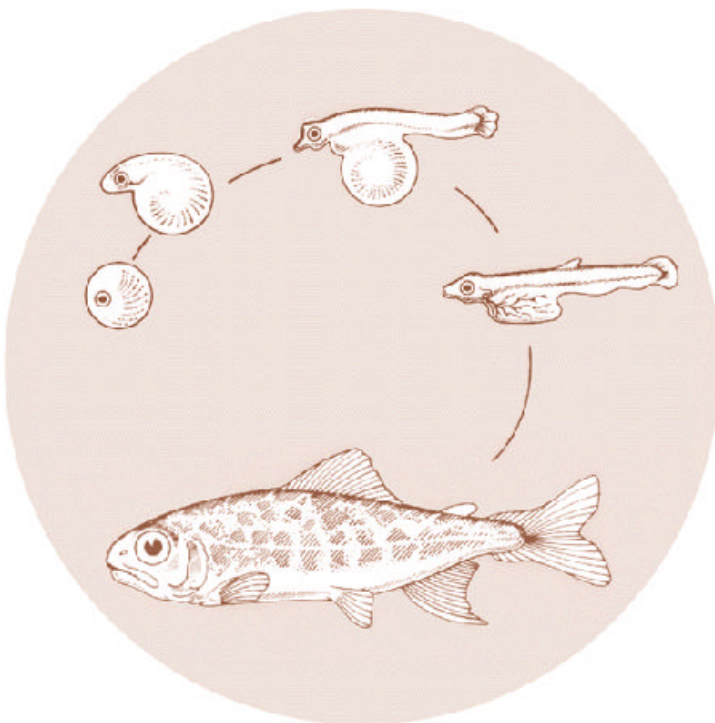


ANNUAL CODED WIRE PROGRAM MISSING PRODUCTION GROUPS

1996 Annual Report



DOE/BP-01931-3



This report was funded by the Bonneville Power Administration (BPA), U.S. Department of Energy, as part of BPA's program to protect, mitigate, and enhance fish and wildlife affected by the development and operation of hydroelectric facilities on the Columbia River and its tributaries. The views of this report are the author's and do not necessarily represent the views of BPA.

This document should be cited as follows:

<i>Pastor, Stephen M. - U.S. Fish and Wildlife Service, Annual Coded Wire Program Missing Production Groups, 1996 Annual Report, Report to Bonneville Power Administration, Contract No. 1989AI01931, Project No. 198906500, 137 electronic (BPA Report DOE/BP-01931-3)</i>

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ANNUAL CODED WIRE PROGRAM
MISSING PRODUCTION GROUPS

1996 ANNUAL REPORT

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Project Number 89-065
Contract Number 89AI01931

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. This information can also be used by salmon harvest managers to develop plans to allow the harvest of excess hatchery fish while protecting threatened, endangered, or other stocks of concern.

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. More than 100,000 fish per group are usually marked 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.

METHODS

The Missing Production Groups Report primarily addresses the problem of assessing releases of fish from production facilities. The release information used in this report is collected with the U.S. Fish and Wildlife Service Columbia River (information) System - CRiS. Information prior to the Columbia River basin wide implementation of CRiS, and from USFWS hatcheries in Idaho, is obtained from the interagency StreamNet database (formerly the Coordinated Information System).

Recovery information is obtained from the PSMFC Regional Mark Information Center coded-wire tag database. Tag lists are created for each release year, and reports are generated using the PSMFC TS1 format. These reports are downloaded in ASCII format. A series of dBASE V programs transforms these ASCII files into a single dbf file.

A stock Assessment Reference Document is prepared for each hatchery, brood year, and species that had coded-wire tags. Because many fish were released without representative coded-wire tags before the Missing Production Groups program began, a single Production Expansion Factor (PEF - the total number of fish released divided by the total number of tagged fish released) is calculated for each hatchery, brood year, and species. This PEF is used to expand recovery information for unmarked fish released, and to determine a general picture of the overall contribution and survival rates for each facility.

Total Survival and Contribution by Fishery Graphs are prepared with a combination of dBASE programs and spreadsheets.

RESULTS

In calendar year 1996 the USFWS Columbia River Fisheries Program Office marked 556,744 fish as "Missing Production Groups". Totals per group are listed in Table 1. Over 955 snouts with "Missing Production Groups" coded-wire tags were recovered at USFWS hatcheries in 1996, and processed at USFWS fisheries offices.

A brief description of the estimated survival and contribution for each species raised and released 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 at an altitude of 175 feet above sea level. The center was constructed in 1959. At present, lower river tule fall chinook are the only species reared on a production basis at Abernathy.

Coded-wire tags were released in fish from broods 1980 and 1981. Survival rates were 1.18%, 13% and 0.2084% respectively.

There were no releases of marked fish for brood years 1983 to 1987. 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 (1,628) and British Columbia (977). Overall survival was 0.1836% or 3,296 fish.

Fish from brood 1990 had a low survival rate of 0.0640%, the lowest there is information for since brood 1980. An estimated 102 fish were taken in the ocean off Washington, and 136 in the Columbia River estuary sport fishery. An additional 645 fish were estimated to have been recovered in Washington Department of Fish and Wildlife (WDFW) spawning ground surveys.

The addition of brood year 1990 to the contribution by area graph has changed that graph. Since there were only three other brood years in the graph last year, this should not be surprising. The proportion of Abernathy fish recovered at Columbia River hatcheries has increased, reflecting the decreased harvest available from brood 1990 fish.

Carson National Fish Hatchery

Carson National Fish Hatchery (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%. The greatest number of off station recoveries were in the freshwater sport fishery. There were a few recoveries of brood 1985 fish in ocean fisheries in Alaska, Canada, and Washington.

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).

Brood year 1989 was tagged as part of an otolith study conducted by WDFW. The total estimated survival rate is 0.1263%. The great majority of fish (2,349) were taken in the freshwater sport fishery reported by WDFW. There were two observed recoveries in the ocean troll fishery off Washington which were expanded to a total of 12 fish.

An apparent record low survival rate was set by brood 1990, 0.0094%, or a total of only 218 fish from a release of over two million. Recoveries show more fish recovered off station (194) than returning to the hatchery (24).

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 at 1,000 feet above sea level. 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

Twelve coded-wire tags were released with brood 1987. Coded-wire tag information was obtained from the StreamNet Distributed System. A total survival of 0.0081% was determined using those tags. The Oregon Department of Fish and Wildlife (ODFW) reported freshwater sport harvest took an estimated 38 fish.

Overall survival for brood year 1988 has increased to 0.0708%. This increase is the result of changes in USFWS hatchery recovery numbers for 1992 and 1993, Idaho changes for 1990, and both treaty ceremonial and treaty subsistence reported by USFWS. This brood contributed mainly to the treaty ceremonial fishery in the Columbia River.

Although additional recoveries have increased overall survival, yearlings from brood year 1989 did only half as well as brood 1988. USFWS hatchery recoveries from 1992 through 1994 have increased, as has the 1993 treaty ceremonial harvest reported by Oregon. A total of 70 fish were harvested in the Columbia basin, and 3 were recovered at WDFW hatcheries. Fifty-two fish were taken in the treaty ceremonial fishery. Overall survival was 0.0353%.

Brood 1990 was added to this report this year. Coded-wire tag information was obtained from the StreamNet Distributed System. Although the number of fish released at Dworshak agreed with numbers originally reported through CRiS, the weight of the fish in pounds decreased from 62,116.02 to 61,745.28. Total estimated survival for this brood was 0.0067%, or 64 fish from a release of almost nine hundred sixty thousand, lowest of the four years examined so far.

Summer Steelhead

Three tag codes were used to arrive at a total estimated survival of 1.482% for brood 1985. Over fifty-four hundred fish were taken in the Columbia River gillnet fishery, and over forty-one hundred were taken in the freshwater sport fishery reported by Idaho. Double reporting of recoveries at Dworshak may have occurred in 1988 and 1989.

Brood 1986 summer steelhead released at the hatchery were marked with coded-wire tags for evaluation. The steelhead had an overall survival of 1.9212% and contributed mainly to the

freshwater sport fishery in Idaho. Many of these steelhead were also recovered in the Columbia River gillnet fishery. It appears that there was some double reporting of recoveries' at Dworshak.

Summer steelhead from brood 1987 survived at an overall rate of 0.9450%. There may have been double reporting of hatchery recoveries in 1989. 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 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 NMFS reported recoveries does not show up on the Ocean Contribution section of the Stock Assessment Reference Document. Reporting of freshwater sport recoveries by IDFG would increase survival for this brood. However, confirmation of double reporting of recoveries at the hatchery in 1989 would decrease survival.

Overall survival for brood year 1989 was 0.9454%. Most fish were taken in the Columbia River gillnet fishery (4,566). A total of 1,434 fish were taken in the various freshwater sport fisheries. Forty-seven fish were taken off the coast of British Columbia. Reporting of freshwater sport recoveries by IDFG would increase survival for this brood.

Brood 1990 was added to this report this year. Except for one different date, ninety additional fish, and a significant difference in the total weight of fish released, StreamNet records are similar to those originally reported for releases at the hatchery. Total survival for brood year 1990 was estimated at 0.4701% or 5,606 fish. Most of the harvested fish were taken in the Columbia River gillnet fishery (2,660). Twenty-five fish were also taken in the Oregon ocean sport fishery. Reporting of freshwater sport recoveries by IDFG would increase survival for this brood.

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 at an elevation of 950 feet. The hatchery was authorized by the Mitchell Act, constructed in 1956, and is currently operated as part of the Columbia River Fishery Development Program (CRFDP). Although Eagle Creek NFH has raised fall and spring chinook in past years, production is now limited to coho and winter steelhead. .

Coho

Coded-wire tags were used in a multiple year density study including brood years 1980 and 1981. The survival rates for these two broods were estimated to be 1.3546% and 1.0404%. For brood 1980 Oregon ocean fisheries took nearly four times more fish than Washington ocean fisheries. Brood 1981 had an almost even split between the two fisheries.

The 1989 brood coho survival was 0.9446%, about one quarter of the very high 4.18 1% 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. Over two hundred fish were taken in British Columbia. Eight hundred twenty were also harvested in the Columbia River.

Brood year 1990 coho has a total of 31 observed recoveries and an overall survival of 0.1228%. Fewer than 600 fish were taken in the ocean, and 310 in the Columbia River. Five hundred of the ocean recoveries were reported by WDFW. The remaining 96 were split evenly between Oregon and California. Coded-wire tagged returns to the hatchery were estimated to be less than the ocean harvest of this brood.

Total survival for brood year 1991 coho is now estimated to be 0.3402%, since WDFW has reported one additional ocean sport recovery. Only 137 fish were harvested in the ocean (91 by British Columbia and 46 by Washington), and 205 in the Columbia River. Escapement to the hatchery was about thirty-three hundred fish. Although this brood did better than the 1990 fish, it was much less successful than 1980, 1981, 1988 or 1989.

Current total survival for brood 1992 is estimated at 0.4758%, an improvement over the previous two broods, but still below averages for broods in the 1980s. Escapement to the hatchery made up the largest segment of fish recovered, as was also the case for brood 1991. Washington ocean fisheries took 750 fish and Oregon ocean fisheries harvested 277 fish. An additional 197 fish were taken in the Columbia River.

Ocean fishery contribution for broods since 1990 have been very low compared to the 1980s because of poor overall survival and very restrictive Washington and Oregon ocean fisheries.

Winter Steelhead

A six year old fish recovered at the hatchery increased total estimated survival from coded-wire tag recoveries to 0.7713%. Eight fish from brood year 1989 winter steelhead were recovered off station. This estimate is based on voluntary returns from sportsmen, and probably under represents the true sport fishery impacts in the Clackamas River and in Eagle Creek.

There are two reported off station recoveries of brood 1990 fish. These can be expanded to a total of 7 fish. However, the "1994 Accomplishment Report for Clackamas River Fisheries Working Group" reports that an estimated 21 AdLV and 55 AdLV fish were caught in the Clackamas River Section, December 1993-April 1994. ODFW also reports that 16 fish were caught in Eagle Creek during the same period. Since steelhead returning to Eagle Creek are either age-3 or age-4, these fish may have been from either brood 1990 or 1991. Four age-5 fish were observed at the hatchery, increasing total estimated survival from coded-wire tag recoveries to 0.3077%.

Based on 7 observed recoveries, a total of 28 brood 1991 fish were estimated to have been taken in the ODFW reported freshwater sport fishery. Although there may have been additional recoveries (see the "1994 Accomplishment Report for Clackamas River Fisheries Working Group"), coded-wire tag recoveries yield a total estimated survival rate of 0.1366%.

Entiat National Fish Hatchery

Entiat NFH is located on the Entiat River, east of Entiat, Washington. Elevation is 980 feet above sea level. 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.

There were only 4 observed recoveries from the 95,682 tagged fish released with brood 1990. Total estimated survival for this brood year was 0.0041%.

Kooskia National Fish Hatchery

Kooskia NFH is situated along Clear Creek, just upstream of the confluence with the Middle Fork Clearwater River, approximately 75 miles southeast of Lewiston, Idaho at an altitude of 1,295 feet. The hatchery was authorized in 1961, first operated in 1969, 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.

An estimated 79 fish were recovered from brood 1990, resulting in a survival rate of 0.0109%. Eleven of those fish were taken in the Columbia River sport fishery in 1994.

Leavenworth National Fish Hatchery

Leavenworth NFH is located about 4 miles northeast of Leavenworth, Washington along Icicle Creek, a tributary to the Wenatchee River. Elevation is 1,155 feet. 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.

Although fish from brood year 1985 were released at Leavenworth with two different tag codes, fish with those same tag codes were also released in the Yakima River and are therefore not included in this report.

Fish from brood 1986 were harvested mainly in the freshwater sport (757) and treaty ceremonial fisheries (409). Total estimated survival is estimated at 0.1177%.

Brood 1987 spring chinook salmon released as yearlings have an estimated total survival of 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, which was expanded to 28 fish, was recovered in the British Columbia ocean troll fishery. The 1987 brood spring chinook released as fingerlings survived at a rate of only 0.0030%. This release of 939,426 fish yielded a freshwater sport catch of 12 fish, and a hatchery escapement of 16 fish.

Brood 1988 spring chinook fared quite a bit better than brood 1987 with an estimated survival rate of 0.475 1%. Most fish were taken in the freshwater sport fishery (3,469). In addition, ODFW reported a treaty ceremonial harvest of 1,3 15. Twenty-five fish were harvested in the WDFW reported treaty troll fishery. 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 tagged fish.

An agency 63 tag code was released with brood 1989 age-0 Leavenworth fish raised at Wells State Fish Hatchery (SFH) and returned to Leavenworth for further rearing. These fish survived at a rate of 0.0889%. Using the calculated PEF of 4.4 1, 13 fish were harvested in the British Columbia ocean troll fishery, 163 in the freshwater sport fishery, and 66 in the treaty ceremonial fishery. However, this PEF includes 400,000 fish released at one-third the size of the fish with the coded-wire tags.

Yearling fish from brood 1989 survived at a rate of 0.1946%, more than twice the rate for fish released at age-0. WDFW reported an additional 5 estimated freshwater sport recoveries since last year, and an additional age-6 fish was recovered at Leavenworth NFH. The great majority of off station recoveries occurred in the Columbia River sport fishery (1,585). An additional 360 fish were taken in the treaty ceremonial fishery.

The estimated number of fish surviving from brood 1990 yearlings was only 102 fish from a total release of over 2 million fish, a very low survival rate of 0.0045%. Treaty ceremonial harvest of this brood is estimated to have been only 16 fish.

None of the summer steelhead at Leavenworth have ever been marked with a coded-wire tag.

Little White Salmon National Fish Hatchery

Little White Salmon NFH is located on the Little White Salmon River, 12 miles east of Stevenson, Washington at an elevation of 90 feet. The hatchery was originally built in 1898 and was remodeled and expanded in 1958. Now operating as part of the Columbia River Fisheries Development Plan (CRFDP), hatchery production consists of rearing upriver bright fall chinook and spring chinook salmon. Coho are raised at Willard NFH, which is administered by Little White Salmon. Willard is listed separately 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. Columbia River gillnets took a greater proportion of age-0 fish than yearlings (9.7% vs 3.2%) for these three broods. Release of coded-wire tagged age-0 fish was resumed with brood year 1991.

Marking of spring chinook was resumed for brood year 1988 under the Missing Production Group Program. Brood year 1988 fish released at age-0 were not marked. The overall survival rate for yearling fish from this brood year was 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.

With an additional 7 recoveries reported in the WDFW freshwater sport fishery, brood 1989 shows a total survival of 2,293 fish, or 0.2255%. Nearly 1,200 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.

Brood 1990 fish survived at only one-tenth the rate of brood 1989 fish, 0.0265%, with no reported off station recoveries. The coded-wire tagged fish from this brood were released from the Willard NFH facility a sub-station located upstream from Little White Salmon NFH. Over 800,000 untagged, unmarked fish were released at Little White Salmon NFH.

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. The extended rearing program strategy is no longer being used.

Coded-wire tag recovery information for brood 1989 has changed quite a bit since last year. One USWFS hatchery recovery in 1993 has been deleted. The current number of recoveries agrees with information in the CRiS database, and the file used to report recoveries to

PSMFC. Age-3 and age-5 recoveries in the ODFW reported Columbia River gillnet fishery have disappeared, and the number of age-4 fish has been reduced from 17 to 5. The Canadian Department of Fisheries and Oceans (CDFO) ocean sport has been reduced by 2, and their non-treaty ocean troll by 13. The Alaska Department of Fish and Game (ADFG) non-treaty ocean troll is reduced by 6. Thirteen age-5 spawning ground recoveries were added by WDFW. Although some of these changes could possibly be explained by changes in agency determined expansion factors, others can't.

Brood 1989 was the first upriver bright brood to be marked under the missing production group program. Fifty-eight observed recoveries were expanded to a total of 3,532 for an overall survival rate of 0.2456%. Most of the harvested fish were taken in the ocean (1,734), with 931 in Alaska, 578 in British Columbia and 225 in California. An additional 161 fish were harvested in the Columbia River gillnet fishery, and 642 were recovered in spawning ground surveys.

Current recovery information shows a 0.3123% recovery rate for brood 1990, higher than that for brood 1989. Little White Salmon upriver bright fall chinook appear to be the only group of fish in this report which had a higher rate of survival for brood 1990 than brood 1989. Unlike Spring Creek tule fall chinook, where fish were released in March, April, and May, these fish were released in June. These upriver brights are also recovered farther north than the Spring Creek tules. Alaska ocean trollers took most of these brood 1990 fish (2,084), followed by Canadian trollers (1,443) and the Columbia River gillnet fishery (1,042).

Spring Creek National Fish Hatchery

Spring Creek NFH is located on the Columbia River at Underwood, Washington, about 30 miles upstream of Bonneville Dam. Elevation at the hatchery is 93 feet above sea level. 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.

Total survival for brood 1986 fish is calculated to be 0.4323%, or 45,995 fish from a release of 10,640,406. Over twenty-two thousand were harvested in the ocean and 14,288 were taken in the Columbia River gillnet fishery. The Pacific Salmon Commission (PSC) estimated CDFO sport fishery harvest has increased from 32 to 96 fish since last year.

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. Additional 1990 and 1991 recoveries reported by CDFO increased total survival for the 1987 brood to 0.3086%, or 27,310 fish from a release of 8,850,757.

Brood year 1988 fish were recovered primarily in the Columbia River gillnet fishery (23,218).

They also contributed to the ocean fisheries in Washington (11,006), Canada (12,447) and Oregon (5,537). Overall survival was 0.5169%. CDFO has reported additional ocean sport recoveries for 1991 and 1992, resulting in the slight increase of both Canadian harvest and overall survival reported last year.

Fish from brood 1989 fared slightly worse than brood 1988 with an overall survival of 0.4562% or 46,682 fish. The greatest number of recoveries was in the ocean off Washington (14,339), and in the Columbia River (10,082). The Columbia River gillnet fishery took the great majority of fish harvested in the Columbia River. British Columbia took 9,113 fish, and ocean recoveries off Oregon totaled 3,179. CDFO reported additional ocean sport recoveries of age-2 through age-4 fish, increasing total survival and the harvest off British Columbia.

Brood 1990 has one of the lowest survival rates (currently estimated at 0.1442%) since brood 1980. Only brood 1984 had a lower survival rate. Most of the harvest of these fish occurred in the ocean off Washington (5,121) followed by the Columbia River harvest of 4,659 fish, and the Canadian harvest of 3,806 fish.

The addition of brood 1990 to the Contribution by Fishery Graph caused Columbia River Sport to shrink dramatically.

Warm Springs National Fish Hatchery

Warm Springs NFH is located on the Warm Springs River, approximately 14 miles north of Warm Springs, Oregon at 1,525 feet above sea level. 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.

Warm Springs has a unique fall release strategy that involves releasing the same coded-wire tags in the fall and in the spring. Therefore fall release and spring release fish are combined in this report.

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 0.1528% 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. These fish 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.

Only an estimated 33 fish survived from a release of 659,507 from the 1990 brood, a survival rate of 0.0050%. There were 27 recoveries at the hatchery and 6 in the Oregon freshwater sport fishery .

Willard National Fish Hatchery

Willard NFH is situated 4 miles upstream of Little White Salmon NFH on the Little White Salmon River at an altitude of 900 feet. Willard 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 (1,473) to California (5,189). An additional 8,776 fish were harvested in the Columbia River. Fifty-five hundred of those were taken in the gillnet fishery, and thirty-two hundred in the estuary sport fishery. Total survival rate was estimated to be 1.6976%.

Brood 1989 coho survived at a rate of 0.3247%. Total survival was estimated to be 8,355 fish from a release of 2,573,323. They contributed mainly in ocean sport and non-treaty troll fisheries of Oregon (3,126) and Washington (1,779).

Total survival for brood 1990 was only 1,726 fish or 0.1100%. Fish were harvested primarily in sport fisheries off the coasts of Washington (799), Oregon (224) and California (64). One hundred twenty-eight fish were taken in the Washington non-treaty troll fishery, One hundred twenty-eight fish were taken in the Columbia River sport fishery.

Survival of brood 1991 was even lower 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, 491 in the gillnet fishery and 61 in the freshwater sport fishery.

