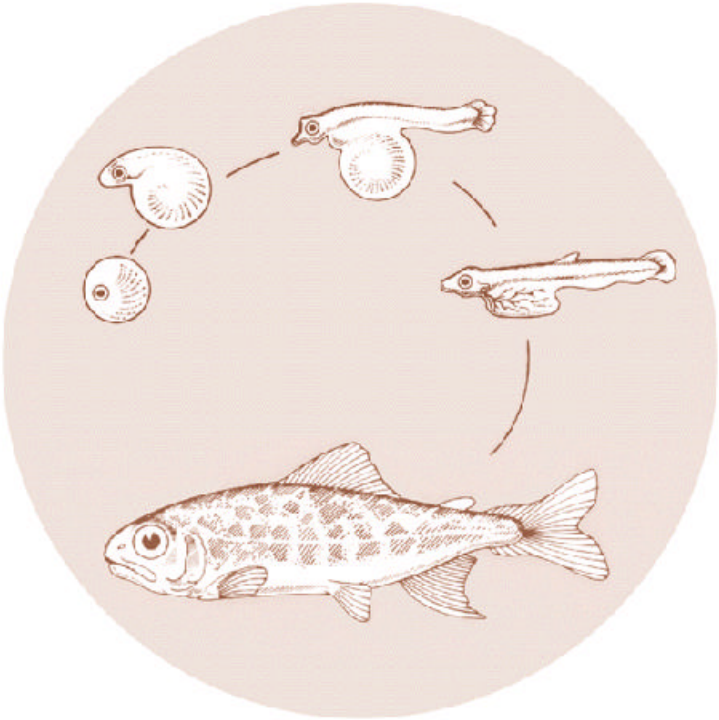
ANNUAL CODED WIRE TAG PROGRAM
MISSING PRODUCTION GROUPS
JANUARY 1, 1995 TO DECEMBER 31, 1995

Annual Report 1995



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ANNUAL CODED WIRE TAG PROGRAM
MISSING PRODUCTION GROUPS

Annual Report 1995
January 1, 1995 to December 31, 1995

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INTRODUCTION

In 1989 the Bonneville Power Administration (BPA) began funding the evaluation of production groups of juvenile anadromous fish not being coded-wire tagged for other programs. These groups were the "Missing Production Groups". Production fish released by the U.S. Fish and Wildlife Service (USFWS) without representative coded-wire tags during the 1980's are indicated as blank spaces on the survival graphs in this report.

The objectives of the "Missing Production Groups" program are:

- to estimate the total survival of each production group,

- to estimate the contribution of each production group to various fisheries, and

- to prepare an annual report for all USFWS hatcheries in the Columbia River Basin.

Coded-wire tag recovery information will be used to evaluate the relative success of individual brood stocks. It can also be used by salmon harvest managers to develop plans to allow the harvest of excess hatchery fish while protecting threatened or endangered stocks.

In order to meet these objectives, a minimum of one marked group of fish is necessary for each production release. The level of marking varies according to location, species, and age at release. In general, 50,000 fish are marked with a coded-wire tag (CWT) to represent each production release group at hatcheries below John Day Dam. Between 120,000 and 200,000 fish are marked for groups at hatcheries above John Day Dam.

All fish release information, including marked/unmarked ratios, is reported to the Pacific States Marine Fisheries Commission (PSMFC). Fish recovered in the various fisheries or at the hatcheries are sampled to recover coded-wire tags. This recovery information is also reported to PSMFC.

RESULTS

In calendar year 1995 the USFWS, Columbia River Fisheries Program Office marked 1,076,237 fish as "Missing Production Groups". Totals per group are listed in Table 1. Over 550 snouts with "Missing Production Groups" coded-wire tags were recovered at USFWS hatcheries in 1995, and processed at USFWS fisheries offices.

A brief description of the estimated survival and contribution for each species raised at National Fish Hatcheries follows. Graphs for each hatchery and species were prepared, and summaries of release and recovery information are also included in this report.

Abernathy Salmon Culture Technology Center

Abernathy Salmon Culture Technology Center (SCTC) 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. 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 brood years 1983 to 1987 from Abernathy. Marking fish with coded-wire tags was resumed for brood year 1989 under the missing production group program.

Brood year 1989 contributed mainly to troll and sport fisheries in Washington and British Columbia. Overall survival was 0.1836%.

Carson National Fish Hatchery

Carson NFH is located 13 miles northwest of Carson, Washington at the confluence of the Wind River and Tyee Springs (River Mile 18), at 1,180 feet above sea level. Carson NFH began operation in 1938 by rearing and releasing fall chinook salmon and trout. In 1956, the hatchery was remodeled under the Mitchell Act. Construction of a fish ladder at Shipherd Falls (River Mile 2.1) made it possible for spring chinook to pass upstream to the hatchery. Current production involves adult collection, egg incubation and rearing of spring chinook salmon.

Brood 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%. These fish were recovered mainly in the freshwater sport fishery.

Brood year 1988 from Carson had an overall survival rate of 0.3999% estimated using 75 total tag code recoveries. The majority of those recoveries were in the Columbia River freshwater sport (5,303) and treaty ceremonial fisheries (1,023). There were an additional 20 recoveries since the 1994 report.

Brood year 1989 was tagged as part of an otolith study conducted by Washington Department of Fish and Wildlife (WDFW). The current overall survival rate is 0.1263%. The great majority of fish (2,349) were taken in the freshwater sport fishery reported by WDFW. There was one observed recovery in the ocean troll fishery off Washington.

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 (LSRCP) to rear spring chinook salmon. The hatchery is now used to produce spring chinook and summer steelhead.

Spring Chinook

No marked groups of spring chinook were released at the hatchery for broods 1983 to 1987.

The number of fish released for brood 1988 has been increased from 1,192,457 to 1,252,014 based on information from the StreamNET database. The StreamNET database is a BPA funded interagency effort to organize fisheries data. All StreamNET derived information was checked against the PSMFC tag book, tag code by tag code. Overall survival was 0.0624%, and this brood contributed mainly to the treaty ceremonial fishery in the Columbia River.

A release of unmarked fingerlings at Hog Island was reported to the CRiS database in 1991, but is not listed in the StreamNET database. The inclusion of tag code 103025 this year added a few observed recoveries, but decreased the Production Expansion Factor. Yearlings from brood year 1989 didn't do as well as brood 1988. An estimated 60 fish were harvested in the Columbia Basin, and 3 were recovered at WDFW hatcheries. Forty-two fish were taken in the treaty ceremonial fishery. Overall survival was 0.0306%.

Summer Steelhead

Brood 1986 summer steelhead released at the hatchery were marked with coded-wire tags for evaluation. The steelhead had an overall survival of 1.9302% and contributed mainly to the freshwater sport fishery in Idaho. Many of these steelhead were also recovered in the Columbia River gillnet fishery.

Summer steelhead from brood 1987 survived at an overall rate of 0.9450%. Thirty-five fish were taken off British Columbia, but the great majority of fish (7,552) were taken in the Columbia River Basin. The majority of "Columbia River" harvest was in the Oregon Department of Fish and Wildlife (ODFW) reported gillnet fishery and the Idaho Department of Fish and Game (IDFG) reported freshwater sport fishery.

Brood year 1988 summer steelhead yielded 465 observed recoveries with an overall estimated survival rate of 0.5088%. The vast majority of fish were taken in the Columbia River gillnet fishery (2,387), followed by the Columbia River sport fishery (655). An

estimated contribution of 21 squid gillnet by-catch and foreign research vessel recoveries don't show up on the Ocean Contribution section of the Stock Assessment Reference Document. The StreamNET database has no listed off station releases for brood 1988.

An additional 43 recoveries reported by USFWS raised overall survival to 0.9494% for brood year 1989. Most fish were taken in the Columbia River gillnet fishery (4,566). Forty-one of those fish went to the treaty ceremonial fishery in the Columbia River. Forty-seven fish were taken off the coast of British Columbia.

The StreamNET database lists a total of 3,509,190 brood 1990 steelhead released by Dworshak NFH, including 739,459 to the Salmon River.

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.

Coho

Three additional recoveries for 1989 brood coho increased the overall survival rate to 0.9446%, less than the 4.181% survival of brood year 1988 coho. Over 3,800 of the coho from this brood year were caught off the Oregon coast in the sport and commercial fisheries. Eighteen hundred were harvested in the ocean off Washington, and 200 off California. Two hundred plus fish were taken in British Columbia. Eight hundred twenty were also harvested in the Columbia River.

Brood year 1990 coho now has a total of 31 observed recoveries and an overall survival of 0.1228%. Fewer than 600 fish were taken in the ocean, and 300 in the Columbia River. Five hundred of the ocean recoveries were reported by WDFW. The remaining 96 were split evenly between Oregon and California.

Total survival for brood year 1991 coho is estimated to be 0.338%. Slightly over 100 fish were harvested in the ocean (91 by British Columbia and 23 by Washington), and 205 in the Columbia River. Escapement to the hatchery was about 3,200 fish. Although this brood did better than the 1990 fish, it was much less successful than 1988 or 1989.

Winter Steelhead

Eight fish from brood year 1989 winter steelhead were recovered off station. Total estimated survival was 0.7689%.

Only 7 fish were caught off station from brood 1990, and the overall survival rate was 0.2993%.

An estimated 28 fish from brood 1991 have been taken in the ODFW reported freshwater sport fishery. Additional recoveries are listed in the "1994 Accomplishment Report for Clackamas River Fisheries Working Group", but did not make it into the PSMFC database.

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, yearling spring chinook at Entiat were coded-wire tagged under the missing group program. Expanded off station recoveries include 57 in the treaty ceremonial fishery and 6 in the Columbia River sport fishery. Expanding CWT recoveries for brood year 1988 gave an estimated survival of 0.1023%. Eggs from Winthrop NFH were raised and released at Entiat as part of this brood.

There was a total of 56 observed recoveries of the 111,207 tagged fish released with brood year 1989. Expansion of these recoveries yields an overall survival rate of 0.0503%. Seven fish were taken in the Columbia River sport fishery. Eggs from Leavenworth NFH were raised and released at Entiat as part of this brood.

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.

Only two broods during the 1980's received tag codes at Kooskia. An age 0 release of brood 1980 fish contained an IDFG tag code. Fish raised at Kooskia were released at Dworshak NFH with an IDFG tag code. Fish from Hagerman NFH were released at Kooskia in 1983.

Brood 1988 fish at Kooskia were the first fish to be marked under the Missing Production Group program. Total survival for brood 1988 was 1,080 fish, or 0.2675%. Treaty ceremonial fishing took most of the fish harvested off station (155). Eighteen fish were also taken in the ODFW test fishery net. Information for this one brood was not graphed.

Neither CRiS nor PSMFC has any record of tagged fish being released with brood 1989.

Leavenworth National Fish Hatchery

Leavenworth NFH is located about 4 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 a coded-wire tag. Additional recoveries for the 1987 brood of spring chinook salmon released as yearlings brings the total estimated survival up to 0.2788%. Off station recoveries were mainly in the freshwater sport fishery and treaty ceremonial fishery. Nearly 3,000 fish were taken in the Columbia River. One tag was recovered in the British Columbia ocean troll fishery, which was expanded to 28 fish. The 1987 brood spring chinook released as fingerlings survived at a rate of only 0.0030%.

Brood 1988 spring chinook fared quite a bit better than brood 1987 with an estimated survival rate of 0.4751. Most fish were taken in the freshwater sport fishery (3,469). In addition, ODFW reported a treaty ceremonial harvest of 1,315. Fingerling releases from this brood year survived at an overall rate of only 0.0034%. There were only 7 observed recoveries from a release of nearly 300,000.

An agency 63 tag code was released with brood 1989 age 0 Leavenworth fish raised at Wells SFH and returned to Leavenworth. These fish survived at a rate of 0.0889%. Thirteen fish were harvested in the British Columbia ocean troll fishery, 163 in the freshwater sport fishery, and 66 in the treaty ceremonial fishery.

Yearling fish from brood 1989 survived at a rate of 0.1919%, more than twice the rate for fish released at age 0. The great majority of off station recoveries occurred in the Columbia River sport fishery (1,429). An additional 360 fish were taken in the treaty ceremonial fishery.

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. Willard NFH is administered by Little White Salmon, but listed seperately in this document.

Spring Chinook

Both age 0 and yearling spring chinook have been released from the hatchery. Brood years 1982 through 1984 were coded-wire tagged to evaluate age 0 and yearling releases. Average survival for age 0 fish was 0.11%, compared with an average survival of 0.39% for yearling releases.

Marking of spring chinook was resumed for brood year 1988 under the Missing Group Program. Brood year 1988 fish released at age 0 were not marked. Additional recoveries in the WDFW freshwater sport fishery raised the overall survival rate to 1.0458%. Nearly 2,400 yearling release fish were harvested in the Columbia River, with over 1,500 in the WDFW reported freshwater sport fishery alone. Another 731 fish were taken in the treaty ceremonial fishery.

Brood 1989 shows a total survival of 2,145 fish, or 0.2110%. Over 1,100 fish were taken in the freshwater sport fishery, and 85 in the treaty ceremonial fishery. Age 0 fish were released from this brood, but were not coded-wire tagged.

Upriver Bright Fall Chinook

Brood year 1983 through 1985 upriver brights were marked for both a normal age 0 release and an extended rearing release. Average percent survival for the fingerling release was 1.1%, compared to the survival of 0.38% for the extended rearing fish. Extended rearing for upriver brights is no longer being used.

Brood 1989 was the first upriver bright brood to be marked under the missing production group program. Seventy-three observed recoveries were expanded to a total of 4,527 for an overall survival rate of 0.3147%. Most of the harvested fish were taken in the ocean (2,408), with 1,124 in Alaska, 1,059 in British Columbia and 225 in California. An additional 1,092 fish were harvested in the Columbia River gillnet fishery, or counted in spawning ground surveys.

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 a year later. Spring Creek NFH was remodeled in 1955 under the Mitchell Act and currently produces tule fall chinook.

Brood year 1987 fall chinook were recovered primarily in commercial fisheries off the coasts of Canada and Washington as well as in the Columbia River gillnet fishery. Survival of the 1987 brood year was 0.2997%.

Brood year 1988 fish were recovered primarily in the Columbia River gillnet fishery (23,218). They also contributed to the ocean fisheries in Washington (16,006), Canada (11,934), and Oregon (5,537). Overall survival was 0.5135%.

Fish from brood 1989 fared slightly worse than brood 1988 with an overall survival of 0.4516% or 46,211 fish. The greatest number of recoveries was in the ocean off Washington (14,339), and in the Columbia River (10,107). The Columbia River gillnet fishery took the great majority of fish harvested in the Columbia River. British Columbia took 8,617 fish, and ocean recoveries off Oregon totaled 3,179.

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 USFWS to increase tribal fishing opportunities. Operations at the hatchery presently consist of adult collection, egg incubation and rearing of spring chinook salmon.

The 1987 brood of spring chinook is the first group of fish coded-wire tagged since the late 1970's. Since then, every fish released from the hatchery has been marked. The 1987 brood spring chinook had a 0.1401% survival and contributed mainly to the freshwater sport fishery on the Deschutes River.

Brood 1988 survived at a rate of 0.1833%, slightly better than brood 1987. They contributed primarily to the freshwater sport fishery in Oregon and the treaty fisheries in both the Columbia River and Deschutes River.

Total survival for brood year 1989 was only 221 fish, or 0.0206%. Sixty-two fish were taken in the freshwater sport fishery, 11 in treaty subsistence, and 5 in treaty ceremonial.

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.

Willard National Fish Hatchery

Willard NFH is situated 4 miles upstream of Little White Salmon NFH on the Little White Salmon River, and is part of the Little White Salmon NFH complex. 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-1960's, the hatchery has been used primarily for coho production. Adult coho are trapped and spawned at Little White Salmon NFH.

Fish from brood 1988 contributed mostly to ocean fisheries (27,996 fish) from British Columbia to California. An additional 8,776 fish were harvested in the Columbia River. Total survival rate was estimated to be 1.6976%.

Brood 1989 coho survived at a rate of 0.32%. They contributed mainly in ocean sport fisheries of Oregon and Washington.

Total survival for brood 1990 was only 1,726 fish or 0.1100%. Fish were harvested off the coasts of Washington, Oregon and California. One hundred twenty-eight fish were taken in the Columbia River Sport fishery.

Brood 1991 was even grimmer than 1990 with an overall survival of 0.0721%, or 2,209 fish from a release of over three million smolts. The only fish harvested from this brood were 552 fish taken in the Columbia River.

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. Until this year the program had been simplified to spring chinook only.

Spring chinook were coded-wire tagged beginning with brood year 1989. There were 16 observed recoveries from the 107,670 tagged fish released. These recoveries are expanded to a total of 225 fish for an overall survival rate of 0.0213%. An estimated 78 fish were recovered in the freshwater sport fishery, and an estimated 29 fish were recovered by WDFW hatcheries.

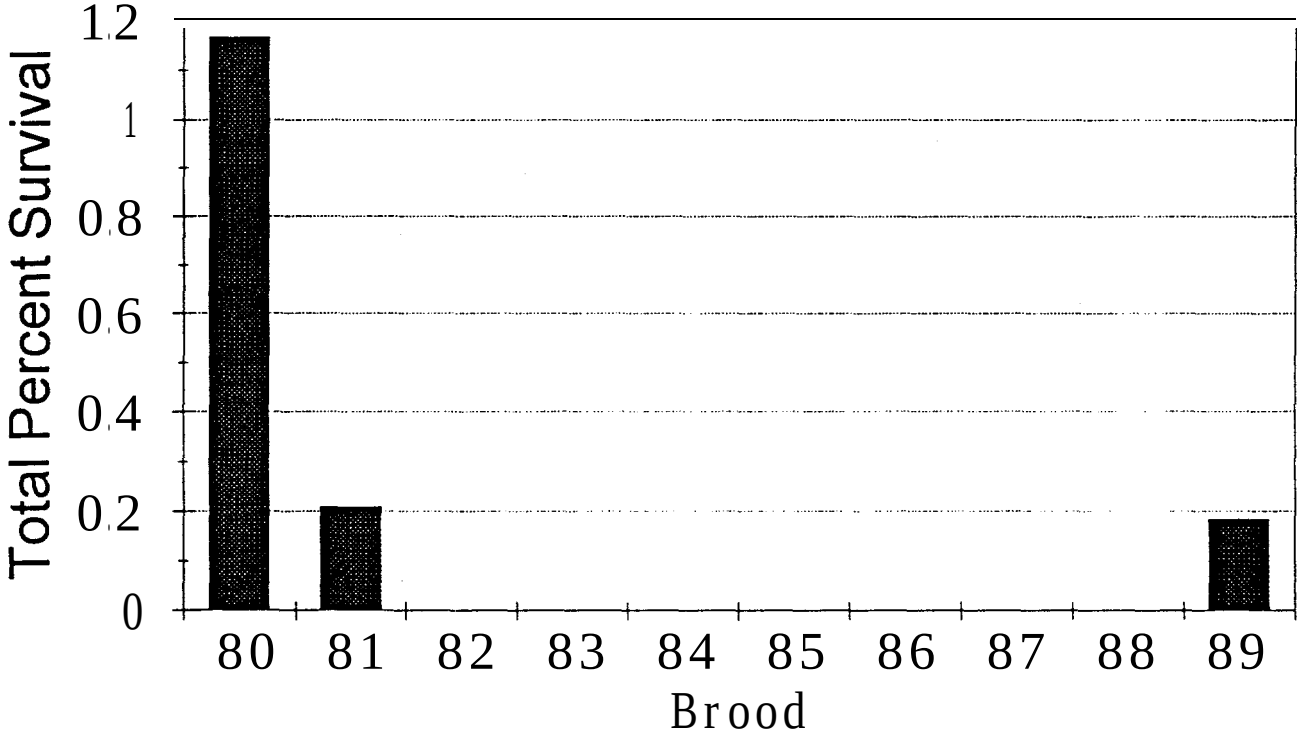
There are no recoveries for brood 1990 Winthrop spring chinook on file with PSMFC, indicating a very low survival rate. Over ninety thousand tagged fish were released as yearlings.

Table 1 - Fish Marked as Missing Production Groups in Calender Year 1995

Brood Year	Hatchery	Species	Bate		Number Tagged
94	Abernathy SCTC	Tule Fall Chinook	02/14/95	02/15/95	50,006
94	Carson NFH	Spring Chinook	05/30/95	06/02/95	162,880
94	Eagle Creek NFH	Coho	09/26/95	09/28/95	50,609
94	Eagle Creek NFH	Coho	09/25/95	09/28/95	100,308
94	Entiat NFH	Special Study Spring Chinook	04/21/95	04/25/95	187,471
94	Entiat NFH	Age 0 Spring Chinook	04/19/95	04/25/95	120,338
94	Spring Creek NFH	Tule Fall Chinook	02/28/95	03/15/95	251,056
93	Willard NFH	Special Study Coho	02/16/95	02/17/95	50,232
94	Winthrop NFH	Spring Chinook	05/09/95	05/12/95	103,337
					1,076,237

