Columbia River	16,498	39	1.6290
Total Survival	42,073		4.1542
Escapement to NFH	7,589	18	0.7493
Columbia River contribution	8,909	21	0.8796

## Stock Assessment Reference Document from CRIS and PSMFC TS1 04/10/95

Broodyear 89 Coho

raised at Eagle Creek NFH  
and released Eagle Creek

	Number	#/lb	Tagged	CWT	AT	
03/29/91	1,088	20.8	0	07-55-52	Eagle Creek NFH	LV
04/23/91	590,900	14.5	27,225	07-55-52	Eagle Creek NFH	
05/16/91	3,711	9.8	0	07-55-52	Eagle Creek NFH	
03/29/91	1,089	20.8	0	07-55-53	Eagle Creek NFH	LV
04/25/91	598,500	14.9	28,368	07-55-53	Eagle Creek NFH	
05/16/91	<u>3,712</u>	9.8	<u>0</u>	07-55-53	Eagle Creek NFH	
Totals	1,199,000		55,593			
expansion factor			21.57			

total OBSD 301

Where Recovered	expanded	2s	3s	4s	5s	6s	Total
Columbia River Gillnet	ODFW	410		19			19
Estuary Sport	ODFW	367		17			17
Hatchery	FWS	4,335	19	182			201
Ocean Sport	CDFO	65		3			3
Ocean Sport	ODFW	2,868		133			133
Ocean Troll (Non-treaty)	CDFG	173		8			8
Ocean Troll (Non-treaty)	CDFO	173		8			8
Ocean Troll (Non-treaty)	ODFW	863		40			40
Sport (Charter)	WDF	216		10			10
Sport (Private)	WDF	1,531		71			71
Test Fishery Net	ODFW	<u>22</u>	<u>1</u>				<u>1</u>
Totals		11,023	19	492			511

89 EC COS

	% of total	% of release	
Ocean contribution	5,889	53	0.4912
Escapement to Columbia River	5,134	47	0.4282
Total Survival	11,023		0.9193
Escapement to NFH	4,335	39	0.3616
Columbia River contribution	799	7	0.0666

Stock Assessment Reference Document from CRIS and PSMFC TS1 02/10/95  
 Broodyear 90 Coho raised at Eagle Creek NFH  
 and released Eagle Creek

	Number	#/lb	Tagged	CWT	AT
04/10/92	292,041	21.8	22,350	05-26-19	Eagle Creek NFH
04/10/92	<u>795,305</u>	14.9	<u>23,306</u>	05-26-20	Eagle Creek NFH
Totals	1,087,346		45,656		
expansion factor			23.82		

total OBSD 30

Where Recovered	expanded	====	PSC	expanded	numbers	====	
		2s	3s	4s	5s	6s	Total
Columbia River Gillnet	ODFW	238		10			10
Hatchery	FWS	429	4	14			18
Ocean Sport	CDFG	48		2			2
Ocean Sport	ODFW	48		2			2
Sport (Charter)	WDFW	95		4			4
Sport (Private)	WDFW	405		17			17
Test Fishery Net	ODFW	<u>48</u>		<u>2</u>			<u>2</u>
Totals		1,311	—	4	51		55

90 EC COS		% of total	% of release
Ocean contribution	596	45	0.0548
Escapement to Columbia River	715	55	0.0658
Total Survival	1,311		0.1206
Escapement to NFH	429	33	0.0395
Columbia River contribution	286	22	0.0263

Stock Assessment Reference Document from CRIS and PSMFC TS1 02/10/95

Broodyear 89 Winter Steelhead raised at Eagle Creek NFH  
and released Eagle Creek

	Number	#/lb	Tagged	CWT	AT	
04/25/90	23,306	5.6	21,771	05-22-32	Eagle Creek NFH	
04/25/90	78,167	6.0	0	05-22-32	Eagle Creek NFH	
04/26/90	45,342	6.1	0	05-22-32	Eagle Creek NFH	RV
04/25/90	<u>22,510</u>	11.0	<u>21,027</u>	05-22-33	Eagle Creek NFH	
Totals	169,325		42,798			
expansion factor			3.96			

total OBSD 328

===== PSC expanded numbers ===

Where Recovered	expanded	2s	3s	4s	5s	6s	Total
Freshwater Sport ODFW	8		2				2
Hatchery FWS	<u>1,290</u>	<u>200</u>	<u>126</u>				<u>326</u>
Totals	1,298	202	126				328

	% of total	% of release
89 EC WST		
Ocean contribution	0	0 0.0000
Escapement to Columbia River	1,298	100 0.7666
Total Survival	1,298	0.7666
Escapement to NFH	1,290	99 0.7618
Columbia River contribution	8	1 0.0047

Stock Assessment Reference Document from CRIS and PSMFC TS1      04/10/95  
 Broodyear 83 Spring Chinook      raised at Carson NFH  
 and released Wind River

	Number	#/lb	Tagged	CWT	AT
02/13/85	664,740	27.2	0	-	Carson NFH
02/15/85	182,300	26.5	0	-	Carson NFH
04/15/85	1,037,335	18.9	0	-	Carson NFH
04/11/85	18,494	17.2	17,384	05-11-53	Carson NFH
04/15/85	15,790	16.9	14,053	05-11-54	Carson NFH
04/15/85	15,492	18.5	14,175	05-11-55	Carson NFH
04/15/85	17,705	19.1	16,377	05-11-56	Carson NFH
04/15/85	12,294	16.9	11,618	05-11-57	Carson NFH
04/15/85	12,729	17.1	12,411	05-11-58	Carson NFH
04/15/85	35,043	17.3	25,701	05-11-59	Carson NFH
04/15/85	26,733	16.4	19,737	05-11-60	Carson NFH
04/15/85	33,310	17.4	23,967	05-11-61	Carson NFH
04/15/85	33,801	17.9	25,254	05-11-62	Carson NFH
04/15/85	29,520	16.2	13,013	05-11-63	Carson NFH
04/15/85	34,068	17.4	15,011	05-12-16	Carson NFH
04/15/85	43,316	17.2	20,988	05-12-17	Carson NFH
04/15/85	44,861	17.0	21,416	05-12-18	Carson NFH
04/15/85	42,390	17.4	20,732	05-12-19	Carson NFH
04/15/85	41,013	16.4	19,437	05-12-20	Carson NFH
04/15/85	25,985	17.9	18,706	05-12-21	Carson NFH
04/15/85	<u>24,052</u>	16.1	<u>16,302</u>	05-12-22	Carson NFH
Totals	2,390,971		326,282		
expansion factor			7.33		

total OBSD      981

Where Recovered	expanded	PSC expanded numbers					====	
		2s	3s	4s	5s	6s	Total	
Columbia River Gillnet	ODFW	601			80	2	82	
Columbia River Sport	ODFW	95			13		13	
Freshwater Sport	WDF	1,385		4	109	76	189	
Hatchery	FWS	5,884		10	464	327	2	803
Ocean Troll (Non-treaty)	CDFO	22			3		3	
Spawning Ground	WDF	176			16	8	24	
Test Fishery Net	ODFW	51			4	3	7	
Treaty Ceremonial	ODFW	<u>638</u>			38	49		<u>87</u>
Totals		8,852		14	634	556	4	1,208

83 Ca SCS

	% of total	% of release	
Ocean contribution	22	0    0.0009	
Escapement to Columbia River	8,830	100    0.3693	
Total Survival	8,852		0.3702
Escapement to NFH	5,884	66    0.2461	
Columbia River contribution	2,946	33    0.1232	

Stock Assessment Reference Document from CRIS and PSMFC TS1  
 Broodyear 84 Spring Chinook                          raised at Carson NFH  
     and released Wind River

04/10/95

	Number	#/lb	Tagged	CWT	AT
03/06/86	443,000	25.3		0 -	Carson NFH
04/15/86	1,334,124	18.7		0 -	Carson NFH
04/15/86	18,837	19.2	17,009	05-16-08	Carson NFH
04/15/86	18,873	19.5	18,438	05-16-09	Carson NFH
04/15/86	18,585	19.6	18,259	05-16-10	Carson NFH
04/15/86	18,364	20.2	16,270	05-16-11	Carson NFH
04/15/86	17,123	19.1	15,804	05-16-12	Carson NFH
04/15/86	17,902	19.6	16,398	05-16-13	Carson NFH
04/15/86	35,431	20.0	26,403	05-16-14	Carson NFH
04/15/86	35,770	20.0	25,233	05-16-15	Carson NFH
04/15/86	48,360	19.5	22,900	05-16-16	Carson NFH
04/15/86	47,181	19.2	22,602	05-16-17	Carson NFH
04/15/86	49,200	19.5	20,288	05-16-18	Carson NFH
04/15/86	49,457	19.6	21,631	05-16-19	Carson NFH
04/15/86	33,190	19.6	23,190	05-16-20	Carson NFH
04/15/86	32,988	19.7	24,804	05-16-21	Carson NFH
04/15/86	51,772	20.0	24,627	05-16-22	Carson NFH
04/15/86	50,371	18.7	23,715	05-16-23	Carson NFH
04/15/86	35,662	19.4	26,417	05-16-24	Carson NFH
04/15/86	<u>36,278</u>	<u>19.2</u>	<u>25,866</u>	<u>05-16-25</u>	<u>Carson NFH</u>
Totals	2,392,468		389,854		
expansion factor			6.14		