There was some improvement in brood 1992 with a survival rate of 0.1007%. Washington ocean sport fisheries took 240 fish, and Oregon ocean sport 120. The Columbia River gillnet fishery took an additional 161 fish for a total off station harvest of 521 fish from a release of nearly two million.

Winthrop National Fish Hatchery

Winthrop NFH is situated along the Methow River, near the town of Winthrop, Washington. Elevation is 1,760 feet above sea level. 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 1996 the program had been simplified to spring chinook only. Coho and steelhead recently raised at Winthrop were not coded-wire tagged. Tagged summer chinook were released in 1996.

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.

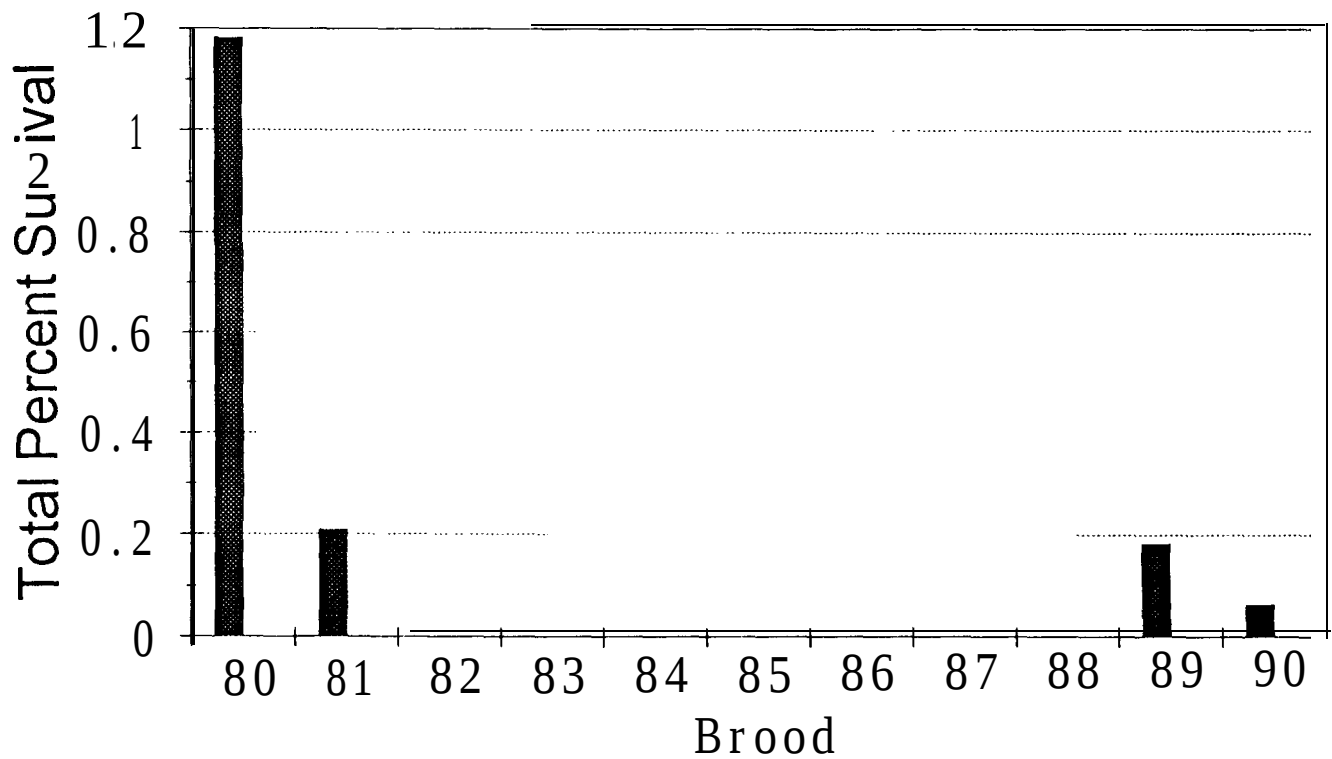
There is now one recovery for brood 1990 Winthrop spring chinook on file with PSMFC. That fish was killed at a WDFW hatchery. Given a production expansion factor of 6.89, six additional unmarked fish were probably also killed. This gives an overall survival rate of 0.0011%. Over ninety thousand tagged fish were released along with a total of 624,771 yearlings.

Table 1 - Fish Marked as Missing Production Groups in Calendar Year 1996

Brood year	Hatchery	Species	Date		Number Taaed
95	Abernathy SCTC	Tule Fall Chinook	02/20/96	02/21/96	50,211
95	Carson NFH	Spring Chinook	05/14/96	05/15/96	50,063
95	Eagle Creek NFH	Coho	07/24/96	08/02/96	51,150
95	Eagle Creek NFH	Coho	08/01/96	08/02/96	50,092
95	Entiat NFH	Special Study Spring Chinook	06/04/96	06/11/96	204,909
95	L White Salmon NFH	Spring Chinook	06/03/96	06/03/96	50,098
94	Willard NFH	Coho	02/21/96	02/21/96	50,078
95	Willard NFH	Coho	07/22/96	07/23/96	50,143
					556,744