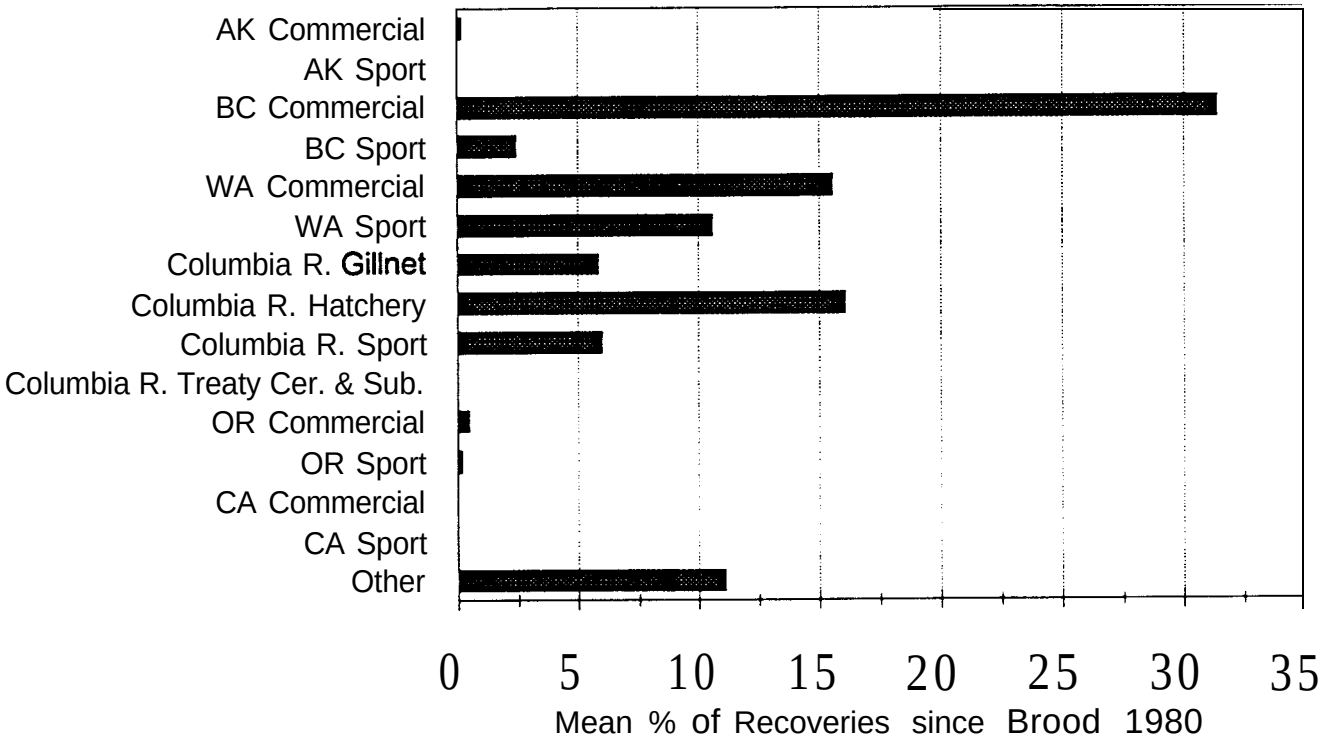
Abernathy SCTC

Fall Chinook fingerlings



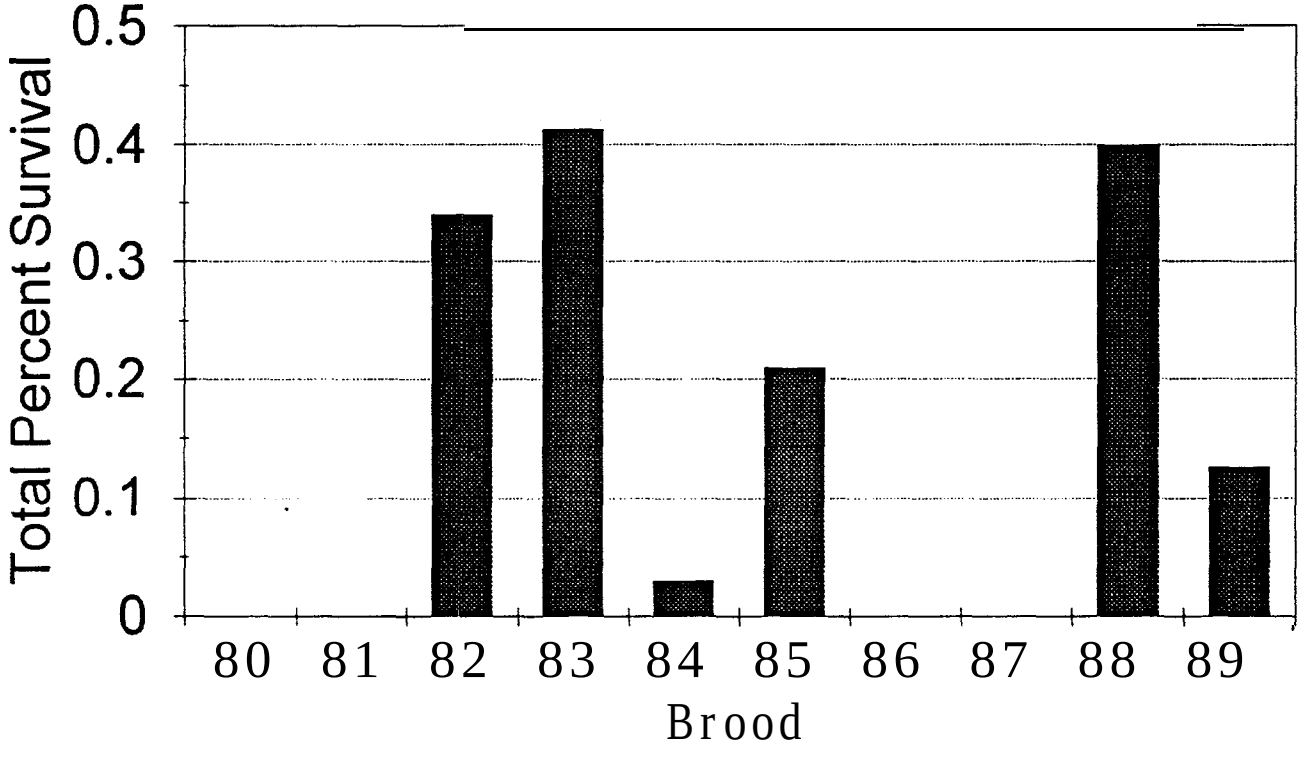
Abernathy SCTC

Tule Fall Chinook fingerlings



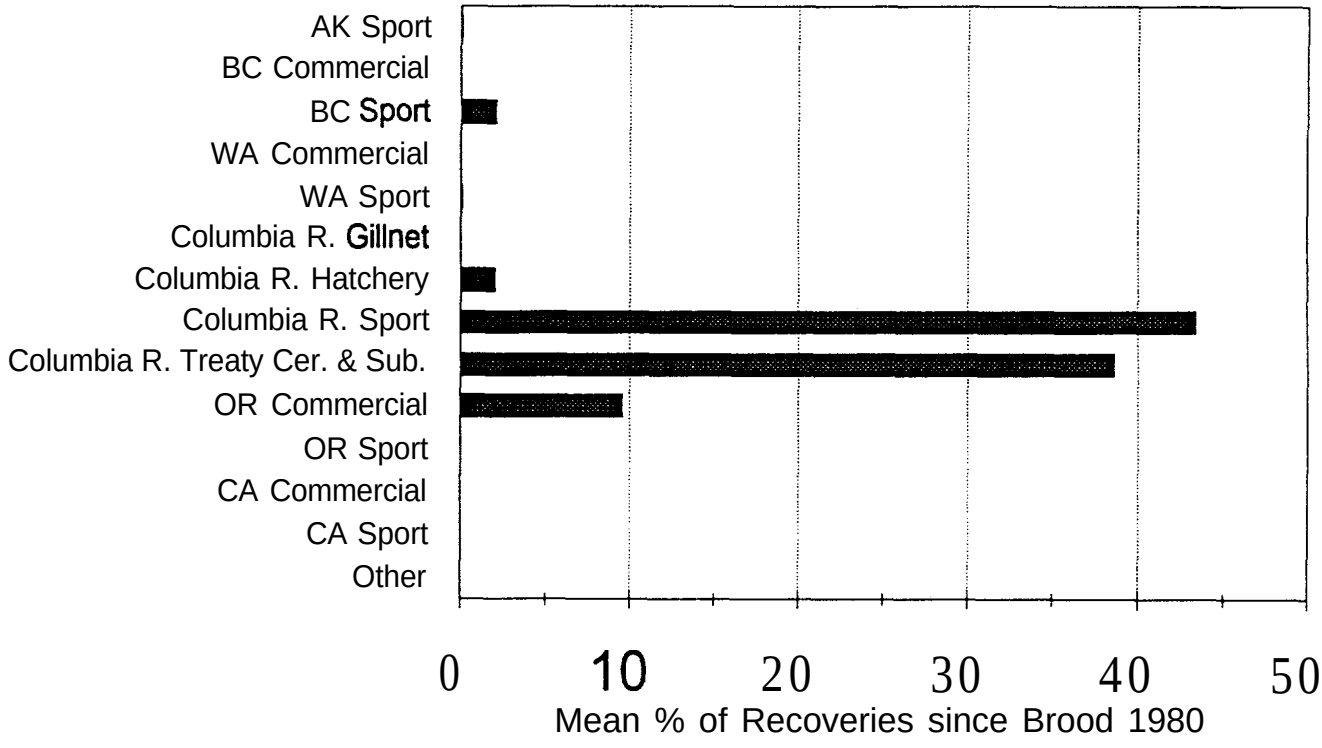
Carson NFH

Spring Chinook yearlings



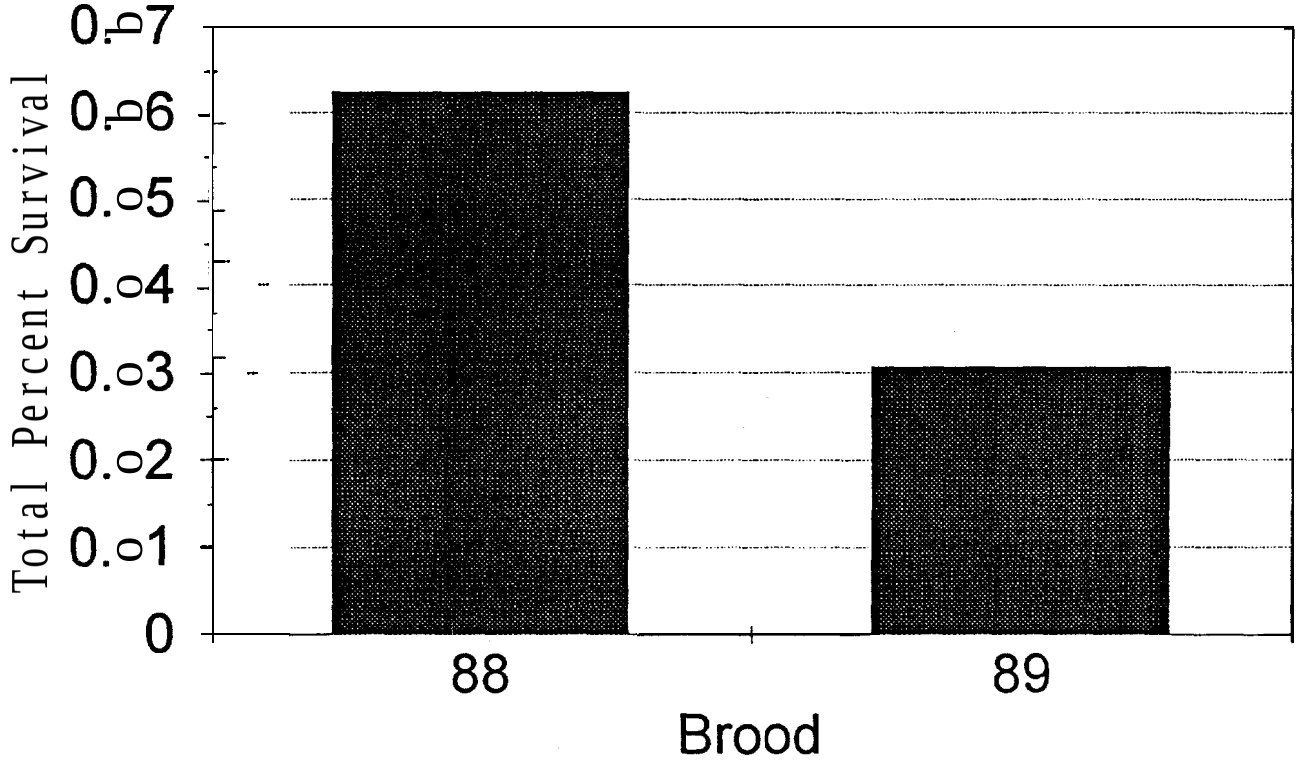
Carson NFH

Spring Chinook yearlings



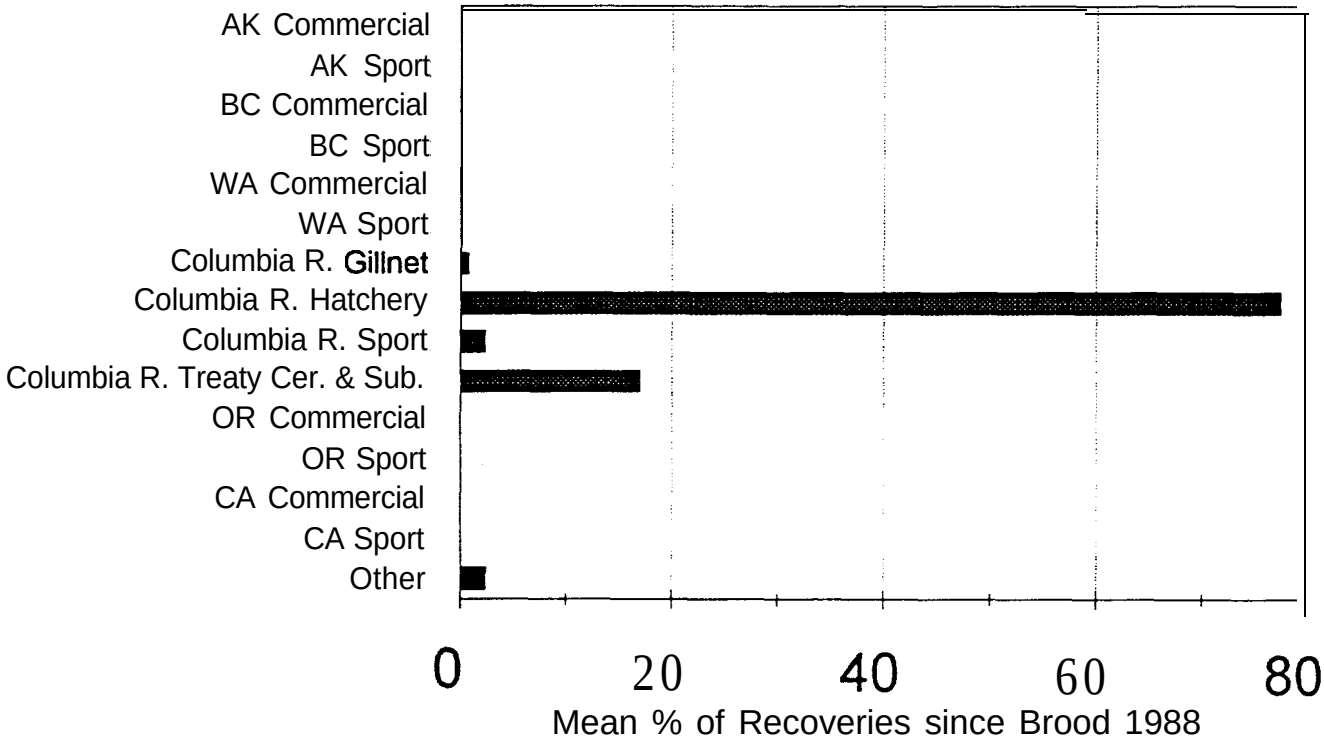
Dworshak NFH

Spring Chinook yearlings



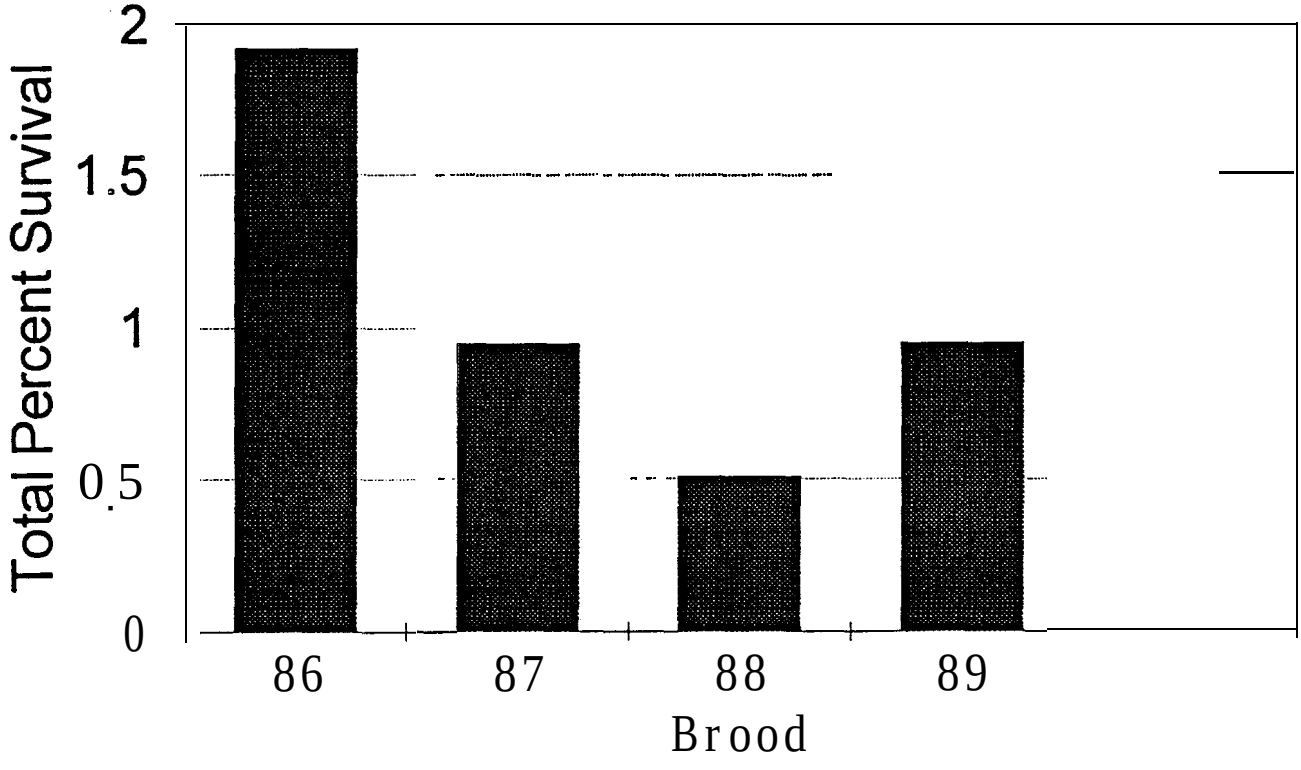
Dworshak NFH

Spring Chinook yearlings



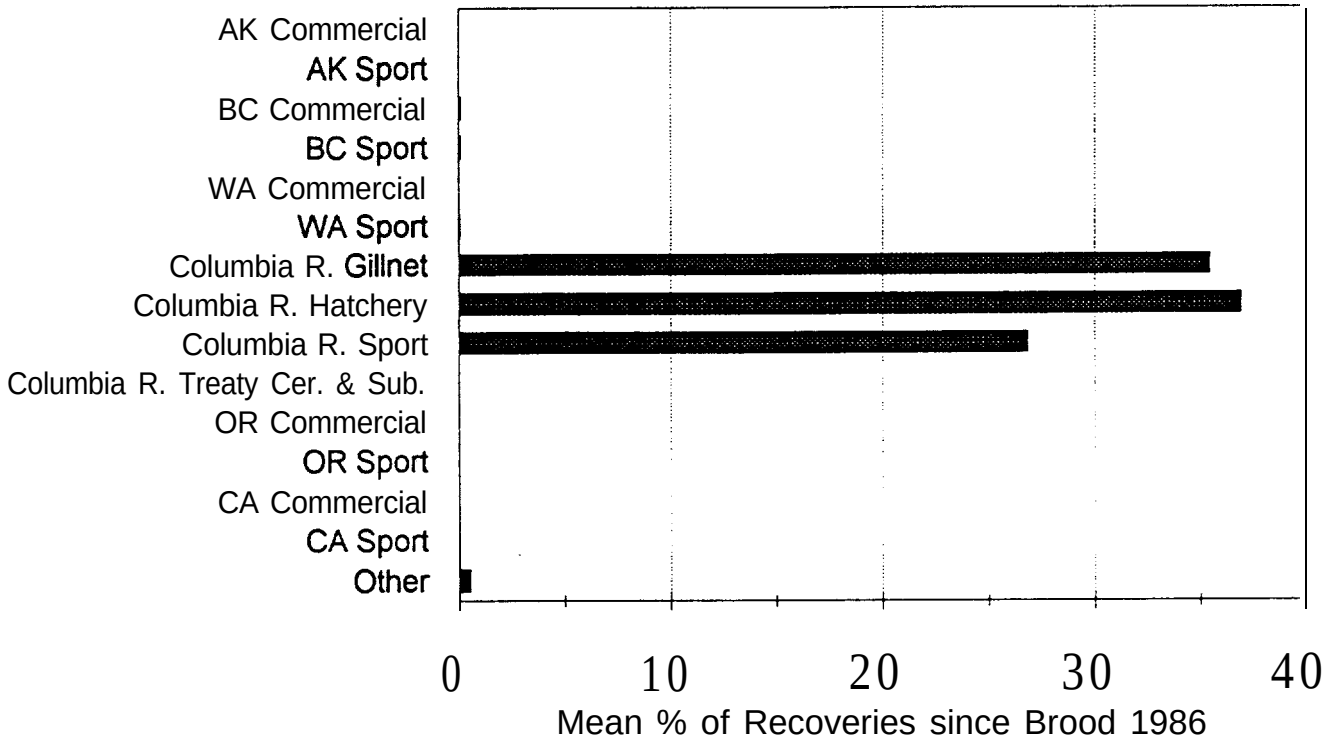
Dworshak NFH

Summer Steelhead yearlings



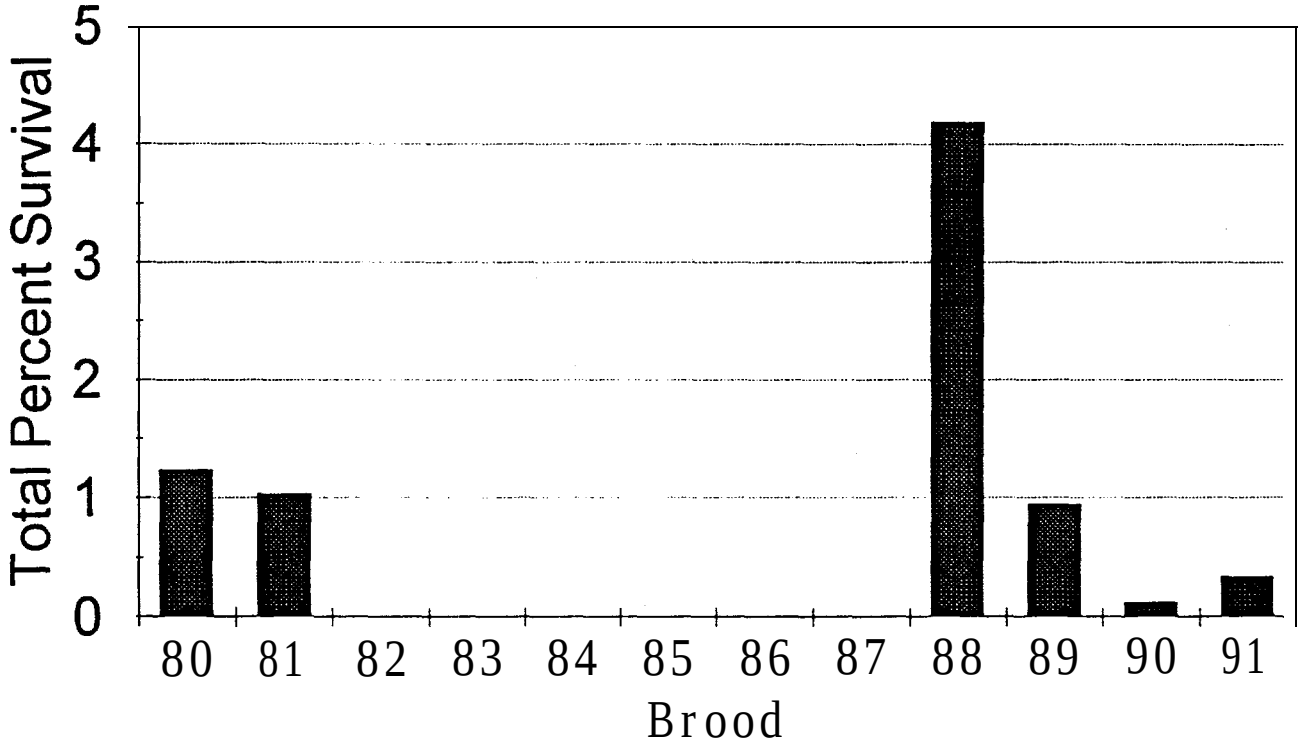
Dworshak NFH

Summer Steelhead yearlings



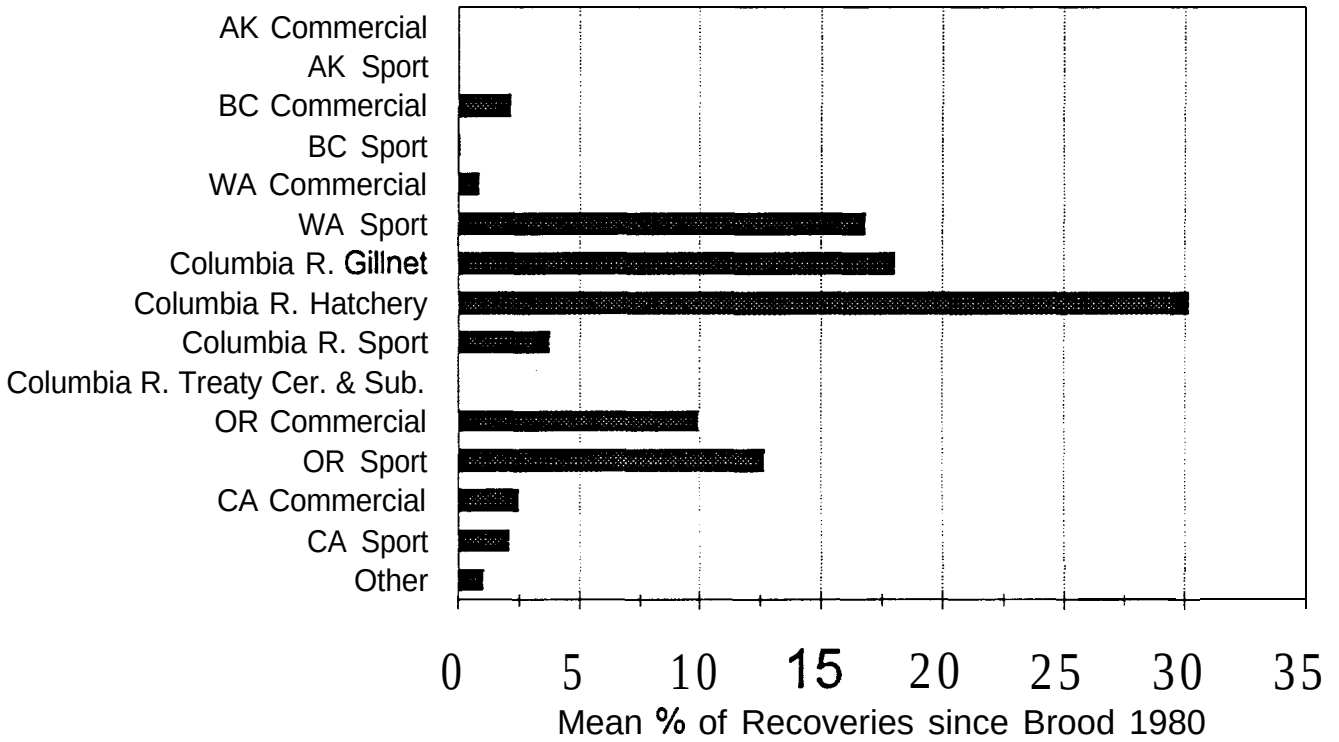
Eagle Creek NFH

Coho yearlings



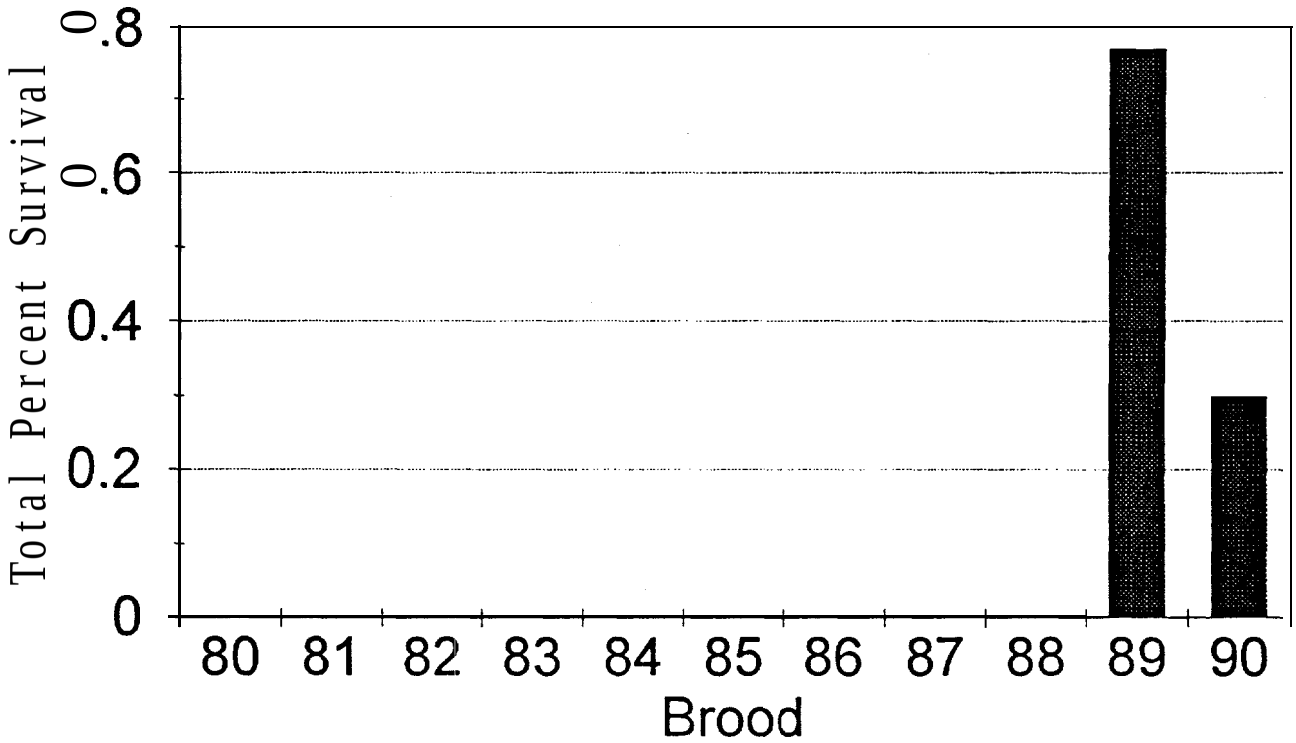
Eagle Creek NFH

Coho yearlings



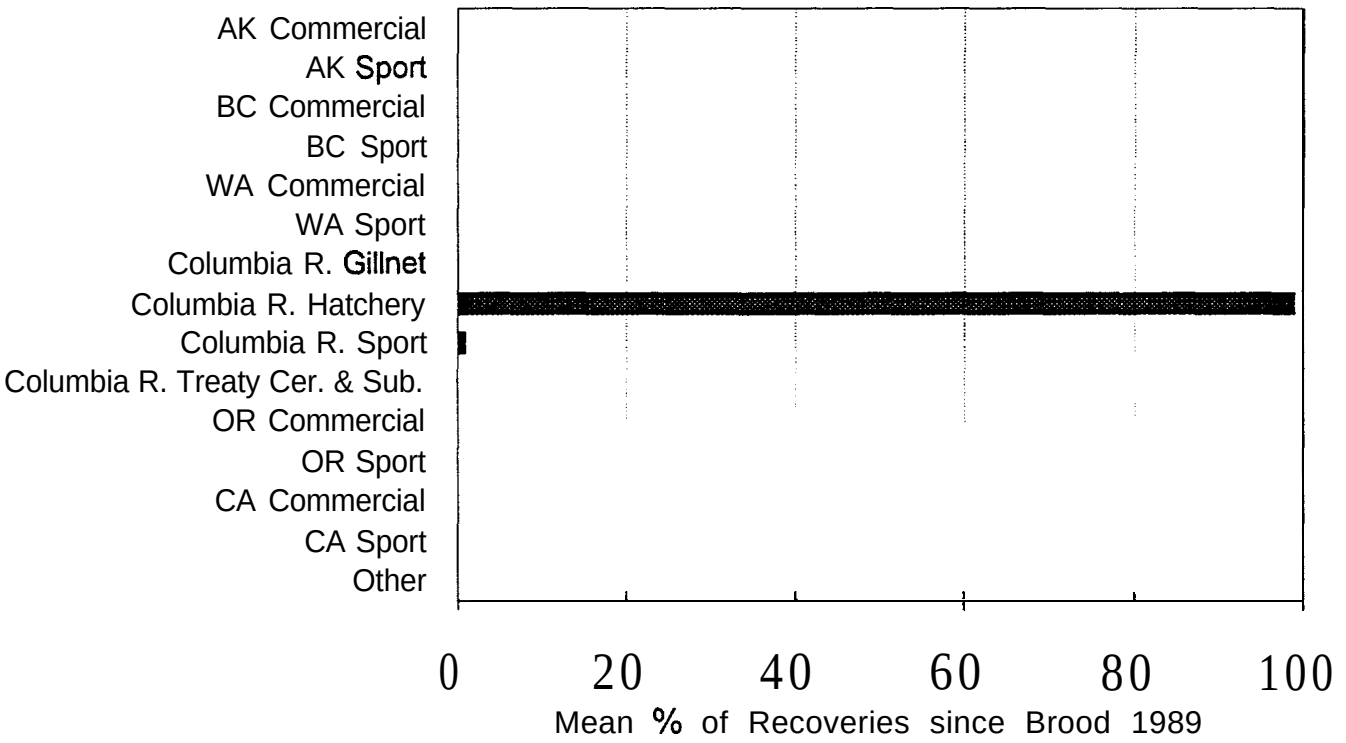
Eagle Creek NFH

Winter Steelhead yearlings



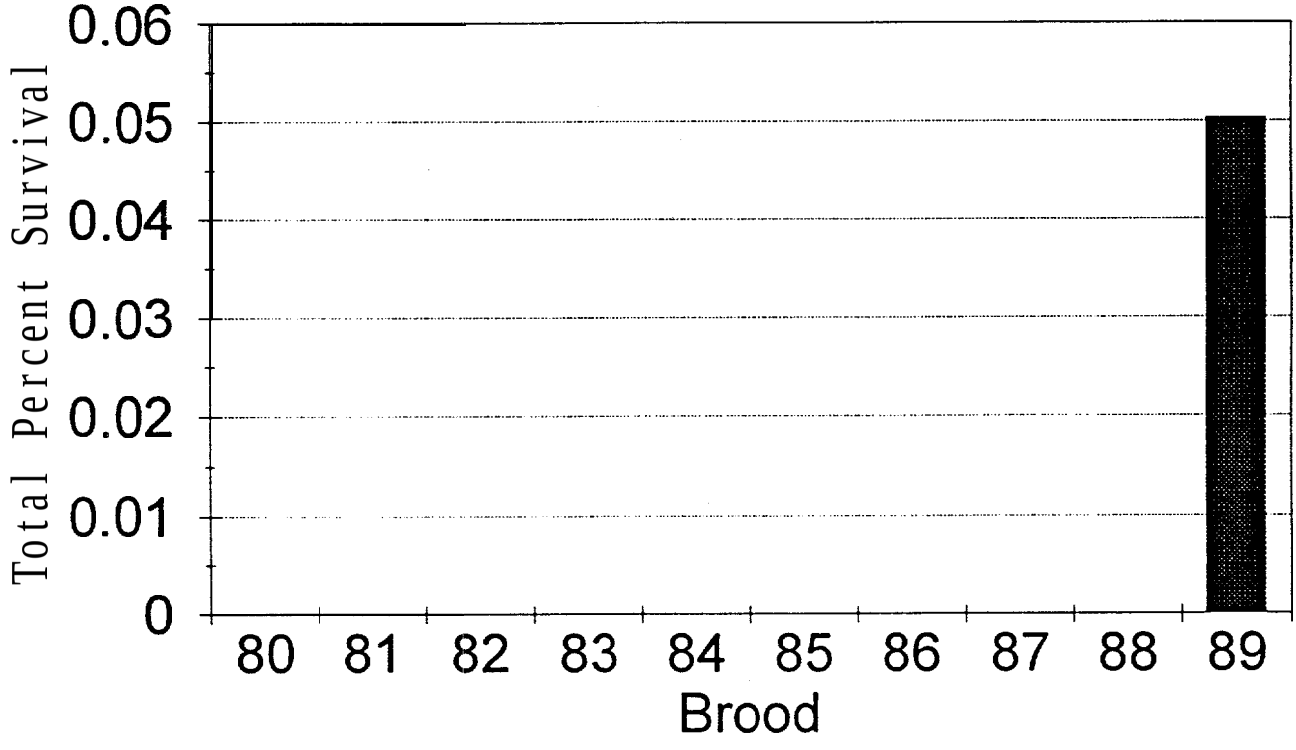
Eagle Creek NFH

Winter Steelhead yearlings



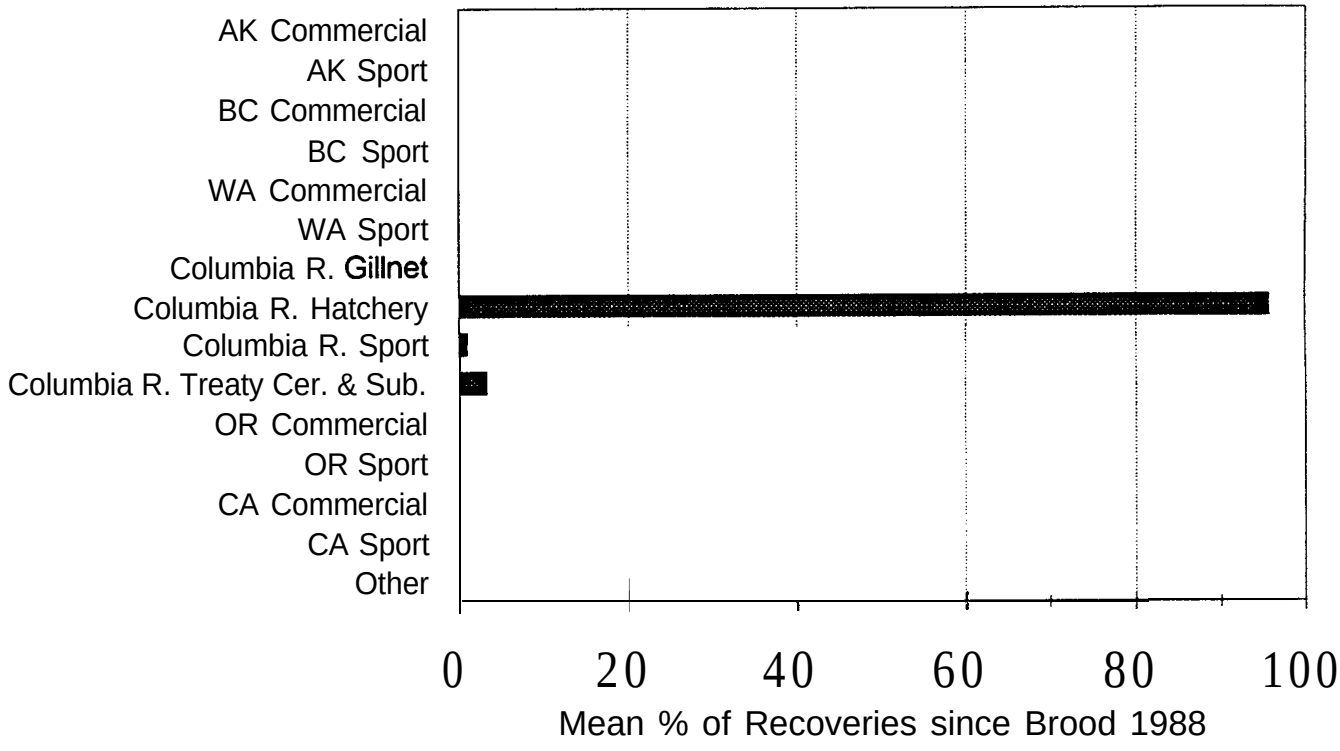
Entiat NFH

Spring Chinook yearlings



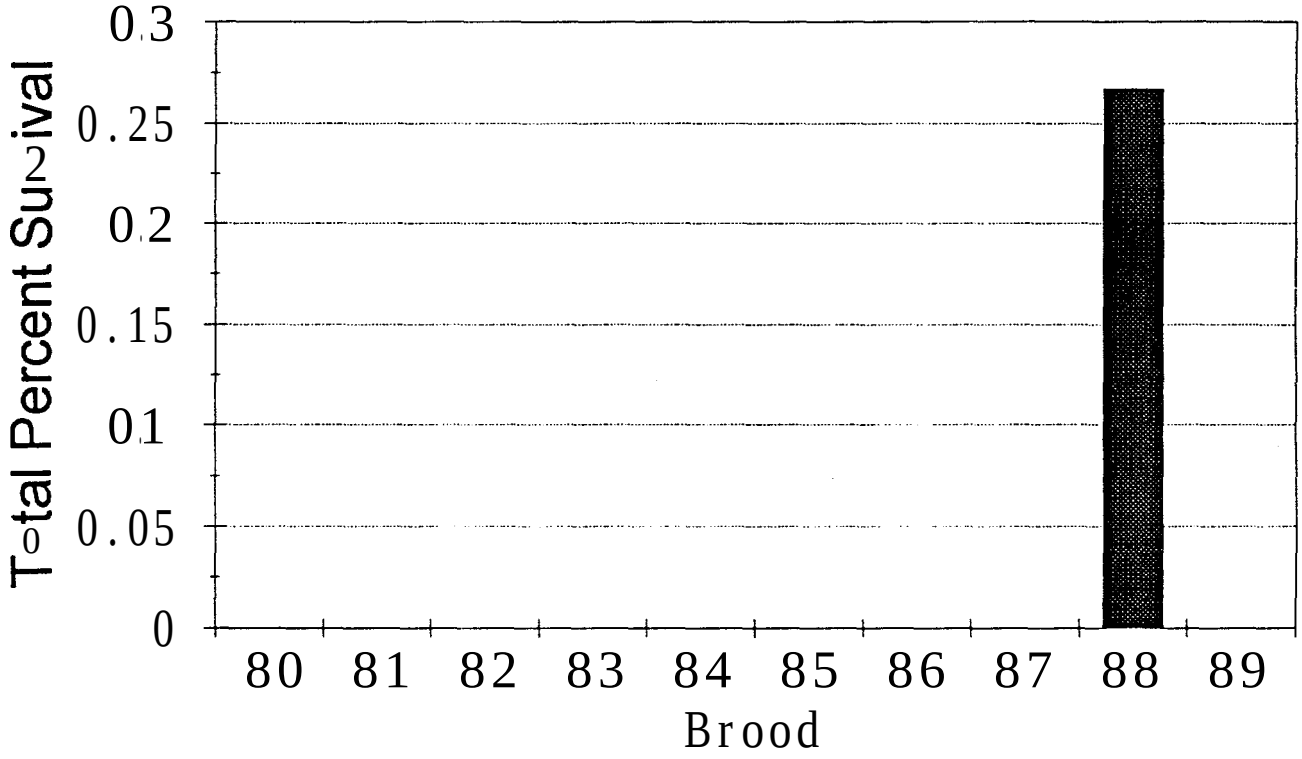
Entiat NFH

Spring Chinook yearlings



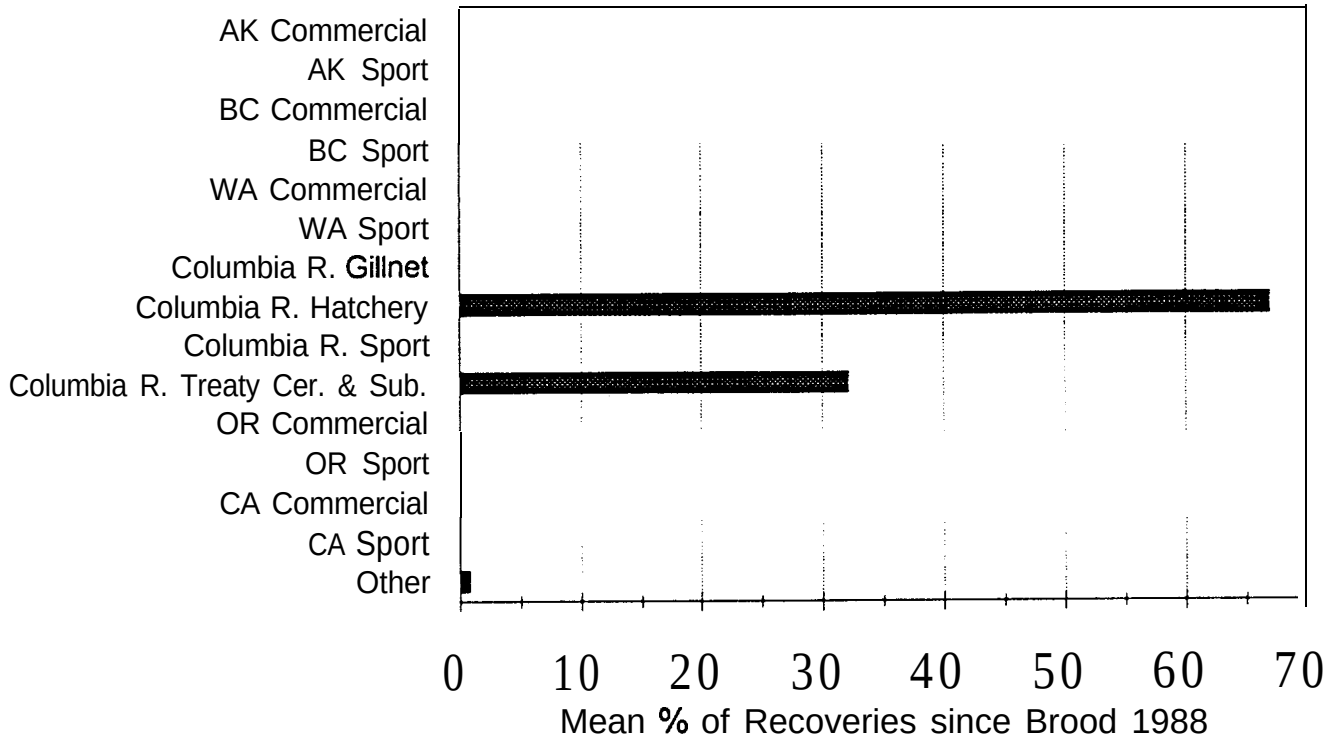
Kooskia NFH

Spring Chinook yearlings



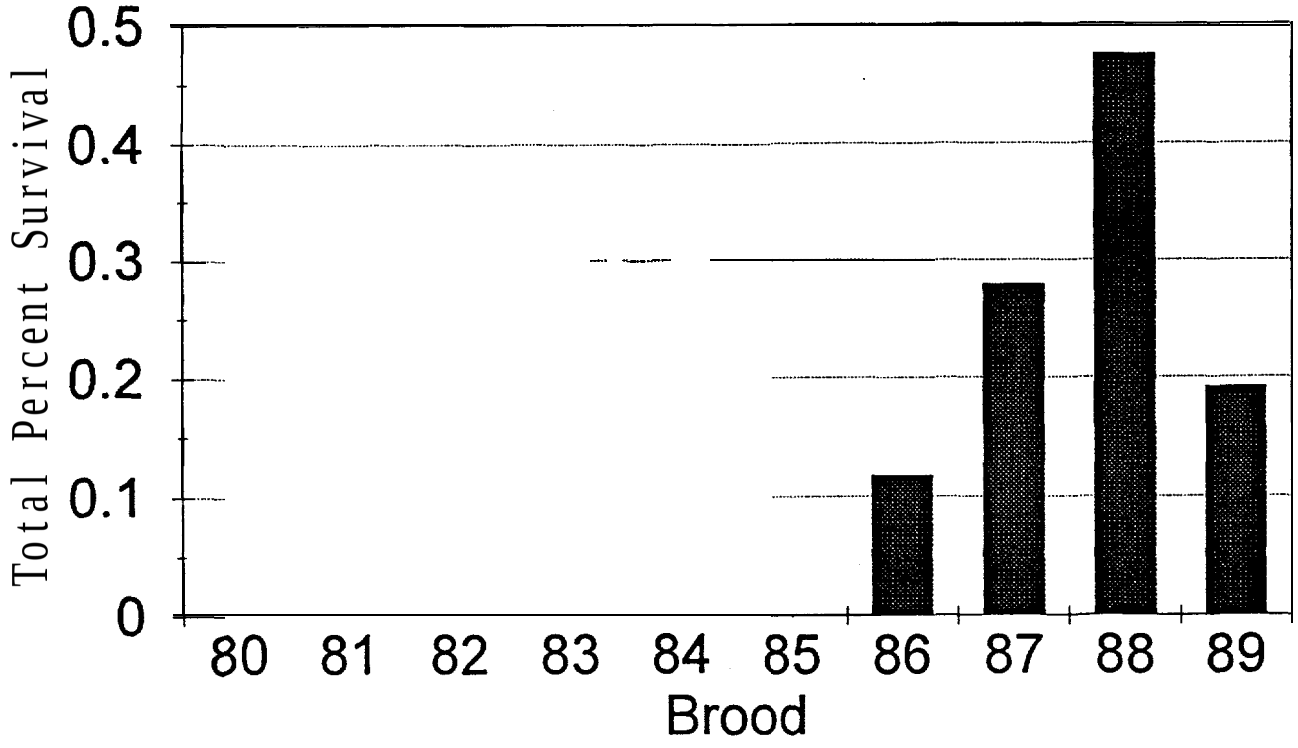
Kooskia NFH

Spring Chinook yearlings



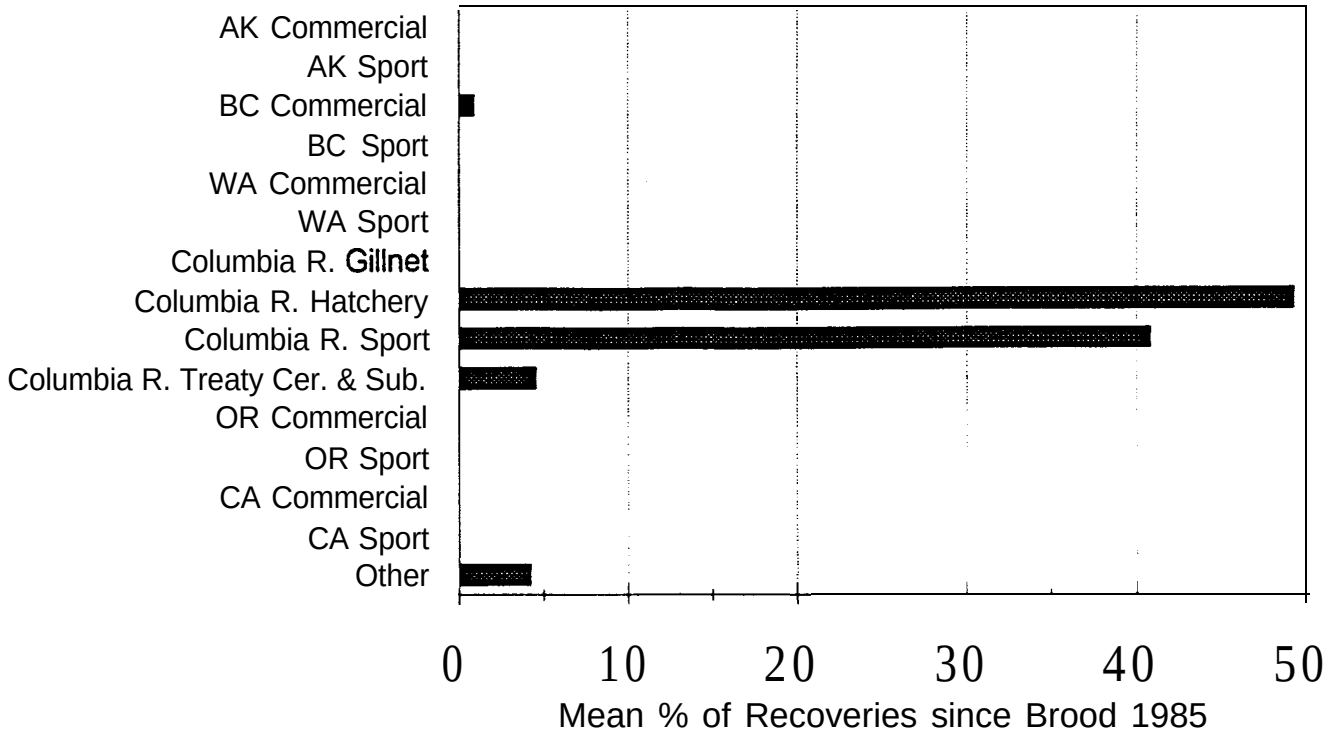
Leavenworth NFH

Spring Chinook yearlings



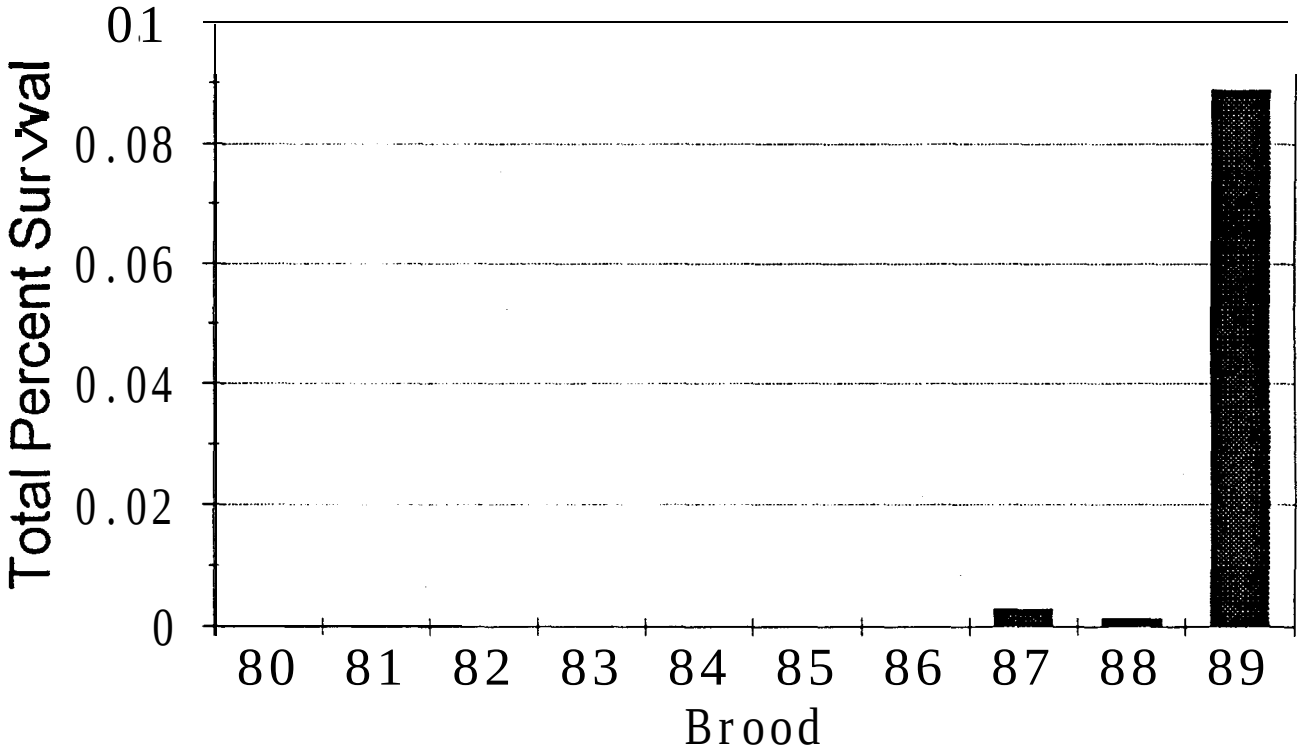
Leavenworth NFH

Spring Chinook yearlings



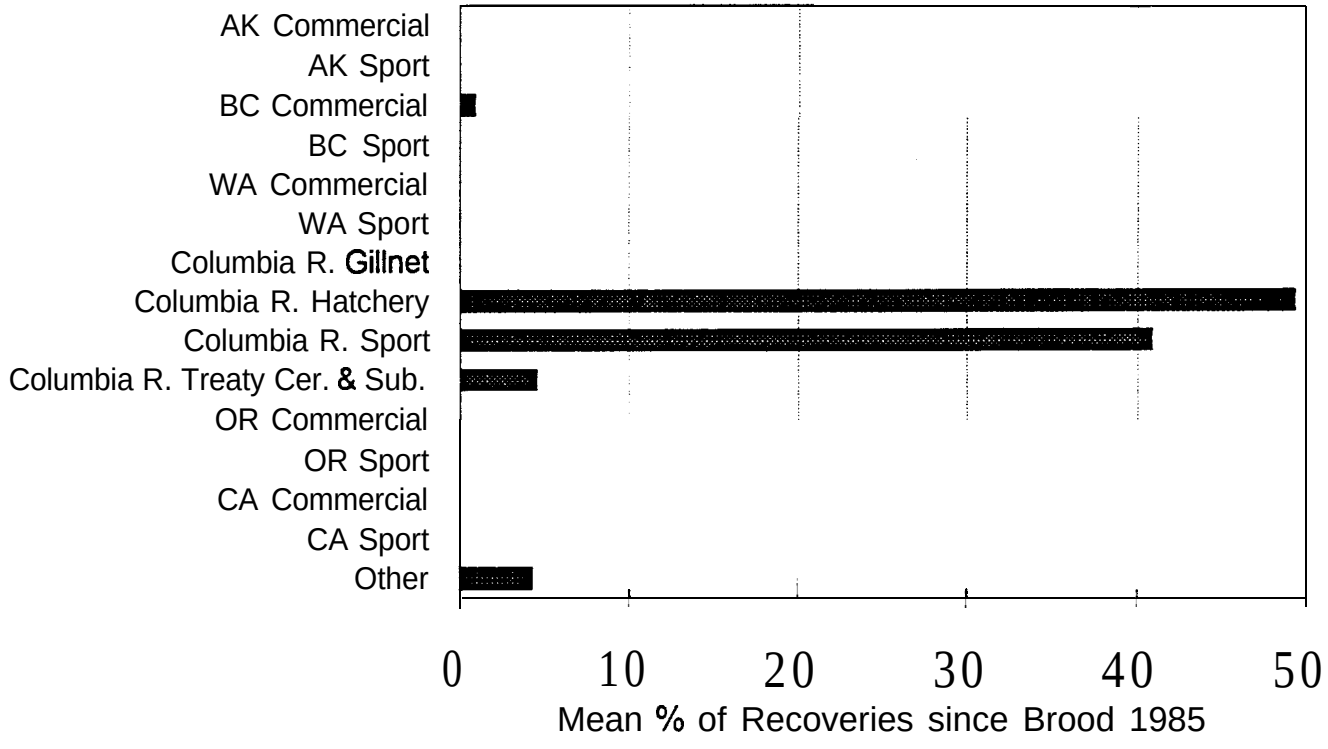
Leavenworth NFH

Spring Chinook age 0



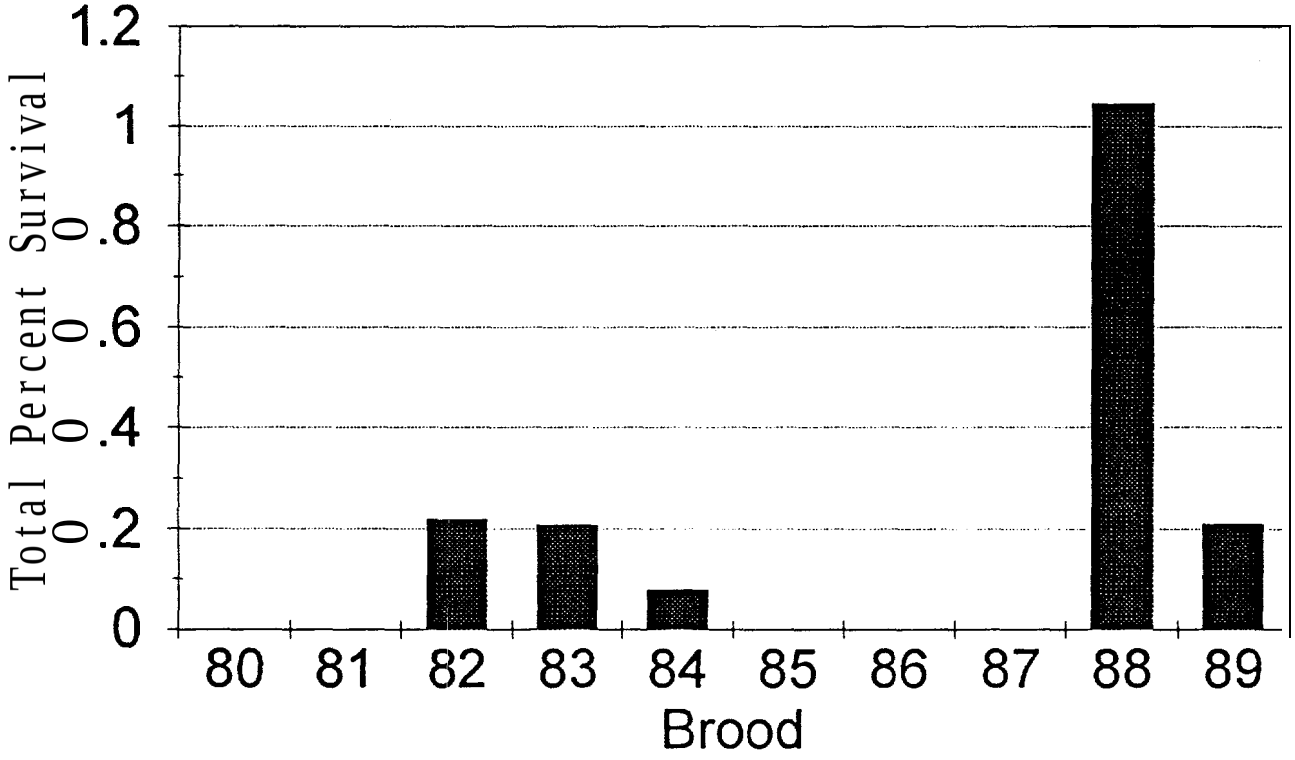
Leavenworth NFH

Spring Chinook age 0



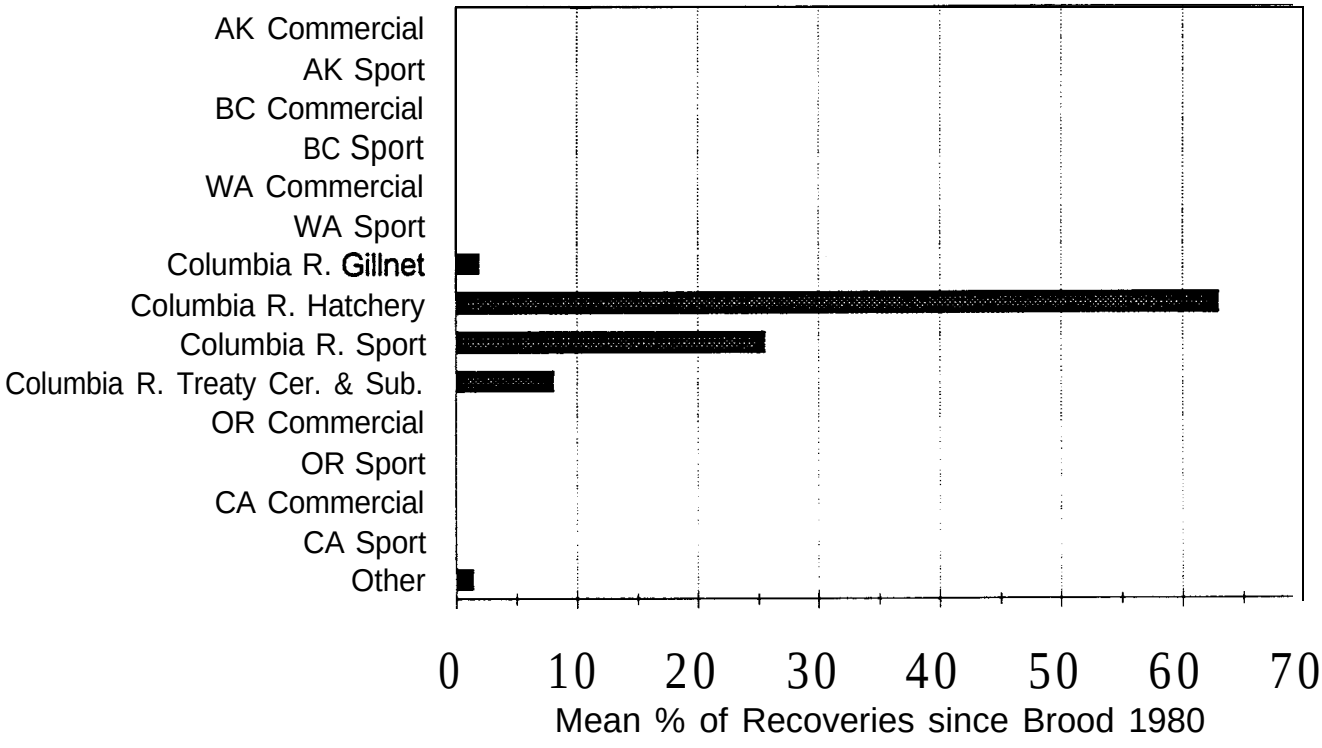
Little White Salmon NFH

Spring Chinook yearlings



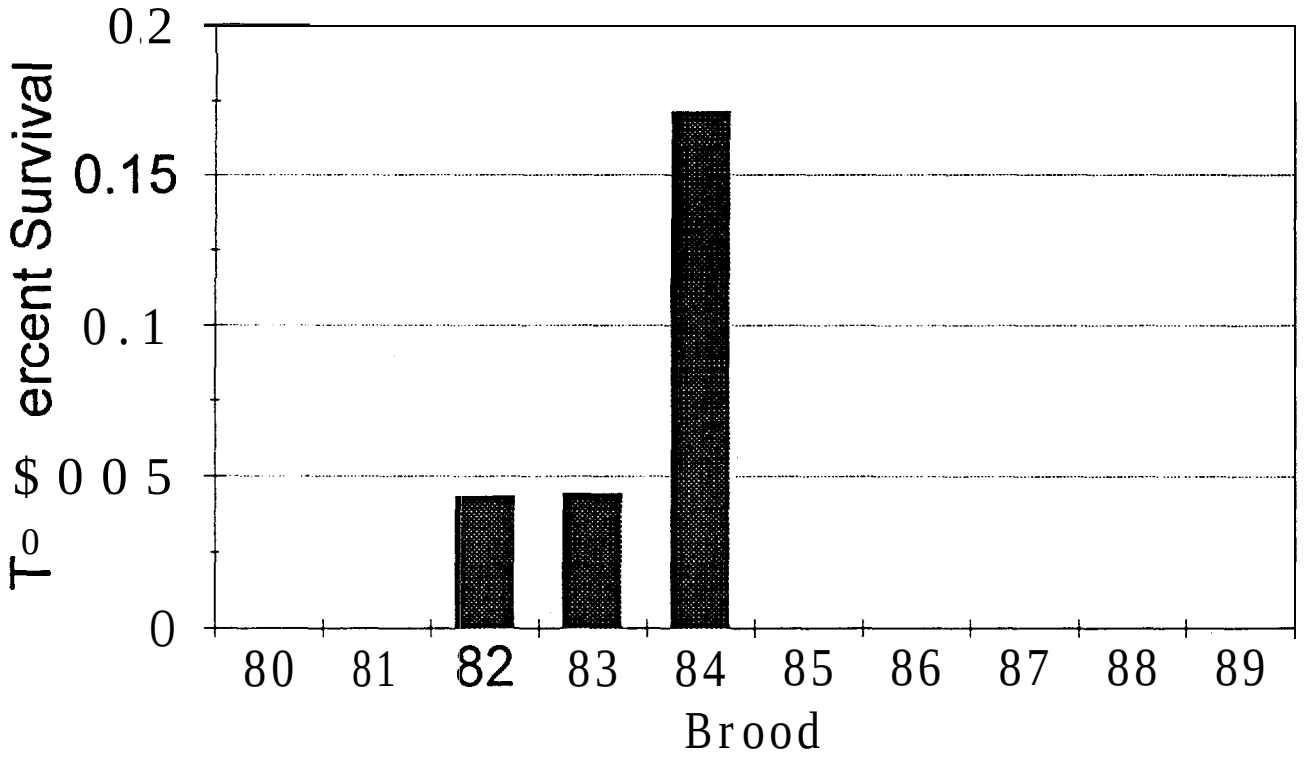
Little White Salmon NFH

Spring Chinook yearlings



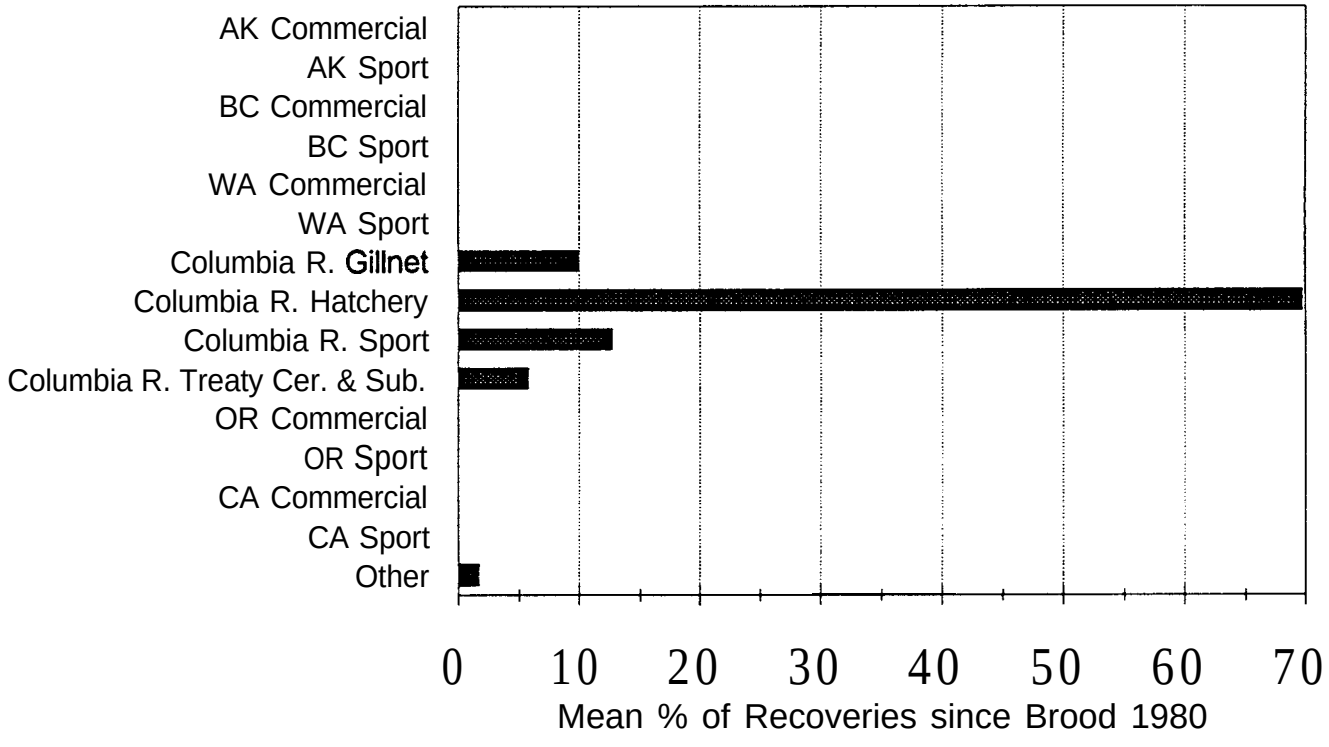
Little White Salmon NFH

Spring Chinook age 0



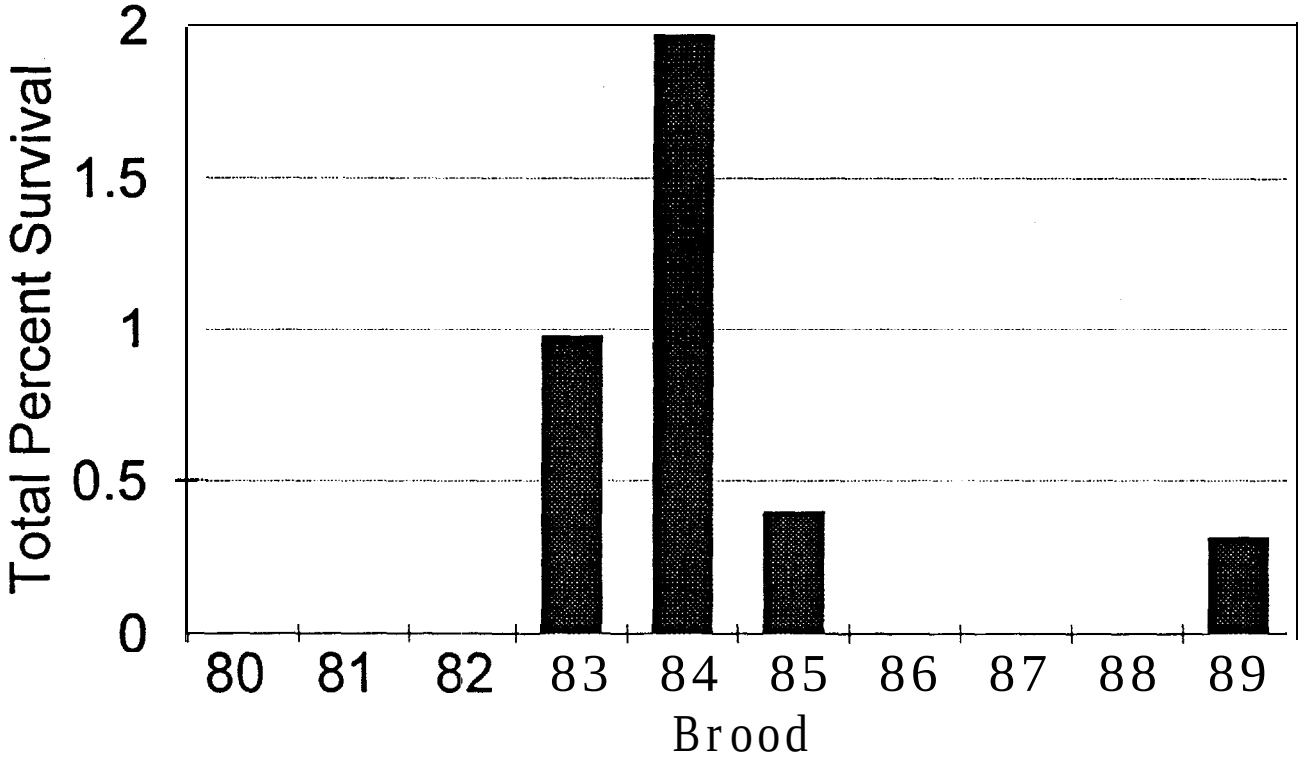
Little White Salmon NFH

Spring Chinook age 0



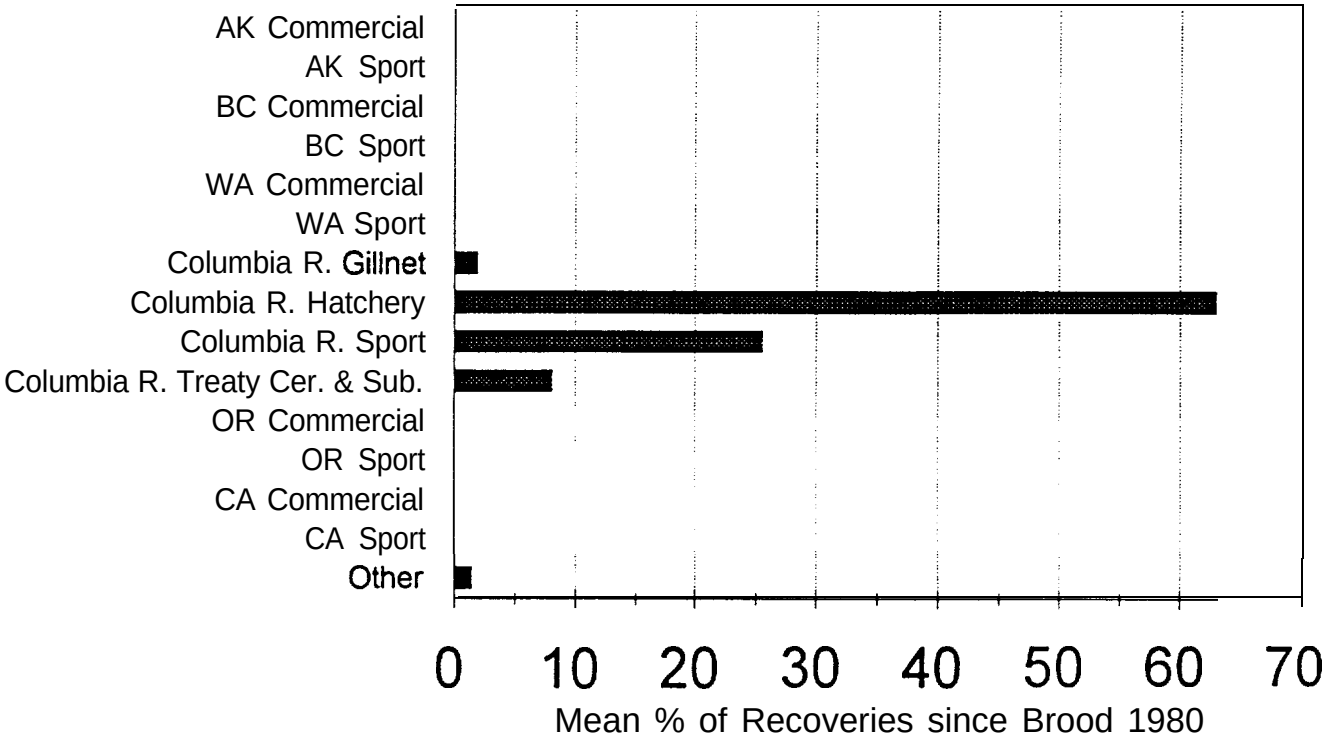
Little White Salmon NFH

Upriver Bright Fall Chinook fingerling



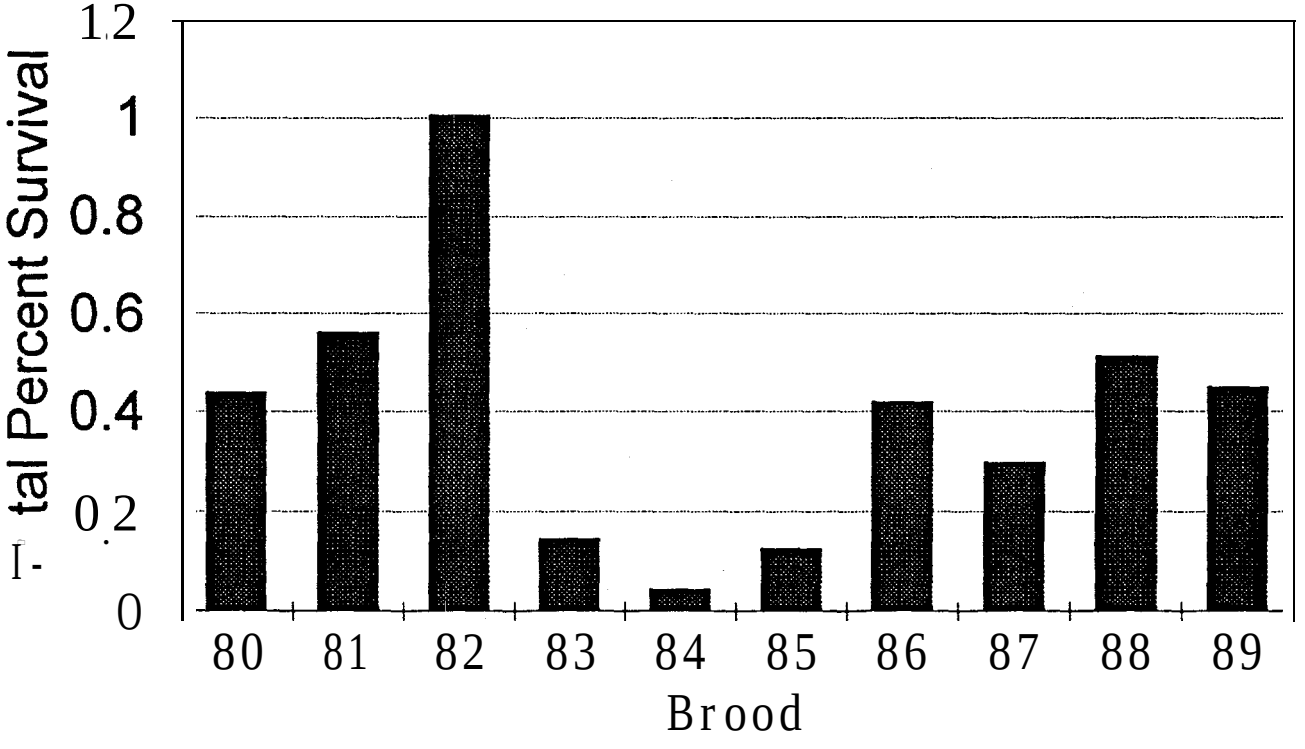
Little White Salmon NFH

Upriver Bright Fall Chinook fingerling



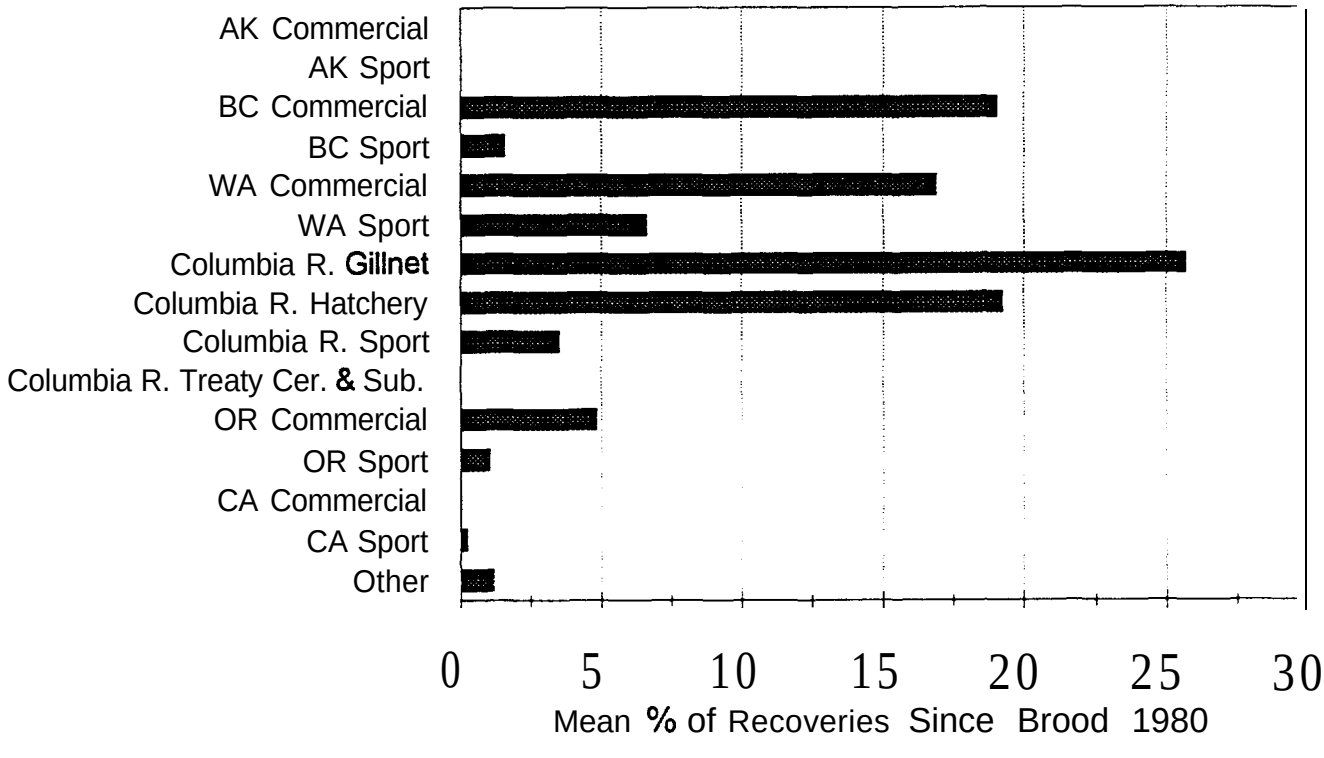
Spring Creek NFH

Fall Chinook fingerlings



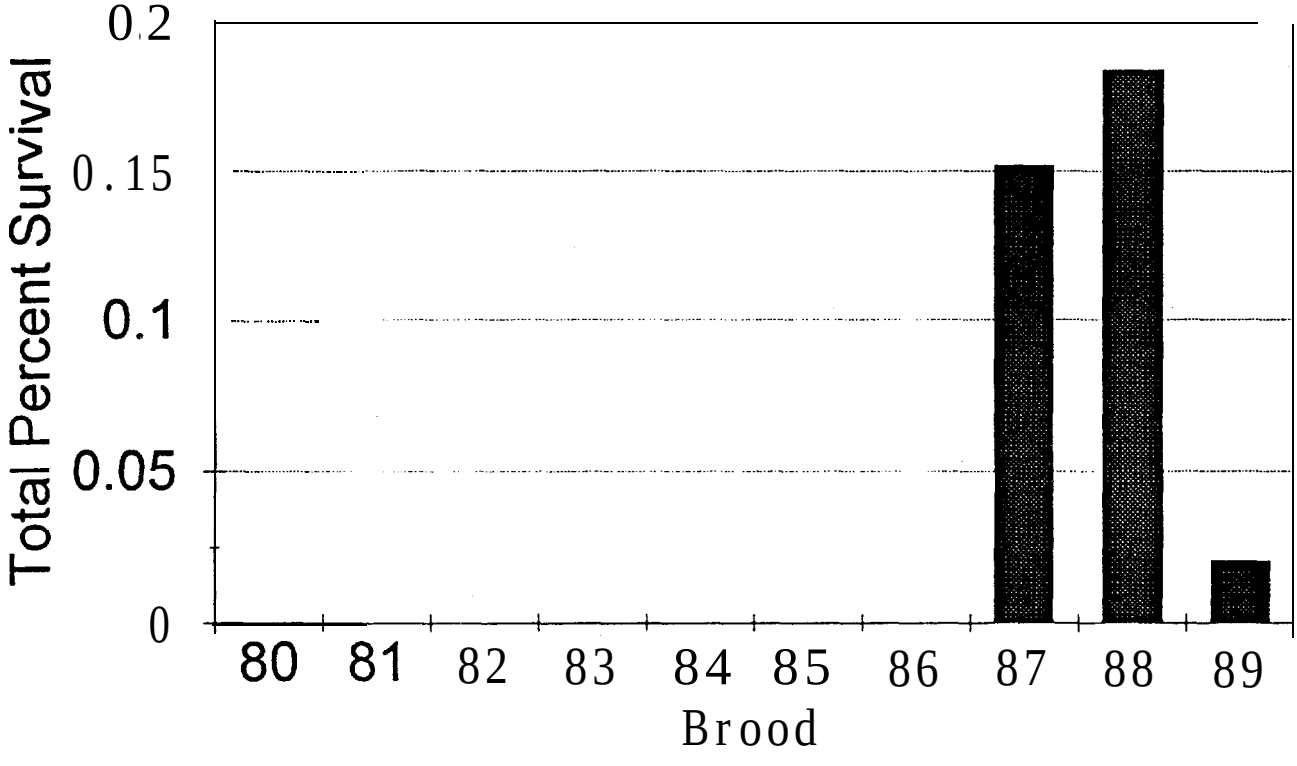
Spring Creek NFH

Tule Fall Chinook fingerlings



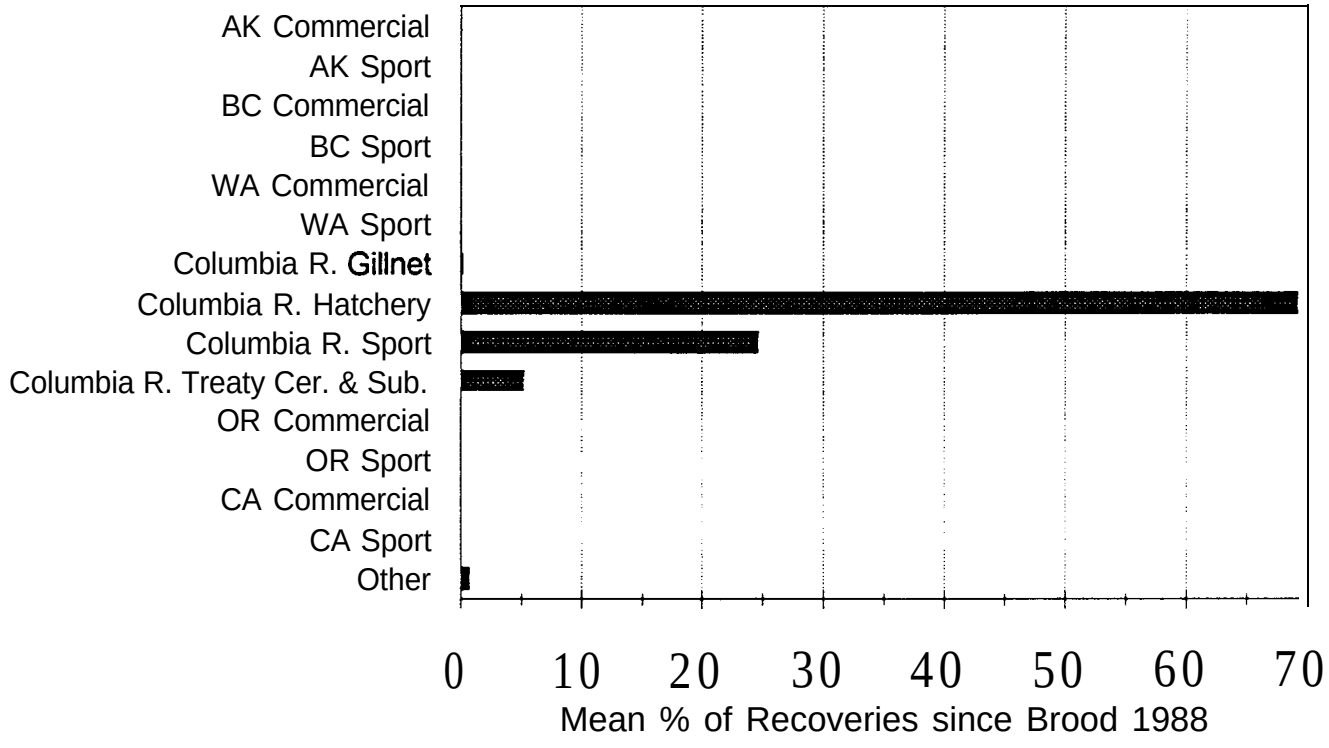
Warm Springs NFH

Spring Chinook



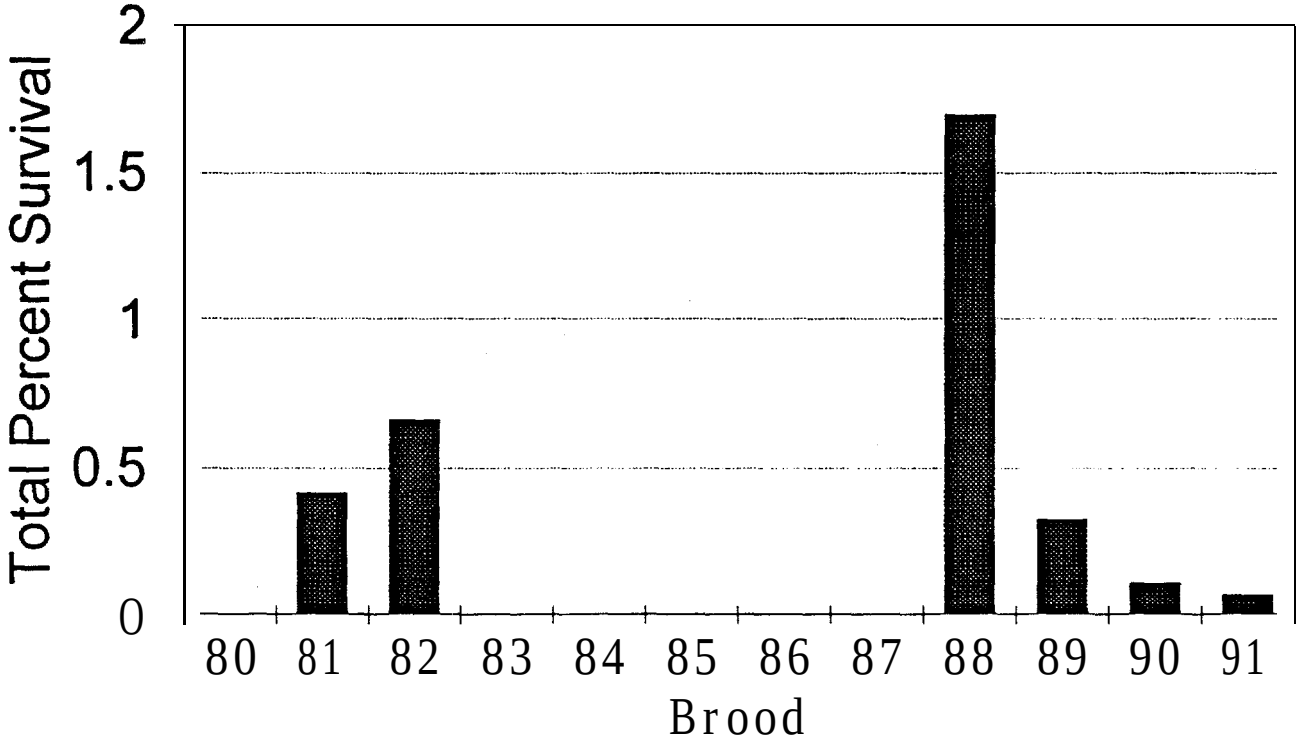
Warm Springs NFH

Spring Chinook yearlings



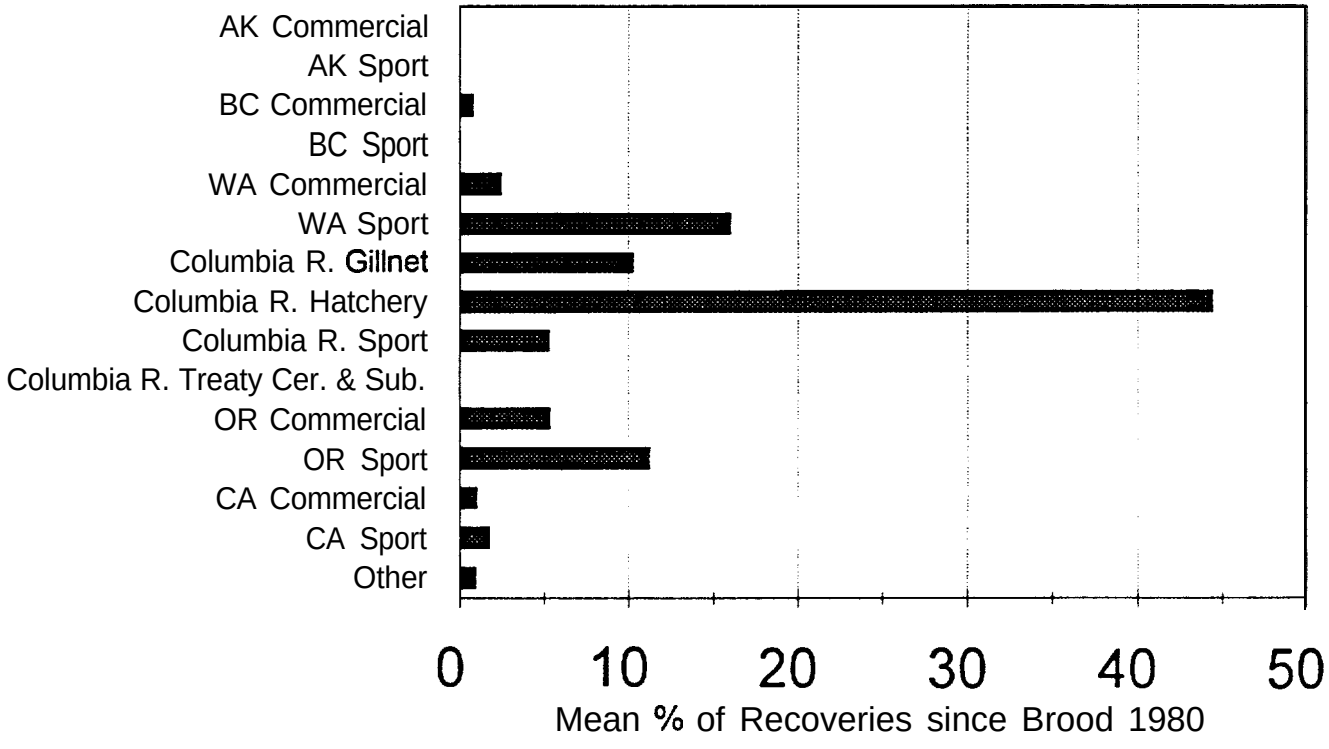
Willard NFH

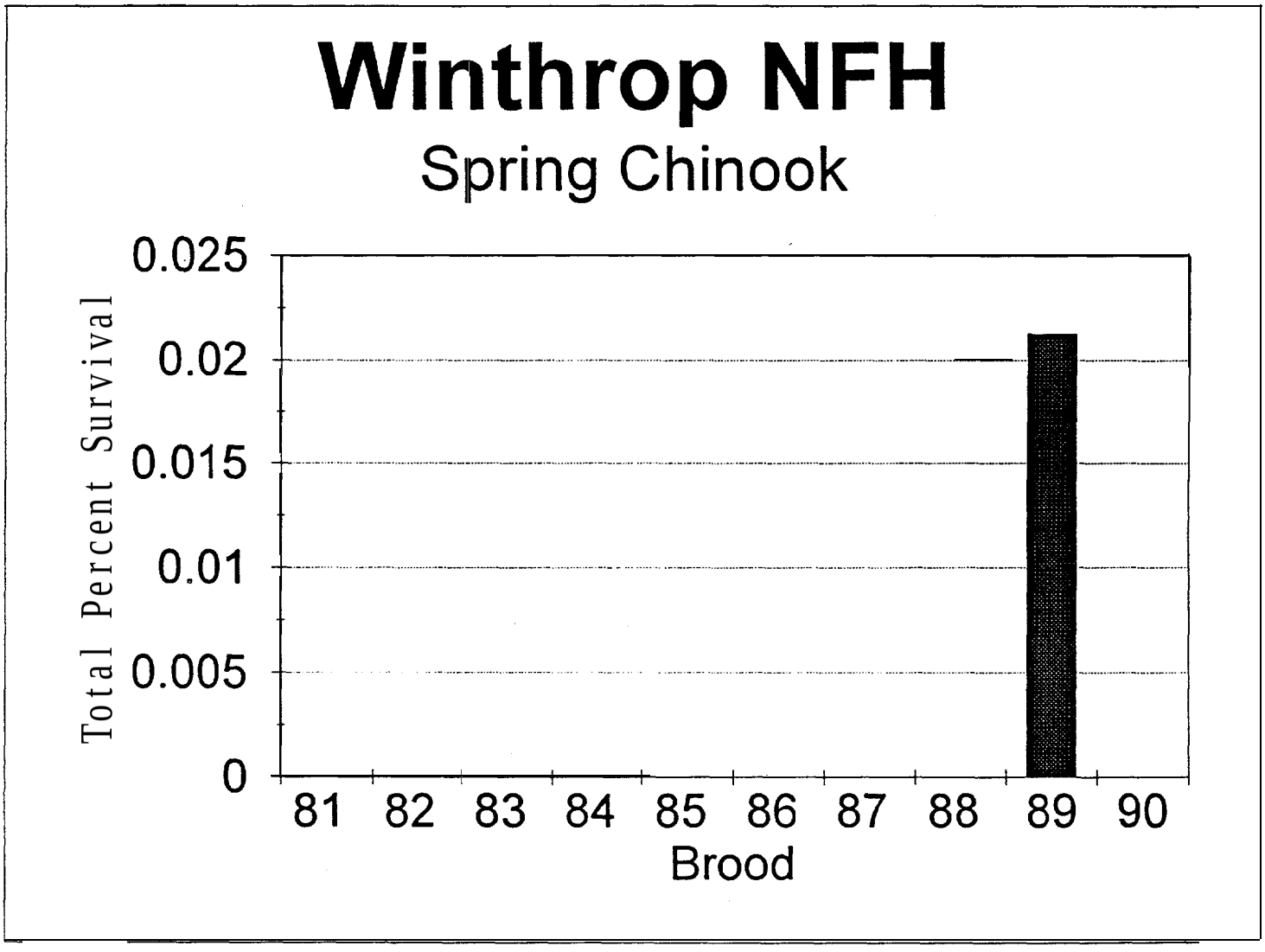
Coho yearlings



Willard NFH

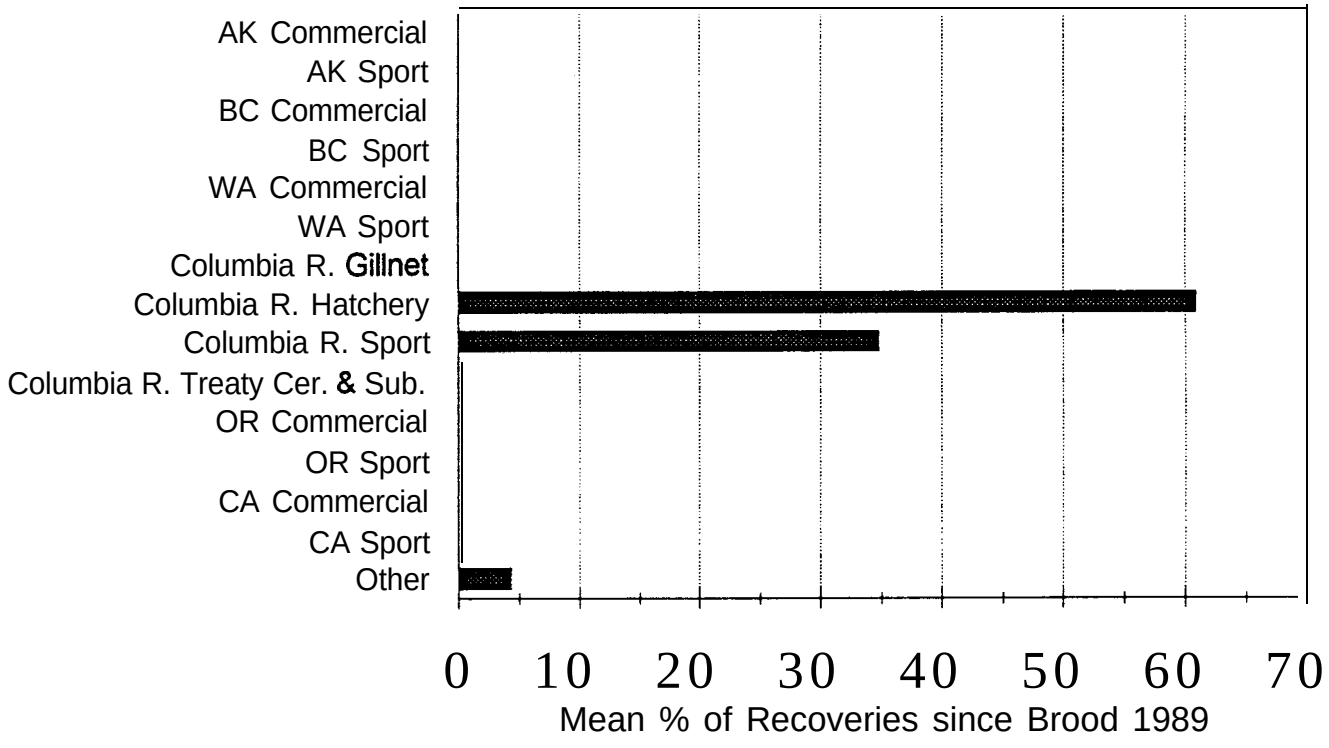
Coho yearlings




Winthrop NFH
Spring Chinook
Total Percent Survival
0.025
0.02
0.015
0.01
0.005
0
81
82
83
84
85
86
87
88
89
90
Brood

Winthrop NFH

Spring Chinook yearlings



Stock Assessment Reference! Document from CRiS and PSMFC TS1 03/19/96
Broodyear 89 Tule Fall Chinook raised at Abernathy SCTC
and released Abernathy Creek

	Number	#/lb	Tagged	CWT	AT
02/20/90	307,887	113.3,	7,104	05-22-21	Abernathy SCTC
04/16/90	153,742	30.6	3,756	05-22-21	Abernathy SCTC
05/10/90	299,273	42.8	7,224	05-22-21	Abernathy SCTC
05/18/90	147,992	17.4	3,758	05-22-21	Abernathy SCTC
03/29/90	433,765	106.9	11,278	05-22-22	Abernathy SCTC
05/18/90	452,137	44.2	10,963	05-22-22	Abernathy SCTC
Totals	1,794,796		44,083		
expansion factor			40.71		

total OBSD 35
===== PSC expanded numbers ===

Where Recovered		expanded	2s	3s	4s	5s	6s	Total
Estuary Sport	ODFW	163		4				4
Hatchery	FWS	366	1	8				9