Where Recovered	expanded	total OBS'D			37			=====	PSC expanded numbers	=====	Total
		2s	3s	4s	5s	6s					
Columbia River Gillnet	ODFW	12				2					2
Freshwater Sport	WDF	86			8	6					14
Hatchery	FWS	<u>178</u>		<u>1</u>	<u>17</u>	<u>11</u>					<u>29</u>
Totals		<u>276</u>		<u>1</u>	<u>25</u>	<u>19</u>					<u>45</u>

84 Ca SCS	% of total	% of release
Ocean contribution	0	0.0000
Escapement to Columbia River	276	0.0115
Total Survival	276	0.0115
Escapement to NFH	178	0.0074
Columbia River contribution	98	0.0041

Stock Assessment Reference Document from CRIS and PSMFC TS1      04/10/95  
 Broodyear 85 Spring Chinook

	Number	#/lb	Tagged	CWT	AT	Wind River
04/10/87	47,496	19.0	0	-	Carson NFH	
04/15/87	1,096,543	19.3	0	-	Carson NFH	
04/16/87	482,974	18.3	0	-	Carson NFH	
04/15/87	59,603	18.5	26,345	05-18-13	Carson NFH	
04/15/87	59,378	18.6	28,158	05-18-14	Carson NFH	
04/15/87	58,650	17.4	27,250	05-18-15	Carson NFH	
04/15/87	59,635	18.8	26,194	05-18-16	Carson NFH	
04/15/87	59,396	18.1	26,971	05-18-17	Carson NFH	
04/15/87	59,195	17.8	28,368	05-18-18	Carson NFH	
04/15/87	39,726	18.1	26,996	05-18-19	Carson NFH	
04/15/87	39,637	18.1	28,812	05-18-20	Carson NFH	
04/15/87	39,900	17.8	27,051	05-18-21	Carson NFH	
04/15/87	39,782	18.0	28,450	05-18-22	Carson NFH	
04/15/87	40,059	17.7	27,878	05-18-23	Carson NFH	
04/15/87	39,316	18.3	29,035	05-18-24	Carson NFH	
04/15/87	19,579	17.8	16,691	05-18-25	Carson NFH	
04/15/87	19,609	17.6	19,070	05-18-26	Carson NFH	
04/15/87	19,834	17.4	18,842	05-18-27	Carson NFH	
04/15/87	19,742	17.2	18,557	05-18-28	Carson NFH	
04/15/87	19,696	17.7	18,931	05-18-29	Carson NFH	
04/15/87	19,414	17.9	18,690	05-18-30	Carson NFH	
Totals	2,339,164		442,289			
expansion factor			5.29			

total OBSD      744

Where Recovered	expanded	2s	3s	4s	5s	6s	Total
Columbia River Gillnet	ODFW	79			15		15
Columbia River Gillnet	WDF	16		3			3
Columbia River Sport	ODFW	79		1	14		15
Freshwater Sport	WDF	1,423		2	200	67	269
Hatchery	FWS	2,941		12	376	168	556
Ocean Troll (Non-treaty)	ADFG	16		3			3
Ocean Troll (Non-treaty)	CDFO	16			3		3
Spawning Ground	WDF	5		1			1
Test Fishery Net	ODFW	42		5	3		8
Treaty Ceremonial	ODFW	270		32	19		51
Treaty Troll	WDF	11		2			2
Totals		4,898		14	623	289	926

85 Ca SCS

	% of total	% of release	
Ocean contribution	43	1      0.0018	
Escapement to Columbia River	4,855	99      0.2076	
Total Survival	4,898		0.2094
Escapement to NFH	2,941	60      0.1257	
Columbia River contribution	1,914	39      0.0818	

Stock Assessment Reference Document from CRIS and PSMFC TS1      02/10/95  
 Broodyear 88 Spring Chinook      raised at Carson NFH  
 and released Wind River

	Number	#/lb	Tagged	CWT	AT
04/12/90	1,052,641	18.8	22,877	05-22-19	Carson NFH
04/13/90	<u>1,052,640</u>	18.8	<u>22,381</u>	05-22-20	Carson NFH
Totals	2,105,281		45,258		
	expansion factor		46.52		

Where Recovered	expanded	total OBSD		55		numbers	=====	PSC	expanded	=====	Total
		2s	3s	4s	5s						
Freshwater Sport	WDFW	2,140		46							46
Hatchery	FWS	1,628		1	24	10					35
Treaty Ceremonial	ODFW	<u>1,023</u>		<u>9</u>	<u>13</u>						22
Totals		4,791		1	79	23					103

		% of	% of
		total	release
Ocean contribution	0	0	0.0000
Escapement to Columbia River	4,791	100	0.2276
Total Survival	4,791		0.2276
Escapement to NFH	1,628	34	0.0773
Columbia River contribution	3,163	66	0.1502

Stock Assessment Reference Document from CRIS and PSMFC TS1      05/18/95  
 Broodyear 83 Spring Chinook                          raised at L White Salmon NFH  
     and released L White Salmon River

	Number	#/lb	Tagged	CWT	AT
05/07/84	107,785	66.1	0	-	L White Salmon NFH
05/07/84	157,864	64.8	0	-	L White Salmon NFH
05/07/84	157,703	65.2	49,799	05-14-58	L White Salmon NFH
06/22/84	<u>150,269</u>	38.7	<u>47,795</u>	05-14-59	L White Salmon NFH
Totals	573,621		97,594		
expansion factor			5.88		

total OBSD      39

Where Recovered	expanded	2s	3s	4s	5s	6s	Total
Columbia River Gillnet	ODFW	18		3			3
Freshwater Sport	WDF	24		4			4
Hatchery	FWS	206		10	25		35
Test Fishery Net	ODFW	<u>6</u>		<u>1</u>			<u>1</u>
Totals		254		11	32		43

83 LW SCS

	% of total	% of release
Ocean contribution	0	0.0000
Escapement to Columbia River	254	0.0443
Total Survival	254	0.0443
Escapement to NFH	206	0.0359
Columbia River contribution	48	0.0084

## Stock Assessment Reference Document from CRIS and PSMFC TS1 05/18/95

Broodyear 84 Spring Chinook raised at L White Salmon NFH  
and released L White Salmon River

	Number	#/lb	Tagged	CWT	AT
05/06/85	153,700	60.0	0	-	L White Salmon NFH
05/06/85	62,113	60.0	0	-	L White Salmon NFH
05/06/85	63,428	60.0	0	-	L White Salmon NFH
06/20/85	130,007	43.3	24,619	05-14-35	L White Salmon NFH
06/20/85	131,572	43.3	24,916	05-14-36	L White Salmon NFH
05/06/85	62,359	63.8	0	-	L White Salmon NFH
05/06/85	<u>62,760</u>	<u>63.8</u>	<u>0</u>	<u>-</u>	<u>L White Salmon NFH</u>
Totals	665,939		49,535		
expansion factor			13.44		

Where Recovered	expanded	total OBSO		PSC expanded numbers			Total
		2s	3s	4s	5s	6s	
Columbia River Gillnet	ODFW	40		3			3
Freshwater Sport	WDF	215		16			16
Hatchery	FWS	874	1	12	52		65
Test Fishery Net	ODFW	<u>13</u>				1	<u>1</u>
Totals		1,142	1	12	71	1	85

		% of total	% of release
Ocean contribution	0	0	0.0000
Escapement to Columbia River	1,142	100	0.1715
Total Survival	1,142		0.1715
Escapement to NFH	874	77	0.1312
Columbia River contribution	268	23	0.0402

Stock Assessment Reference Document from CRIS and PSMFC TS1      02/10/95  
 Brodyear 88 Spring Chinook                  raised at L White Salmon NFH  
 and released L White Salmon River

	Number	#/lb	Tagged	CWT	AT
04/18/90	230,723	15.0	25,006	05-22-34	L White Salmon NFH
04/18/90	<u>230,723</u>	15.0	<u>24,897</u>	05-22-35	L White Salmon NFH
Totals	461,446		49,903		
expansion factor			9.25		

Where Recovered	expanded	total OBSD		328		=====	PSC expanded numbers	=====	Total
		2s	3s	4s	5s				
Columbia River Sport	ODFW	83			9				9
Freshwater Sport	WDFW	675		73					73
Hatchery	FWS	2,441		5	138	121			264
Test Fishery Net	ODFW	55			4	2			6
Treaty Ceremonial	ODFW	731			26	53			79
Totals		3,985		5	241	185			431

		% of		% of	
		total	release	total	release
Ocean contribution	0	0	0.0000		
Escapement to Columbia River	3,985	100	0.8636		
Total Survival	3,985		0.8636		
Escapement to NFH	2,441	61	0.5290		
Columbia River contribution	1,544	39	0.3346		