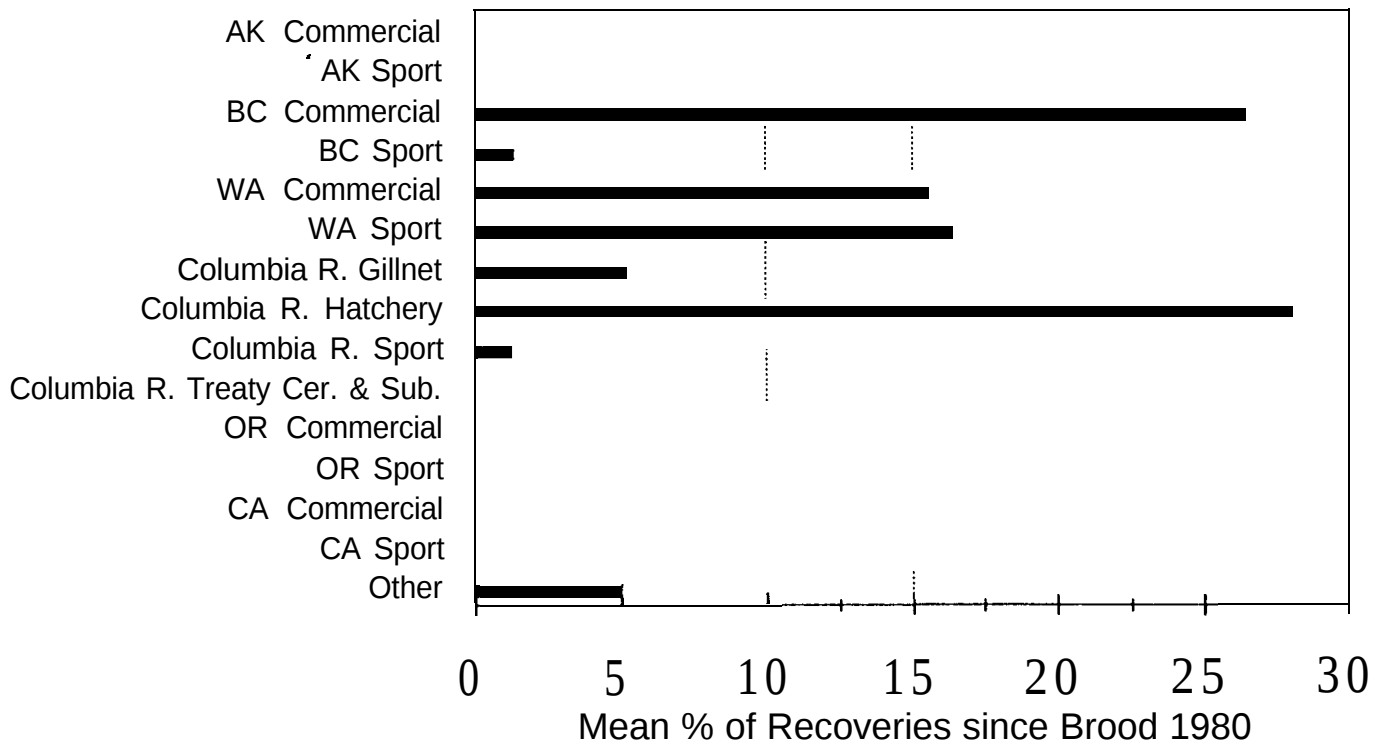
Abernathy SCTC

Tule Fall Chinook fingerling



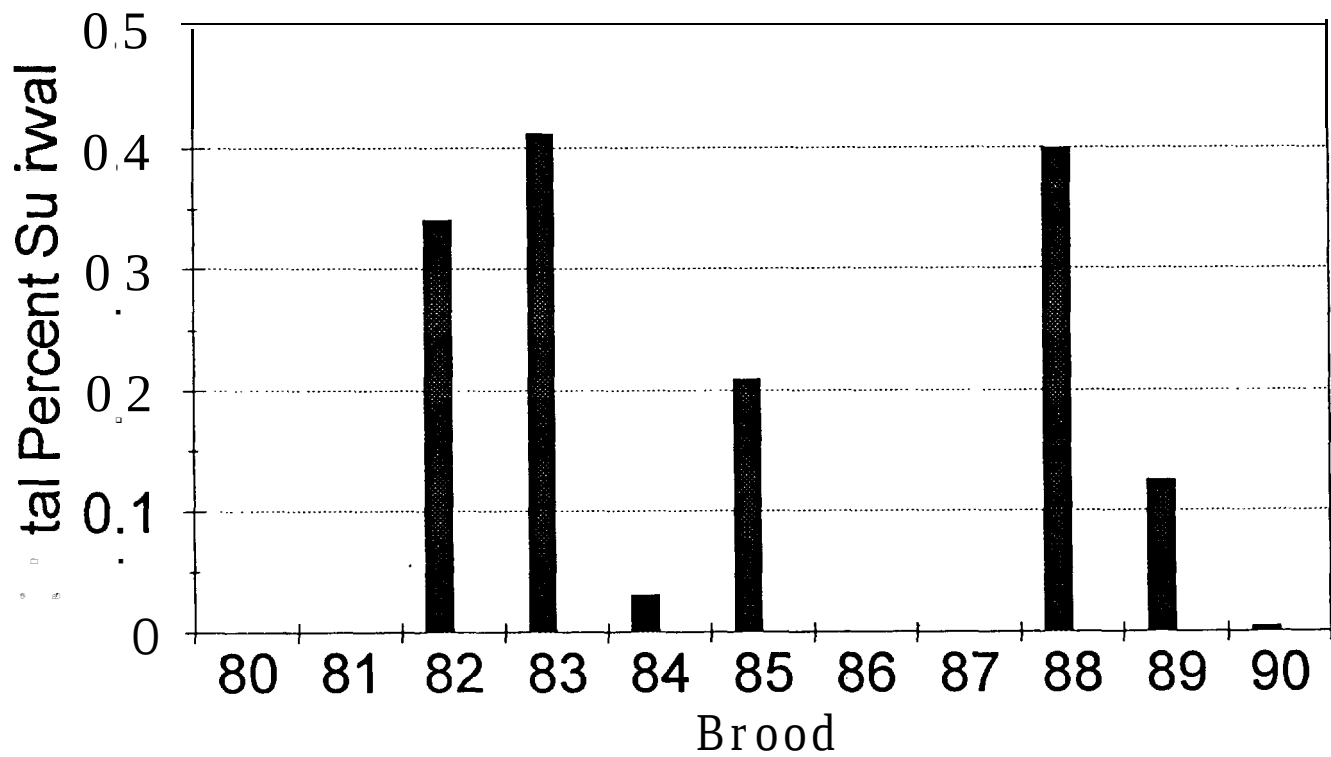
Abernathy SCTC

Tule Fall Chinook fingerlings



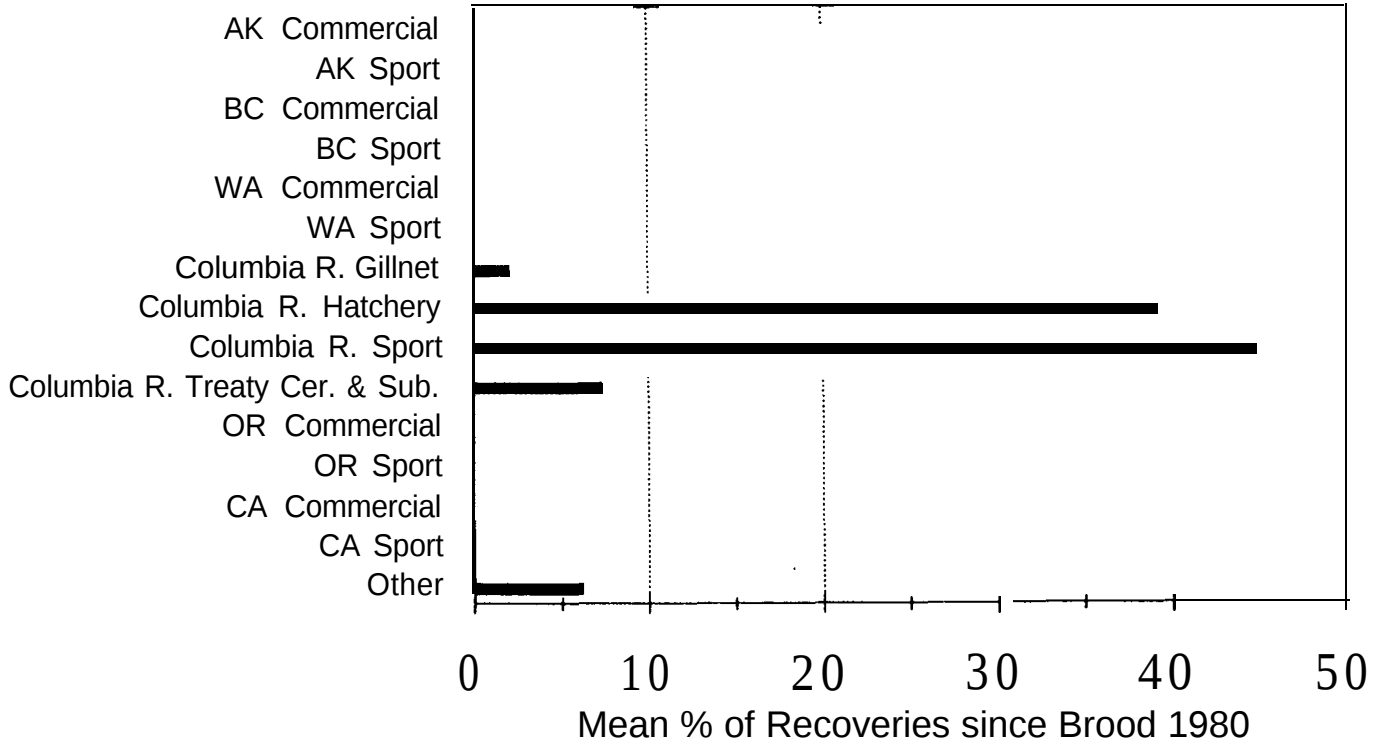
Carson NFH

Spring Chinook yearlings



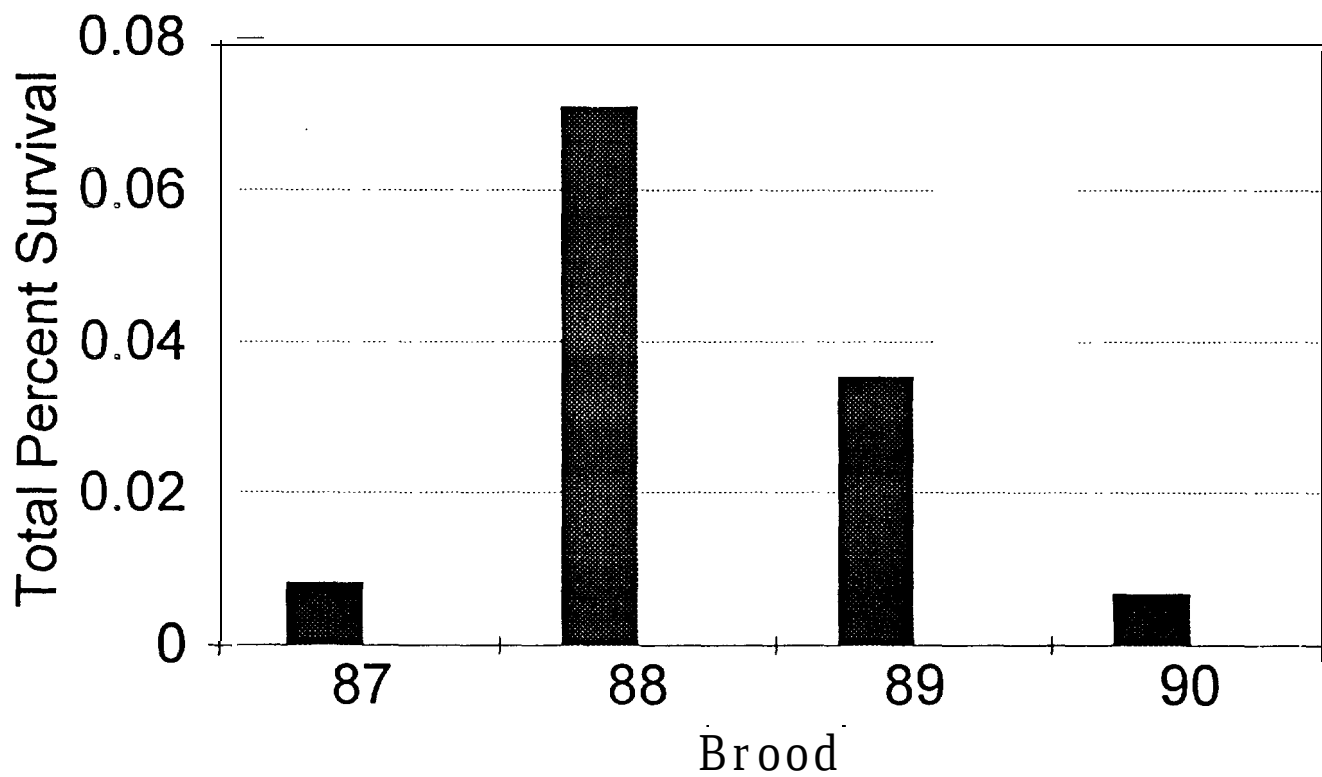
Carson NFH

Spring Chinook yearlings



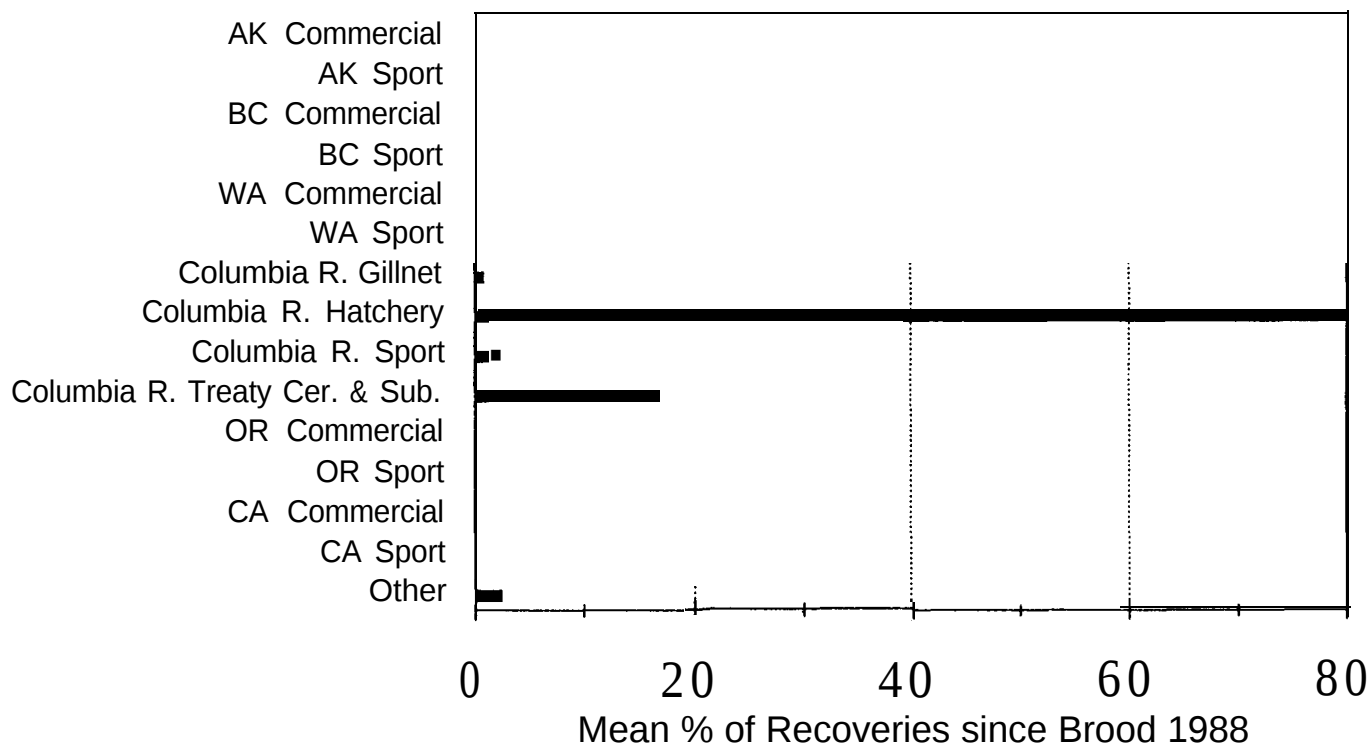
Dworshak NFH

Spring Chinook yearlings



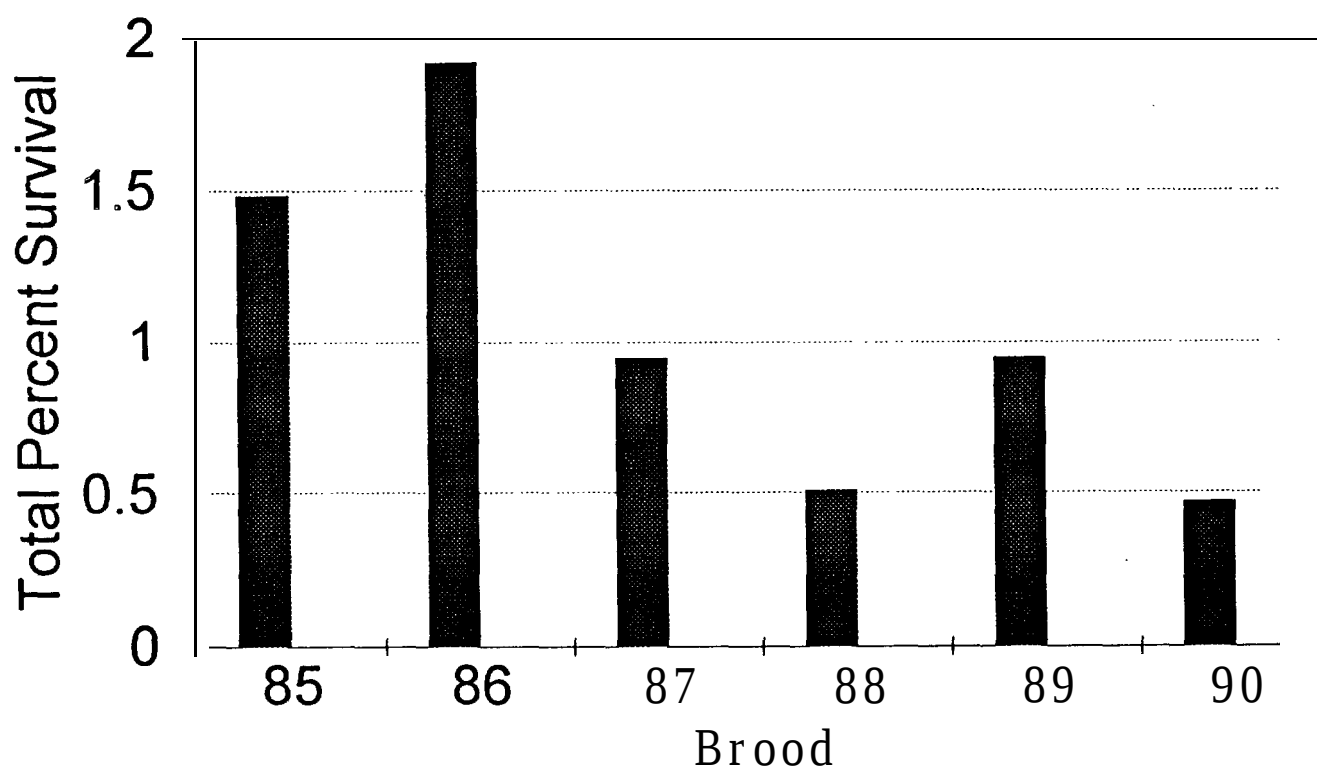
Dworshak NFH

Spring Chinook yearlings



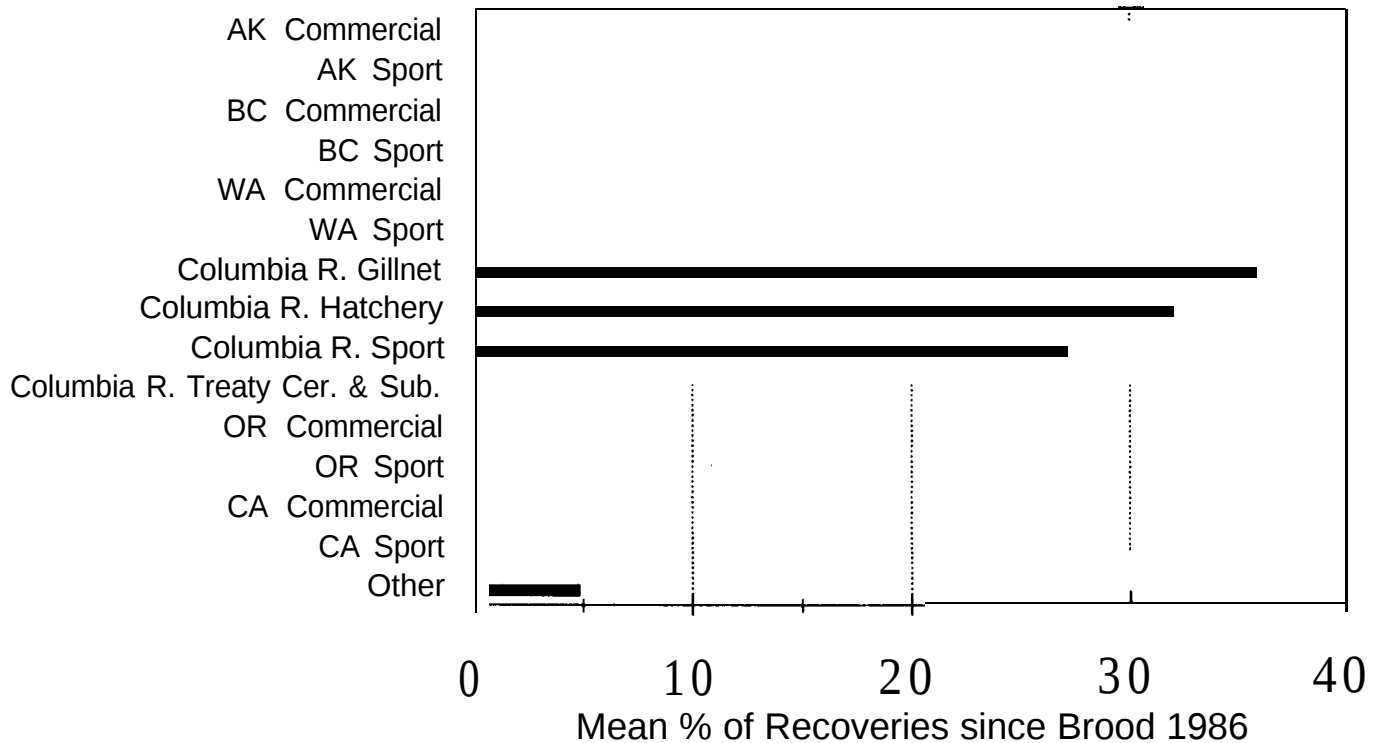
Dworshak NFH

Summer Steelhead yearlings



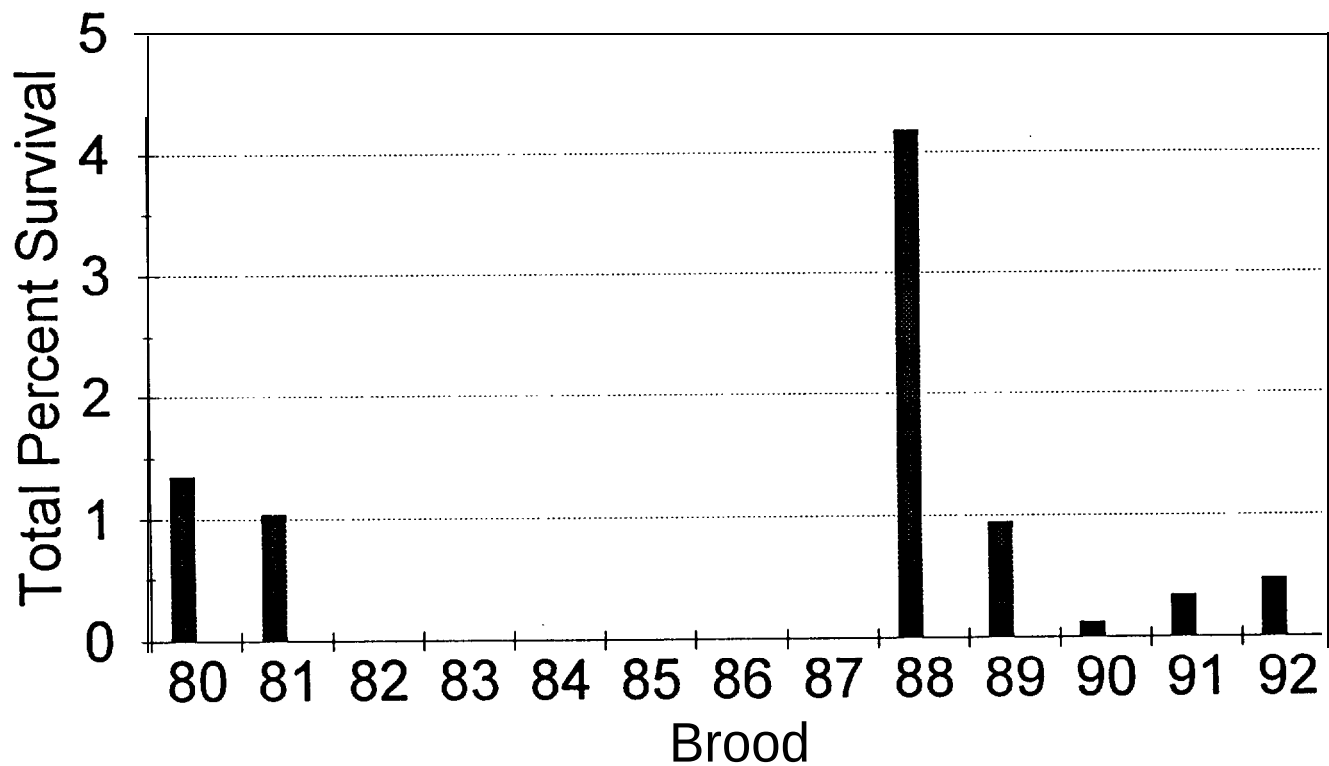
Dworshak NFH

Summer Steelhead yearlings



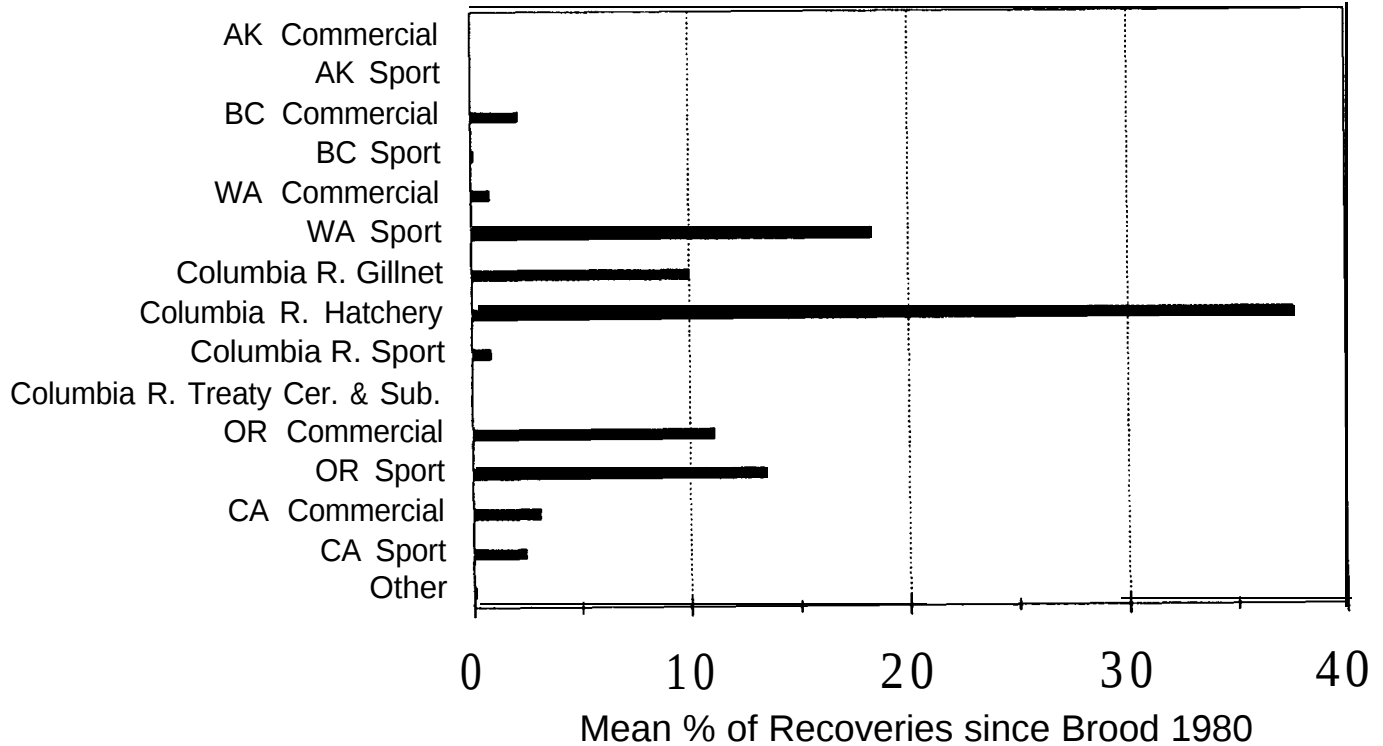
Eagle Creek NFH

Coho yearlings



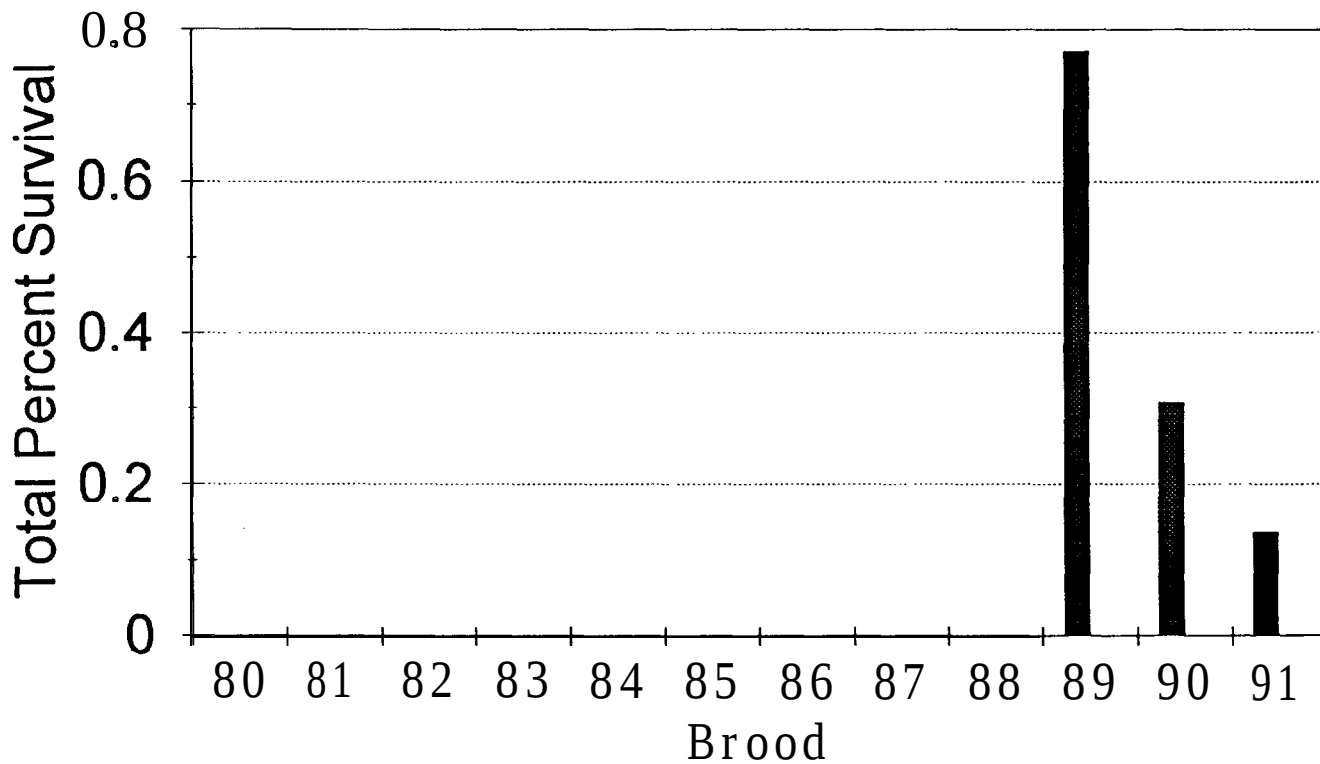
Eagle Creek NFH

Coho yearlings



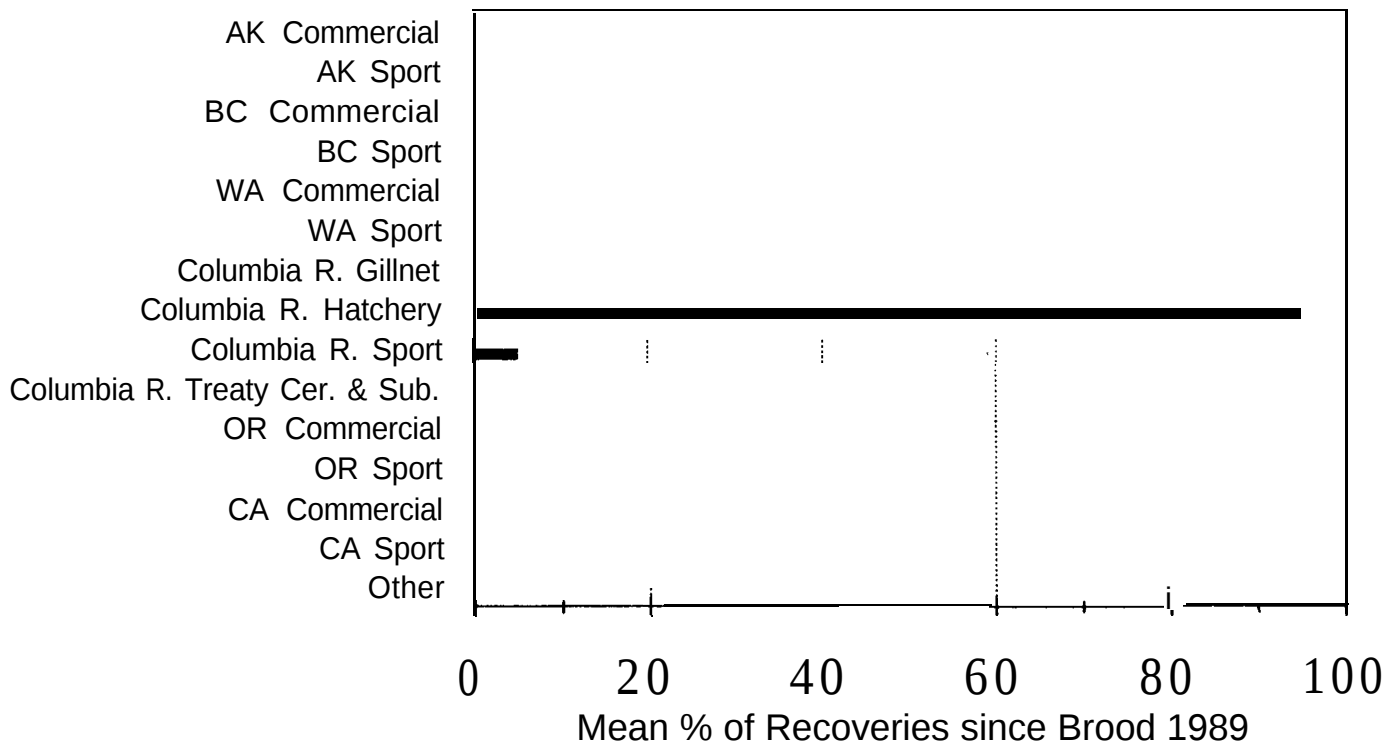
Eagle Creek NFH

Winter Steelhead yearlings



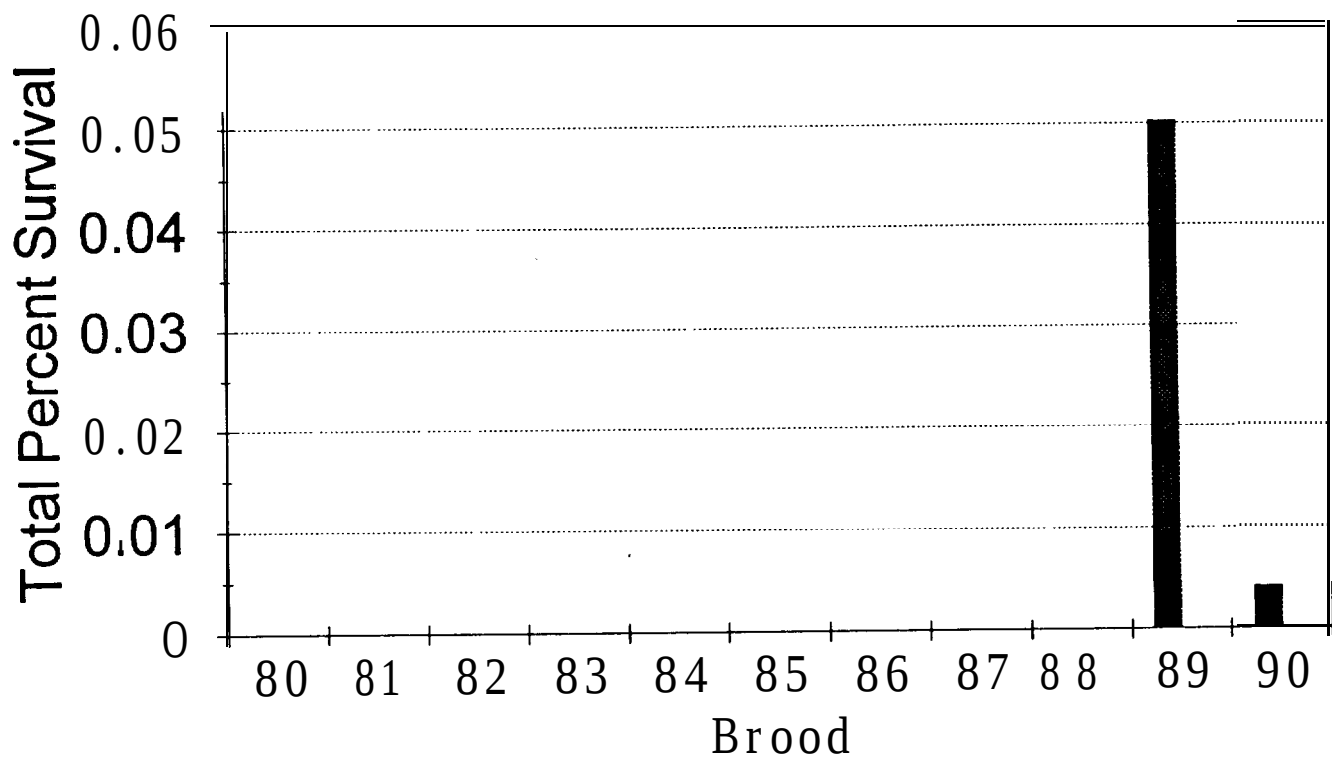
Eagle Creek NFH

Winter Steelhead yearlings



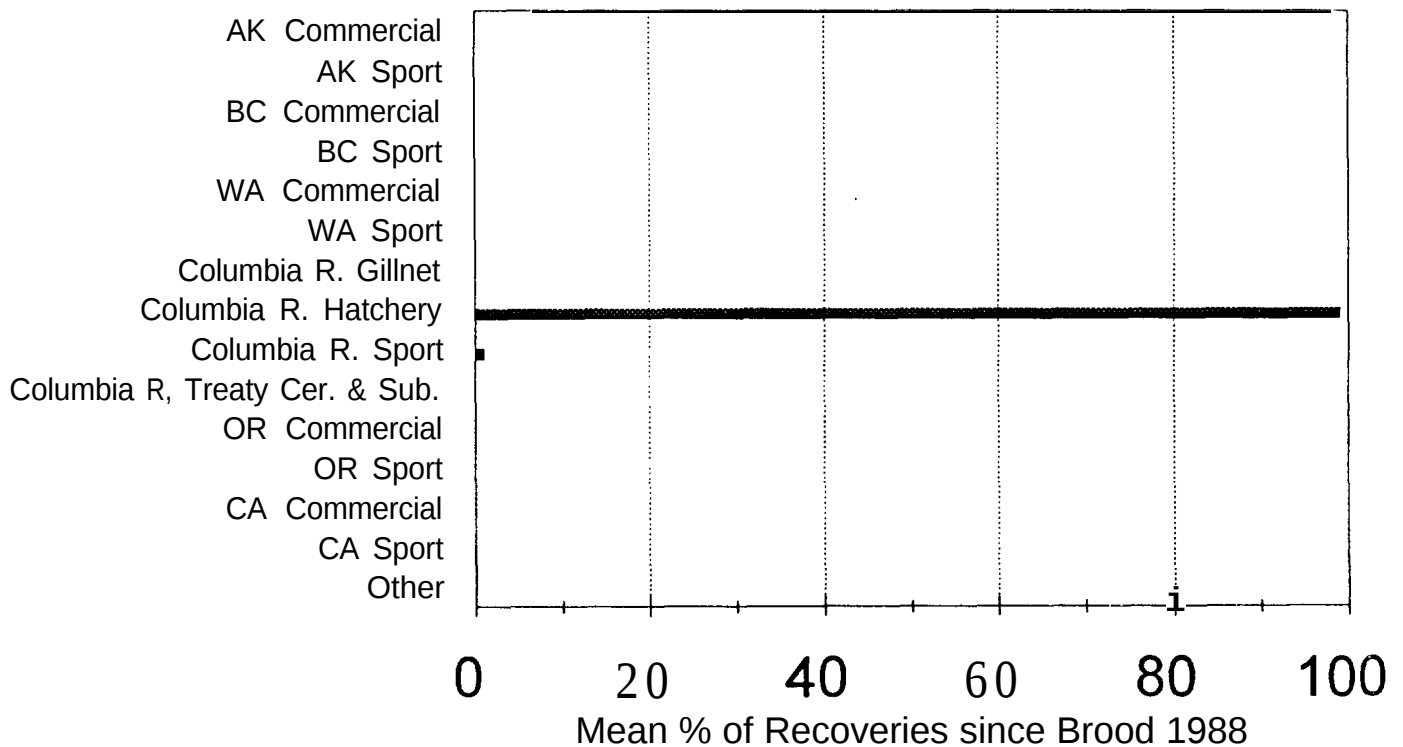
Entiat NFH

Spring Chinook yearlings



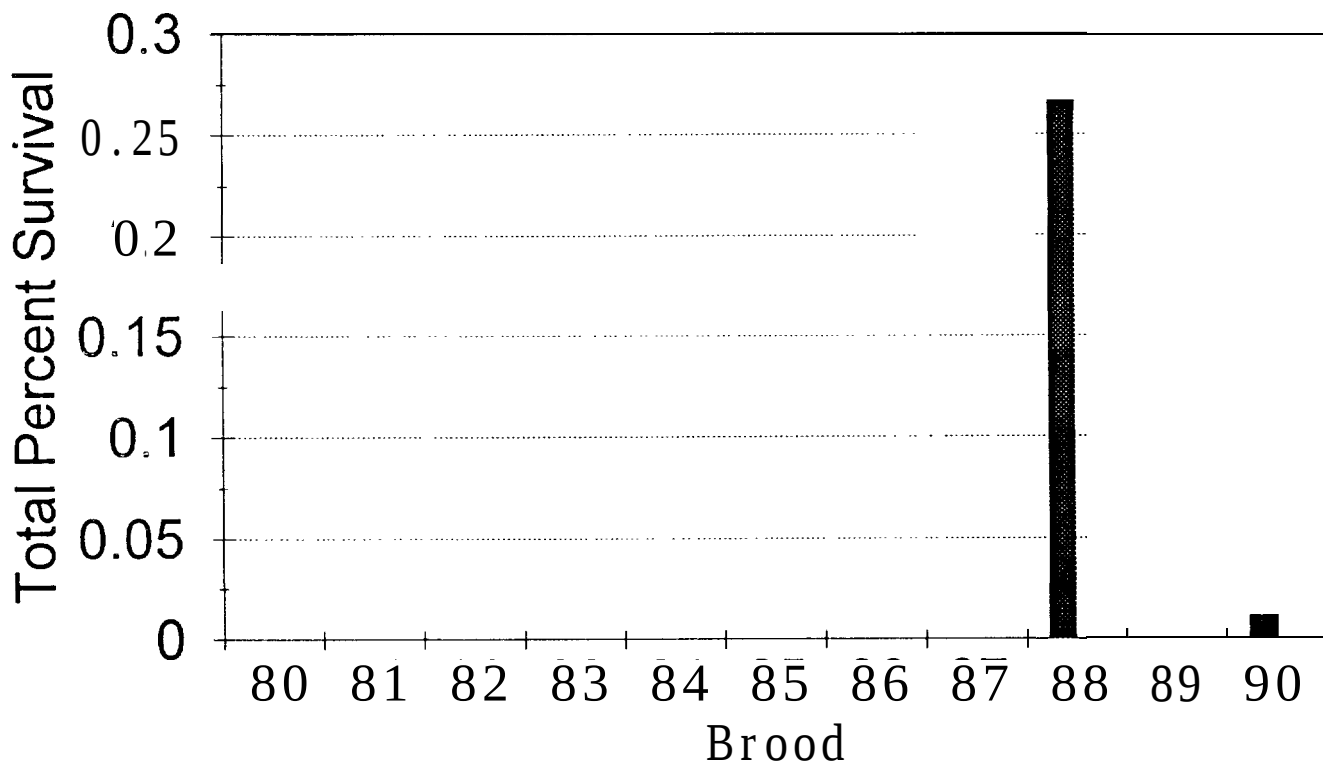
Entiat NFH

Spring Chinook yearlings



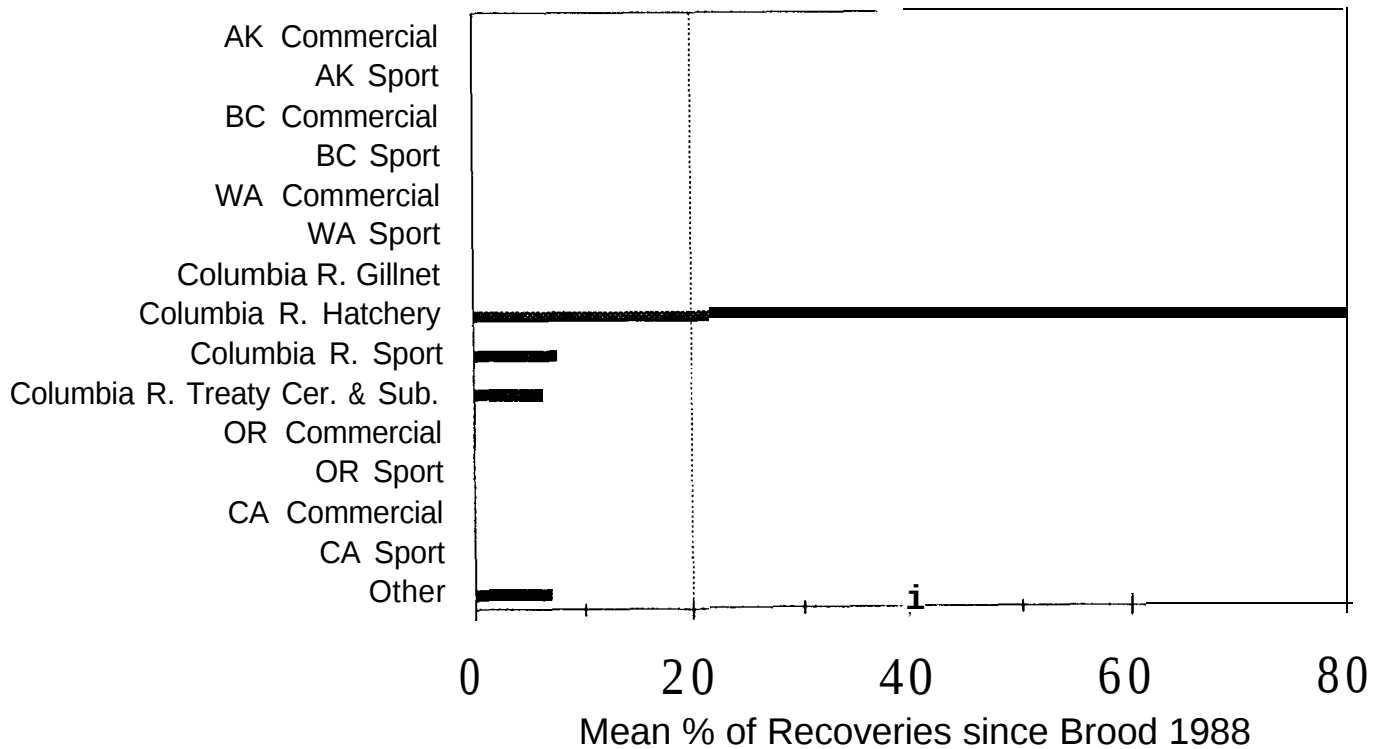
Kooskia NFH

Spring Chinook yearlings



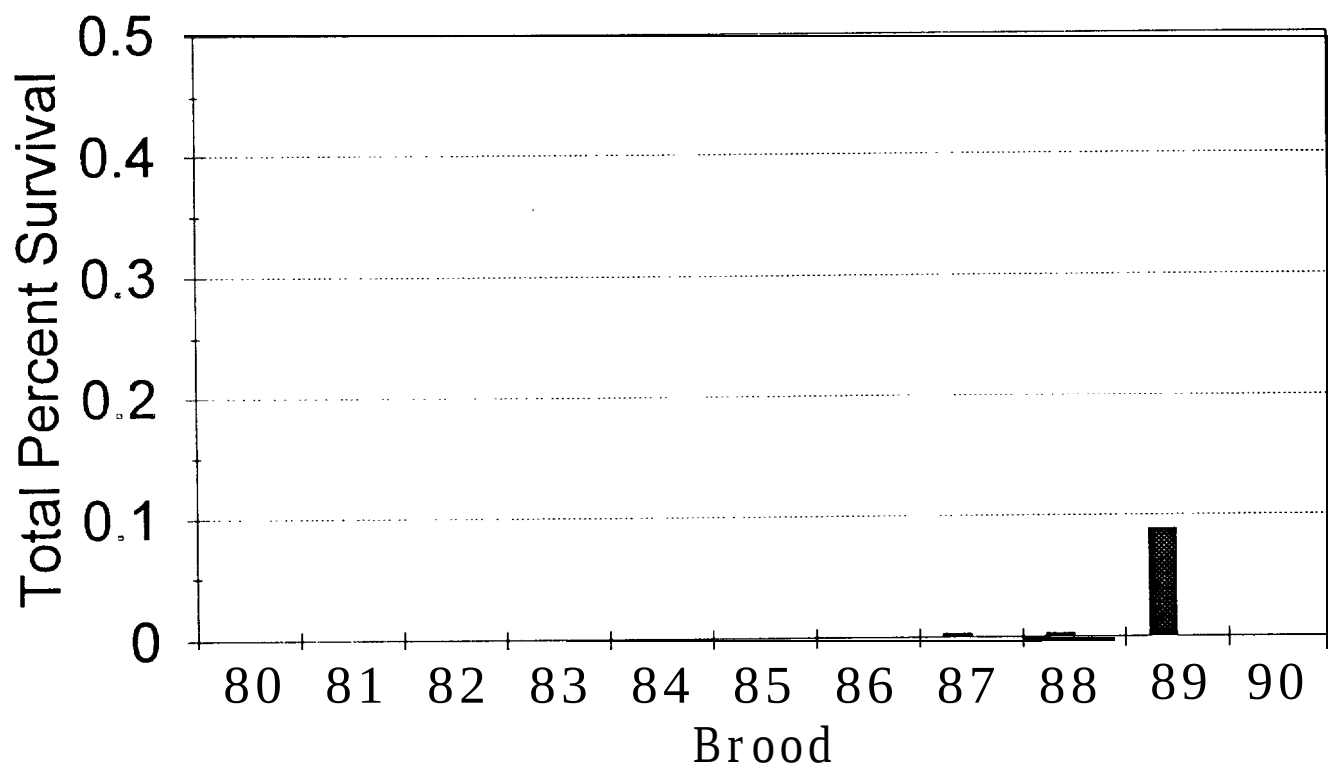
Kooskia NFH

Spring Chinook yearlings



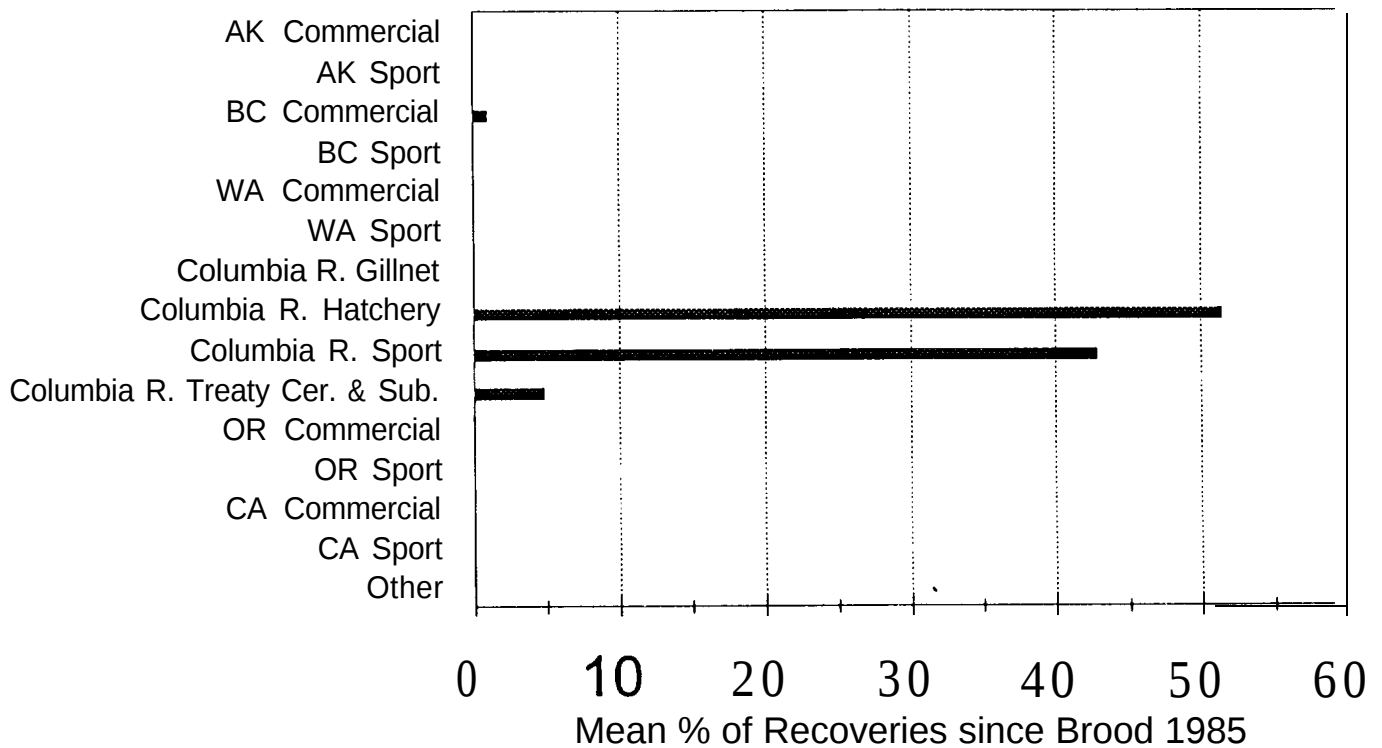
Leavenworth NFH

Spring Chinook age 0



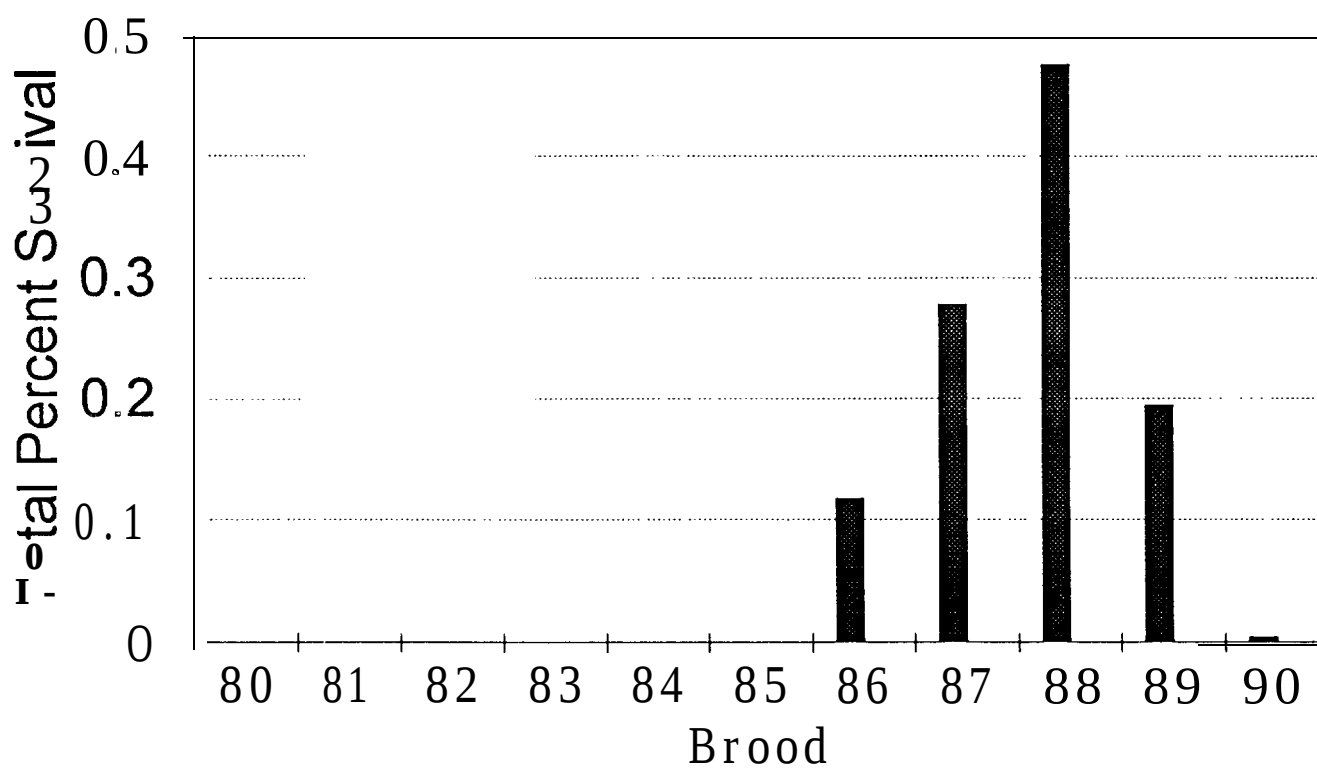
Leavenworth NFH

Spring Chinook age 0



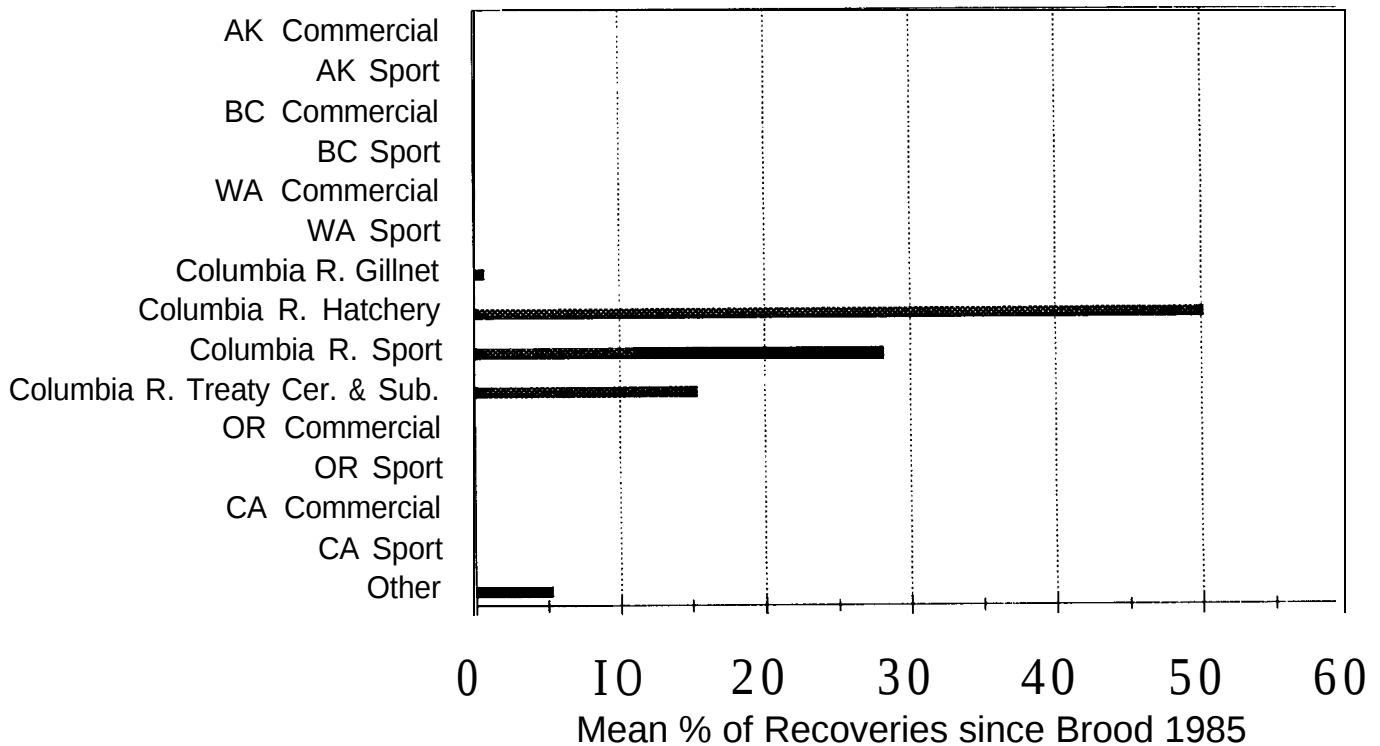
Leavenworth NFH

Spring Chinook yearlings



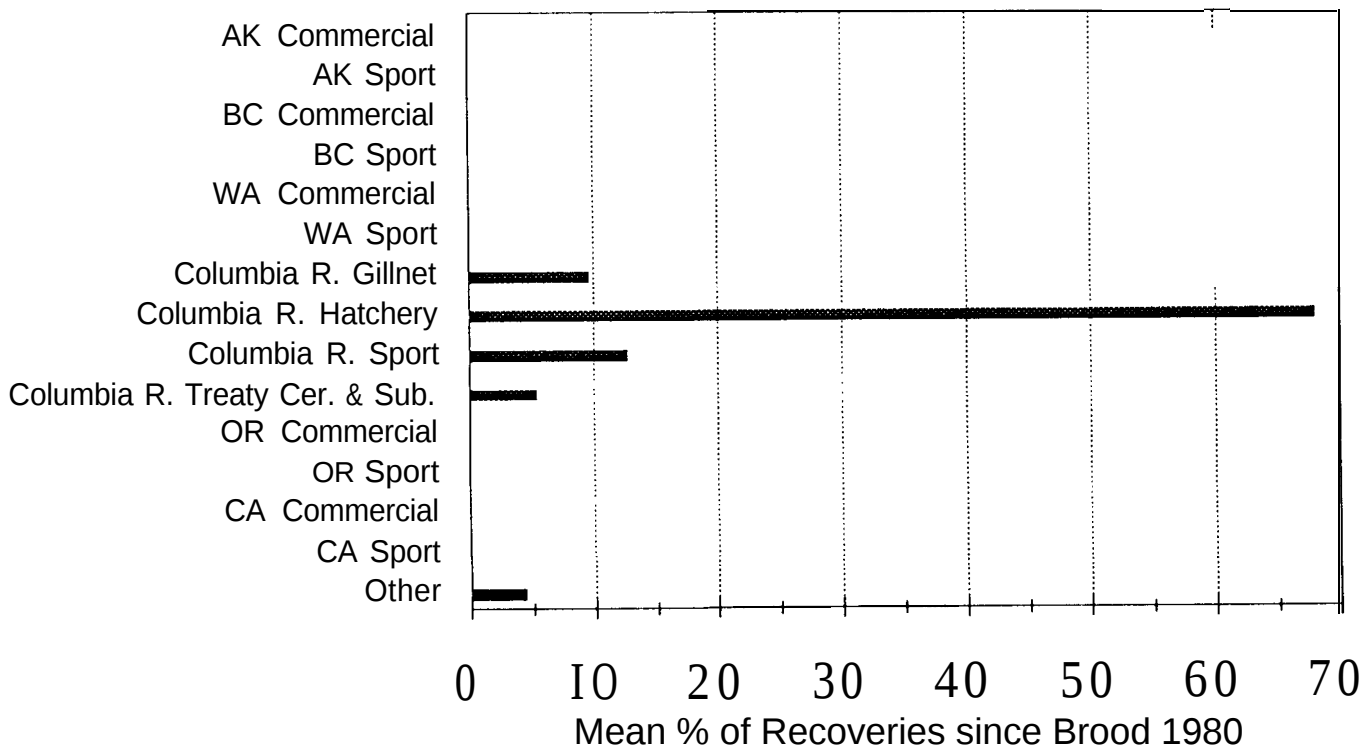
Leavenworth NFH

Spring Chinook yearlings



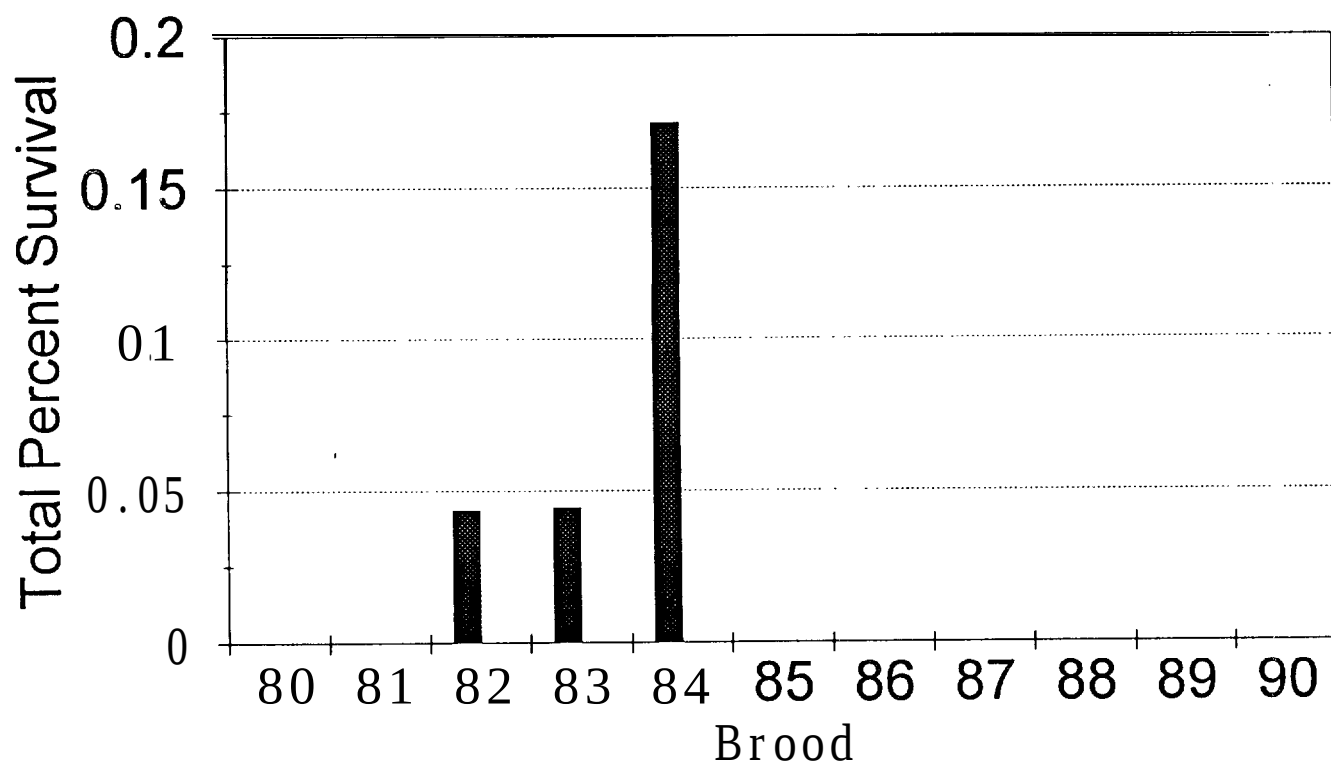
Little White Salmon NFH

Spring Chinook age 0



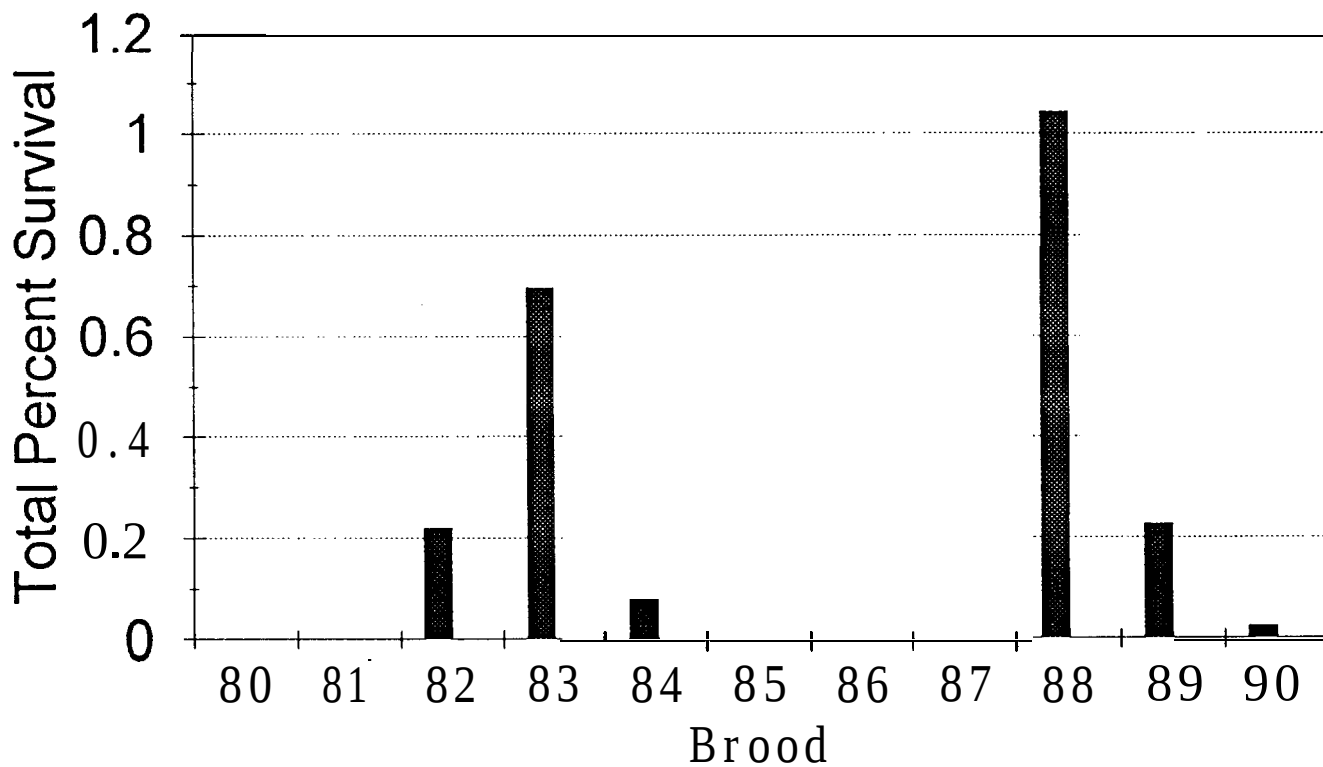
Little White Salmon .NFH

Spring Chinook age 0



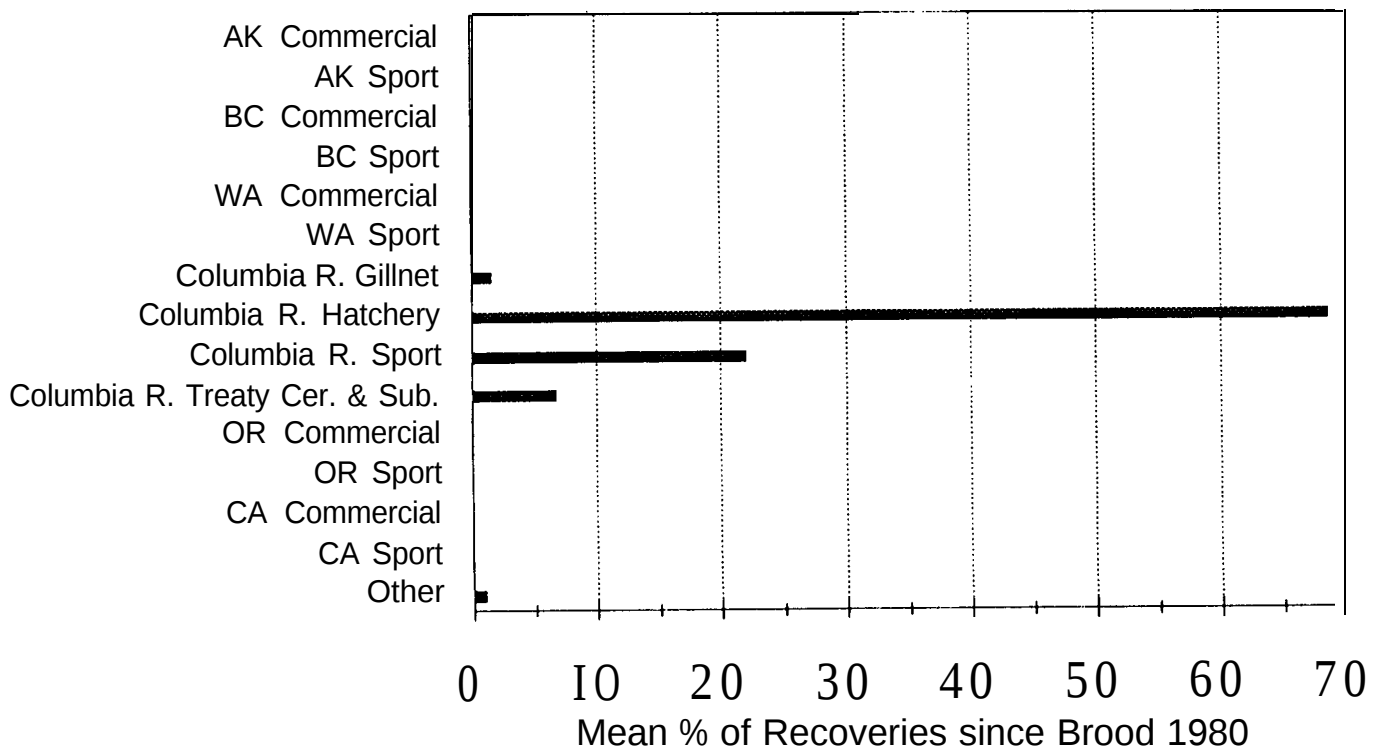
Little White Salmon NFH

Spring Chinook yearlings



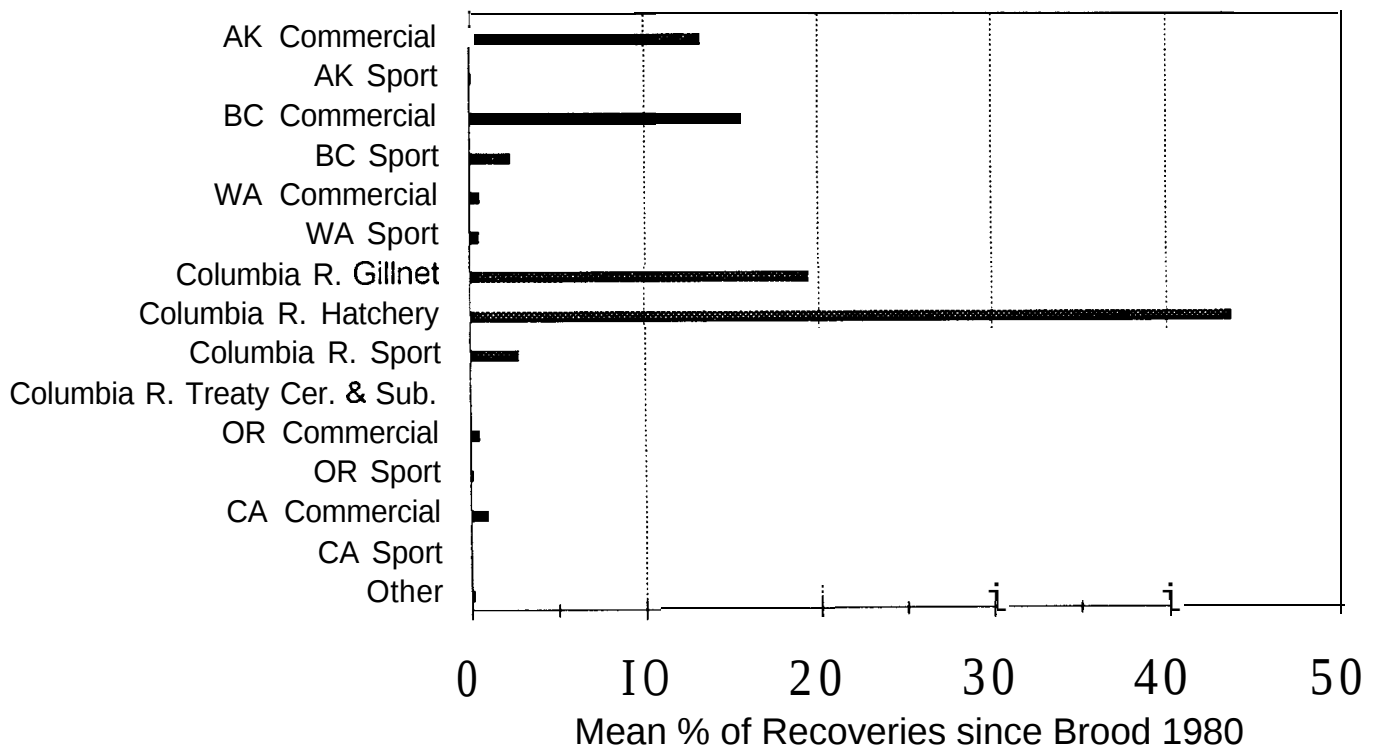
Little White Salmon NFH

Spring Chinook yearlings



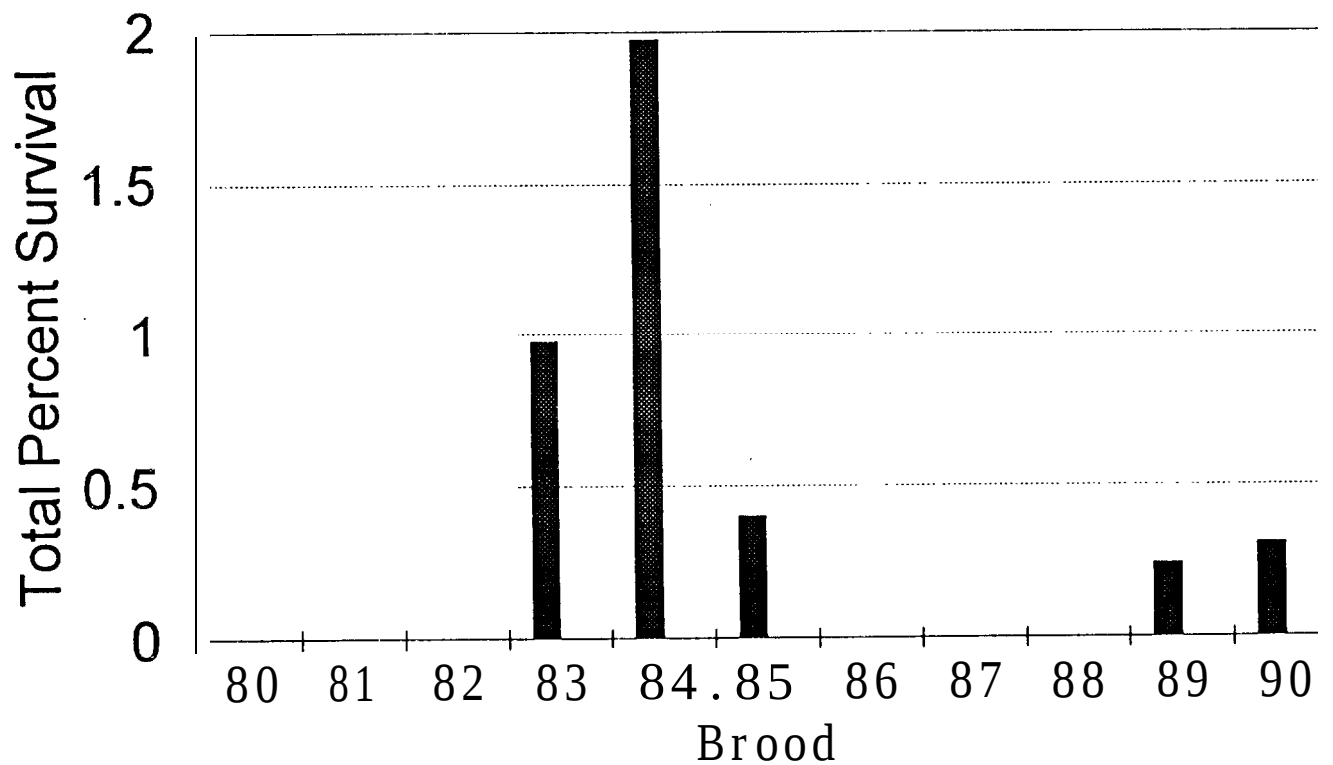
Little White Salmon NFH

Upriver Bright Fall Chinook fingerling



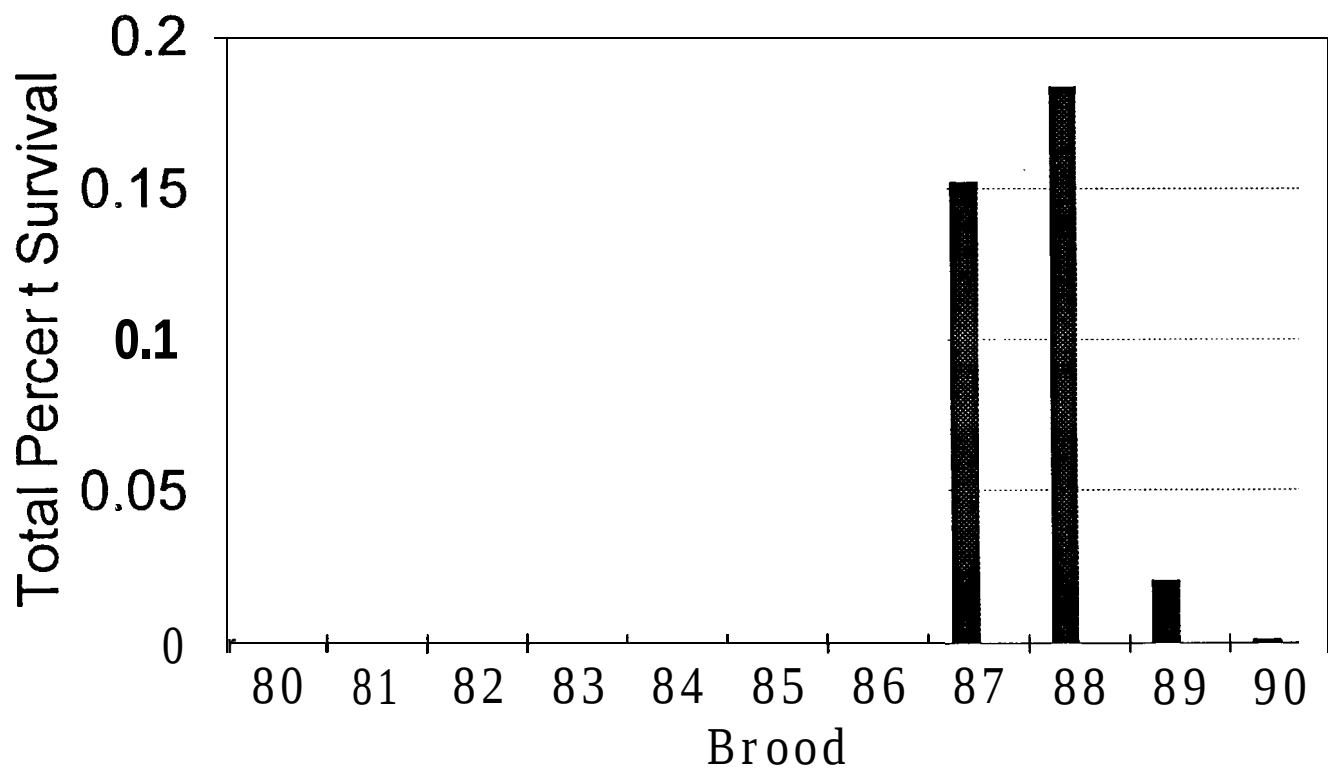
Little White Salmon NFH

Upriver Bright Fall Chinook fingerling



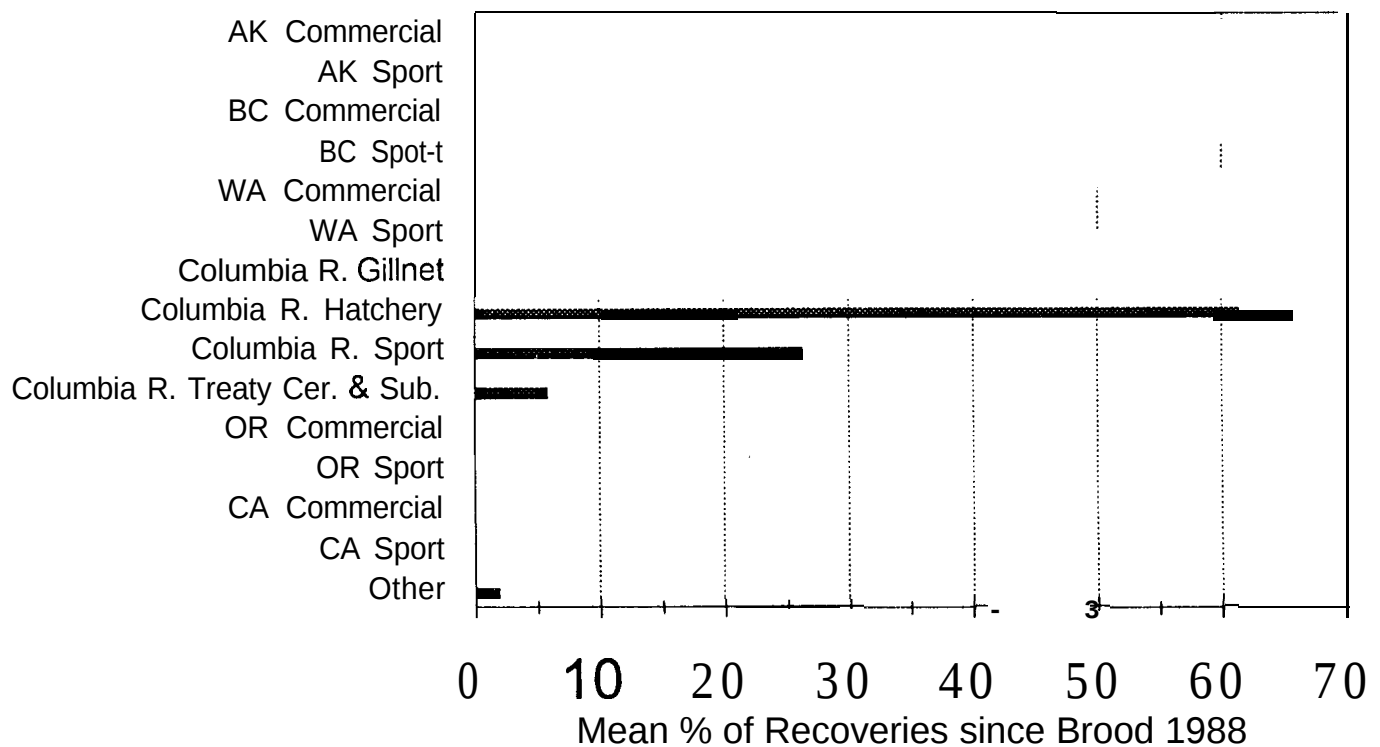
Warm Springs NFH

Spring Chinook



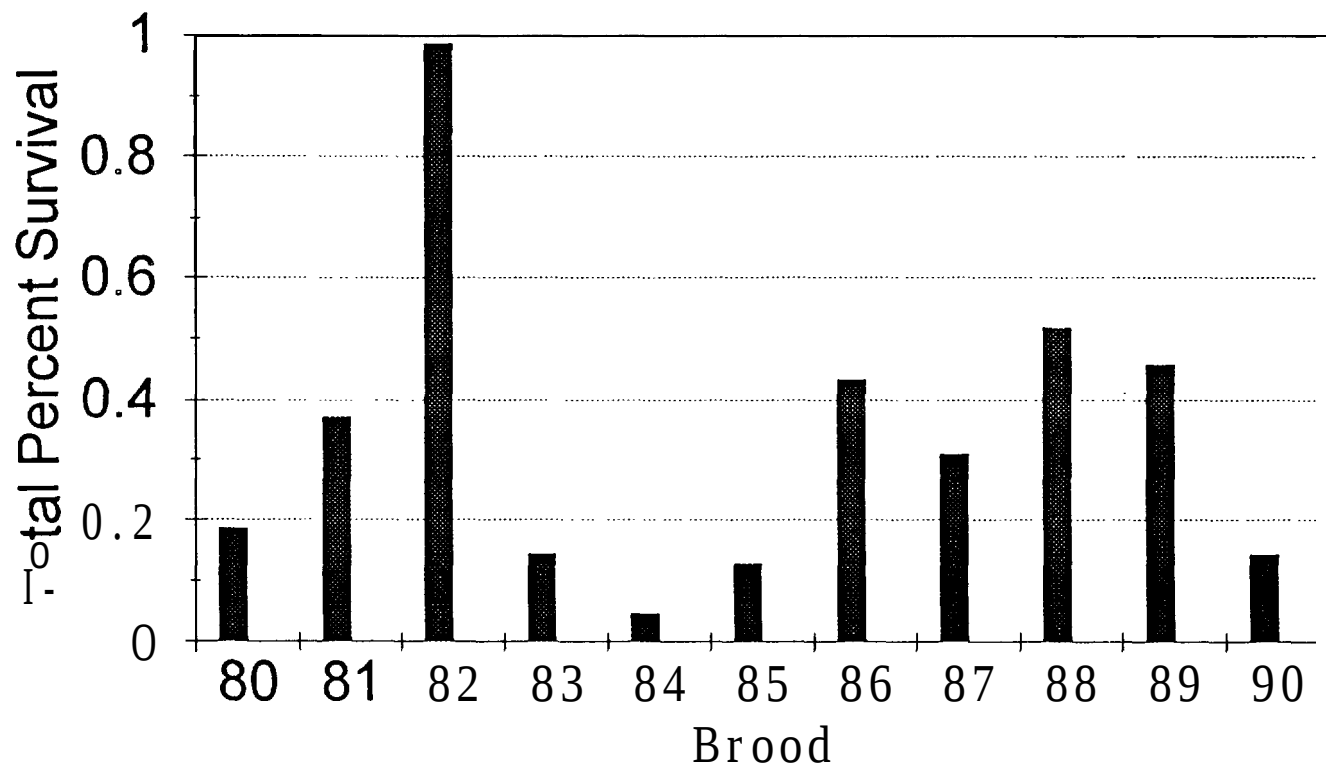
Warm Springs NFH

Spring Chinook yearlings



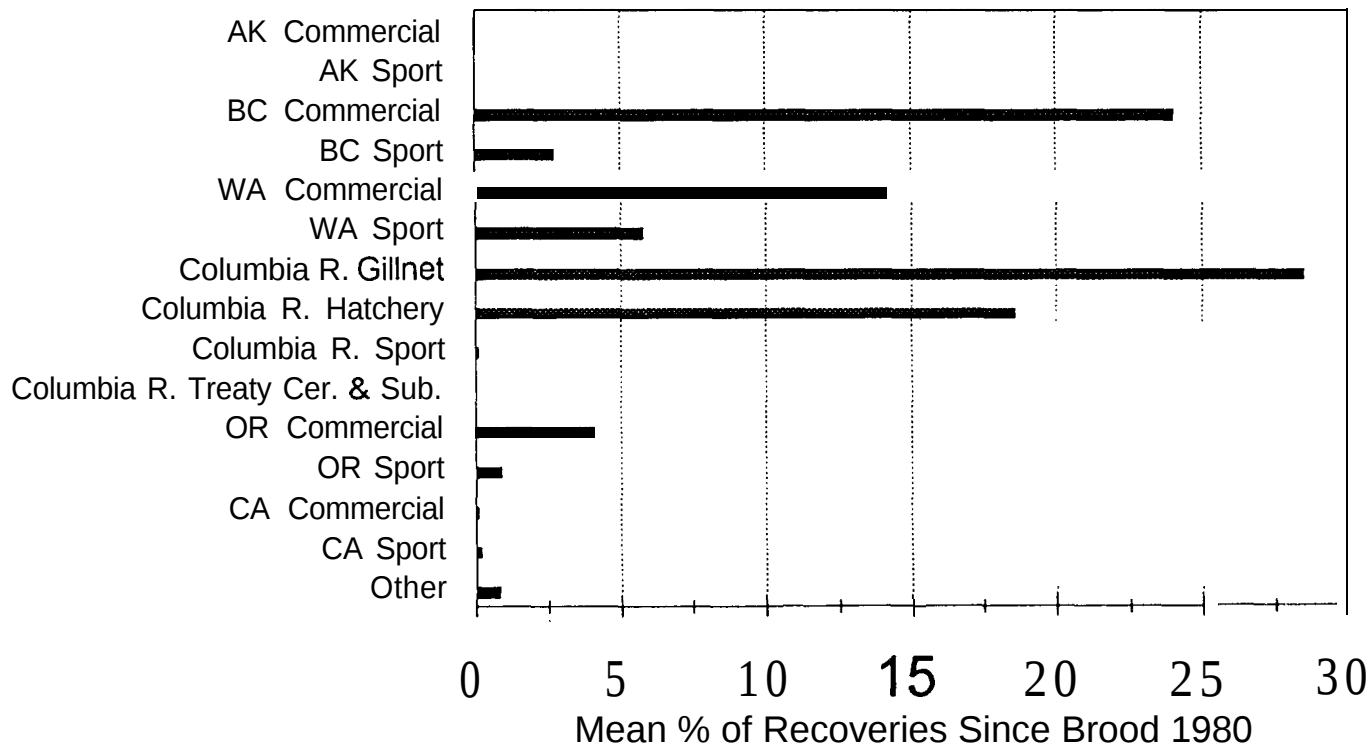
Spring Creek NFH

Fall Chinook fingerlings



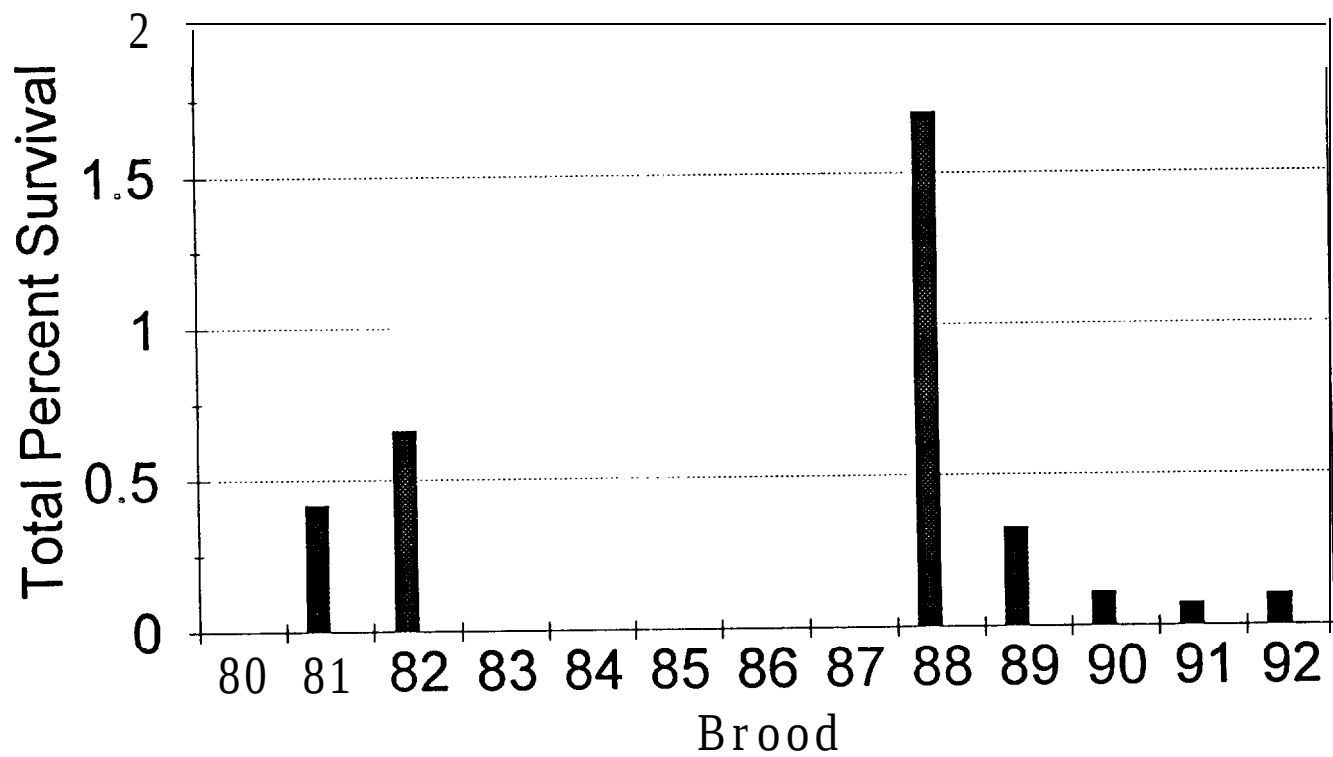
Spring Creek NFH

Tule Fall Chinook fingerlings



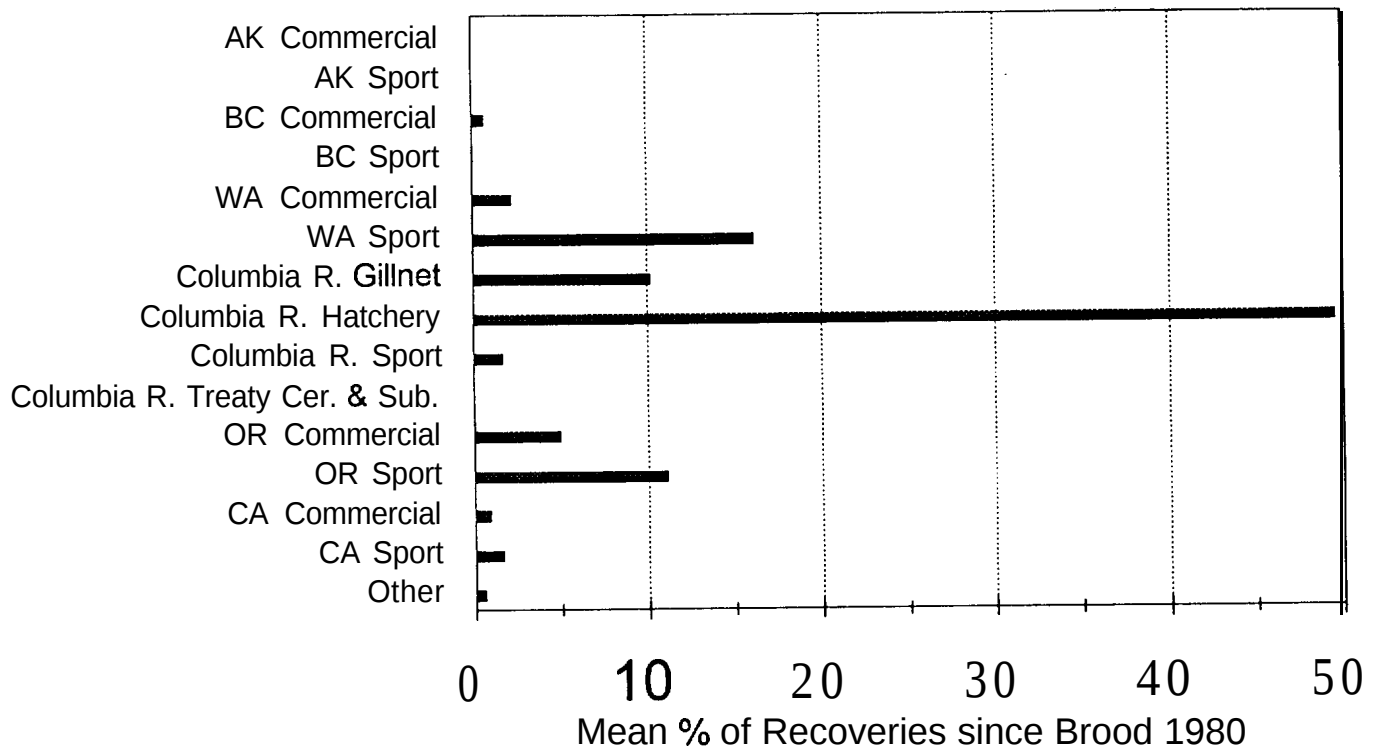
Willard NFH

Coho yearlings



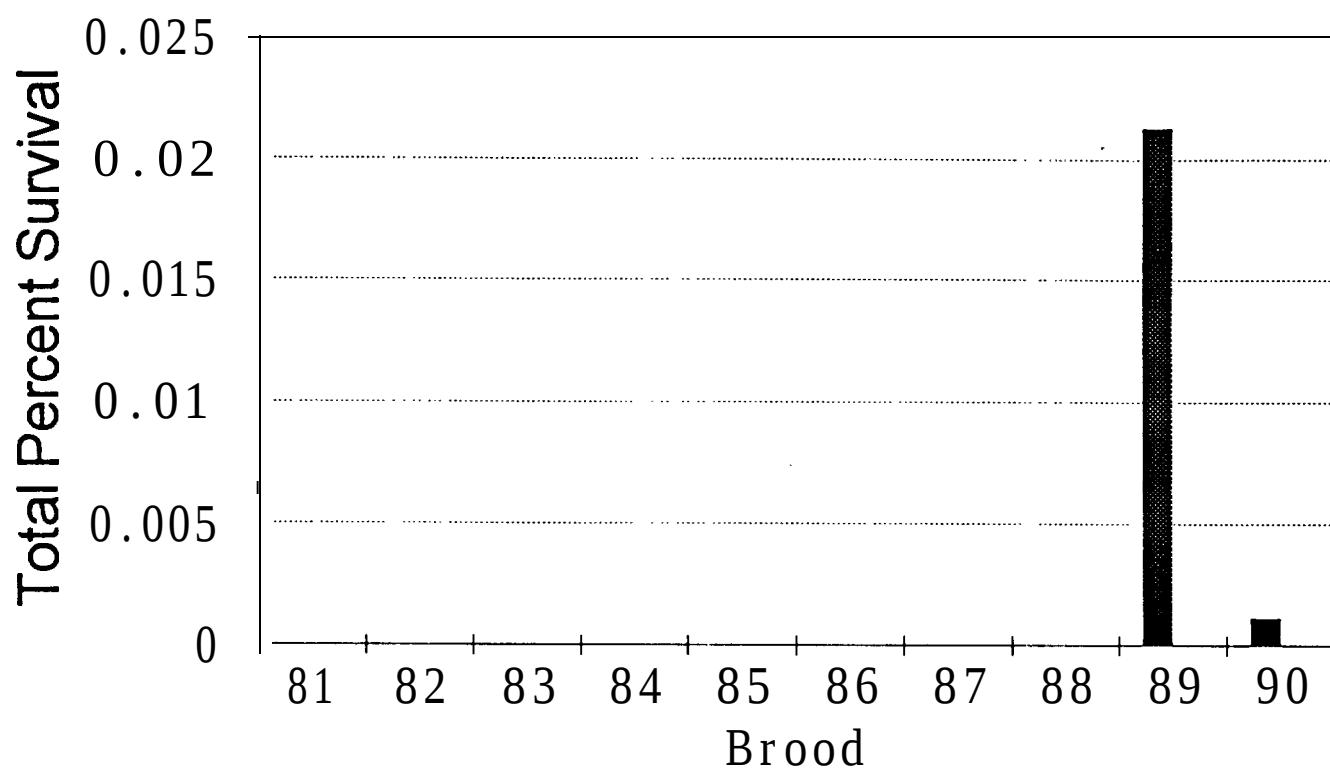
Willard NFH

Coho yearlings



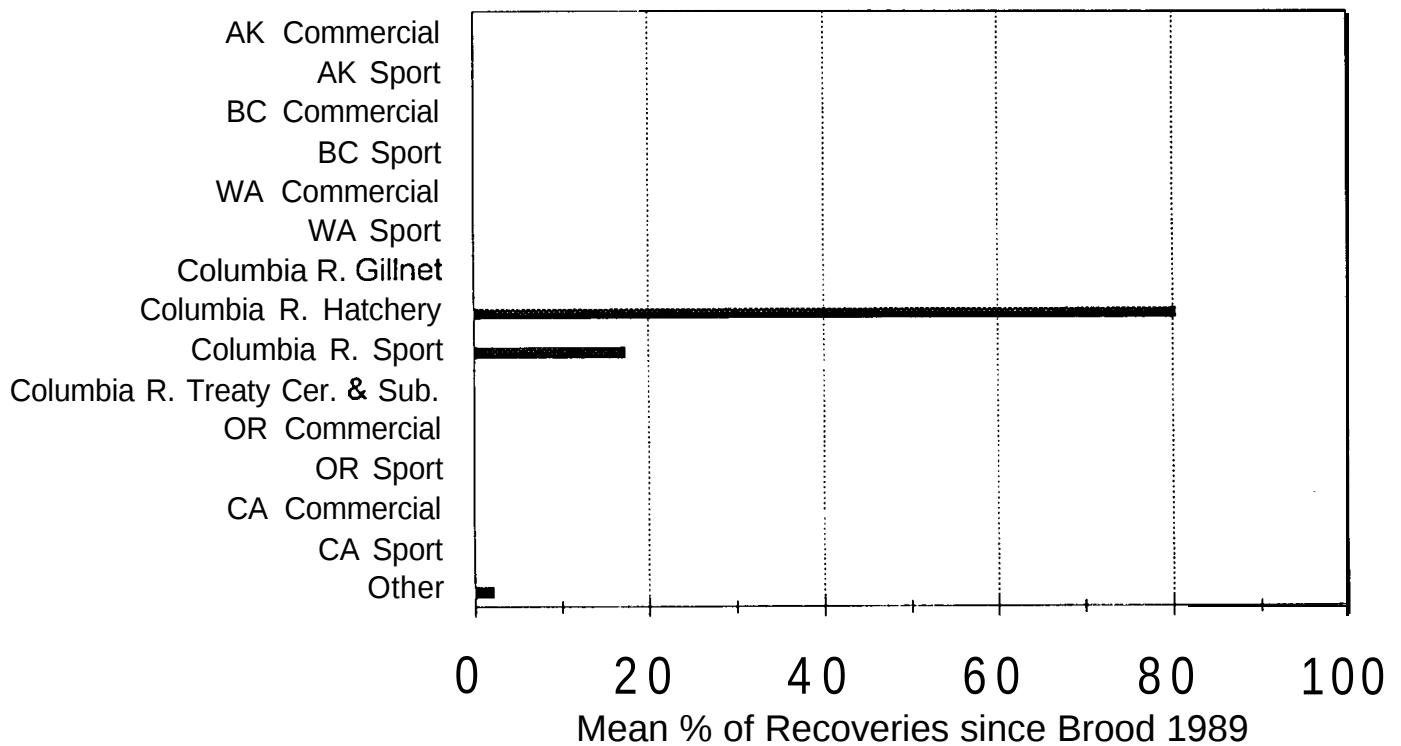
Winthrop NFH

Spring Chinook



Winthrop NFH

Spring Chinook yearlings



Stock Assessment Reference Document from CRIS and PSMFC TSL 01/24/96
 Broodyear 80 Tule Fall Chinook raised at Abernathy SCTC
 and released Abernathy Creek

Date	Number	#/lb	Tagged	CWT	AT
04/16/81	216,554	40.6	19,091	050744	
04/16/81	255,162	68.9	63,536	050745	Abernathy SCTC
05/27/81	258,577	20.7	0	-	Abernathy SCTC
05/27/81	<u>471,139</u>	39.1	<u>0</u>	-	
Totals	1,201,432		82,627	PEF= 14.54	

total OBSD 371
 =====

Where Recovered		expanded		3s	4s	5s	6s	Total