Hatchery	ODFW	81		1	1			2
Ocean Troll (Non-treaty)	CDFO	977		24				24
Ocean Troll (Non-treaty)	WDFW	814		20				20
Spawning Ground	WDFW	81		2				2
Sport (Charter)	WDFW	285		7				7
Sport (Private)	WDFW	448	4	7				11
Treaty Troll	WDFW	81	1	1				2
Totals		3,296	- 6 7	4	1			81

89 Ab FCS		% of total	% of release
Ocean contribution	2,605	79	0.1451
Escapement to Columbia River	691	21	0.0385
Total Survival	3,296		0.1836
Escapement to NFH	366	11	0.0204
Columbia River contribution	325	10	0.0181

Ocean
Contribution

0	Ax
977	BC
1,628	WA
0	OR
0	CA
2,605	Total

Columbia River 244

Escapement to NFH 366

Stock Assessment Reference Document from CRiS and PSMFC TS1 03/18/96

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	24,052	16.1	16,302	05-12-22	Carson NFH
Totals	2,390,971		326,282		
expansion factor			7.33		

total OBSD 1,103

Where Recovered		expanded	PSC expanded numbers 2s	3s	4s	5s	6s	Total
Columbia River Gillnet	ODFW	652				87	2	89
Columbia River Sport	ODFW	95				13		13
Freshwater Sport	WDFW	1,510		4	124	78		206
Hatchery	FWS	6,654		10	535	361	2	908
Ocean Troll (Non-treaty)	CDFO	22			3			3
Spawning Ground	WDFW	176			16	8		24
Test Fishery Net	ODFW	59			5	3		8
Treaty Ceremonial	ODFW	696			40	55		95
Totals		9,864		14	723	605	4	1,346

83 Ca SCS		% of total	% of release
Ocean contribution	22	0	0.0009
Escapement to Columbia River	9,842	100	0.4116
Total Survival	9,864		0.4126
Escapement to NFH	6,654	67	0.2783
Columbia River contribution	3,188	32	0.1333

Ocean Contribution

0	AK
22	BC
0	WA
0	OR
0	CA
22	Total

Columbia River	Escapement to NFH
3,188	6,654

Stock Assessment Reference Document from CRiS and PSMFC TS1 03/18/96
Broodyear 84 Spring Chinook raised at Carson NFH
and released Wind River

	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	36,278	19 .2	25,866	05-16-25	Carson NFH
Totals	2'392,468		389,854		
expansion factor			6.14		

total OBSD 95
===== PSC expanded numbers ===

Where Recovered		expanded	2s	3s	48	5s	6s	Total
Columbia River Gillnet	ODFW	25				4		4
Freshwater Sport	WDFW	la4			14	16		30
Hatchery	FWS	466		2	50	24		76
Spawning Ground	WDFW	49			a			a
Test Fishery Net	ODFW	6	-	-	1	-		1
Totals		730		2	73	44		119

a4 Ca scs

		% of total	% of release
Ocean contribution	0	0	0.0000
Escapement to Columbia River	730	100	0.0305
Total Survival	730		0.0305
Escapement to NFH	466	64	0.0195
Columbia River contribution	264	36	0.0110

Ocean
Contribution

		Columbia River	Escapement to NFH
0	AK		
0	BC		
0	WA		
0	OR	264	466
0	CA		
0	Total		

Stock Assessment Reference Document from CRiS and PSMFC TS1 05/09/96
Broodyear 85 Spring Chinook -raised at Carson NFH
and released Wind River

2,339,164 released with 442,289 tagged fish and 19 CWTs PEF= 5.29

total OBSD 745
PSC expanded numbers

Where Recovered		expanded	2s	3s	4s	5s	6s	Total
Columbia River Gillnet	ODFW	79				15		15
Columbia River Gillnet	WDFW	16			3			3
Columbia River Sport	ODFW	79			1	14		15
Freshwater Sport	WDFW	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	WDFW	5			1			1
Test Fishery Net	ODFW	42			5	3		8
Treaty Ceremonial	ODFW	270			32	19		51
Treaty Troll	WDFW	11			2			2
Totals		4,898		14	623	289		926

		% 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

Ocean Contribution by Area

		Columbia River	Escapement to NFH
16	AK		
16	BC		
11	WA		
0	OR	1,914	2,941
0	CA		
43	Total		

Stock Assessment Reference Document from CRiS and PSMFC TS1 03/18/96
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	1,052,640	18.8	22,381	05-22-20	Carson NFH
Totals	2,105,281		45,258		
expansion factor			46.52		

total OBSD 75

Where Recovered		expanded	PSC expanded numbers 2s	3s	4s	5s	6s	Total
Freshwater Sport	WDFW	5,303			46	68		114