Stock Assessment Reference Document from CRIS and PSMFC TS1      04/10/95  
 Brodyear 84 Upriver Bright FCS      raised at L White Salmon NFH  
 and released L White Salmon River

	Number	#/lb	Tagged	CWT	AT
06/20/85	841,726	87.0	0	-	L White Salmon NFH
06/20/85	26,038	87.0	22,393	05-12-50	L White Salmon NFH
06/20/85	26,860	87.0	23,100	05-12-51	L White Salmon NFH
06/20/85	23,343	87.0	20,075	05-12-52	L White Salmon NFH
06/20/85	24,602	87.0	21,158	05-12-53	L White Salmon NFH
06/20/85	26,446	87.0	25,467	05-12-54	L White Salmon NFH
06/20/85	26,485	87.0	25,505	05-12-55	L White Salmon NFH
06/20/85	22,704	87.0	21,864	05-12-56	L White Salmon NFH
06/20/85	<u>27,518</u>	<u>87.0</u>	<u>26,499</u>	<u>05-12-57</u>	<u>L White Salmon NFH</u>
Totals	1,045,722		186,061		
expansion factor			5.62		

total OBSD 1,361

Where Recovered		expanded	2s	3s	4s	5s	6s	Total
Columbia River Gillnet	ODFW	8,009	10	225	817	345	28	1,425
Columbia River Sport	ODFW	56		10				10
Commercial Seine	ADFG	51			8	1		9
Estuary Sport	ODFW	90		12	1	3		16
Estuary Sport	WDF	107	6	5		8		19
Freshwater Sport	ODFW	11				2		2
Freshwater Sport	WDF	17				3		3
Hatchery	FWS	2,175	5	60	183	119	20	387
Hatchery	ODFW	34	1		2	3		6
Hatchery	WDF	11		1		1		2
Mixed Net and Seine	CDFO	348	20	17	10	15		62
Mixed Net and Seine	WDF	11		2				2
Multiple Gear	ADFG	6		1				1
Ocean Sport	ADFG	6			1			1
Ocean Sport	CDFO	157		16	4	8		28
Ocean Sport	ODFW	67		9		3		12
Ocean Sport	WDF	6				1		1
Ocean Troll (Non-treaty)	ADFG	1,737	1	59	138	108	3	309
Ocean Troll (Non-treaty)	CDFO	17		3				3
Ocean Troll (Non-treaty)	CDFO	4,940	1	341	399	124	14	879
Ocean Troll (Non-treaty)	ODFW	320		22	11	24		57
Ocean Troll (Non-treaty)	WDF	259		12	34			46
Spawning Ground	WDF	1,827		48	190	81	6	325
Sport (Charter)	WDF	90		14	2			16
Sport (Private)	WDF	141	3	14		8		25
Treaty Troll	WDF	79		10	4			14
Totals		20,572	47	881	1,804	857	71	3,660

84 LW URB

	% of total	% of release	
Ocean contribution	8,235	40	0.7875
Escapement to Columbia River	12,337	60	1.1798
Total Survival	20,572		1.9673
Escapement to NFH	2,175	11	0.2080
Columbia River contribution	10,162	49	0.9718

Stock Assessment Reference Document from CRIS and PSMFC TS1 04/10/95  
 Broodyear 85 Upriver Bright FCS raised at L White Salmon NFH  
 and released L White Salmon River

	Number	#/lb	Tagged	CWT	AT
06/18/86	777,805	106.8	0	-	L White Salmon NFH
06/18/86	190,363	165.0	0	-	L White Salmon NFH
06/18/86	50,452	106.8	49,443	05-18-07	L White Salmon NFH
06/18/86	50,585	106.8	49,573	05-18-08	L White Salmon NFH
06/18/86	50,310	106.8	48,147	05-18-09	L White Salmon NFH
06/18/86	<u>50,310</u>	106.8	<u>48,147</u>	05-18-10	L White Salmon NFH
Totals	1,169,825		195,310		
expansion factor			5.99		

total OBSO 346

Where Recovered	expanded	2s	3s	4s	5s	6s	Total
Columbia River Gillnet	ODFW 1,761		46	108	133	7	294
Estuary Sport	WDF 18			3			3
Freshwater Sport	WDF 90		4		11		15
Hatchery	FWS 785		13	35	79	4	131
Hatchery	ODFW 18	1			2		3
Mixed Net and Seine	CDFO 42	5		2			7
Multiple Gear	ADFG 6				1		1
Ocean Sport	ADFG 6				1		1
Ocean Sport	ODFW 30				5		5
Ocean Troll (Non-treaty)	ADFG 647		5	30	61	12	108
Ocean Troll (Non-treaty)	CDFO 791		26	48	52	6	132
Ocean Troll (Non-treaty)	WDF 66			2	9		11
Spawning Ground	WDF 479	8		23	49		80
Sport (Private)	WDF 24			4			4
Test Fishery Troll	ADFG 6			1			1
Treaty Troll	WDF 12		2				2
Totals	4,781	14	96	256	403	29	798

85 LW URB

	% of total	% of release	
Ocean contribution	1,624	34	0.1388
Escapement to Columbia River	3,151	66	0.2694
Total Survival	4,781		0.4087

Escapement to NFH	785	16	0.0671
Columbia River contribution	2,366	49	0.2023

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Stock Assessment Reference Document from CRIS and PSMFC TS1      04/10/95  
 Broodyear 83 Upriver Bright FCS      raised at L White Salmon NFH  
 and released L White Salmon River

	Number	#/lb	Tagged	CWT	AT
04/02/85	<u>95,364</u>	16.0	<u>91,549</u>	05-15-27	L White Salmon NFH
Totals	<u>95,364</u>		<u>91,549</u>		
				1.04	

Where Recovered	expanded	total OBSD		218		PSC expanded numbers	=====	Total
		2s	3s	4s	5s			
Columbia River Gillnet	ODFW	217		9	130	67	2	208
Commercial Seine	ADFG	1		1				1
Estuary Sport	ODFW	6			6			6
Hatchery	FWS	69	7	8	36	14	1	66
Hatchery	ODFW	1				1		1
Mixed Net and Seine	CDFO	20		16	3			19
Ocean Sport	ADFG	1			1			1
Ocean Sport	CDFO	13		4	4	4		12
Ocean Sport	ODFW	4			4			4
Ocean Sport	WDF	1				1		1
Ocean Troll (Non-treaty)	ADFG	30	1		20	5	3	29
Ocean Troll (Non-treaty)	CDFO	227		3	193	22		218
Ocean Troll (Non-treaty)	ODFW	20			19			19
Ocean Troll (Non-treaty)	WDF	22			10	11		21
Sport (Charter)	WDF	13			9	3		12
Sport (Private)	WDF	4			4			4
Treaty Troll	WDF	6			6			6
Totals		<u>655</u>	<u>8</u>	<u>41</u>	<u>445</u>	<u>128</u>	<u>6</u>	<u>628</u>

83 LW URB		% of total	% of release
Ocean contribution	362	55	0.3796
Escapement to Columbia River	293	45	0.3072
Total Survival	655		0.6868
Escapement to NFH	69	11	0.0724
Columbia River contribution	224	34	0.2349

Stock Assessment Reference Document from CRIS and PSMFC TS1 04/10/95  
 Broodyear 84 Upriver Bright FCS raised at L White Salmon NFH  
 and released L White Salmon River

	Number	#/lb	Tagged	CWT	AT
04/14/86	21,543	17.6	18,941	05-14-41	L White Salmon NFH
04/14/86	21,887	17.6	19,217	05-14-42	L White Salmon NFH
04/14/86	20,342	17.6	17,860	05-14-43	L White Salmon NFH
04/14/86	<u>22,058</u>	17.6	<u>19,367</u>	05-14-44	L White Salmon NFH
Totals	85,830		75,385		
expansion factor			1.14		

Where Recovered	expanded	total OBSD		PSC expanded numbers			Total
		2s	3s	4s	5s	6s	
Columbia River Gillnet	ODFW	14			8	4	12
Commercial Seine	ADFG	2		2			2
Hatchery	FWS	5		1	1	2	4
Mixed Net and Seine	CDFO	2		2			2
Ocean Troll (Non-treaty)	ADFG	2			2		2
Ocean Troll (Non-treaty)	CDFO	<u>2</u>		<u>2</u>			<u>2</u>
Totals		27		5	5	10	4
							24

		% of	% of
		total	release
84 LW URB			
Ocean contribution	8	30	0.0093
Escapement to Columbia River	19	70	0.0221
Total Survival	27		0.0315
Escapement to NFH	5	19	0.0058
Columbia River contribution	14	52	0.0163

Stock Assessment Reference Document from CRIS and PSMFC TS1 04/10/95  
 Broodyear 85 Upriver Bright FCS raised at L White Salmon NFH  
 and released L White Salmon River

	Number	#/lb	Tagged	CWT	AT
04/15/87	46,566	16.6	41,299	05-18-11	L White Salmon NFH
04/15/87	<u>47,168</u>	16.6	<u>41,833</u>	05-18-12	L White Salmon NFH
Totals	93,734		83,132		
expansion factor			1.13		