Columbia River Gillnet	ODFW	742			10			51
Commercial Seine	ADFG	15	1					1
Estuary Sport	WDFW	843	19	39				58
Hatchery	FWS	1,861	47	79	2			128
Hatchery	ODFW	15		1				1
Hatchery	WDFW	334	5	17	1			23
Mixed Net and Seine	CDFO	204	14					14
Mixed Net and Seine	WDFW	451	28	3				31
Ocean Sport	CDFO	712	4	11	34			49
Ocean Sport	ODFW	73		5				5
Ocean Troll (Non-treaty)	ADFG	58			4			4
Ocean Troll (Non-treaty)	CDFO	4,115	25	250	8			283
Ocean Troll (Non-treaty)	ODFW	174	5	7				12
Ocean Troll - Day Boat		378		26				26
Ocean Troll - Trip Boat	WDFW	843		58				58
	ODFW	15		1				1
Spawning Ground		1,876	27	99	3			129
Sport (Charter)	WDFW	800						55
Sport (Private)	WDFW	262	8	10				18
Treaty Troll		<u>422</u>	9	20				<u>29</u>
Totals		14,193	- 246	6 9	62			976

		% of total	% of release
Ocean contribution	8,507	60	0.7081
Escapement to Columbia River	5,686	40	0.4733
Total Survival	14,193		1.1813

	1,861	13	0.1549
Columbia River contribution	3,825	27	0.3184

Ocean Contribution by Area

73

5,031 EC

247 OR

0 CA

8,507 Total

Columbia River
 3,476

Escapement to NFH
 1,861

Stock Assessment Reference Document from CRIS and PSMFC TSl 01/24/96
 Broodyear 81 Tule Fall Chinook raised at Abernathy SCTC
 and released Abernathy Creek

Date	Number	#/lb	Tagged	CWT	AT
04/20/82	129,918	43.6	0	-	Abernathy SCTC
04/22/82	64,614	39.8	0	-	Abernathy SCTC
04/30/82	186,998	43.6	29,796	051059	Abernathy SCTC
06/01/82	1,074,999	55.2	90,643	051058	Abernathy SCTC
Totals	1,456,529		120,439	PEF= 12.09	

total OBSD 110

Where Recovered	expanded	2s	38	4s	5s	6s	Total
Columbia River Gillnet	ODFW	375	3	24	4		31
Columbia River Sport	ODFW	121		10			10
Estuary Sport	WDFW	97	8				8
Hatchery	FWS	496	4	23	14		41
Hatchery	ODFW	12		1			1
Hatchery	WDFW	73		5	1		6
Ocean Sport	CDFO	73	2	4			6
Ocean Troll (Non-treaty)	CDFO	1,040		70	16		86
Ocean Troll (Non-treaty)	ODFW	12		1			1
Ocean Troll (Non-treaty)	WDFW	109		9			9
Spawning Ground	WDFW	532	16	21	7		44
Sport (Charter)	WDFW	60	2	3			5
Treaty Troll	WDFW	36	3				3
Totals		3,036	38	171	4	2	251

		% of total	% of release
Ocean contribution	1,330	44	0.0913
Escapement to Columbia River	1,706	56	0.1171
Total Survival	3,036		0.2084
Escapement to NFH	496	16	0.0341
Columbia River contribution	1,210	40	0.0831

Ocean Contribution by Area

O A K		
1,113 BC		
205 WA	Columbia River	Escapement to NFH
12 OR	1,125	496
0 CA		
1,330 Total		

Stock Assessment Reference Document from CRiS and PSMFC TSl 01/17/96
 Broodyear 89 Tule Fall Chinook raised at Abernathy SCTC
 and released Abernathy Creek

Date	Number	#/lb	Tagged	CWT	AT
02/20/90	307,887	113.1	7,104	052221	Abernathy SCTC
03/29/90	433,765	106.9	11,278	052222	Abernathy SCTC
04/16/90	153,742	30.6	3,756	052221	Abernathy SCTC
05/10/90	299,273	42.8	7,224	052221	Abernathy SCTC
05/18/90	147,992	17.4	3,758	052221	Abernathy SCTC
05/18/90	<u>452,137</u>	44.2	<u>10,963</u>	052222	Abernathy SCTC
Totals	1,794,796		44,083	PEF= 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	<u>81</u>	1	1				<u>2</u>
Totals		3,296	- 6 7	4	1			81

% 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 by Area

0 AK		
977 BC		
1,628 WA	Columbia River	Escapement to NFH
0 OR	244	366
0 CA		
2,605 Total		

Stock Assessment Reference Document from CRIS and PSMFC TS1 01/17/96
 Broodyear 90 Tule Fall Chinook raised at Abernathy SCTC
 and released Abernathy Creek

Date	Number	#/lb	Tagged	CWT	AT