Hatchery	FWS	1,628		1	24	10		35
Spawning Ground	WDFW	465				10		10
Treaty Ceremonial	ODFW	1,023	-		- 9	13		22
Totals		8,419		1	79	101		181

88 Ca SCS		% of total	% of release
Ocean contribution	0	0	0.0000
Escapement to Columbia River	8,419	100	0.3999
Total Survival	8,419		0.3999
Escapement to NFH	1,628	19	0.0773
Columbia River contribution	6,791	81	0.3226

Ocean
Contribution

		Columbia River	Escapement to NFH
0	AK		
0	BC		
0	WA		
0	OR	6,791	1,628
0	CA		
0	Total		

Stock Assessment Reference Document from CRiS and PSMFC TS1 03/18/96
Broodyear 89 Spring Chinook raised at Carson NFH
and released Wind River

	Number	#/lb	Tagged	CWT	AT
04/15/91	45,861	19.4	14,266	63-04-42	Carson NFH
04/15/91	46,164	19.4	8,598	63-08-50	Carson NFH
04/15/91	349,148	17.7	85,756	63-56-61	Carson NFH
04/15/91	1,131,350	18.2	281,143	63-56-62	Carson NFH
04/15/91	372,146	19.4	92,972	63-59-01	Carson NFH
04/15/91	392,119	17.3	97,328	63-59-02	Carson NFH
Totals	2,336,788		580,063		
expansion factor			4.03		

total OBSD 235

Where Recovered		expanded	2s	3s	4s	5s	6s	Total
			===== PSC expanded numbers ===					
Columbia River Gillnet	ODFW	40				10		10
Columbia River Sport	ODFW	40				10		10
Fish Trap (Freshwater)	ODFW	24			6			6
Freshwater Sport	ODFW	4			1			1
Freshwater Sport	WDFW	2,349			583			583
Hatchery	FWS	129		1	26	5		32
Ocean Troll (Non-treaty)	WDFW	a			2			2
Spawning Ground	ODFW	28			6	1		7
Spawning Ground	WDFW	40			10			10
Test Fishery Net	ODFW	40			10			10
Treaty Ceremonial	ODFW	246			61			61
Treaty Troll	WDFW	4			1	-		1
Totals		2,952		1	706	26		733

89 Ca SCS

		% of total	% of release
Ocean contribution	12	0	0.0005
Escapement to Columbia River	2,940	100	0.1258
Total Survival	2,952		0.1263
Escapement to NFH	129	4	0.0055
Columbia River contribution	2,811	95	0.1203

Ocean
Contribution

		Columbia River	Escapement to NFH
0	AK		
0	BC		
12	WA		
0	OR	2,811	129
O	CA		
12	Total		

Stock Assessment Reference Document from CRiS and PSMFC TS1 04/22/96
Broodyear 88 Spring Chinook raised at Dworshak NFH
and released Clearwater River

	Number	#/lb	Tagged	CWT	AT	
04/05/90	59,557	25.2	58,323	232931	Dworshak	NFH
04/05/90	142,529	18.5	67,624	052162	Dworshak	NFH
04/05/90	138,449	17.7	67,262	052163	Dworshak	NFH
04/05/90	636,847	18.8	65,686	052205	Dworshak	NFH
04/04/90	36,433	17.2	25,369	052260	Dworshak	NFH
04/04/90	36,175	la.8	25,483	052261	Dworshak	NFH
04/04/90	36,381	15.6	25,685	052262	Dworshak	NFH
04/04/90	32,441	16.13	22,645	052263	Dworshak	NFH
04/04/90	33,925	15.7	24,801	052305	Dworshak	NFH
04/04/90	33,433	18.2	24,582	052306	Dworshak	NFH
04/05/90	65,844	18.5	64,522	232930	Dworshak	NFH
Totals	1,252,014		471,982	PEF= 2.65		
				total OBSD 254		

Where Recovered		expanded	===== PSC expanded numbers ===== 2s	3s	4s	5s	6s	Total
Freshwater Sport	:FWS	3			1			1
Freshwater Sport	ODFW	24			9			9
Freshwater Sport	WDFW	11			4			4
Hatchery	FWS	454		4	66	101		171
Hatchery	IDFG	111	42					42
Hatchery	'WDFW	3				1		1
Test Fishery Net	ODFW	a			1	2		3
Treaty Ceremonial	ODFW	162			23	38		61
Treaty Subsistence	FWS	5	-	-	-2	-		2
Totals		781	42	4	106	142		294

		% of total	% of release
Ocean contribution	0	0	0.0000
Escapement to Columbia River	781	100	0.0624
Total Survival	781		0.0624
Escapement to NFH	454	58	0.0363
Columbia River contribution	327	42	0.0261

Ocean
Contribution

	Columbia River	Escapement to NFH
O A K		
0 BC		
0 WA		
0 OR	205	454
0 CA		
0 Total		

Stock Assessment Reference Document from CRiS and PSMFC TS1 04/22/96
Broodyear 89 Spring Chinook raised at Dworshak NFH
and released Clearwater River

	Number	X/lb	Tagged	CWT	AT
04/04/91	17,371	18.5	15,683	052431	Dworshak NFH
04/04/91	16,851	la.5	15,710	052432	Dworshak NFH