Where Recovered	expanded	total OBSO						Total
		2s	3s	4s	5s	6s	PSC expanded numbers	
Columbia River Gillnet	ODFW	129	13	64	27	10	114	
Columbia River Sport	ODFW	17				15	15	
Estuary Sport	ODFW	3		3			3	
Hatchery	FWS	91	8	29	32	12	81	
Mixed Net and Seine	CDFO	12	3	5	3		11	
Multiple Gear	ADFG	2		1	1		2	
Ocean Sport	ADFG	1		1			1	
Ocean Troll (Non-treaty)	ADFG	28		7	18		25	
Ocean Troll (Non-treaty)	CDFO	100		46	40	3	89	
Ocean Troll (Non-treaty)	ODFW	1		1			1	
Ocean Troll (Non-treaty)	WDF	16			14		14	
Sport (Charter)	WDF	7	2	2	2		6	
Sport (Private)	WDF	9		5	3		8	
Test Fishery Net	ODFW	1		1			1	
Totals		417	26	165	155	25	371	

	% of total	% of release	
85 LW URB			
Ocean contribution	176	42	0.1878
Escapement to Columbia River	241	58	0.2571
Total Survival	417		0.4449
Escapement to NFH	91	22	0.0971
Columbia River contribution	150	36	0.1600

Stock Assessment Reference Document from CRIS and PSMFC TS1      05/19/95  
 Broodyear 88 Coho      raised at Willard NFH  
 and released L White Salmon River

	Number	#/lb	Tagged	CWT	AT
04/18/90	1,449,095	14.5	22,526	05-22-25	Willard NFH
04/18/90	<u>1,449,045</u>	14.5	<u>22,714</u>	05-22-26	Willard NFH
Totals	2,898,140		45,240		
expansion factor			64.06		

total OBSO 369

Where Recovered	expanded	2s	3s	4s	5s	6s	PSC expanded numbers	====	Total
Columbia River Gillnet	ODFW	5,509		86					86
Estuary Sport	ODFW	3,203		50					50
Hatchery	FWS	11,723	51	132					183
Hatchery	ODFW	641		10					10
Ocean Sport	CDFG	2,819		44					44
Ocean Sport	ODFW	5,958		93					93
Ocean Troll (Non-treaty)	CDFG	2,370		37					37
Ocean Troll (Non-treaty)	CDFO	1,473		23					23
Ocean Troll (Non-treaty)	ODFW	6,534		102					102
Ocean Troll (Non-treaty)	WDF	577		9					9
Sport (Charter)	WDF	1,666		26					26
Sport (Private)	WDF	<u>6,022</u>		<u>94</u>					<u>94</u>
Totals		48,495	51	706					757

88 Wi COS

		% of total	% of release
Ocean contribution	27,419	57	0.9461
Escapement to Columbia River	21,076	43	0.7272
Total Survival	48,495		1.6733
Escapement to NFH	11,723	24	0.4045
Columbia River contribution	9,353	19	0.3227

Stock Assessment Reference Document from CRIS and PSMFC TS1      05/18/95  
 Brodyear 89 Coho  
                         raised at Willard NFH  
                         and released L White Salmon River

	Number	#/lb	Tagged	CWT	AT
04/15/91	1,286,661	14.6	23,930	05-25-32	Willard NFH
04/15/91	<u>1,286,662</u>	14.6	<u>23,813</u>	05-25-33	Willard NFH
Totals	2,573,323		47,743		
	expansion factor		53.90		

Where Recovered	expanded	total OBSD		79				=====	PSC expanded numbers	=====	Total
		2s	3s	4s	5s	6s					
Columbia River Gillnet	ODFW	485		9							9
Estuary Sport	ODFW	755		14							14
Hatchery	FWS	2,156	1	39							40
Hatchery	ODFW	54		1							1
Ocean Sport	ODFW	2,048		38							38
Ocean Troll (Non-treaty)	ODFW	1,078		20							20
Ocean Troll (Non-treaty)	WDF	108		2							2
Sport (Charter)	WDF	485		9							9
Sport (Private)	WDF	970		18							18
Treaty Troll	WDF	<u>162</u>		3							3
Totals		8,301	—	1	—	153					154

		% of	% of
		total	release
89 Wi COS			
Ocean contribution	4,851	58	0.1885
Escapement to Columbia River	3,450	42	0.1341
Total Survival	8,301		0.3226
Escapement to NFH	2,156	26	0.0838
Columbia River contribution	1,294	16	0.0503

Stock Assessment Reference Document from CRIS and PSMFC TS1      02/10/95  
 Broodyear 90 Coho                  raised at Willard NFH  
                                         and released L White Salmon River

	Number	#/lb	Tagged	CWT	AT
04/15/92	784,643	14.0	24,875	05-27-49	Willard NFH
04/15/92	<u>784,644</u>	14.0	<u>24,267</u>	05-27-50	Willard NFH
Totals	1,569,287		49,142		
expansion factor			31.93		

Where Recovered		expanded	total OBSO		24		PSC numbers	=====	Total
			2s	3s	4s	5s			
Columbia River Sport	ODFW	128		4					4
Hatchery	FWS	383	2	10					12
Hatchery	ODFW	32		1					1
Ocean Sport	CDFG	64		2					2
Ocean Sport	ODFW	224		7					7
Ocean Troll (Non-treaty)	WDFW	128		4					4
Sport (Charter)	WDFW	128		4					4
Sport (Private)	WDFW	<u>543</u>		<u>17</u>					<u>17</u>
Totals		1,630	2	49					51

90 Wi COS		% of total	% of release
Ocean contribution	1,087	67	0.0693
Escapement to Columbia River	543	33	0.0346
Total Survival	1,630		0.1039
Escapement to NFH	383	23	0.0244
Columbia River contribution	160	10	0.0102

Stock Assessment Reference Document from CRIS and PSMFC TS1      04/10/95  
 Broodyear 84 Tule Fall Chinook      raised at Spring Creek NFH  
 and released Columbia River

	Number	#/lb	Tagged	CWT	AT
02/28/85	2,483,583	207.0	0	-	Spring Creek NFH
02/28/85	5,187,684	148.0	0	-	Spring Creek NFH
02/25/85	2,847,474	167.0	47,462	05-15-34	Spring Creek NFH
02/25/85	3,222,158	167.0	53,653	05-15-35	Spring Creek NFH
02/28/85	42,593	147.3	41,826	05-15-36	Spring Creek NFH
02/28/85	43,401	147.0	42,707	05-15-37	Spring Creek NFH
02/28/85	39,381	145.0	37,373	05-15-38	Spring Creek NFH
02/28/85	<u>39,143</u>	145.0	<u>36,912</u>	05-15-39	Spring Creek NFH
Totals	13,905,417		259,933		
expansion factor			53.50		

total OBSD      51

Where Recovered	expanded	2s	3s	4s	5s	6s	Total
Columbia River Gillnet	ODFW	1,712	7	17	8		32
Fish Trap (Freshwater)	FWS	214		4			4
Hatchery	FWS	481	1	4	4		9
Hatchery	ODFW	481	1	8			9
Mixed Net and Seine	CDFO	428	8				8
Mixed Net and Seine	WDF	267		5			5
Ocean Sport	ODFW	107	2				2
Ocean Troll (Non-treaty)	CDFO	856		10	6		16
Ocean Troll (Non-treaty)	ODFW	160		3			3
Ocean Troll (Non-treaty)	WDF	535		10			10
Sport (Charter)	WDF	107		2			2
Sport (Private)	WDF	749		14			14
Treaty Troll	WDF	<u>214</u>	<u>1</u>	<u>3</u>			<u>4</u>
Totals		6,311	19	78	21		118

84 SC FCS

	% of total	% of release	
Ocean contribution	3,423	54	0.0246
Escapement to Columbia River	2,888	46	0.0208
Total Survival	6,311		0.0454
Escapement to NFH	481	8	0.0035
Columbia River contribution	2,407	38	0.0173

Stock Assessment Reference Document from CRIS and PSMFC TS1      04/10/95  
 Broodyear 85 Tule Fall Chinook      raised at Spring Creek NFH  
 and released Columbia River

	Number	#/lb	Tagged	CWT	AT
03/06/86	1,873,070	123.8	91,229	B5-01-09	Spring Creek NFH
04/08/86	1,785,630	69.0	93,292	B5-01-10	Spring Creek NFH
05/15/86	1,713,442	38.5	96,854	B5-01-11	Spring Creek NFH
03/06/86	844,132	123.8	44,147	B5-01-12	Spring Creek NFH
03/06/86	1,009,580	123.8	51,218	B5-01-13	Spring Creek NFH
04/08/86	820,910	69.0	43,406	B5-01-14	Spring Creek NFH
04/08/86	1,084,630	69.0	51,921	B5-01-15	Spring Creek NFH
05/15/86	688,395	38.5	41,980	B5-02-08	Spring Creek NFH
05/15/86	<u>775,104</u>	38.5	<u>52,508</u>	B5-02-09	Spring Creek NFH
Totals	10,594,893		566,555		
expansion factor			18.70		

total OBSD      240

Where Recovered		expanded	2s	3s	4s	5s	6s	Total
Columbia River Gillnet	ODFW	4,563	4	131	96	13		244
Estuary Sport	ODFW	75	3	1				4
Estuary Sport	WDF	430	5	9		9		23
Hatchery	FWS	785	4	29	8	1		42
Hatchery	ODFW	206		8	3			11
Mixed Net and Seine	CDFO	56				3		3
Mixed Net and Seine	WDF	449	24					24
Ocean Sport	CDFG	168		9				9
Ocean Sport	CDFO	168		5	4			9
Ocean Sport	ODFW	37	2					2
Ocean Troll (Non-treaty)	CDFO	3,703		167	23	4	4	198
Ocean Troll (Non-treaty)	ODFW	767		37	4			41
Ocean Troll (Non-treaty)	WDF	954		36	15			51
Sport (Charter)	WDF	187		10				10
Sport (Private)	WDF	187		6	4			10
Test Fishery Net	ODFW	19			1			1
Treaty Troll	WDF	711	4	30	4	30		38
Totals		13,465	46	478	162	30	4	720