03/04/91	59,079	307.7	0	-	Abernathy SCTC
04/16/91	247,877	34.3	7,521	052542	Abernathy SCTC
04/16/91	247,747	34.3	7,415	052543	Abernathy SCTC
05/13/91	492,864	32.3	15,076	052543	Abernathy SCTC
05/13/91	491,389	32.3	15,287	052542	Abernathy SCTC
Totals	1,538,956		45,299	PEF= 33.97	

Where Recovered	expanded	2s	3s	4s	5s	6s	Total
Estuary Sport	WDFW	136	4				4
Hatchery	FWS	68		2			2
Hatchery	WDFW	34		1			1
Spawning Ground	WDFW	645		19			19
Sport (Charter)	WDFW	68		2			2
Treaty Troll	WDFW	34		1			1
Totals		985	- 4 2	5			29

	% of total	% of release
Ocean contribution	102	10
Escapement to Columbia River	883	90
Total Survival	985	0.0640

Escapement to NFH	68	7	0.0044
Columbia River contribution	815	83	0.0530

Ocean	Contribution by Area
0 AK	
0 BC	
102 WA	Columbia River
0 OR	781
0 CA	Escapement to NFH
102 Total	68

Stock Assessment Reference Document from CRiS and PSMFC TSL
 Broodyear 82 Spring Chinook raised at Carson NFH
 and released Wind River

03/11

Date	Number	#/lb	Tagged	CWT	AT
04/12/84	2,017,670	15.6	0	-	Carson NFH
04/13/84	163,301	17.8	0	-	Carson NFH
04/13/84	19,752	17.6	18,172	050858	Carson NFH
04/13/84	19,797	18.0	19,401	050859	Carson NFH
04/13/84	20,125	17.7	19,001	050860	Carson NFH
04/13/84	19,442	18.5	18,859	050861	Carson NFH
04/13/84	19,843	17.9	19,148	050862	Carson NFH
04/13/84	19,668	16.7	19,471	050863	Carson NFH
04/13/84	39,111	17.5	28,462	050916	Carson NFH
04/13/84	38,718	18.1	28,555	050917	Carson NFH
04/13/84	58,842	18.2	29,160	050918	Carson NFH
04/13/84	59,225	18.4	28,637	050919	Carson NFH
04/13/84	57,555	18.0	28,601	050920	Carson NFH
04/13/84	57,451	18.0	28,275	050921	Carson NFH
04/13/84	39,292	19.1	29,132	050922	Carson NFH
04/13/84	39,422	18.9	29,519	050923	Carson NFH
04/13/84	39,506	18.1	29,583	050924	Carson NFH
04/13/84	39,714	17.6	29,584	050925	Carson NFH
04/13/84	58,948	18.0	29,498	050926	Carson NFH
04/13/84	59,178	17.5	29,301	050927	Carson NFH
Totals	2,886,560		462,359	PEF= 6.24	

total OBSD 1,324

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Where Recovered	expanded	2s	3s	4s	5s	6s
Columbia River Gillnet	ODFW 112			4	14	
Columbia River Sport	ODFW 175			19	9	
Freshwater Sport	ODFW 19			3		
Freshwater Sport	WDFW 2,116			293	46	
Hatchery	FWS 6,661		12	738	317	
Ocean Troll (non-treaty)	CDFW 25			4		
Spawning Ground	WDFW 56		1	8		
Test Fishery Net	ODFW 119			18	1	
Treaty Ceremonial	ODFW 537			66	20	
Totals	9,820		13	1,153	407	

		% of total	% of release
Ocean contribution	25	0	0.0009
Escapement to Columbia River	9,795	100	0.3393
Total Survival	9,820		0.3402
Escapement to NFH	6,661	68	0.2308
Columbia River contribution	3,134	32	0.1086

Ocean Contribution by Area

0 AK
 25 BC
 0 WA
 0 OR
 0 CA
 25 Total

Columbia River
 3,134

Escapement to NFH
 6,661

Stock Assessment Reference Document from CRiS and PSMFC TSl
 Broodyear 83 Spring Chinook
 raised at Carson NFH
 and released Wind River

01/24/96

Date	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
04/11/85	18,494	17.2	17,384	051153	Carson NFH
04/15/85	35,043	17.3	25,701	051159	Carson NFH
04/15/85	24,052	16.1	16,302	051222	Carson NFH
04/15/85	43,316	17.2	20,988	051217	Carson NFH
04/15/85	44,861	17.0	21,416	051218	Carson NFH
04/15/85	33,801	17.9	25,254	051162	Carson NFH
04/15/85	25,985	17.9	18,706	051221	Carson NFH
04/15/85	34,068	17.4	15,011	051216	Carson NFH
04/15/85	26,733	16.4	19,737	051160	Carson NFH