04/04/91	17,576	21.3	15,587	052433	Dworshak NFH
04/04/91	16,564	18.6	15,881	052434	Dworshak NFH
04/04/91	18,071	20.9	16,720	052435	Dworshak NFH
04/04/91	18,600	21.3	16,669	052436	Dworshak NFH
04/04/91	18,823	21.4	16,715	052437	Dworshak NFH
04/04/91	17,104	20.3	16,611	052438	Dworshak NFH
04/04/91	17,681	19.8	15,842	052439	Dworshak NFH
04/04/91	34,219	20.7	33,553	052440	Dworshak NFH
04/04/91	33,928	21.5	33,145	052441	Dworshak NFH
04/04/91	35,346	22.5	32,742	052442	Dworshak NFH
04/04/91	35,042	21.0	31,527	052443	Dworshak NFH
04/04/91	35,655	22.5	33,010	052444	Dworshak NFH
04/04/91	33,400	19.7	32,903	052445	Dworshak NFH
04/04/91	173,153	22.7	46,402	052446	Dworshak NFH
04/04/91	173,600	22.4	47,668	052447	Dworshak NFH
04/04/91	39,933	21.7	38,836	052508	Dworshak NFH
04/04/91	42,517	22.7	37,471	052509	Dworshak NFH
04/04/91	38,916	22.5	38,244	052510	Dworshak NFH
04/04/91	30,798	la.5	28,455	052511	Dworshak NFH
04/04/91	27,707	18.6	23,832	052512	Dworshak NFH
04/04/91	23,837	17.5	23,193	052513	Dworshak NFH
04/04/91	178,192	23.5	52,664	103025	Dworshak NFH
Totals	1,094,884		679,063	PEF= 1.61	
				total OBSD	190

Where Recovered		expanded	===== 2s	38	PSC expanded numbers 4s	5s	6s	Total
Columbia River Gillnet	ODFW	5			1	2		3
Hatchery	FWS	272	2	2	149	16		169
Hatchery	WDFW	3			2			2
Spawning Ground	WDFW	a			5			5
Test Fishery Net	ODFW	5			2	1		3
Treaty Ceremonial	ODFW	42			26	-		26
Totals		335	2	2	la5	19		208

		% of total	% of release
Ocean contribution	0	0	0.0000
Escapement to Columbia River	335	100	0.0306
Total Survival	335		0.0306
Escapement to NFH	272	al	0.0248
Columbia River contribution	63	19	0.0058

Ocean
Contribution

	Columbia River	Escapement to NFH
O A K		
0 BC		
O WA		
0 OR	60	272
0 CA		
0 Total		

Stock Assessment Reference Document from CRiS and PSMFC TS1 04/22/96
Broodyear 86 Summer Steelhead -raised at Dworshak NFH
and released Clearwater River

	Number	X/lb	Tagged	CWT	AT
04/20/87	59,768	59.7	19,675	051836	
04/22/87	376,864	78.3	20,625	102932	
04/23/87	498,755	81.1	19,050	102933	
04/20/87	271,194	60.5	18,825	102931	
04/13/87	298,070	85.7	0		mth SFk to WhiskeyCr
Totals	1,504,651		78,175	PEF= 19.25	
				total OBSD	627

Where Recovered		expanded	2s	3s	48	5s	6s	Total
			=====	PSC expanded	numbers			===
Columbia River Gillnet	ODFW	8,122		348	74			422
Columbia River Sport	ODFW	346		a	10			18
Fish Trap (Freshwater)	ODFW	19			1			1
Foreign Research Vessels	NMFS	38	1	1				2
Freshwater Sport	IDFG	12,915		392	279			671
Freshwater Sport	ODFW	19		1				1
Hatchery	FWS	674		12		23		35
Hatchery	IDFG	6,775	-	12	-340	-		352
Totals		28,908	1	774	704	23		1,502

		% of total	% of release
Ocean contribution	38	0	0.0025
Escapement to Columbia River	28,870	100	1.9187
Total Survival	28,908		1.9212
Escapement to NFH	674	2	0.0448
Columbia River contribution	28,196	98	1.8739

Ocean
Contribution

	Columbia River	Escapement to NFH
O A K		
0 BC		
0 WA		
O OR	21,421	674
0 CA		
0 Total		

Stock Assessment Reference Document from CRiS and PSMFC TS1 04/22/96
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	051711	Dworshak NFH
05/03/88	16,319	8.0	15,539	051712	Dworshak NFH
05/03/88	16,199	8.0	15,424	051713	Dworshak NFH
05/03/88	13,167	6.7	12,948	051714	Dworshak NFH
05/03/88	13,104	6.7	12,886	051739	Dworshak NFH
03/30/88	139,605	7.0	14,333	051846	Dworshak NFH
05/03/88	82,468	5.7	16,604	051849	Dworshak NFH
05/03/88	97,337	6.2	19,796	051850	Dworehak NFH
05/02/88	177,805	6.2	19,873	051851	Dworshak NFH
05/02/88	176,291	5.9	19,843	051852	Dworshak NFH
05/03/88	250,042	5.5	18,835	051853	Dworshak NFH
05/04/88	268,585	5.6	21,056	051854	Dworshak NFH
05/03/88	11,284	5.9	8,153	102928	Dworshak NFH
05/03/88	11,100	5.9	8,020	lo2929	Dworshak NFH