85 SC FCS

	% of total	% of release	
Ocean contribution	7,387	55	0.0697
Escapement to Columbia River	6,078	45	0.0574
Total Survival	13,465		0.1271
Escapement to NFH	785	6	0.0074
Columbia River contribution	5,293	39	0.0500

Stock Assessment Reference Document from CRIS and PSMFC TS1      04/10/95  
 Broodyear 86 Tule Fall Chinook      raised at Spring Creek NFH  
 and released Columbia River

	Number	#/lb	Tagged	CWT	AT
03/19/87	1,177,883	85.9	48,712	05-18-55	Spring Creek NFH
03/19/87	1,171,755	80.4	48,882	05-18-56	Spring Creek NFH
03/19/87	573,849	82.4	49,259	05-18-57	Spring Creek NFH
03/19/87	570,780	82.7	49,437	05-18-58	Spring Creek NFH
04/16/87	288,762	63.6	48,971	05-18-59	Spring Creek NFH
04/16/87	1,477,774	60.2	48,387	05-18-60	Spring Creek NFH
04/16/87	581,551	59.8	47,756	05-18-61	Spring Creek NFH
04/16/87	1,173,288	61.8	48,073	05-18-62	Spring Creek NFH
05/21/87	684,848	42.1	46,113	05-18-63	Spring Creek NFH
05/21/87	1,173,350	37.5	45,408	05-19-05	Spring Creek NFH
05/21/87	877,309	35.3	47,213	05-19-06	Spring Creek NFH
05/21/87	889,257	36.3	46,697	05-19-09	Spring Creek NFH
Totals	10,640,406		574,908		
expansion factor			18.51		

total OBSD      905

Where Recovered	ODFW	expanded	2s	3s	4s	5s	6s	Total
Columbia River Gillnet	ODFW	14,529	50	552	183			785
Columbia River Sport	ODFW	185		10				10
Estuary Sport	ODFW	333	2	16				18
Estuary Sport	WDF	833	14	31				45
Hatchery	FWS	5,812	28	145	140	1		314
Hatchery	ODFW	722	3	23	13			39
Mixed Net and Seine	CDFO	352	19					19
Mixed Net and Seine	WDF	296	14	2				16
Ocean Sport	CDFO	629	4	12	18			34
Ocean Sport	ODFW	574	2	26	3			31
Ocean Sport	WDF	19		1				1
Ocean Troll (Non-treaty)	CDFO	7,015		298	81			379
Ocean Troll (Non-treaty)	ODFW	3,480	1	180	7			188
Ocean Troll (Non-treaty)	WDF	4,275		212	19			231
Spawning Ground	WDF	1,259		68				68
Sport (Charter)	WDF	648	3	16	16			35
Sport (Private)	WDF	1,314	13	50	4	4		71
Test Fishery Net	ODFW	93		3	1	1		5
Treaty Troll	WDF	1,943	26	74	3	2		105
Totals		44,311	179	1,719	488	8		2,394

		% of total	% of release
Ocean contribution	20,545	46	0.1931
Escapement to Columbia River	23,766	54	0.2234
Total Survival	44,311		0.4164
Escapement to NFH	5,812	13	0.0546
Columbia River contribution	17,954	41	0.1687

Stock Assessment Reference Document from CRIS and PSMFC TS1      05/19/95  
 Broodyear 87 Tule Fall Chinook      raised at Spring Creek NFH  
 and released Columbia River

	Number	#/lb	Tagged	CWT	AT	
04/07/88	227,284	65.3	23,960	05-14-45	Spring Creek NFH	
04/07/88	224,589	60.9	24,695	05-14-49	Spring Creek NFH	
05/18/88	110,899	37.3	24,930	05-14-50	Spring Creek NFH	
05/18/88	112,216	37.3	25,226	05-14-51	Spring Creek NFH	
05/18/88	60,087	33.2	25,655	05-16-59	Spring Creek NFH	
05/18/88	57,891	33.2	24,716	05-16-60	Spring Creek NFH	
04/07/88	241,703	67.9	23,946	05-16-61	Spring Creek NFH	
05/18/88	244,048	42.0	24,120	05-16-62	Spring Creek NFH	
05/18/88	956,464	36.7	50,786	05-19-10	Spring Creek NFH	
05/18/88	960,974	36.7	50,564	05-19-12	Spring Creek NFH	
05/18/88	542,768	34.4	50,445	05-19-13	Spring Creek NFH	
05/18/88	542,048	34.4	50,956	05-19-14	Spring Creek NFH	
04/07/88	1,447,714	67.9	50,332	05-19-23	Spring Creek NFH	
04/07/88	1,453,199	67.9	51,757	05-19-24	Spring Creek NFH	
04/07/88	1,451,523	67.9	51,473	05-19-25	Spring Creek NFH	
05/18/88	<u>217,350</u>	33.2	<u>0</u>	-	Spring Creek NFH	CN
Totals	8,850,757		553,561			
expansion factor			15.99			

Where Recovered	expanded	total OBSD		594		=====	PSC expanded numbers	====	Total
		2s	3s	4s	5s				
Columbia River Gillnet	ODFW	6,523	49	203	156				408
Estuary Sport	ODFW	144		6	3				9
Estuary Sport	WDF	656	6	35					41
Hatchery	FWS	5,244	19	208	100	1			328
Hatchery	ODFW	416	3	15	8				26
Mixed Net and Seine	CDFO	272	15	2					17
Mixed Net and Seine	WDF	64	2	2					4
Ocean Sport	CDFO	656	16	23	2				41
Ocean Sport	ODFW	48		3					3
Ocean Sport	WDF	16		1					1
Ocean Troll (Non-treaty)	CDFG	48		3					3
Ocean Troll (Non-treaty)	CDFO	6,188		333	54				387
Ocean Troll (Non-treaty)	ODFW	1,087		68					68
Ocean Troll (Non-treaty)	WDF	1,519		91	4				95
Sport (Charter)	WDF	368	3	17	3				23
Sport (Private)	WDF	1,039	17	44	4				65
Test Fishery Net	ODFW	16		1					1
Treaty Troll	WDF	<u>2,558</u>	<u>62</u>	<u>90</u>	<u>8</u>				<u>160</u>
Totals		26,862	192	1,145	342	1			1,680

87 SC FCS	% of total	% of release	
Ocean contribution	13,863	52	0.1566
Escapement to Columbia River	12,999	48	0.1469
Total Survival	26,862		0.3035
Escapement to NFH	5,244	20	0.0592
Columbia River contribution	7,755	29	0.0876

Stock Assessment Reference Document from CRIS and PSMFC TS1 02/10/95  
 Broodyear 88 Tule Fall Chinook raised at Spring Creek NFH  
 and released Columbia River

	Number	#/lb	Tagged	CWT	AT
03/09/89	2,064,281	116.3	48,276	05-20-13	Spring Creek NFH
03/09/89	2,755,505	116.3	48,798	05-20-15	Spring Creek NFH
03/09/89	2,732,331	116.3	49,731	05-20-16	Spring Creek NFH
04/13/89	682,422	67.7	49,473	05-20-17	Spring Creek NFH
04/13/89	688,536	67.6	49,241	05-20-18	Spring Creek NFH
04/13/89	681,562	67.6	47,883	05-20-19	Spring Creek NFH
04/13/89	1,039,096	67.6	50,245	05-20-20	Spring Creek NFH
05/18/89	689,732	36.0	44,704	05-20-21	Spring Creek NFH
05/18/89	1,369,220	36.0	48,400	05-20-23	Spring Creek NFH
05/18/89	688,249	37.8	49,365	05-20-24	Spring Creek NFH
05/18/89	1,024,957	36.0	49,395	05-20-25	Spring Creek NFH
04/13/89	344,857	67.6	24,540	05-20-32	Spring Creek NFH
04/13/89	353,075	67.6	24,036	05-20-33	Spring Creek NFH
05/17/89	83,490	54.2	24,781	05-20-34	Spring Creek NFH
05/17/89	85,165	52.7	24,002	05-20-35	Spring Creek NFH
05/18/89	12,521	54.2	12,521	05-21-45	Spring Creek NFH
05/18/89	<u>12,574</u>	52.7	<u>12,574</u>	05-21-45	Spring Creek NFH
Totals	15,307,573		657,965		
expansion factor			23.27		