04/15/85	15,790	16.9	14,053	051154	Carson NFH
04/15/85	42,390	17.4	20,732	051219	Carson NFH
04/15/85	33,310	17.4	23,967	051161	Carson NFH
04/15/85	12,729	17.1	12,411	051158	Carson NFH
04/15/85	17,705	19.1	16,377	051156	Carson NFH
04/15/85	41,013	16.4	19,437	051220	Carson NFH
04/15/85	15,492	18.5	14,175	051155	Carson NFH
04/15/85	1,037,335	18.9	0	-	Carson NFH
04/15/85	12,294	16.9	11,618	051157	Carson NFH
04/15/85	29,520	16.2	13,013	051163	Carson NFH
Totals	2,390,971		326,282	PEF= 7.33	

total OBSD 1,103

Where Recovered	expanded	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

		% 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 by Area

0 AK

22 BC

0 WA

0 OR

0 CA

22 Total

Columbia River
3,188

Escapement to NFH
6,654

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

01/24/96

Date	Number	#/lb	Tagged	CWT	AT
03/06/86	443,000	25.3	0	-	Carson NFH
04/15/86	18,873	19.5	18,438	051609	Carson NFH
04/15/86	50,371	18.7	23,715	051623	Carson NFH
04/15/86	1,334,124	18.7	0	-	Carson NFH
04/15/86	17,902	19.6	16,398	051613	Carson NFH
04/15/86	17,123	19.1	15,804	051612	Carson NFH
04/15/86	35,770	20.0	25,233	051615	Carson NFH
04/15/86	18,837	19.2	17,009	051608	Carson NFH
04/15/86	18,364	20.2	16,270	051611	Carson NFH
04/15/86	47,181	19.2	22,602	051617	Carson NFH
04/15/86	32,988	19.7	24,804	051621	Carson NFH
04/15/86	48,360	19.5	22,900	051616	Carson NFH
04/15/86	35,431	20.0	26,403	051614	Carson NFH
04/15/86	36,278	19.2	25,866	051625	Carson NFH
04/15/86	33,190	19.6	23,190	051620	Carson NFH
04/15/86	35,662	19.4	26,417	051624	Carson NFH
04/15/86	49,457	19.6	21,631	051619	Carson NFH
04/15/86	51,772	20.0	24,627	051622	Carson NFH
04/15/86	18,585	19.6	18,259	051610	Carson NFH
04/15/86	49,200	19.5	20,288	051618	Carson NFH
Totals	2,392,468		389,854	PEF= 6.14	

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

Where Recovered	expanded	2s	3s	4s	5s	6s	Total
Columbia River Gillnet	ODFW	25			4		4
Freshwater Sport	WDFW	184		14	16		30
Hatchery	FWS	466	2	50	24		76
Spawning Ground	WDFW	49		8			8
Test Fishery Net	ODFW	6		1			1
Totals		730	2	73	44		119

		% 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 by Area

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

Stock Assessment Reference Document from CRiS and PSMFC TSl 01/24/96
 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	% of
		total	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	
16 AK		
16 BC		
11 WA	Columbia River	Escapement to NFH
0 OR	1,914	2,941
0 CA		
43 Total		

Stock Assessment Reference Document from CRiS and PSMFC TSl 01/24/96
 Broodyear 88 Spring Chinook raised at Carson NFH
 and released Wind River

Date	Number	#/lb	Tagged	CWT	AT
04/12/90	1,052,641	18.8	22,877	052219	Carson NFH
04/13/90	1,052,640	18.8	22,381	052220	Carson NFH
Totals	2,105,281		45,258	PEF= 46.52	

Where Recovered		expanded	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

		% 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 by Area

0 A K

0 BC

0 WA

0 OR

0 CA

0 Total

Columbia River
6,791

Escapement to NFH
1,628

Stock Assessment Reference Document from CRIS and PSMFC TSI
 Broodyear 89 Spring Chinook raised at Carson NFH
 and released Wind River

01/24/96

Date	Number	#/lb	Tagged	CWT	AT
04/15/91	46,164	19.4	8,598	630850	Carson NFH
04/15/91	1,131,350	18.2	281,143	635662	Carson NFH