Totals	1,289,494		218,724	PEF= 5.90	
				total OBSD	1,039

Where Recovered		expanded	PSC expanded numbers 2s	3s	4s	5s	6s	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	a	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

		% of total	% of release
Ocean contribution	106	1	0.0082
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

Ocean
Contribution

O A X			
35	BC		
0	WA	Columbia River	Escapement to NFH
0	OR	7,552	4,233
0	CA		
35	Total		

Stock Assessment Reference Document from CRiS and PSMFC TS1 04/23/96
Broodyear 88 Summer Steelhead raised at Dworshak NFH
and released Clearwater River

	Number	#/lb	Tagged	CWT	AT
05/01/89	216,176	5.2	19,894	051946	Dworshak NFH
05/01/89	216,691	5.1	20,339	051945	Dworshak NFH
05/03/89	215,086	5.7	18,869	051947	Dworshak NFH
05/03/89	73,078	5.5	17,789	051838	Dworshak NFH
05/03/89	72,196	5.5	16,912	051837	Dworshak NFH
05/04/89	93,350	4.9	20,497	052043	Dworshak NFH
05/04/89	93,801	5.6	20,782	052042	Dworshak NFH
05/04/89	93,522	5.0	20,603	052041	Dworshak NFH
Totals	1,073,900		155,685	PEF= 6.90	
				total OBSD 465	

Where Recovered		expanded	===== 2s	3s	PSC expanded numbers 4s	5s	6s	=== Total
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	4 8	405	320	19		792

		% of total	% of release
Ocean contribution	28	1	0.0026
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

Ocean
Contribution

O A K		
0 BC		
7 WA	Columbia River	Escapement to NFH
O OR	3,284	2,097
0 CA		
7 Total		

Stock Assessment Reference Document from CRiS and PSMFC TS1 03/25/96
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	052044	
05/03/90	248,052	7.2	19,797	052045	
05/03/90	360,005	7.7	20,279	052046	
05/04/90	88,090	6.1	20,888	052048	
05/04/90	88,494	5.7	21,290	052047	
05/04/90	88,656	5.8	21,387	052049	
Totals	1,166,664		123,657	PEF= 9.43	
				total OBSD	759

Where Recovered		expanded	===== 2s	3s	PSC expanded numbers 4s	5s	6s	Total
Columbia River Gillnet	ODFW	4,566	14	403	63	4		484
Columbia River Sport	ODFW	764		66	15			al
Estuary Sport	ODFW	104		11				11
Fish Trap (Freshwater)	ODFW	28			3			3
Freshwater Sport	ODFW	566	5	47	a			60
Hatchery	FWS	4,982	2	20	463	43		528
Hatchery	IDFG	0						0
Mixed Net and Seine	CDFO	9		1				1
Ocean Sport	CDFO	38			4			4
Test Fishery Net	ODFW	19		2				2
Totals		11,076	21	550	556	47		1,174

		% of total	% of release
Ocean contribution	47	0	0.0040
Escapement to Columbia River	11,029	100	0.9453
Total Survival	11,076		0.9494
Escapement to NFH	4,982	45	0.4270
Columbia River contribution	6,047	55	0.5183

Ocean
Contribution

		Columbia River	Escapement to NFH
O	A K		
47	BC		
0	WA	6,047	4,982
0	OR		
0	CA		
47	Total		

Stock Assessment Reference Document from CRiS and PSMFC TS1 03/18/96
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	325,071	12.2	24,170	07-43-06	Eagle Creek NFH
Totals	1,012,793		48,314		
expansion factor			20.96		

total OBSD 858

Where Recovered		expanded	2s	3s	4s	5s	6s	Total
			===== PSC expanded numbers ===					
Columbia River Gillnet	ODFW	5,094	5	238				243
Estuary Sport	ODFW	3,270		156				156
Freshwater Sport	WDFW	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	WDFW	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	5,408		258				258
Ocean Troll (Non-treaty)	WDFW	650		31				31
Sport (Charter)	WDFW	1,195	2	55				57
Sport (Jetty)	WDFW	482		23				23
Sport (Private)	WDFW	6,498		310				310
Test Fishery Net	ODFW	293		14				14
Treaty Troll	WDFW	63		3				3
Totals		42,345	106	1,914				2,020

88 EC COS

		% of total	% of release
Ocean contribution	25,826	61	2.5500
Escapement to Columbia River	16,519	39	1.6310
Total Survival	42,345		4.1810
Escapement to NFH	7,589	la	0.7493
Columbia River contribution	8,930	21	0.8817