total OBSD 1,578

Where Recovered	expanded	2s	3s	4s	5s	6s	Total
Columbia River Gillnet	ODFW	23,218	128	759	111		998
Columbia River Sport	ODFW	163		7			7
Estuary Sport	ODFW	721	3	28			31
Estuary Sport	WDFW	3,304	81	57	4		142
Groundfish Observer (CA/	NMFS	140	6				6
Hatchery	FWS	14,331	152	373	91		616
Hatchery	ODFW	2,955	12	82	33		127
Mixed Net and Seine	CDFO	558	22	2			24
Mixed Net and Seine	WDFW	163	7				7
Ocean Sport	CDFG	93		4			4
Ocean Sport	CDFO	1,140	16	29	4		49
Ocean Sport	ODFW	1,326	5	52			57
Ocean Sport	WDFW	209	1	8			9
Ocean Troll (Non-treaty)	CDFO	10,213		360	79		439
Ocean Troll (Non-treaty)	ODFW	4,211	3	174	4		181
Ocean Troll (Non-treaty)	WDFW	4,420	19	154	17		190
Spawning Ground	WDFW	70		3			3
Sport (Charter)	WDFW	2,187	59	32	3		94
Sport (Private)	WDFW	4,560	87	109			196
Test Fishery Net	ODFW	140		4	2		6
Treaty Troll	WDFW	<u>4,467</u>	<u>50</u>	<u>140</u>	<u>2</u>		<u>192</u>
Totals		78,589	651	2,377	350		3,378

	% of total	% of release
Ocean contribution	33,687	43
Escapement to Columbia River	44,902	57
Total Survival	78,589	0.5134
Escapement to NFH	14,331	18
Columbia River contribution	30,571	39
		0.0936
		0.1997

Stock Assessment Reference Document from CRIS and PSMFC TS1 05/18/95

Broodyear 86 Spring Chinook raised at Leavenworth NFH  
and released Icicle Creek

	Number	#/lb	Tagged	CWT	AT
04/20/88	283,408	16.0	46,458	05-17-06	Leavenworth NFH
04/20/88	283,491	16.0	46,719	05-17-07	Leavenworth NFH
04/20/88	283,704	16.0	44,688	05-17-08	Leavenworth NFH
04/20/88	283,667	16.0	48,630	05-17-09	Leavenworth NFH
04/20/88	1,073,024	16.0	33,919	23-23-18	Leavenworth NFH
04/20/88	0	16.0	34,462	23-23-19	Leavenworth NFH
04/20/88	0	16.0	34,652	23-23-20	Leavenworth NFH
04/20/88	0	16.0	34,212	23-23-21	Leavenworth NFH
<b>Totals</b>	<b>2,207,294</b>		<b>323,740</b>		
expansion factor			6.82		

total OBSD 283

Where Recovered	expanded	=====	PSC	expanded	numbers	=====	Total
		2s	3s	4s	5s	6s	
Columbia River Gillnet	ODFW	14			2		2
Columbia River Sport	ODFW	89			13		13
Freshwater Net	WDF	95			14		14
Freshwater Sport	WDF	757		2	85	24	111
Hatchery	FWS	1,207		1	110	66	177
Test Fishery Net	ODFW	27			4		4
Treaty Ceremonial	ODFW	409			33	27	60
<b>Totals</b>		<b>2,598</b>	<b>3</b>	<b>245</b>	<b>133</b>		<b>381</b>

86 Le SCS

	% of total	% of release	
Ocean contribution	0	0.0000	
Escapement to Columbia River	2,598	100	0.1177
Total Survival	2,598		0.1177
Escapement to NFH	1,207	46	0.0547
Columbia River contribution	1,391	54	0.0630

Stock Assessment Reference Document from CRIS and PSMFC TS1      05/18/95  
 Broodyear 87 Spring Chinook      raised at Leavenworth NFH  
 and released Icicle Creek

	Number	#/lb	Tagged	CWT	AT
04/19/89	2,109,923	20.6	47,364	05-19-51	Leavenworth NFH
04/19/89	0	20.6	47,437	05-19-53	Leavenworth NFH
04/19/89	0	20.6	48,854	05-19-54	Leavenworth NFH
04/19/89	0	20.6	46,646	05-19-57	Leavenworth NFH
05/03/89	129,754	18.5	32,313	23-23-62	Leavenworth NFH
05/03/89	0	18.5	31,960	23-23-63	Leavenworth NFH
05/03/89	0	18.5	31,407	23-24-01	Leavenworth NFH
05/03/89	0	18.5	32,784	23-24-02	Leavenworth NFH
Totals	2,239,677		318,765		
expansion factor			7.03		

total OBSD      597

Where Recovered	expanded	2s	3s	4s	5s	6s	Total
Columbia River Gillnet	ODFW	105			15		15
Columbia River Sport	ODFW	365			35	17	52
Freshwater Net	WDF	246			35		35
Freshwater Sport	WDF	956			136		136
Hatchery	FWS	3,155		4	168	277	449
Hatchery	WDF	7	1				1
Ocean Troll (Non-treaty)	CDFO	56			8		8
Spawning Ground	WDF	14			2		2
Test Fishery Net	ODFW	7			1		1
Treaty Ceremonial	ODFW	871			74	50	124
Totals		5,782	1	4	459	359	823

87 Le SCS	% of total	% of release
Ocean contribution	56	1      0.0025
Escapement to Columbia River	5,726	99      0.2557
Total Survival	5,782	0.2582
Escapement to NFH	3,155	55      0.1409
Columbia River contribution	2,571	44      0.1148

Stock Assessment Reference Document from CRIS and PSMFC TSI      05/18/95  
 Broodyear 87 Spring Chinook      raised at Warm Springs NFH  
     and released Warm Springs River

	Number	#/lb	Tagged	CWT	AT	
09/30/88	11,235	10.9	10,682	05-16-07	Warm Springs NFH	
09/30/88	11,338	10.9	0	05-16-07	Warm Springs NFH	RV
04/05/89	14,469	15.4	13,757	05-16-07	Warm Springs NFH	
04/05/89	14,603	15.4	0	05-16-07	Warm Springs NFH	RVOTC
09/30/88	13,328	11.4	12,071	05-16-58	Warm Springs NFH	
09/30/88	13,339	11.4	0	05-16-58	Warm Springs NFH	RV
04/05/89	12,460	15.4	11,285	05-16-58	Warm Springs NFH	
04/05/89	12,471	15.4	0	05-16-58	Warm Springs NFH	RVOTC
05/06/88	5,762	66.0	5,319	05-16-63	Warm Springs NFH	
05/06/88	5,762	66.0	0	05-16-63	Warm Springs NFH	LV
09/30/88	7,473	9.0	6,898	05-16-63	Warm Springs NFH	
09/30/88	7,492	9.0	0	05-16-63	Warm Springs NFH	LV
04/05/89	12,482	15.0	0	05-16-63	Warm Springs NFH	LVOTC
04/05/89	12,436	15.0	11,479	05-16-63	Warm Springs NFH	
09/30/88	20,902	10.5	19,213	05-20-05	Warm Springs NFH	
04/05/89	30,253	15.6	27,808	05-20-05	Warm Springs NFH	
09/30/88	22,418	10.6	19,906	05-20-06	Warm Springs NFH	
04/05/89	28,165	15.2	25,009	05-20-06	Warm Springs NFH	
09/30/88	16,545	11.4	15,709	05-20-07	Warm Springs NFH	
04/05/89	34,996	13.6	33,229	05-20-07	Warm Springs NFH	
09/30/88	16,485	10.2	14,638	05-20-08	Warm Springs NFH	
04/05/89	34,623	15.2	30,743	05-20-08	Warm Springs NFH	
04/05/89	17,481	8.5	16,631	05-20-09	Warm Springs NFH	
04/05/89	31,624	15.0	30,086	05-20-09	Warm Springs NFH	
05/06/88	40,086	66.0	37,036	05-20-10	Warm Springs NFH	
09/30/88	5,405	10.6	4,994	05-20-10	Warm Springs NFH	
04/05/89	6,459	14.4	5,968	05-20-10	Warm Springs NFH	
09/30/88	18,387	10.6	16,988	05-20-11	Warm Springs NFH	
04/05/89	21,972	14.4	20,300	05-20-11	Warm Springs NFH	
09/30/88	14,765	10.6	13,642	05-20-12	Warm Springs NFH	
04/05/89	38,045	14.4	35,150	05-20-12	Warm Springs NFH	
04/05/89	20,089	8.8	18,978	05-20-14	Warm Springs NFH	
04/05/89	29,325	17.0	27,703	05-20-14	Warm Springs NFH	
09/30/88	12,095	11.6	10,808	05-20-22	Warm Springs NFH	
09/30/88	12,130	11.6	0	05-20-22	Warm Springs NFH	LV
04/05/89	13,503	15.8	12,067	05-20-22	Warm Springs NFH	
04/05/89	13,542	15.8	0	05-20-22	Warm Springs NFH	LVOTC
09/30/88	869	10.6	803	14-07-09	Warm Springs NFH	
04/05/89	2,238	14.4	2,068	14-07-09	Warm Springs NFH	
09/30/88	871	10.6	805	14-08-09	Warm Springs NFH	
04/05/89	2,246	14.4	2,075	14-08-09	Warm Springs NFH	
09/30/88	237	10.6	219	14-09-09	Warm Springs NFH	
04/05/89	613	14.4	566	14-09-09	Warm Springs NFH	
Totals	661,019		514,633			
expansion factor			1.28			

total OBSD      549

	expanded	2s	3s	4s	5s	6s	Total
<b>Where Recovered</b>							
Columbia River Gillnet	ODFW	5		4			4
Columbia River Sport	ODFW	39		25	5		30
Freshwater Sport	ODFW	253		21	164	12	197
Hatchery	FWS	552	1	21	374	34	430
Test Fishery Net	ODFW	3		2			2
Treaty Ceremonial	ODFW	32		2	11	12	25
Treaty Subsistence	ODFW	40		4	25	2	31
Totals		924	1	48	605	65	719