04/15/91	349,148	17.7	85,756	635661	Carson NFH
04/15/91	372,146	19.4	92,972	635901	Carson NFH
04/15/91	392,119	17.3	97,328	635902	Carson NFH
04/15/91	45,861	19.4	14,266	630442	Carson NFH
Totals	2,336,788		580,063	PEF= 4.03	

total OBSD 235

Where Recovered	expanded	2s	3s	PSC expanded numbers	4s	5s	6s	Total
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	8			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

		% 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 by Area

0 A K		
0 BC		
12 WA	Columbia River	Escapement to NFH
0 OR	2,811.	129
0 CA		
12 Total		

Stock Assessment Reference Document from CRiS and PSMFC TSL
 Broodyear 90 Spring Chinook raised at Carson NFH
 and released Wind River

03/02/96

Date	Number	#/lb	Tagged	CWT	AT
04/15/92	4 1 , 1 3 0	17.8	39,937	633939	Carson NFH
04/15/92	4 0 , 5 3 3	17.8	39,276	634034	Carson NFH
04/15/92	4 0 , 1 5 0	17.9	38,183	634035	Carson NFH
04/15/92	3 9 , 8 7 6	19.4	37,563	634036	Carson NFH
04/15/92	3 8 , 8 4 1	17.8	38,531	634037	Carson NFH
04/15/92	3 5 , 9 8 2	17.8	35,838	634038	Carson NFH
04/15/92	3 8 , 5 5 9	19.5	38,173	634039	Carson NFH
04/15/92	3 9 , 2 8 4	19.6	38,852	634040	Carson NFH
04/15/92	1,129,004	18.8	375,416	634041	Carson NFH
04/15/92	4 7 7 , 4 2 3	18.4	156,987	634042	Carson NFH
04/15/92	3 9 4 , 6 0 0	17.6	131,054	634043	Carson NFH
Totals	2,315,382		969,810	PEF= 2.39	

total OBSD 37

Where Recovered	expanded	2s	3s	4s	5s	6s	Total
Columbia River Sport	ODFW 21			9			9
Freshwater Sport	WDFW 122		4	47			51
Hatchery	FWS 24	1		8	1		10
Spawning Ground	WDFW 17			7			7
Test Fishery Net	ODFW 5			2			2
Treaty Ceremonial	ODFW 29	-	-	2	10		12
Totals	218	1	4	75	11		91

	% of total	% of release
Ocean contribution	0	0.0000
Escapement to Columbia River	218	0.0094
Total Survival	218	0.0094

Escapement to NFH	24	11	0.0010
Columbia River contribution	194	89	0.0084

Ocean Contribution by Area

0 A K

0 BC

0 WA

0 OR

0 CA

0 Total

Columbia River
194

Escapement to NFH
24

Stock Assessment Reference Document from CRiS and PSMFC TS1 02/12/96
 raised at Dworshak NFH
 and released Clearwater River

Date	Number	#/lb	Tagged	CWT	AT
03/30/89	415,413	18.3	63,555	054013	Dworshak NFH
03/30/89	418,706	18.3	66,380	054014	NFH
03/30/89	418,804	24.8	66,947	054015	Dworshak NFH

Totals 1,252,923 196,882 PEF= 6.36
 total OBSD 12

Where Recovered		expanded	2s	3s	4s	5s	6s	Total
Fish Trap (freshwater)	ODFW	6			1			1
Freshwater Sport	ODFW	38	3		3			6
Hatchery	FWS	45	2		2	3		7
Hatchery	IDFG	13	2		-	-		2
Totals		102	7		6	3		16

		% of total	% of release
Ocean contribution	0	0	0.0000
Escapement to Columbia River	102	100	0.0081
Total Survival	102		0.0081

Escapement to NFH	45	44	0.0036
Columbia River contribution	57	56	0.0045

Ocean Contribution by Area

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

Columbia River
 44

Escapement to NFH
 45

Stock Assessment Reference Document from CRiS and PSMFC TSl 02/11/96
 Broodyear 88 Spring Chinook raised at Dworshak NFH
 and released Clearwater River

Date	Number	#/lb	Tagged	CWT	AT
04/05/90	142,529	18.5	67,624	052162	Dworehak 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	18.8	25,483	052261	Dworshak NFH
04/04/90	36,381	15.6	25,685	052262	Dworshak NFH
04/04/90	32,441	16.8	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
04/05/90	59,557	25.2	58,323	232931	Dworshak NFH
Totals	1,252,014		471,982	PEF= 2.65	