Ocean Contribution

0	AK
881	B C
9,035	WA
11,340	OR
4,570	CA
25,826	Total

Columbia River 8,909

Escapement to NFH 7,589

Stock Assessment Reference Document from CRiS and PSMFC TS1 03/18/96
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	3,712	9.8	0	07-55-53	Eagle Creek NFH	
Totals	1,199,000		55,593			
expansion factor			21.57			

total OBSD 304

Where Recovered		expanded	2s	3s	4s	5s	6s	Total
			PSC expanded numbers					
Columbia River Gillnet	ODFW	431		20				20
Estuary Sport	ODFW	367		17				17
Hatchery	FWS	4,335	19	182				201
Hatchery	ODFW	22		1				1
Ocean Sport	CDFO	65		3				3
Ocean Sport	ODFW	2,847		132				132
Ocean Troll (Non-treaty)	CDFG	216		10				10
Ocean Troll (Non-treaty)	CDFO	173		8				8
Ocean Troll (Non-treaty)	ODFW	1,014		47				47
Sport (Charter)	WDFW	216		10				10
Sport (Private)	WDFW	1,618		75				75
Test Fishery Net	ODFW	22		1				1
Totals		11,326	19	506				525

89 EC COS

		% of total	% of release
Ocean contribution	6,149	54	0.5128
Escapement to Columbia River	5,177	46	0.4318
Total Survival	11,326		0.9446
Escapement to NFH	4,335	38	0.3616
Columbia River contribution	842	7	0.0702

Ocean Contribution

0	AK
238	BC
1,834	WA
3,861	OR
216	CA
6,149	Total

Columbia River a20

Escapement to NFH 4,335

Stock Assessment Reference Document from CRiS and PSMFC TS1 03/18/96
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	795,305	14.9	-23,306	05-26-20	Eagle Creek NFH
Totals	1,087,346		45,656		
expansion factor			23.82		

total OBSD 31
===== PSC expanded numbers ===

Where Recovered		expanded	2s	3s	4s	5s	6s	Total
Columbia River Gillnet	ODFW	238		10				10
Dead Fish Survey	ODFW	24		1				1
Hatchery	FWS	429	4	14				la
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	48		2				2
Totals		1,335	- 4 5	2				56

90 EC COS		% of total	% of release
Ocean contribution	596	45	0.0548
Escapement to Columbia River	739	55	0.0680
Total Survival	1,335		0.1228
Escapement to NFH	429	32	0.0395
Columbia River contribution	310	23	0.0285

Ocean
Contribution

0	AK		
0	BC		
500	WA	Columbia River	Escapement to NFH
48	OR	310	429
48	CA		
596	Total		

Stock Assessment Reference Document from CRiS and PSMFC TS1 03/18/96
Broodyear 91 Coho raised at Eagle Creek NFH
and released Eagle Creek

	Number	#/lb	Tagged	CWT	AT
04/30/93	66,913	14.1	0	05-27-45	Eagle Creek NFH
04/30/93	256,670	13.8	11,910	05-27-45	Eagle Creek NFH
04/30/93	201,332	14.1	11,701	05-27-45	Eagle Creek NFH
04/22/93	134,860	16.5	11,358	05-27-46	Eagle Creek NFH
04/22/93	128,928	15.8	0	05-27-46	Eagle Creek NFH
04/22/93	272,185	14.4	11,464	05-27-46	Eagle Creek NFH
Totals	1,060,888		46,433		
expansion factor			22.85		

total OBSD 148

Where Recovered		expanded	2s	3s	4s	5s	6s	Total
			===== PSC expanded numbers ===					
Columbia River Gillnet	ODFW	91		4				4
Columbia River Sport	ODFW	114		5				5
Hatchery	FWS	3,267	3	140				143
Mixed Net and Seine	CDFO	91		4				4
Sport (Private)	WDFW	23		1				1
Totals		3,586	3	154	3			157

91 EC COS		% of total	% of release
Ocean contribution	114	3	0.0107
Escapement to Columbia River	3,472	97	0.3273
Total Survival	3,586		0.3380
Escapement to NFH	3,267	91	0.3079
Columbia River contribution	205	6	0.0193

Ocean
Contribution

0	AK		
91	BC		
23	WA	Columbia River	Escapement to NFH
0	OR	205	3,267
0	CA		
114	Total		

Stock Assessment Reference Document from CRiS and PSMFC TS1 03/18/96
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. Cl	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	22,510	11.0	21,027	05-22-33	Eagle Creek NFH	
Totals	169,325		42,798			
expansion factor			3.96			

total OBSD 329

Where Recovered		expanded	PSC expanded numbers 2s	3s	4s	5s	6s	Total
Freshwater Sport	ODFW	a		2				2
Hatchery	FWS	1,294		200	126	1		327
Totals		1,302		202	126	1		329

89 EC WST		% of total	% of release
Ocean contribution	0	0	0.0000
Escapement to Columbia River	1,302	100	0.7689
Total Survival	1,302		0.7689
Escapement to NFH	1,294	99	0.7642
Columbia River contribution	8	1	0.0047

Ocean Contribution		Columbia River	Escapement to NFH
0	AK		
0	BC		
0	WA	a	1,294
0	OR		
0	CA		
0	Total		

Stock Assessment Reference Document from CRiS and PSMFC TS1 03/18/96
Broodyear 90 Winter Steelhead raised at Eagle Creek NFH
and released Eagle Creek

	Number	#/lb	Tagged	CWT	AT
04/22/91	25,030	6.7	24,786	05-25-36	Eagle Creek NFH
04/22/91	58,570	6.7	0	05-25-36	Eagle Creek NFH
04/22/91	24,870	6.7	24,635	05-25-37	Eagle Creek NFH
04/22/91	58,570	6.7	0	05-25-37	Eagle Creek NFH
Totals	167,040		49,421		
expansion factor			3.38		

total OBSD 148

Where Recovered		expanded	2s	3s	4s	5s	6s	Total
			===== PSC expanded numbers ===					
Freshwater Sport	ODFW	7	1	1				2
Hatchery	FWS	493	5	96	45			146
Totals		500	- 9 7	6	45			148

90 EC WST		% of total	% of release
Ocean contribution	0	0	0.0000
Escapement to Columbia River	500	100	0.2993
Total Survival	500		0.2993
Escapement to NFH	493	99	0.2951
Columbia River contribution	7	1	0.0042

Ocean
Contribution

		Columbia River	Escapement to NFH
0	AK		
0	BC		
0	WA		
0	OR	7	493
0	CA		
0	Total		

Stock Assessment Reference Document from CRiS and PSMFC TS1 03/18/96

Broodyear 88 Spring Chinook raised at Entiat NFH
and released Entiat River

	Number	#/lb	Tagged	CWT	AT
04/19/90	262,463	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	53,306	19.4	8,268	05-21-44	Entiat NFH
Totals	585,800		91,822		
expansion factor			6.38		

total OBSD 90

Where Recovered		expanded	2s	3s	4s	5s	6s	Total
			===== PSC expanded numbers ===					
Columbia River Sport	ODFW	6				1		1
Hatchery	FWS	536			40	44		84
Treaty Ceremonial	ODFW	57			2	7		9
Totals		599			42	52		94

88 Et SCS		% of total	% of release
Ocean contribution	0	0	0.0000
Escapement to Columbia River	599	100	0.1023
Total Survival	599		0.1023
Escapement to NFH	536	89	0.0915
Columbia River contribution	63	11	0.0108

Ocean Contribution		Columbia River	Escapement to NFH
0	AK		
0	BC		
0	WA	63	536
0	OR		
0	CA		
0	Total		

Stock Assessment Reference Document from CRiS and PSMFC TS1 03/18/96
Broodyear 89 Spring Chinook raised at Entiat NFH
and released Entiat River

	Number	#/lb	Tagged	CWT	AT
04/04/91	157,042	20.4	28,289	05-23-32	Entiat NFH
04/04/91	47,634	20.0	0	05-23-32	Entiat NFH
04/04/91	157,042	20.4	27,859	05-23-33	Entiat NFH
04/04/91	47,635	20.0	0	05-23-33	Entiat NFH
04/04/91	157,043	20.4	28,084	05-23-34	Entiat NFH
04/04/91	47,635	20.0	0	05-23-34	Entiat NFH
04/04/91	15,878	20.0	0	05-23-47	Entiat NFH
04/04/91	52,347	20.4	9,942	05-23-47	Entiat NFH
04/04/91	52,347	20.4	8,854	05-23-48	Entiat NFH
04/04/91	15,878	20.0	0	05-23-48	Entiat NFH
04/04/91	15,878	20.0	0	05-23-49	Entiat NFH
04/04/91	52,348	20.4	8,179	05-23-49	Entiat NFH
Totals	818,707		111,207		
expansion factor			7.36		

total OBSD 56

Where Recovered		expanded	===== 2s	3s	PSC 4s	expanded numbers 5s	6s	Total
Columbia River Sport	ODFW	7				1		1
Hatchery	FWS	405			52	3		55
Totals		412			52	4		56

89 Et SCS		% of total	% of release
Ocean contribution	0	0	0.0000
Escapement to Columbia River	412	100	0.0503
Total Survival	412		0.0503
Escapement to NFH	405	98	0.0495
Columbia River contribution	7	2	0.0009

Ocean Contribution

		Columbia River	Escapement to NFH
0	AK		
0	BC		
0	WA		
0	OR	7	405
0	CA		
0	Total		

Stock Assessment Reference Document from CRiS and PSMFC TS1 03/29/96
Broodyear 88 Spring Chinook raised at Kooskia NFH
and released Clear Creek

	Number	#/lb	Tagged	CWT	AT
04/12/90	32,508	0.0	9,246	052143	Kooskia NFH
04/12/90	34,937	0.0	9,937	052142	Kooskia NFH
04/12/90	166,115	0.0	47,247	051928	Kooskia NFH
04/12/90	170,141	0.0	48,392	051927	Kooskia NFH
Totals	403,701		114,822	PEF= 3.52	
				total OBSD 286	

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

		% of total	% of release
Ocean contribution	0	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

Ocean
Contribution

O A K		
0 BC		
0 WA	Columbia River	Escapement to NFH
0 OR	173	907
0 CA		
0 Total		

Stock Assessment Reference Document from CRiS and PSMFC TS1 03/22/96
Broodyear 87 Spring Chinook raised at Leavenworth NFH
and released Icicle Creek

	Number	#/lb	Tagged	CWT	AT
01/05/88	99,000	623.0	0	-	Leavenworth NFH
02/05/88	297,000	504.0	0	-	Leavenworth NFH
02/08/88	113,530	178.0	0	-	Leavenworth NFH
03/20/88	96,000	238.0	0	-	Leavenworth NFH
04/22/88	124,887	52.8	32,478	232322	Leavenworth NFH
04/22/88	0	52.8	32,695	232323	Leavenworth NFH
04/22/88	0	52.8	32,822	232324	Leavenworth NFH
04/22/88	0	52.8	24,344	232325	Leavenworth NFH
05/16/88	114,800	44.5	28,353	232326	Leavenworth NFH
05/16/88	0	44.5	28,634	232328	Leavenworth NFH
05/16/88	0	44.5	29,203	232329	Leavenworth NFH
05/16/88	0	44.5	27,671	232327	Leavenworth NFH
06/06/88	94,209	80.0	0	-	Leavenworth NFH
Totals	939,426		236,200	PEF= 3.98	

total OBSD 5

Where Recovered		expanded	===== PSC expanded numbers ===== 2s	3s	4s	5s	6s	Total
Freshwater Sport	WDFW	12		3				3
Hatchery	FWS	16			4			4
Totals		28		3	4			7

		% of total	% of release
Ocean contribution	0	0	0.0000
Escapement to Columbia River	28	100	0.0030
Total Survival	28		0.0030
Escapement to NFH	16	57	0.0017
Columbia River contribution	12	43	0.0013

Ocean
Contribution

	Columbia River	Escapement to NFH
O A K		
0 BC		
0 WA		
0 OR	12	16
0 CA		
0 Total		

Stock Assessment Reference Document from CRiS and PSMFC TS1 03/18/96
Broodyear 89 Spring Chinook raised at L White Salmon NFH
and released L White Salmon River

	Number	X/lb	Tagged	CWT	AT
04/15/91	508,353	17.0	24,248	05-23-51	L White Salmon NFH
04/15/91	508,353	17.0	23,630	05-25-34	L White Salmon NFH
Totals	1,016,706		47,878		
expansion factor			21.24		

total OBSD 56

Where Recovered		expanded	2s	3s	4s	5s	6s	Total
			===== PSC expanded numbers ===					
Freshwater Sport	WDFW	1,041			49			49
Hatchery	FWS	1,019	1		35	12		48
Treaty Ceremonial	ODFW	85			4			4
Totals		2,145	1		88	12		101

89 LW SCS		% of total	% of release
Ocean contribution	0	0	0.0000
Escapement to Columbia River	2,145	100	0.2110
Total Survival	2,145		0.2110
Escapement to NFH	1,019	48	0.1002
Columbia River contribution	1,126	52	0.1107

Ocean Contribution		Columbia River	Escapement to NFH
0	AK		
0	BC		
0	WA		
0	OR	1,126	1,019
0	CA		
0	Total		

Stock Assessment Reference Document from CRiS and PSMFC TS1 03/18/96
Broodyear 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	230,723	15.0	24,897	05-22-35	L White Salmon NFH
Totals	461,446		49,903		
expansion factor			9.25		

total OBSD 343

Where Recovered		expanded	2s	3s	4s	5s	6s	Total
			===== PSC expanded numbers ===					
Columbia River Sport	ODFW	83				9		9
Freshwater Sport	WDFW	1,516			73	91		164
Hatchery	FWS	2,441		5	138	121		264
Test Fishery Net	ODFW	55			4	2		6
Treaty Ceremonial	ODFW	731			26	53		79
Totals		4,826		5	241	276		522

88 LW scs		% of total	% of release
Ocean contribution	0	0	0.0000
Escapement to Columbia River	4,826	100	1.0458
Total Survival	4,826		1.0458
Escapement to NFH	2,441	51	0.5290
Columbia River contribution	2,385	49	0.5169

Ocean
Contribution

		Columbia River	Escapement to NFH
0	AK		
0	BC		
0	WA		
0	OR	2,385	2,441
0	CA		
0	Total		

Stock Assessment Reference Document from CRiS and PSMFC TS1 03/22/96
Broodyear 88 Spring Chinook raised at Leavenworth NFH
and released Icicle Creek

	Number	#/lb	Tagged	CWT	AT
03/03/89	143,000	272.0	0	-	Leavenworth NFH
03/29/89	76,000	250.0	0	-	Leavenworth NFH
04/03/89	9,120	96.0	0	-	Leavenworth NFH
05/03/89	0	40.2	14,939	232410	Leavenworth NFH
05/03/89	0	57.8	30,510	232404	Leavenworth NFH
05/03/89	0	57.8	30,782	232406	Leavenworth NFH
05/03/89	0	31.1	28,227	232358	Leavenworth NFH
05/03/89	0	40.2	14,815	232408	Leavenworth NFH
05/03/89	148,864	57.8	31,809	232403	Leavenworth NFH
05/03/89	0	57.8	31,331	232405	Leavenworth NFH
05/03/89	0	40.2	14,731	232407	Leavenworth NFH
05/03/89	0	40.2	14,695	232409	Leavenworth NFH
05/03/89	0	31.1	29,522	232359	Leavenworth NFH
05/03/89	0	31.8	28,193	232360	Leavenworth NFH
05/03/89	0	31.1	28,908	232361	Leavenworth NFH
Totals	376,984		298,462	PEF= 1.26	
				total OBSD	7

Where Recovered		expanded	===== PSC expanded numbers === 2s	3s	4s	5s	6s	Total
Columbia River Sport	ODFW	6			5			5
Freshwater Net	WDFW	1			1			1
Hatchery	FWS	6			5			5
Totals		13			11			11

		% of total	% of release
Ocean contribution	0	0	0.0000
Escapement to Columbia River	13	100	0.0034
Total Survival	13		0.0034
Escapement to NFH	6	46	0.0016
Columbia River contribution	7	54	0.0019

Ocean
Contribution

	Columbia River	Escapement to NFH
0 AK		
0 BC		
0 WA		
0 OR	7	6
0 CA		
0 Total		

Stock Assessment Reference Document from CRiS and PSMFC TS1 03/29/96
Broodyear 89 Spring Chinook raised at Leavenworth NFH
and released Icicle Creek

	Number	#/lb	Tagged	CWT	AT
04/15/91	564,509	17.5	46,076	052251	Leavenworth NFH
04/15/91	564,509	17.5	48,287	052252	Leavenworth NFH
04/15/91	564,508	17.5	46,423	052249	Leavenworth NFH
04/15/91	564,508	17.5	47,276	052250	Leavenworth NFH
Totals	2,258,034		188,062	PEF= 12.01	

total OBSD 247

Where Recovered		expanded	PSC expanded numbers 2s	3s	4s	5s	6s	Total
Columbia River Gillnet	ODFW	72				6		6
Columbia River Sport	ODFW	108			4	5		9
Freshwater Net	WDFW	96			8			8
Freshwater Sport	WDFW	1,429		3	116			119
Hatchery	FWS	2,233		1	113	72		186
Test Fishery Net	ODFW	24			2			2
Treaty Ceremonial	ODFW	360			30			30
Treaty Troll	WDFW	12	-		1	-		1
Totals		4,334		4	274	83		361

		% of total	% of release
Ocean contribution	12	0	0.0005
Escapement to Columbia River	4,322	100	0.1914
Total Survival	4,334		0.1919
Escapement to NFH	2,233	52	0.0989
Columbia River contribution	2,089	48	0.0925

Ocean
Contribution

		Columbia River	Escapement to NFH
0	AK		
0	BC		
12	WA		
0	OR	2,089	2,233
0	CA		
12	Total		

Stock Assessment Reference Document from CRiS and PSMFC TS1 03/29/96
Broodyear 89 Spring Chinook raised at Leavenworth NFH
and released Icicle Creek

	Number	#/lb	Tagged	CWT	AT
04/19/90	400,000	122.0	0	–	Leavenworth NFH
05/04/90	134,080	40.8	121,038	635919	Leavenworth NFH
Totals	534,080		121,038	PEF= 4.41	
				total OBSD	72

Where Recovered		expanded	2s	3s	4s	5s	6s	Total
			===== PSC expanded numbers ===					
Freshwater Net	WDFW	13		2	1			3
Freshwater Sport	WDFW	163		3	34			37
Hatchery	FWS	216		5	44			49
Ocean Troll (Non-treaty)	CDFO	13		3				3
Test Fishery Net	ODFW	4			1			1
Treaty Ceremonial	ODFW	66			15			15
Totals		475		13	95			108

		% of total	% of release
Ocean contribution	13	3	0.0024
Escapement to Columbia River	462	97	0.0865
Total Survival	475		0.0889
Escapement to NFH	216	45	0.0404
Columbia River contribution	246	52	0.0461

Ocean
Contribution

0	AK		
13	BC		
0	WA	Columbia River	Escapement to NFH
0	OR	246	216
0	CA		
13	Total		

Stock Assessment Reference Document from CRiS and PSMFC TS1 05/16/96
Broodyear 82 Spring Chinook raised at L White Salmon NFH
and released L White Salmon River

Date	Number	#/lb	Tagged	CWT	AT
03/15/83	130,800	600.0	0	-	L White Salmon NFH
05/04/83	426,307	68.2	48,145	051141	L White Salmon NFH
06/24/83	130,961	44.2	46,067	051139	L White Salmon NFH
Totals	688,068		94,212	PEF= 7.30	
				total OBSD	34

Where Recovered		expanded	2s	3s	4s	5s	6s	Total
			=====	PSC	expanded	numbers		===
Columbia River Gillnet	ODFW	29			4			4
Freshwater Sport	WDFW	22			3			3
Hatchery	FWS	204		1	27			28
Test Fishery Net	ODFW	7			1			1
Treaty Ceremonial	ODFW	37			3	2		5
Totals		299		1	38	2		41

		% of total	% of release
Ocean contribution	0	0	0.0000
Escapement to Columbia River	299	100	0.0435
Total Survival	299		0.0435
Escapement to NFH	204	68	0.0296
Columbia River contribution	95	32	0.0138

Ocean Contribution by Area

		Columbia River	Escapement to NFH
0	AK		
0	BC		
0	WA	95	204
0	OR		
0	CA		
0	Total		

Stock Assessment Reference Document from CRiS and PSMFC TS1 05/16/96
Broodyear 83 Spring Chinook raised at L White Salmon NFH
and released L White Salmon River

Date	Number	#/lb	Tagged	CWT	AT
05/07/84	107,785	66.1	0		L White Salmon NFH
05/07/84	157,864	64.8	47,836	051457	L White Salmon NFH
05/07/84	157,703	65.2	49,799	051458	L White Salmon NFH
06/22/84	150,269	38.7	47,795	051459	L White Salmon NFH
Totals	573,621		145,430	PEF= 3.94	
				total OBSD	44

Where Recovered		expanded	===== 28	PSC expanded numbers 3s	4s	5s	6s	Total
Columbia River Gillnet	ODFW	20			5			5
Freshwater Sport	WDFW	24			6			6
Hatchery	:FWS	150		10	28			38
Test Fishery Net	ODFW	4		1				1
Totals		198		11	39			50

		% of total	% of release
Ocean contribution	0	0	0.0000
Escapement to Columbia River	198	100	0.0345
Total Survival	198		0.0345
Escapement to NFH	150	76	0.0261
Columbia River contribution	48	24	0.0084

Ocean Contribution by Area

Ocean	Columbia River	Escapement to NFH
0 AK		
0 BC		
0 WA		
0 OR	48	150
0 CA		
0 Total		

Stock Assessment Reference Document from CRiS and PSMFC TS1 05/16/96
Broodyear 84 Spring Chinook raised at L White Salmon NFH
and released L White Salmon River

Date	Number	#/lb	Tagged	CWT	AT
05/06/85	153,700	60.0	0	-	L White Salmon NFH
05/06/85	62,113	60.0	22,872	051433	L White Salmon NFH
05/06/85	63,428	60.0	24,083	051434	L White Salmon NFH
05/06/85	62,359	63.8	24,115	051437	L White Salmon NFH
05/06/85	62,760	63.8	24,523	051438	L White Salmon NFH
06/20/85	130,007	43.3	24,619	051435	L White Salmon NFH
06/20/85	131,572	43.3	24,916	051436	L White Salmon NFH
Totals	665,939		145,128	PEF= 4.59	
				total OBSD	208

Where Recovered		expanded	2s	3s	4s	5s	6s	Total
			===== PSC expanded numbers ===					
Columbia River Gillnet	ODFW	124			27			27
Columbia River Sport	ODFW	5			1			1
Freshwater Sport	WDFW	229		4	46			50
Hatchery	FWS	803		38	135	2		175
Test Fishery Net	ODFW	9			1	1		2
Treaty Ceremonial	ODFW	64		2	12	-		14
Totals		1,234		44	222	3		269

		% of total	% of release
Ocean contribution	0	0	0.0000
Escapement to Columbia River	1,234	100	0.1853
Total Survival	1,234		0.1853
Escapement to NFH	803	65	0.1206
Columbia River contribution	431	35	0.0647

Ocean Contribution by Area

		Columbia River	Escapement to NFH
O	A K	431	803
0	BC		
0	WA		
0	OR		
0	CA		
0	Total		

Stock Assessment Reference Document from CRiS and PSMFC TS1 03/18/96
Broodyear 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	230,723	15.0	24,897	05-22-35	L White Salmon NFH
Totals	461,446		49,903		
expansion factor			9.25		

total OBSD 343

Where Recovered		expanded	==WA== 28	3s	PSC expanded numbers === 4s	5s	6s	Total
Columbia River Sport	ODFW	83				9		9
Freshwater Sport	WDFW	1,516			73	91		164
Hatchery	FWS	2,441		5	138	121		264
Teat Fishery Net	ODFW	55			4	2		6
Treaty Ceremonial	ODFW	731			26	53		79
Totals		4,826		5	241	276		522

88 LW scs		% of total	% of release
Ocean contribution	0	0	0.0000
Escapement to Columbia River	4,826	100	1.0458
Total Survival	4,826		1.0458
Escapement to NFH	2,441	51	0.5290
Columbia River contribution	2,385	49	0.5169

Ocean
Contribution

		Columbia River	Escapement to NFH
0	AK		
0	BC		
0	WA		
0	OR	2,385	2,441
O	CA		
0	Total		

Stock Assessment Reference Document from CRiS and PSMFC TS1 03/18/96
Broodyear 89 Spring Chinook raised at L White Salmon NFH
and released L white Salmon River

	Number	#/lb	Tagged	CWT	AT
04/15/91	508,353	17.0	24,248	05-23-51	L White Salmon NFH
04/15/91	508,353	17.0	23,630	05-25-34	L White Salmon NFH
Totals	1,016,706		47,878		
expansion factor			21.24		

total OBSD 56

Where Recovered		expanded	PSC expanded numbers 2s	3s	4s	5s	6s	Total
Freshwater Sport	WDFW	1,041			49			49
Hatchery	FWS	1,019	1		35	12		48
Treaty Ceremonial	ODFW	85			4			4
Totals		2,145	1		88	12		101