87 WS SCS

	% of total	% of release
Ocean contribution	0	0.0000
Escapement to Columbia River	924	100
Total Survival	924	0.1398
Escapement to NFH	552	60
Columbia River contribution	372	40
		0.0835
		0.0563

Stock Assessment Reference Document from CRIS and PSMFC TS1 02/10/95  
 Broodyear 88 Spring Chinook

	Number	#/lb	Tagged	CWT	AT	
09/27/89	13,949	9.2	12,029	05-20-26	Warm Springs NFH	
04/11/90	35,818	21.4	29,756	05-20-26	Warm Springs NFH	
09/27/89	22,328	9.5	19,516	05-20-27	Warm Springs NFH	
04/11/90	28,526	21.4	23,699	05-20-27	Warm Springs NFH	
09/27/89	19,067	10.1	17,042	05-20-28	Warm Springs NFH	
04/11/90	32,034	17.9	27,939	05-20-28	Warm Springs NFH	
09/27/89	18,740	9.6	18,046	05-20-29	Warm Springs NFH	
04/11/90	33,622	19.3	32,821	05-20-29	Warm Springs NFH	
11/15/89	5,000	9.0	4,704	05-20-30	Warm Springs NFH	
04/16/90	46,942	14.5	44,163	05-20-30	Warm Springs NFH	
04/16/90	52,064	14.5	47,302	05-20-31	Warm Springs NFH	
04/11/90	25,286	9.1	21,815	05-20-36	Warm Springs NFH	
04/11/90	27,024	20.4	23,315	05-20-36	Warm Springs NFH	
09/27/89	10,302	8.5	0	05-20-61	Warm Springs NFH	LV
09/27/89	10,240	8.5	9,874	05-20-61	Warm Springs NFH	
04/11/90	14,893	21.2	0	05-20-61	Warm Springs NFH	LVOTC
04/11/90	14,774	21.2	13,962	05-20-61	Warm Springs NFH	
09/27/89	6,270	8.3	0	05-20-62	Warm Springs NFH	RV
09/27/89	6,267	8.3	5,891	05-20-62	Warm Springs NFH	
04/11/90	19,320	21.3	0	05-20-62	Warm Springs NFH	RVOTC
04/11/90	19,297	21.3	18,091	05-20-62	Warm Springs NFH	
09/27/89	7,650	9.5	0	05-20-63	Warm Springs NFH	RV
09/27/89	7,655	9.5	6,096	05-20-63	Warm Springs NFH	
04/11/90	18,001	21.3	0	05-20-63	Warm Springs NFH	RVOTC
04/11/90	17,983	21.3	14,502	05-20-63	Warm Springs NFH	
09/27/89	7,035	7.8	6,576	05-21-05	Warm Springs NFH	
09/27/89	7,070	7.8	0	05-21-05	Warm Springs NFH	LV
04/11/90	19,456	21.1	0	05-21-05	Warm Springs NFH	LVOTC
04/11/90	19,326	21.1	18,298	05-21-05	Warm Springs NFH	
09/27/89	2,439	8.4	2,060	05-21-40	Warm Springs NFH	
04/11/90	7,760	18.2	6,613	05-21-40	Warm Springs NFH	
09/27/89	2,518	8.4	2,127	05-21-41	Warm Springs NFH	
04/11/90	8,012	18.2	6,828	05-21-41	Warm Springs NFH	
04/11/90	27,315	18.9	24,641	05-40-19	Warm Springs NFH	
04/11/90	24,892	10.5	22,455	05-40-19	Warm Springs NFH	
09/27/89	11,461	8.3	9,358	05-40-20	Warm Springs NFH	
04/11/90	40,597	20.1	34,138	05-40-20	Warm Springs NFH	
09/27/89	9,987	8.3	8,275	05-40-21	Warm Springs NFH	
04/11/90	<u>30,639</u>	18.2	<u>26,110</u>	05-40-21	Warm Springs NFH	
Totals	<u>731,559</u>		<u>558,042</u>			
expansion factor			1.31			

total OBSD 814

Where Recovered	expanded	2s	3s	4s	5s	6s	Total
Columbia River Gillnet	ODFW	4			3		3
Columbia River Sport	ODFW	42			28	4	32
Fish Trap (Freshwater)	ODFW	4	3				3
Freshwater Sport	ODFW	305	6	22	195	10	233
Freshwater Sport	WDFW	7			5		5
Hatchery	FWS	851	2	50	506	91	649
Test Fishery Net	ODFW	12			9		9
Treaty Ceremonial	ODFW	54			35	6	41
Treaty Subsistence	ODFW	62		8	36	3	47
Totals		1,341	11	80	814	117	1,022

88 WS SCS

	% of total	% of release
Ocean contribution	0	0.0000
Escapement to Columbia River	1,341	100
Total Survival	1,341	0.1833
		0.1833
Escapement to NFH	851	63
Columbia River contribution	490	37
		0.0670

Stock Assessment Reference Document from CRIS and PSMFC TS1      02/10/95  
 Broodyear 88 Spring Chinook      raised at Entiat NFH  
 and released Entiat River

	Number	#/lb	Tagged	CWT	AT
04/19/90	365,283	19.4	39,600	05-19-60	Entiat NFH
04/19/90	270,031	19.4	43,954	05-19-63	Entiat NFH
04/19/90	<u>53,306</u>	19.4	<u>8,268</u>	05-21-44	Entiat NFH
Totals	688,620		91,822		
expansion factor			7.50		

Where Recovered	expanded	total OBSD		90		numbers	Total
		2s	3s	4s	5s		
Columbia River Sport	ODFW	7			1		1
Hatchery	FWS	630		40	44		84
Treaty Ceremonial	ODFW	<u>67</u>		<u>2</u>	<u>7</u>		<u>9</u>
Totals		704		42	52		94

		% of	% of
		total	release
Ocean contribution	0	0	0.0000
Escapement to Columbia River	704	100	0.1022
Total Survival	704		0.1022
Escapement to NFH	630	89	0.0915
Columbia River contribution	74	11	0.0107

Stock Assessment Reference Document from CRIS and PSMFC TS1 04/10/95  
 Brodyear 86 Summer Steelhead raised at Dworshak NFH  
 and released Clearwater River

	Number	#/lb	Tagged	CWT	AT
04/20/87	59,768	0.0	19,675	05-18-36	
04/22/87	271,194	0.0	18,825	10-29-31	
04/22/87	376,864	0.0	20,625	10-29-32	
04/23/87	<u>498,755</u>	0.0	<u>19,050</u>	10-29-33	
Totals	1,206,581		78,175		
expansion factor			15.43		

total OBSO 627

Where Recovered	expanded	2s	3s	4s	5s	6s	Total
Columbia River Gillnet ODFW	6,590		348	79			427
Columbia River Sport ODFW	278		8	10			18
Fish Trap (Freshwater) ODFW	15			1			1
Foreign Research Vessels NMFS	31	1	1				2
Freshwater Sport IDFG	10,356		392	279			671
Freshwater Sport ODFW	46		3				3
Hatchery FWS	540		12		23		35
Hatchery IDFG	<u>5,433</u>		<u>12</u>	<u>340</u>			<u>352</u>
Totals	<u>23,289</u>	<u>1</u>	<u>776</u>	<u>709</u>	<u>23</u>		<u>1,509</u>

	% of total	% of release
86 Dw SST		
Ocean contribution	31	0 0.0026
Escapement to Columbia River	23,258	100 1.9276
Total Survival	23,289	1.9302
Escapement to NFH	540	2 0.0448
Columbia River contribution	22,718	98 1.8828

Stock Assessment Reference Document from CRIS and PSMFC TS1      04/10/95  
 Broodyear 87 Summer Steelhead      raised at Dworshak NFH  
 and released Clearwater River

	Number	#/lb	Tagged	CWT	AT	
05/03/88	16,188	8.0	15,414	05-17-11	Dworshak NFH	
05/03/88	16,319	0.0	15,539	05-17-12		
05/03/88	16,199	0.0	15,424	05-17-13		
05/03/88	13,167	0.0	12,948	05-17-14		
05/03/88	13,104	0.0	12,886	05-17-39		
03/30/88	139,605	0.0	14,333	05-18-46		
05/03/88	82,468	0.0	16,604	05-18-49		
05/03/88	97,337	0.0	19,796	05-18-50		
05/02/88	177,805	0.0	19,873	05-18-51		
05/02/88	176,291	0.0	19,843	05-18-52		
05/03/88	250,042	0.0	18,835	05-18-53		
05/04/88	268,585	0.0	21,056	05-18-54		
05/03/88	11,284	0.0	8,153	10-29-28		
05/03/88	11,100	0.0	8,020	10-29-29		
Totals	1,289,494		218,724			
	expansion factor		5.90			

Where Recovered	expanded	total OBSD 1,039					
		=====	PSC	expanded	numbers	=====	Total
Columbia River Gillnet	ODFW	3,543	6	477	117	1	601
Columbia River Sport	ODFW	265		44	1		45
Fish Trap (Freshwater)	ODFW	6			1		1
Foreign Research Vessels	NMFS	59	9	1			10
Freshwater Sport	IDFG	3,561	49	555			604
Freshwater Sport	ODFW	159		27			27
Freshwater Sport	WDFW	6		1			1
Hatchery	FWS	4,233	8	2	678	30	718
Hatchery	IDFG	295		50			50
Ocean Troll (Non-treaty)	CDFO	35		6			6
Squid Gillnet By-Catch	NMFS	12		2			2
Test Fishery Net	ODFW	12			2		2
Totals		12,186	72	1,165	799	31	2,067

87 Dw SST	% of total	% of release
Ocean contribution	94	1 0.0073
Escapement to Columbia River	12,080	99 0.9368
Total Survival	12,186	0.9450
Escapement to NFH	4,233	35 0.3283
Columbia River contribution	7,847	64 0.6085
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Stock Assessment Reference Document from CRIS and PSMFC TS1      04/10/95  
 Broodyear 88 Summer Steelhead      raised at Dworshak NFH  
 and released Clearwater River

	Number	#/lb	Tagged	CWT	AT
05/03/89	72,196	0.0	16,912	05-18-37	
05/03/89	73,078	0.0	17,789	05-18-38	
05/01/89	216,691	0.0	20,339	05-19-45	
05/01/89	216,176	0.0	19,894	05-19-46	
05/03/89	215,086	0.0	18,869	05-19-47	
05/04/89	93,522	0.0	20,603	05-20-41	
05/04/89	93,801	0.0	20,782	05-20-42	
05/04/89	<u>93,350</u>	0.0	<u>20,497</u>	05-20-43	
Totals	1,073,900		155,685		
expansion factor			6.90		

Where Recovered		expanded	total OBSD		465		PSC expanded numbers	=====	Total
			2s	3s	4s	5s			
Columbia River Gillnet	ODFW	2,387	16	274	56				346
Columbia River Sport	ODFW	655	22	66	7				95
Estuary Sport	ODFW	7		1					1
Foreign Research Vessels	NMFS	7	1						1
Freshwater Sport	ODFW	207		30					30
Hatchery	FWS	2,097		28	257	19			304
Hatchery	IDFG	48	7						7
Hatchery	ODFW	7		1					1
Ocean Sport	WDFW	7		1					1
Squid Gillnet By-Catch	NMFS	14	2						2
Test Fishery Net	ODFW	28		4					4
Totals		5,464	48	405	320	19			792

		% of	% of
		total	release
Ocean contribution	14	0	0.0013
Escapement to Columbia River	5,436	99	0.5062
Total Survival	5,464		0.5088
Escapement to NFH	2,097	38	0.1953
Columbia River contribution	3,339	61	0.3109

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Stock Assessment Reference Document from CRIS and PSMFC TS1      04/10/95  
 Broodyear 89 Summer Steelhead      raised at Dworshak NFH  
 and released Clearwater River

	Number	#/lb	Tagged	CWT	AT
05/03/90	293,367	5.7	20,016	05-20-44	
05/03/90	248,052	7.2	19,797	05-20-45	
05/03/90	360,005	7.7	20,279	05-20-46	
05/04/90	88,494	5.7	21,290	05-20-47	
05/04/90	88,090	6.1	20,888	05-20-48	
05/04/90	<u>88,656</u>	5.8	<u>21,387</u>	05-20-49	
Totals	1,166,664		123,657		
expansion factor			9.43		

Where Recovered		expanded	total OBSO		715		=====	PSC expanded numbers	=====	Total
			2s	3s	4s	5s				
Columbia River Gillnet	ODFW	4,566	14	403	63	4				484
Columbia River Sport	ODFW	764		66	15					81
Estuary Sport	ODFW	104		11						11
Fish Trap (Freshwater)	ODFW	28			3					3
Freshwater Sport	ODFW	566	5	47	8					60
Hatchery	FWS	4,566	2	20	462					484
Hatchery	IDFG	0								0
Mixed Net and Seine	CDFO	9		1						1
Ocean Sport	CDFO	38			4					4
Test Fishery Net	ODFW	<u>19</u>		2						<u>2</u>
Totals		10,660	21	550	555	4				1,130

89 Dw SST		% of total	% of release
Ocean contribution	47	0	0.0040
Escapement to Columbia River	10,613	100	0.9097
Total Survival	10,660		0.9137
Escapement to NFH	4,566	43	0.3914
Columbia River contribution	6,047	57	0.5183

Stock Assessment Reference Document from CRIS and PSMFC TS1      04/10/95  
 Broodyear 88 Spring Chinook      raised at Dworshak NFH  
 and released Clearwater River

	Number	#/lb	Tagged	CWT	AT
04/05/90	142,529	0.0	67,624	05-21-62	
04/05/90	138,449	0.0	67,262	05-21-63	
04/05/90	636,847	0.0	65,686	05-22-05	
04/04/90	36,433	0.0	25,369	05-22-60	
04/04/90	36,175	0.0	25,483	05-22-61	
04/04/90	36,381	0.0	25,685	05-22-62	
04/04/90	32,441	0.0	22,645	05-22-63	
04/04/90	33,925	0.0	24,801	05-23-05	
04/04/90	33,433	0.0	24,582	05-23-06	
04/05/90	65,844	0.0	64,522	23-29-30	
Totals	1,192,457		413,659		
expansion factor			2.88		

Where Recovered	expanded	total OBSD		254			=====	PSC expanded numbers	=====	Total
		2s	3s	4s	5s	6s				
Freshwater Sport	FWS	3			1					1
Freshwater Sport	ODFW	26			9					9
Freshwater Sport	WDFW	12			4					4
Hatchery	FWS	493		4	66	101				171
Hatchery	IDFG	121	42							42
Hatchery	WDFW	3				1				1
Test Fishery Net	ODFW	9			1	2				3
Treaty Ceremonial	ODFW	176			23	38				61
Treaty Subsistence	FWS	6			2					2
Totals		849	42	4	106	142				294

88 Dw SCS		% of total	% of release
Ocean contribution	0	0	0.0000
Escapement to Columbia River	849	100	0.0712
Total Survival	849		0.0712
Escapement to NFH	493	58	0.0413
Columbia River contribution	356	42	0.0299

Stock Assessment Reference Document from CRIS and PSMFC TS1 04/10/95

Broodyear 88 Spring Chinook raised at Kooskia NFH  
and released Clear Creek

	Number	#/lb	Tagged	CWT	AT
04/12/90	170,141	0.0	48,392	05-19-27	Kooskia NFH
04/12/90	166,115	0.0	47,247	05-19-28	Kooskia NFH
04/12/90	34,937	0.0	9,937	05-21-42	Kooskia NFH
04/12/90	<u>32,508</u>	0.0	<u>9,246</u>	05-21-43	Kooskia NFH
Totals	403,701		114,822		
expansion factor			3.52		

total OBSD 286

Where Recovered	expanded	2s	3s	4s	5s	6s	Total
Hatchery FWS	907			102	156		258
Test Fishery Net ODFW	18			2	3		5
Treaty Ceremonial ODFW	<u>155</u>			<u>19</u>	<u>25</u>		<u>44</u>
Totals	1,080			123	184		307

88 Ko SCS

	% of total	% of release	
Ocean contribution	0	0.0000	
Escapement to Columbia River	1,080	100	0.2675
Total Survival	1,080		0.2675
Escapement to NFH	907	84	0.2247
Columbia River contribution	173	16	0.0429

## References

- U.S. Fish and Wildlife Service. 1992. "A review of Coded Wire Tagged Fish Released from Dworshak, Kooskia, and Hagerman National Fish Hatcheries, 1976-1990." Internal Report. Idaho Fisheries Resource Office, Ahsahka, Idaho.
- U.S. Fish and Wildlife Service. 1992. "Warm Springs National Fish hatchery Evaluation and Anadromous Fish Study on the Warm Springs Indian Reservation of Oregon, 1975-1989." Progress Report. Lower Columbia River Fisheries Resource Office, Vancouver, Washington.
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