89 LW SCS		% of total	% of release
Ocean contribution	0	0	0.0000
Escapement to Columbia River	2,145	100	0.2110
Total Survival	2,145		0.2110
Escapement to NFH	1,019	48	0.1002
Columbia River contribution	1,126	52	0.1107

Ocean
Contribution

		Columbia River	Escapement to NFH
0	AK		
0	BC		
0	WA		
0	OR	1,126	1,019
0	CA		
0	Total		

Stock Assessment Reference Document from CRiS and PSMFC TS1 06/07/96
Broodyear 83 Upriver Bright FCS raised at L White Salmon NFH
and released L White Salmon River

Date	Number	#/lb	Tagged	CWT	AT
07/09/84	929,771	101.5	94,847	051337	L White Salmon NFH
Totals	929,771		94,847	PEF= 9.80	
				total OBSD	337

Where Recovered		expanded	PSC expanded numbers 28	3s	4s	5s	6s	Total
Columbia River Gillnet	ODFW	4,186	13	53	256	100	5	427
Commercial Seine	ADFG	10	1					1
Estuary Sport	ODFW	39		4				4
Fish Trap (Freshwater)	ODFW	10			1			1
Hatchery	FWS	1,069	26	11	51	21		109
Hatchery	ODFW	10		1				1
Mixed Net and Seine	CDFO	431	26	9	9			44
Mixed Net and Seine	WDFW	39		4				4
Ocean Sport	ADFG	20		1		1		2
Ocean Sport	CDFO	157		8	8			16
Ocean Troll (Non-treaty)	ADFG	872		7	62	20		89
Ocean Troll (Non-treaty)	CDFO	1,814		59	89	37		185
Ocean Troll (Non-treaty)	ODFW	206		5	13	3		21
Ocean Troll (Non-treaty)	WDFW	20			2			2
Sport (Private)	WDFW	186		2	17			19
Test Fishery Net	ODFW	10				1		1
Totals		9,079	66	164	508	183	5	926

		% of total	% of release
Ocean contribution	3,755	41	0.4039
Escapement to Columbia River	5,324	59	0.5726
Total Survival	9,079		0.9765
Escapement to NFH	1,069	12	0.1150
Columbia River contribution	4,255	47	0.4576

Contribution by Area

Ocean		Columbia River	Escapement to NFH
902	AK		
2,402	BC		
245	WA	4,245	1,069
206	OR		
0	CA		
3,755	Total		

Stock Assessment Reference Document from CRiS and PSMFC TS1 06/07/96
Broodyear 84 Upriver Bright FCS raised at L White Salmon NFH
and released L White Salmon River

1,045,722 released with 186,061 tagged fish and 9 CWTs PEF= 5.62

total OBSD 1,367

Where Recovered		expanded	2s	3s	4s	5s	6s	Total
			=====	PSC expanded	numbers			===
Columbia River Gillnet	ODFW	7,998	10	225	815	345	28	1,423
Columbia River Sport	ODFW	56		10				10
Commercial Seine	ADFG	51			8	1		9
Estuary Sport	ODFW	101		12	3	3		18
Estuary Sport	WDFW	107	6	5		8		19
Freshwater Sport	ODFW	17				3		3
Freshwater Sport	WDFW	17				3		3
Groundfish Observer (CA/	NMFS	39	7					7
Hatchery	FWS	2,175	5	60	183	119	20	387
Hatchery	ODFW	34	1		2	3		6
Hatchery	WDFW	11		1		1		2
Mixed Net and Seine	CDFO	348	20	17	10	15		62
Mixed Net and Seine	WDFW	11		2				2
Multiple Gear	ADFG	6		1				1
Ocean Sport	ADFG	6			1			1
Ocean Sport	CDFO	141		13	4	8		25
Ocean Sport	ODFW	67		9		3		12
Ocean Sport	WDFW	6				1		1
Ocean Troll (Non-treaty)	ADFG	1,737	1	59	138	108	3	309
Ocean Troll (Non-treaty)	CDFG	17		3				3
Ocean Troll (Non-treaty)	CDFO	4,940	1	341	399	124	14	879
Ocean Troll (Non-treaty)	ODFW	332		23	11	25		59
Ocean Troll (Non-treaty)	WDFW	259		12	34			46
Spawning Ground	WDFW	1,827		48	190	81	6	325
Sport (Charter)	WDFW	90		14	2			16
Sport (Private)	WDFW	135	2	14		8		24
Treaty Troll	WDFW	79		10	4			14
Totals		20,607	53	879	1,804	*859*	71	3,666

		% of total	% of release
Ocean contribution	8,264	40	0.7903
Escapement to Columbia River	12,343	60	1.1803
Total Survival	20,607		1.9706
Escapement to NFH	2,175	11	0.2080
Columbia River contribution	10,168	49	0.9723

Contribution by Area

Ocean		Columbia *River*	Escapement to NFH
1,800	AK		
5,429	BC		
580	WA	10,123	2,175
399	OR		
17	CA		
8,225	Total		

Stock Assessment Reference Document from CRiS and PSMFC TS1 06/07/96
Broodyear 85 Upriver Bright FCS raised at L White Salmon NFH
and released L White Salmon River

Date	Number	#/lb	Tagged	CWT	AT
06/18/86	777,805	106.8	0	-	L White Salmon NFH
06/18/86	50,452	106.8	49,443	051807	L White Salmon NFH
06/18/86	50,585	106.8	49,573	051808	L White Salmon NFH
06/18/86	50,310	106.8	48,147	051809	L White Salmon NFH
06/18/86	190,363	165.0	0	-	L White Salmon NFH
06/18/86	50,310	106.8	48,147	051810	L White Salmon NFH
Totals	1,169,825		195,310	PEF= 5.99	
				total OBSD	347

Where Recovered		expanded	2s	3s	4s	5s	6s	Total
			=====	PSC expanded	numbers			===
Columbia River Gillnet	ODFW	1,671		46	108	118	7	279
Estuary Sport	WDFW	18			3			3
Freshwater Sport	WDFW	90		4		11		15
Groundfish Observer (CA/	NMFS	12		2				2
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)	WDFW	66			2	9		11
Spawning Ground	WDFW	479	8		23	49		80
Sport (Private)	WDFW	24			4			4
Test Fishery Troll	ADFG	6			1			1
Treaty Troll	WDFW	12		2				2
Totals		4,703	14	98	256	388	29	785

		% of total	% of release
Ocean contribution	1,642	35	0.1404
Escapement to Columbia River	3,061	65	0.2617
Total Survival	4,703		0.4020
Escapement to NFH	785	17	0.0671
Columbia River contribution	2,276	48	0.1946

Ocean		(Contribution by Area	
665	AK		
833	BC		
102	WA	Columbia River	Escapement to NFH
30	OR	2,258	785
0	CA		
1,630	Total		

Stock Assessment Reference Document from CRiS and PSMFC TS1 03/18/96
Broodyear 89 Upriver Bright FCS raised at L White Salmon NFH
and released L White Salmon River

	Number	#/lb	Tagged	CWT	AT
06/25/90	719,186	110.6	22,444	05-23-37	L White Salmon NFH
06/25/90	719,186	110.6	22,360	05-23-38	L White Salmon NFH
Totals	1,438,372		44,804		
expansion factor			32.10		

total OBSD 73

Where Recovered		expanded	PSC expanded numbers 2s	3s	4s	5s	6s	Total
Columbia River Gillnet	ODFW	867		5	17	5		27
Hatchery	FWS	1,027			11	21		32
Mixed Net and Seine	CDFO	161			5			5
Ocean Sport	CDFO	128				4		4
Ocean Troll (Non-treaty)	ADFG	1,124		5	23	7		35
Ocean Troll (Non-treaty)	CDFG	225				7		7
Ocean Troll (Non-treaty)	CDFO	770		2	12	10		24
Spawning Ground	WDFW	225	-		- 7	-		7
Totals		4,527		12	75	54		141

89 LW URB

		% of total	% of release
Ocean contribution	2,408	53	0.1674
Escapement to Columbia River	2,119	47	0.1473
Total Survival	4,527		0.3147
Escapement to NFH	1,027	23	0.0714
Columbia River contribution	1,092	24	0.0759

Ocean
Contribution

1,124	AK		
1,059	BC		
0	WA	Columbia River	Escapement to NFH
0	OR	1,092	1,027
225	CA		
2,408	Total		

Stock Assessment Reference Document from CRiS and PSMFC TS1 06/24/96
Broodyear 86 Tule Fall Chinook raised at Spring Creek NFH
and released Columbia River

Date	Number	f/lb	Tagged	CWT	AT
03/19/87	1,177,883	85.9	48,712	051855	Spring Creek NFH
03/19/87	1,171,755	80.4	48,882	051856	Spring Creek NFH
03/19/87	573,849	82.4	49,259	051857	Spring Creek NFH
03/19/87	570,780	82.7	49,437	051858	Spring Creek NFH
04/16/87	1,477,774	60.2	48,387	051860	Spring Creek NFH
04/16/87	581,551	59.8	47,756	051861	Spring Creek NFH
04/16/87	1,173,288	61.8	48,073	051862	Spring Creek NFH
04/16/87	288,762	63.6	48,971	051859	Spring Creek NFH
05/21/87	1,173,350	37.5	45,408	051905	Spring Creek NFH
05/21/87	877,309	35.3	47,213	051906	Spring Creek NFH
05/21/87	684,848	42.1	46,113	051863	Spring Creek NFH
05/21/87	889,257	36.3	46,697	051909	Spring Creek NFH
Totals	10,640,406		574,908	PEF= 18.51	
				total OBSD	918

Where Recovered		expanded	2s	3s	48	5s	6s	Total
			=====	PSC expanded numbers				===
Columbia River Gillnet	ODFW	14,288	50	552	170			772
Columbia River Sport	ODFW	185		10				10
Estuary Sport	ODFW	444	8	16				24
Estuary Sport	WDFW	833	14	31				45
Groundfish Observer (CA/	NMFS	204	11					11
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	WDFW	296	14	2				16
Ocean Sport	CDFO	592	6	8	18			32
Ocean Sport	ODFW	574	2	26	3			31
Ocean Sport	WDFW	19		1				1
Ocean Troll (Non-treaty)	CDFO	7,015		298	81			379
Ocean Troll (Non-treaty)	ODFW	3,646	12	178	7			197
Ocean Troll (Non-treaty)	WDFW	4,534		226	19			245
Spawning Ground	WDFW	1,259		68				68
Sport (Charter)	WDFW	685	3	18	16			37
Sport (Private)	WDFW	1,314	13	50	4	4		71
Test Fishery Net	ODFW	93		3	1	1		5
Treaty Troll	WDFW	1,943	26	74	3	2		105
Totals		44,810	209	1,729	475	8		2,421

		% of total	% of release
Ocean contribution	21,174	47	0.1990
Escapement to Columbia River	23,636	53	0.2221
Total Survival	44,810		0.4211
Escapement to NFH	5,812	13	0.0546
Columbia River contribution	17,824	40	0.1675

Ocean Contribution by Area

		Columbia River	Escapement to NFH
OAK			
7,959	BC		
8,791	WA	17,102	5,812
4,220	OR		
0	CA		
20,970	Total		

Stock Assessment Reference Document from CRiS and PSMFC TS1 03/29/96
Broodyear 87 Tule Fall Chinook raised at Spring Creek NFH
and released Columbia River

8,850,757 released with 553,561 tagged fish and 16 CWTs PEF= 15.99

total OBSD 791

Where Recovered		expanded	2s	3s	4s	5s	6s	Total
			===== PSC expanded numbers ===					
Columbia River Gillnet	ODFW	6,156	49	180	156			385
Estuary Sport	ODFW	144		6	3			9
Estuary Sport	WDFW	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	WDFW	64	2	2				4
Ocean Sport	CDFO	719	16	23	6			45
Ocean Sport	ODFW	48		3				3
Ocean Sport	WDFW	32		1	1			2
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)	WDFW	1,519		91	4			95
Sport (Charter)	WDFW	368	3	17	3			23
Sport (Private)	WDFW	1,039	17	44	4			65
Test Fishery Net	ODFW	16		1				1
Treaty Troll	WDFW	2,510	62	90	5	-		157
Totals		26,526	19	21,122	344	1		1,659

		% of total	% of release
Ocean contribution	13,894	52	0.1570
Escapement to Columbia River	12,632	48	0.1427
Total Survival	26,526		0.2997
Escapement to NFH	5,244	20	0.0592
Columbia River contribution	7,388	28	0.0835

Ocean
Contribution

OAK	
7,179	BC
5,532	WA
1,135	OR
48	CA
13,894	Total

Columbia River 6,972

Escapement to NFH 5,244

Stock Assessment Reference Document from CRiS and PSMFC TS1 03/29/96
Broodyear 88 Tule Fall Chinook -raised at Spring Creek NFH
and released Columbia River

15,307,573 released with 657,965 tagged fish and 16 CWTs PEF= 23.27

total OBSD 1,578

Where Recovered		expanded	2s	3s	4s	5s	6s	Total
			===== PSC expanded numbers ===					
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	1,163	16	30	4			50
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	4,467	50	140	2			192
Totals		78,612	6512,378		350			3,379

		% of total	% of release
Ocean contribution	33,710	43	0.2202
Escapement to Columbia River	44,902	57	0.2933
Total Survival	78,612		0.5135
Escapement to NFH	14,331	18	0.0936
Columbia River contribution	30,571	39	0.1997

Ocean
Contribution

	OAK		
11,934	BC		
16,006	WA	Columbia River	Escapement to NFH
5,537	OR	27,616	14,331
93	CA		
33,570	Total		

Stock Assessment Reference Document from CRiS and PSMFC TS1 03/29/96
Broodyear 89 Tule Fall Chinook raised at Spring Creek NFH
and released Columbia River

10,233,487 released with 824,213 tagged fish and 22 CWTs PEF= 12.42

total OBSD 1,819

Where Recovered		expanded	2s	3s	4s	5s	6s	Total
			=====		PSC expanded	numbers		===
Columbia River Gillnet	ODFW	7,437	51	382	164	2		599
Columbia River Sport	ODFW	199		8	8			16
Estuary Sport	ODFW	348	5	18	5			28
Estuary Sport	WDFW	1,800	26	98	21			145
Hatchery	FWS	8,368	58	413	200	3		674
Hatchery	ODFW	1,552	8	91	25	1		125
Hatchery	WDFW	12		1				1
Mixed Net and Seine	CDFO	385	16	15				31
Mixed Net and Seine	WDFW	273	22					22
Ocean Sport	CDFG	37			3			3
Ocean Sport	CDFO	1,068	8	62	16			86
Ocean Sport	ODFW	497	5	32	3			40
Ocean Sport	WDFW	12			1			1
Ocean Troll (Non-treaty)	CDFO	7,164		425	152			577
Ocean Troll (Non-treaty)	ODFW	2,682		210	6			216
Ocean Troll (Non-treaty)	WDFW	6,158		473	23			496
Spawning Ground	WDFW	186		15				15
Sport (Charter)	WDFW	1,701	4	131	2			137
Sport (Private)	WDFW	1,502	8	97	16			121
Test Fishery Net	ODFW	137	1	9	1			11
Treaty Troll	WDFW	4,693	73	256	49	-		378
Totals		46,211	2852,736		695	6		3,722

		% of total	% of release
Ocean contribution	26,172	57	0.2557
Escapement to Columbia River	20,039	43	0.1958
Total Survival	46,211		0.4516
Escapement to NFH	8,368	18	0.0818
Columbia River contribution	11,671	25	0.1140

Ocean
Contribution

OAK	
8,617	BC
14,339	WA
3,179	OR
37	CA
26,172	Total

Columbia River	Escapement to NFH
10,107	8,368

Stock Assessment Reference Document from CRiS and PSMFC TS1 03/29/96
Broodyear 87 Spring Chinook -raised at Warm Springs NFH
and released Warm Springs River

661,019 released with 514,633 tagged fish and 16 CWTs PEF= 1.28

total OBSD 550
===== PSC expanded numbers ===

Where Recovered		expanded	2s	3s	4s	5s	6s	Total
Columbia River Gillnet	ODFW	5			4			4
Columbia River Sport	ODFW	39			25	5		30
Fish Trap (Freshwater)	ODFW	1				1		1
Freshwater Sport	ODFW	252		20	164	12		196
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	42		6	25	2		33
Totals		926	-49	1	605	66		721

		% of total	% of release
Ocean contribution	0	0	0.0000
Escapement to Columbia River	926	100	0.1401
Total Survival	926		0.1401
Escapement to NFH	552	60	0.0835
Columbia River contribution	374	40	0.0566

Ocean
Contribution

	Columbia River	Escapement to NFH
OAK		
0 BC		
0 WA		
O OR	374	552
Cl CA		
0 Total		

Stock Assessment Reference Document from CRiS and PSMFC TS1 03/29/96
Broodyear 88 Spring Chinook raised at Warm Springs NFH
and released Warm Springs River

731,559 released with 558,042 tagged fish and 16 CWTs PEF= 1.31

total OBSD 814

Where Recovered		expanded	2s	3s	4s	5s	6s	Total
			=====	PSC expanded	numbers			===
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

		% of total	% of release
Ocean contribution	0	0	0.0000
Escapement to Columbia River	1,341	100	0.1833
Total Survival	1,341		0.1833
Escapement to NFH	851	63	0.1163
Columbia River contribution	490	37	0.0670

Ocean
Contribution

0 AK		
0 BC		
0 WA	Columbia River	Escapement to NFH
0 OR	490	851
0 CA		
0 Total		

Stock Assessment Reference Document from CRiS and PSMFC TS1 03/29/96
Broodyear 89 Spring Chinook -raised at Warm Springs NFH
and released Warm Springs River

1,070,933 released with 948,684 tagged fish and 26 CWTs PEF= 1.13

total OBSD 158

Where Recovered		expanded	2s	3s	4s	5s	6s	Total
			=====		PSC expanded	numbers		===
Freshwater Sport	ODFW	62		6	49			55
Hatchery	FWS	141	5	3	105	12		125
Test Fishery Net	ODFW	2			2			2
Treaty Ceremonial	ODFW	5			4			4
Treaty Subsistence	ODFW	11			10			10
Totals		221	5	9	170	12		196

		% of total	% of release
Ocean contribution	0	0	0.0000
Escapement to Columbia River	221	100	0.0206
Total Survival	221		0.0206
Escapement to NFH	141	64	0.0132
Columbia River contribution	80	36	0.0075

Ocean
Contribution

O A K		
0 BC		
0 WA	Columbia River	Escapement to NFH
0 OR	80	141
0 CA		
0 Total		

stock Assessment Reference Document from CRiS and PSMFC TS1 03/18/96
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	1,449,045	14.5	22,714	05-22-26	Willard NFH
Totals	2,898,140		45,240		
expansion factor			64.06		

total OBSD 373

Where Recovered		expanded	PSC expanded numbers 2s	3s	45	5s	6s	Total
Columbia River Gillnet	ODFW	5,509		86				86
Estuary Sport	ODFW	3,203		50				50
Freshwater Net	WDFW	64		1				1
Hatchery	FWS	11,787	51	132	1			184
Hatchery	ODFW	641		10				10
Ocean Sport	CDFG	2,819		44				44
Ocean Sport	ODFW	5,958		93				93
Ocean Sport	WDFW	128		2				2
Ocean Troll (Non-treaty)	CDFG	2,370		37				37
Ocean Troll (Non-treaty)	CDFO	1,473		23				23
Ocean Troll (Non-treaty)	ODFW	6,855		107				107
Ocean Troll (Non-treaty)	WDFW	641		10				10
Sport (Charter)	WDFW	1,730		27				27
Sport (Private)	WDFW	6,022	-	94	-			94
Totals		49,200	51	716	1			768

88 Wi COS

		% of total	% of release
Ocean contribution	27,996	57	0.9660
Escapement to Columbia River	21,204	43	0.7316
Total Survival	49,200		1.6976
Escapement to NFH	11,787	24	0.4067
Columbia River contribution	9,417	19	0.3249

Ocean Contribution		Columbia River	Escapement to NFH
0	AK		
1,473	BC		
8,521	WA		
12,813	OR	8,776	11,787
5,189	CA		
27,996	Total		

Stock Assessment Reference Document from CRiS and PSMFC TS1 03/18/96
Broodyear 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	1,286,662	14.6	23,813	05-25-33	Willard NFH
Totals	2,573,323		47,743		
expansion factor			53.90		

total OBSD 79

Where Recovered		expanded	PSC expanded numbers 2s	3s	4s	5s	6s	Total
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)	WDFW	162		3				3
Sport (Charter)	WDFW	485		9				9
Sport (Private)	WDFW	970		18				18
Treaty Troll	WDFW	162		3				3
Totals		8,355	1	154				155

89 Wi COS		% of total	% of release
Ocean contribution	4,905	59	0.1906
Escapement to Columbia River	3,450	41	0.1341
Total Survival	8,355		0.3247
Escapement to NFH	2,156	26	0.0838
Columbia River contribution	1,294	15	0.0503

Ocean Contribution

		Columbia River	Escapement to NFH
0	AK		
0	BC		
1,779	WA		
3,126	OR	1,240	2,156
0	CA		
4,905	Total		

Stock Assessment Reference Document from CRiS and PSMFC TS1 03/18/96
Broodyear 90 Coho raised at Willard NFH
and released IL 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	784,644	14.0	24,267	05-27-50	Willard NFH
Totals	1,569,287		49,142		
expansion factor			31.93		

total OBSD 27
===== PSC expanded numbers ===

Where Recovered		expanded	2s	35	4s	5s	6s	Total
Columbia River Sport	ODFW	128		4				4
Dead Fish Survey	ODFW	96		3				3
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	543		17				17
Total6		1,726	- 2 5	2				54

90 Wi COS		% of total	% of release
Ocean contribution	1,087	63	0.0693
Escapement to Columbia River	639	37	0.0407
Total Survival	1,726		0.1100
Escapement to NFH	383	22	0.0244
Columbia River contribution	256	15	0.0163

Ocean
Contribution

		Columbia River	Escapement to NFH
0	AK		
0	BC		
799	WA		
224	OR	224	383
64	CA		
1,087	Total		

Stock Assessment Reference? Document from CRiS and PSMFC TS1 03/18/96
Broodyear 91 Coho raised at Willard NFH
and released 1L White Salmon River

	Number	#/lb	Tagged	CWT	AT
04/15/93	1,531,807	16.8	24,805	05-27-19	Willard NFH
04/15/93	1,531,808	16.13	25,120	05-27-28	Willard NFH
Totals	3,063,615		49,925		
expansion factor			61.36		

Where Recovered		expanded	total OBSD 2s	3s	30 PSC expanded numbers 45	5s	6s	Total
Columbia River Gillnet	ODFW	491		8				8
Freshwater Sport	ODFW	61		1				1
Hatchery	FWS	1,657	1	26				27
Totals		2,209	- 1 3	5				36

91 Wi COS

		% of total	% of release
Ocean contribution	0	0	0.0000
Escapement to Columbia River	2,209	100	0.0721
Total Survival	2,209		0.0721
Escapement to NFH	1,657	75	0.0541
Columbia River contribution	552	25	0.0180

Ocean
Contribution

		Columbia River	Escapement to NFH
0	AK		
0	BC		
0	WA	552	1,657
0	OR		
0	CA		
0	Total		

Stock Assessment Reference Document from CRiS and PSMFC TS1 03/18/96
Broodyear 89 Spring Chinook raised at Winthrop NFH
and released Methow River

	Number	#/lb	Tagged	CWT	AT
04/11/91	95,033	17.3	25,116	05-23-28	Winthrop NFH
04/11/91	92,949	17.3	27,581	05-23-29	Winthrop NFH
04/11/91	157,615	20.4	27,219	05-23-30	Winthrop NFH
04/11/91	224,709	19.1	0	05-23-30	Winthrop NFH
04/11/91	193,320	19.0	27,754	05-23-31	Winthrop NFH
04/11/91	291,430	20.5	0	05-23-31	Winthrop NFH
Totals	1,055,056		107,670		
expansion factor			9.80		

total OBSD 16

Where Recovered		expanded	PSC expanded numbers 2s	3s	4s	5s	6s	Total
Freshwater Sport	WDFW	78			8			8
Hatchery	FWS	108			10	1		11
Hatchery	WDFW	29			1	2		3
Test Fishery Net	ODFW	10			1	-		1
Totals		225			20	3		23

89 Wt SCS		% of total	% of release
Ocean contribution	0	0	0.0000
Escapement to Columbia River	225	100	0.0213
Total Survival	225		0.0213
Escapement to NFH	108	48	0.0102
Columbia River contribution	117	52	0.0111

Ocean Contribution		Columbia River	Escapement to NFH
0	AK		
0	BC		
0	WA		
0	OR	88	108
0	CA		
0	Total		