Where Recovered		expanded	25	35	PSC	expanded	numbers	===
						4s	5s	Total
Freshwater Sport	FWS	3				1		1
Freshwater Sport	ODFW	24				9		9
Freshwater Sport	WDFW	11				4		4
Hatchery	FWS	536		4		77	121	202
Hatchery	IDFG	127	48					48
Hatchery	WDFW	3					1	1
Test Fishery Net	ODFW	8				1	2	3
Treaty Ceremonial	ODFW	167				23	40	63
Treaty Subsistence	FWS	8				3		3
Totals		887	48	4		118	164	334

	% of total	% of release
Ocean contribution	0	0.0000
Escapement to Columbia River	887	0.0708
Total Survival	887	0.0708

Escapement to NFH	536	60	0.0428
Columbia River contribution	351	40	0.0280

Ocean Contribution by Area

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

Columbia River 210
 Escapement to NFH 536

Stock Assessment Reference Document from CRIS and PSMFC TSL 02/11/96
 Broodyear 89 Spring Chinook raised at Dworshak NFH
 and released Clearwater River

Date	Number	#/lb	Tagged	CWT	AT
04/04/91	17,371	18.5	15,683	052431	Dworshak NFH
04/04/91	16,851	18.5	15,710	052432	Dworshak NFH
04/04/91	17,576	21.3	15,587	052433	Dworehak 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	18.5	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

219

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PSC

expanded

numbers

===

Where Recovered	expanded	2s	35	45	55	65	Total
Columbia River Gillnet	ODFW	5		1	2		3
Hatchery	FWS	314	2	3	170	20	195
Hatchery	WDFW	3			2		2
Spawning Ground	WDFW	8			5		5
Test Fishery Net	ODFW	5			2	1	3
Treaty Ceremonial	ODFW	52	-	-	32	-	32
Totals		387	2	3	212	23	240

% of
total

% of
release

Ocean contribution	0	0	0.0000
Escapement to Columbia River	387	100	0.0353
Total Survival	387		0.0353
Escapement to NFH	314	81	0.0287
Columbia River contribution	73	19	0.0067

Ocean

Contribution by Area

0 AK

0 BC

0 WA

0 OR

0 CA

0 Total

Columbia River

70

Escapement to NFH

314

Stock Assessment Reference Document from CRiS and PSMFC TSl 02/10/96
 Broodyear 90 Spring Chinook raised at Dworshak NFH
 and released Clearwater River

Date	Number	f/lb	Tagged	CWT	AT
04/15/92	355,759	15.5	0	-	Dworshak NFH
04/16/92	63,167	15.6	0	-	Dworshak NFH
04/16/92	63,019	16.1	35,309	052637	Dworehak NFH
04/16/92	72,527	17.3	41,668	052638	Dworshak NFH
04/16/92	77,916	16.5	42,384	052639	Dworshak NFH
04/16/92	32,264	15.1	29,144	052640	Dworshak NFH
04/16/92	30,454	14.4	28,118	052641	Dworshak NFH
04/16/92	27,290	14.7	24,924	052642	Dworshak NFH
04/16/92	32,219	16.2	31,252	052643	Dworshak NFH
04/16/92	30,039	15.4	27,936	052644	Dworshak NFH
04/16/92	29,423	14.5	27,658	052645	Dworshak NFH
04/16/92	16,029	14.7	14,960	052647	Dworshak NFH
04/16/92	15,743	15.0	15,534	052648	Dworshak NFH
04/16/92	16,073	15.3	15,752	052649	Dworshak NFH
04/16/92	16,207	14.7	14,478	052650	Dworshak NFH
04/16/92	16,613	14.3	16,502	052651	Dworshak NFH
04/16/92	15,898	14.8	15,580	052652	Dworshak NFH
04/16/92	16,217	15.1	16,108	052653	Dworshak NFH
04/16/92	15,981	14.3	15,661	052654	Dworshak NFH
04/16/92	16,531	14.6	16,311	052655	Dworshak NFH
Totals	959,369		429,279	PEF= 2.23 total OBSD	

Where Recovered	FWS	expanded	2s	35	psc	expanded	numbers	===
Hatchery		60	17	3		45	55	27
Treaty Ceremonial	ODFW	4	-	-		2		2
Totals		64	17	3		9		29

	% of total	% of release
Ocean contribution	0	0.0000
Escapement to Columbia River	64	0.0067
Total Survival	64	0.0067
Escapement to NFH	60	0.0063
Columbia River contribution	4	0.0004

Ocean	Contribution by Area
0 AK	
0 BC	
0 WA	Columbia River
0 OR	4
0 CA	Escapement to NFH
0 Total	60

Stock Assessment Reference Document from CRiS and PSMFC TSl 02/12/96
 Broodyear 85 Summer Steelhead raised at Dworshak NFH
 and released Clearwater River

Date	Number	#/lb	Tagged	CWT	AT
04/25/86	3 5 2 , 8 3 2	7.7	24,275	051753	Dworshak NFH
04/30/86	4 9 2 , 6 1 8	5.5	24,000	051754	Dworshak NFH
04/28/86	1 7 6 , 6 6 6	5.4	23,350	102856	NFH
Totals	1,022,116		71,625	PEF= 14.27	

total OBSD 533

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PSC expanded numbers ===

		expanded	2s	35	45	5s	65	Total
Columbia River Gillnet	ODFW	5,423	24	314	42			380
Estuary Sport	ODFW	14		1				1
Freshwater Sport	IDFG	4,153		173	113	5		291
Hatchery	FWS	2,669		2	185			187
Hatchery	IDFG	2,826		2	186	10		198
Ocean Sport	ODFW	71		5				5
Total8		15,156	24	497	526	15		1,062

% of
total

% of
release

Ocean contribution	71	0	0.0069
Escapement to Columbia River	15,085	100	1.4759
Total Survival	15,156		1.4828

Escapement to NFH	2,669	18	0.2611
Columbia River contribution	12,416	82	1.2147

Ocean Contribution by Area

0 AK

0 BC

0 WA

71 OR

0 CA

71 Total

Columbia River

9,590

Escapement to NFH

2,669

Stock Assessment Reference Document from CRIS and PSMFC TSL 02/11/96
 Broodyear 86 Summer Steelhead raised at Dworshak NFH
 and released Clearwater River

Date	Number	#/lb	Tagged	CWT	AT
04/20/87	59,768	7.5	19,675	051836	
04/20/87	271,194	60.5	18,825	1029.31	
04/22/87	376,864	78.3	20,625	102932	
04/23/87	498,755	81.1	19,050	102933	
Totals	1,206,581		78,175	PEF= 15.43	

total OBSD 627

Where Recovered	expanded	2s	3s	4s	5s	6s	Total
Columbia River Gillnet	ODFW	6,513	348	74			422
Columbia River Sport	ODFW	278	8	10			18
Fish Trap (freshwater)	ODFW	15		1			1
Foreign Research Vessels	NMFS	31	1	1			2
Freshwater Sport	IDFG	10,356	392	279			671
Freshwater Sport	ODFW	15	1				1
Hatchery	FWS	540	12		23		35
Hatchery	IDFG	5,433	12	340			352
Totals		23,181	1	774	704	23	1,502

		% of total	% of release
Ocean contribution	31	0	0.0026
Escapement to Columbia River	23,150	100	1.9186
Total Survival	23,181		1.9212

Escapement to NFH	540	2	0.0448
Columbia River contribution	22,610	98	1.8739

Ocean Contribution by Area

O A K

0 BC

0 WA

0 OR

0 CA

0 Total

Columbia River
17,177

Escapement to NFH
540

Stock Assessment Reference Document from CRiS and PSMFC TSl 02/11/96
 Broodyear 87 Summer Steelhead raised at Dworshak NFH
 and released Clearwater River

Date	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
05/30/88	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	Dworshak 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	102929	Dworshak NFH
Totals	1,289,494		218,724	PEF= 5.90	

total OBSD 1,039

===== PSC expanded numbers ===

Where Recovered	expanded	2s	4s	55	65	Total
Columbia River Gillnet	ODFW 3,543	6	477	117	1	601
Columbia River Sport	ODFW 265		44	1		45
Fish Trap (freshwater)	ODFW 6			1		1
Foreign Research Vessels	NMFS 59	9	1			10
Freshwater Sport	IDFG 3,561	49	555			604
Freshwater Sport	ODFW 159		27			27
Freshwater Sport	WDFW 6		1			1
Hatchery	FWS 4,233	8	2	678	30	718
Hatchery	IDFG 295		50			50
Ocean Troll (non-treaty)	CDFO 35		6			6
Squid Gillnet By-Catch	NMFS 12		2			2
Test Fishery Net	ODFW 12			2		2
Totals	12,186	72	1,165	799	31	2,067

	% of total	% of release
Ocean contribution	106	0.0082
Escapement to Columbia River	12,080	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 by Area

0 AK

35 BC

0 WA

0 OR

0 CA

35 Total

Columbia River

7,552

Escapement to NFH

4,233

Stock Assessment Reference Document from CRIS and PSMFC TSL 02/11/96
 Broodyear 88 Summer Steelhead raised at Dworshak NFH
 and released Clearwater River

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

total OBSD 465

Where Recovered	expanded	2s	38	4s	55	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	<u>28</u>		<u>4</u>			<u>4</u>
Totals		5,464	48	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 by Area

0 AK

0 BC

7 WA

0 OR

0 CA

7 Total

Columbia River

3,284

Escapement to NFH

2,097

Stock Assessment Reference Document from CRIS and PSMFC TSL 02/11/96
 Broodyear 89 Summer Steelhead raised at Dworshak NFH
 and released Clearwater River

Date	Number	# / lb	Tagged	CWT	AT
05/03/90	293,367	5.7	20,016	052044	Dworshak NFH
05/03/90	248,052	7.2	19,797	052045	Dworshak NFH
05/03/90	360,005	7.7	20,279	052046	Dworehak NFH
05/04/90	88,494	5.7	21,290	052047	Dworshak NFH
05/04/90	88,090	6.1	20,888	052048	Dworshak NFH
05/04/90	88,656	5.8	21,387	052049	Dworshak NFH
Totals	1,166,664		123,657	PEF= 9.43	

total OBSD 759

Where Recovered	expanded	2s	35	45	55	65	Total
Columbia River Gillnet	ODFW 4,566	14	403	63	4		484
Columbia River Sport	ODFW 764		66	15			81
Estuary Sport	ODFW 104		11				11
Fish Trap (freshwater)	ODFW 28			3			3
Freshwater Sport	ODFW 566	5	47	8			60
Hatchery	FWS 4,982	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	0.0040
Escapement to Columbia River	11,029	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 by Area

0 AK

47 BC

0 WA

0 OR

0 CA

47 Total

Columbia River

6,047

Escapement to NFH

4,982

Stock Assessment Reference Document from CRIS and PSMFC TSL 02/11/96
 Broodyear 90 Summer Steelhead raised at Dworshak NFH
 and released Clearwater River

Date	Number	#/lb	Tagged	CWT	AT
05/01/91	181,542	7.3	19,773	052424	Dworshak NFH
05/01/91	186,174	6.1	20,320	052425	Dworshak NFH
05/01/91	184,062	6.6	19,858	052426	Dworshak NFH
05/01/91	180,854	5.3	19,515	052427	Dworshak NFH
05/01/91	92,550	5.2	20,547	052428	Dworshak NFH
05/01/91	92,330	5.6	20,499	052429	Dworshak NFH
05/01/91	<u>275,081</u>	5.5	<u>20,293</u>	052430	Dworshak NFH
Totals	1,192,593		140,805	PEF= 8.47	

Where Recovered	expanded	2s	3s	4s	5s	6s	Total
Columbia River Gillnet	ODFW 2,660	10	260	41	3		314
Columbia River Sport	ODFW 618		68	5			73
Fish Trap (freshwater)	ODFW 25			3			3
Freshwater Sport	FWS 17		2				2
Freshwater Sport	ODFW 347		35	6			41
Freshwater Sport	WDFW 8			1			1
Hatchery	FWS 1,889		23	191	9		223
Ocean Sport	ODFW 25		3				3
Test Fishery Net	ODFW 17		2				2
Totals	5,606	- 10	9 3	247	12		662

	% of total	% of release
Ocean contribution	25	0
Escapement to Columbia River	5,581	100
Total Survival	5,606	0.4701

	% of total	% of release
Escapement to NFH	1,889	34
Columbia River contribution	3,692	66

Ocean	Contribution by Area
0 A K	
0 BC	
0 WA	
25 OR	Columbia River 3,675
0 CA	Escapement to NFH 1,889
25 Total	

Stock Assessment Reference Document from CRIS and PSMFC TSI 01/29/96
 Broodyear 80 Coho raised at Eagle Creek NFH
 and released Eagle Creek

Date	Number	#/lb	Tagged	CWT	AT
05/04/82	41,994	17.2	0		Eagle Creek NFH
05/05/82	257,515	17.5	0		Eagle Creek NFH
05/06/82	125,980	17.3	0		Eagle Creek NFH
06/02/82	244,690	13.7	0		Eagle Creek NFH
05/06/82	20,041	14.1	19,039	051035	Eagle Creek NFH
05/06/82	19,105	13.1	18,035	051036	Eagle Creek NFH
05/06/82	42,640	14.4	40,210	051037	Eagle Creek NFH
05/06/82	42,412	15.8	38,765	051038	Eagle Creek NFH
05/06/82	68,269	16.2	64,309	051039	Eagle Creek NFH
05/06/82	66,628	16.6	62,164	051040	Eagle Creek NFH
Totals	929,274		242,522	PEF= 3.83	

total OBSD 1,563

Where Recovered		expanded	2s	3s	45	5s	6s	Total
Columbia River Gillnet	ODFW	23		6				6
Columbia River Sport	ODFW	88	23					23
Estuary Sport	ODFW	54		14				14
Freshwater Sport	ODFW	11		3				3
Hatchery	FWS	1,728	33	418				451
Ocean Sport	ODFW	2,226		581				581
Ocean Troll (non-treaty)	CDFG	506		132				132
Ocean Troll (non-treaty)	CDFO	594		155				155
Ocean Troll (non-treaty)	ODFW	5,173		1,350				1,350
Ocean Troll - Day Boat	WDFW	161		42				42
Ocean Troll - Trip Boat	WDFW	31		8				8
Sport (charter)	WDFW	1,261		329				329
Sport (private)	CDFG	188		49				49
Sport (private)	WDFW	479		125				125
Test Fishery Net	ODFW	11		3				3
Treaty Troll	WDFW	54	-	14				14
Totals		12,588	56	3,229				3,285

		% of total	% of release
Ocean contribution	10,673	85	1.1485
Escapement to Columbia River	1,915	15	0.2061
Total Survival	12,588		1.3546
Escapement to NFH	1,728	14	0.1860
Columbia River contribution	187	1	0.0201

Ocean Contribution by Area

0 AK		
594 BC		
1,986 WA	Columbia River	Escapement to NFH
7,399 OR	187	1,728
694 CA		
10,673 Total		

Stock Assessment Reference Document from CRiS and PSMFC TSl 01/27/96
 Broodyear 81 Coho raised at Eagle Creek NFH
 and released Eagle Creek

Date	Number	#/lb	Tagged	CWT	AT
05/03/83	117,501	11.9	0	-	Eagle Creek NFH
05/04/83	40,910	14.4	39,274	051136	Eagle Creek NFH
05/04/83	21,243	13.3	20,266	051138	Eagle Creek NFH
05/04/83	67,498	13.8	0	-	Eagle Creek NFH
05/04/83	21,663	13.3	20,948	051137	Eagle Creek NFH
05/04/83	42,082	13.9	40,946	051135	Eagle Creek NFH
05/04/83	62,343	14.5	60,473	051133	Eagle Creek NFH
05/04/83	65,045	14.5	62,833	051134	Eagle Creek NFH
06/02/83	135,227	10.9	0	-	Eagle Creek NFH
Totals	573,512		244,740	PEF= 2.34	

total OBSD 1,312

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Where Recovered	expanded	2s	3s	4s	5s	6s	Total
Columbia River Gillnet	ODFW	1,228	524				524
Estuary Sport	ODFW	352	150				150
Fish Trap (Freshwater)	ODFW	2	1				1
Freshwater Sport	ODFW	2	1				1
Hatchery	FWS	1,601	61	622			683
Ocean Sport	CDFO	9	4				4
Ocean Sport	ODFW	996	6	419			425
Ocean Troll (Non-treaty)	CDFG	352	150				150
Ocean Troll (Non-treaty)	CDFO	131	56				56
Ocean Troll (Non-treaty)	ODFW	73	31				31
Ocean Troll (Non-treaty)	WDFW	35	15				15
Sport (Charter)	WDFW	328	140				140
Sport (Private)	CDFG	155	66				66
Sport (Private)	WDFW	682	291				291
Test Fishery Net	ODFW	5	2				2
Treaty Troll	WDFW	16	7				7
Totals		5,967	68	2,478			2,546

% of
total % of
release

Ocean contribution	2,777	47	0.4842
Escapement to Columbia River	3,190	53	0.5562
Total Survival	5,967		1.0404

Escapement to NFH	1,601	27	0.2792
Columbia River contribution	1,589	27	0.2771

Ocean Contribution by Area

O A K		
140 BC		
1,061 WA	Columbia River	Escapement to NFH
1,069 OR	1,589	1,601
507 CA		
2,777 Total		

Stock Assessment Reference Document from CRiS and PSMFC TSl 01/27/96
 Broodyear 88 Coho raised at Eagle Creek NFH
 and released Eagle Creek

Date	Number	#/lb	Tagged	CWT	AT
04/27/90	325,071	12.2	24,170	074306	Eagle Creek NFH
04/27/90	283,890	14.6	0	074305	Eagle Creek NFH
05/01/90	403,832	14.2	24,144	074305	Eagle Creek NFH
Totals	1,012,793		48,314	PEF= 20.96	

total OBSD 858
 ===== PSC expanded numbers ===

Where Recovered		expanded	2s	35	45	55	65	Total
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

		% 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	18	0.7493
Columbia River contribution	8,930	21	0.8817

Ocean	Contribution by Area	
0 AK		
881 BC		
9,035 WA	Columbia River	Escapement to NFH
11,340 OR	8,909	7,589
4,570 CA		
25,826 Total		

Stock Assessment Reference Document from CRIS and PSMFC TSl 01/27/96
 Broodyear 89 Coho raised at Eagle Creek NFH
 and released Eagle Creek

Date	Number	#/lb	Tagged	CWT	AT	
03/29/91	1,088	20.8	0	075552	Eagle Creek NFH	LV
03/29/91	1,089	20.8	0	075553	Eagle Creek NFH	LV
04/23/91	590,900	14.5	27,225	075552	Eagle Creek NFH	
04/25/91	598,500	14.9	28,368	075553	Eagle Creek NFH	
05/16/91	3,711	9.8	0	075552	Eagle Creek NFH	
05/16/91	<u>3,712</u>	9.8	<u>0</u>	075553	Eagle Creek NFH	
Totals	1,199,000		55,593	PEF= 21.57		

total OBSD 304

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PSC expanded numbers ===

Where Recovered		expanded	2s	3s	4s	5s	6s	Total
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	<u>22</u>		<u>1</u>				<u>1</u>
Totals		11,326	19	506				525

% of	% of
total	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 by Area

0 AK		
238 BC		
1,834 WA	Columbia River	Escapement to NFH
3,861 OR	820	4,335
216 CA		
6,149 Total		

Stock Assessment Reference Document from CRIS and PSMFC TSl 01/27/96
 Broodyear 90 Coho raised at Eagle Creek NFH
 and released Eagle Creek

Date	Number	#/lb	Tagged	CWT	AT
04/10/92	795,305	14.9	23,306	052620	Eagle Creek NFH
04/10/92	<u>292,041</u>	21.8	<u>22,350</u>	052619	Eagle Creek NFH
Totals	1,087,346		45,656	PEF= 23.82	

total OBSD 31

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			18
Ocean Sport	CDFG	48		2			2
Ocean Sport	ODFW	48		2			2
Sport (Charter)	WDFW	95		4			4
Sport (Private)	WDFW	405		17			17
Test Fishery Net	ODFW	<u>48</u>		2			<u>2</u>
Totals		1,335	- 4 5	2			56

		% 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 by Area

O A K
 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 TSl 01/28/96
 Broodyear 91 Coho raised at Eagle Creek NFH
 and released Eagle Creek

Date	Number	#/lb	Tagged	CWT	AT
04/22/93	128,928	15.8	0	052746	Eagle Creek NFH
04/22/93	134,860	16.5	11,358	052746	Eagle Creek NFH
04/22/93	272,185	14.4	11,464	052746	Eagle Creek NFH
04/30/93	256,670	13.8	11,910	052745	Eagle Creek NFH
04/30/93	201,332	14.1	11,701	052745	Eagle Creek NFH
04/30/93	66,913	14.1	0	052745	Eagle Creek NFH
Totals	1,060,888		46,433	PEF= 22.85	

total OBSD 148

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PSC expanded numbers ===

Where Recovered	expanded	2s	3s	4s	5s	6s	Total
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
Ocean Sport	WDFW 46						2
Totals	3,609	3	155				158

	% of total	% of release
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Ocean contribution	137	4	0.0129
Escapement to Columbia River	3,472	96	0.3273
Total Survival	3,609		0.3402

Escapement to NFH	3,267	91	0.3079
Columbia River contribution	205	6	0.0193

Ocean Contribution by Area

0 AK
 91 BC
 46 WA
 0 OR
 0 CA
 137 Total

Columbia River	Escapement to NFH
205	3,267

Stock Assessment Reference Document from CRiS and PSMFC TSl 01/28/96
 Broodyear 92 Coho raised at Eagle Creek NFH
 and released Eagle Creek

Date	Number	#/lb	Tagged	CWT	AT
04/01/94	39,036	16.5	0	053262	Eagle Creek NFH
04/08/94	78,189	15.3	12,682	053262	Eagle Creek NFH
04/15/94	78,479	14.3	0	053262	Eagle Creek NFH
04/22/94	39,463	14.2	0	053262	Eagle Creek NFH
04/22/94	38,868	14.2	0	053263	Eagle Creek NFH
04/29/94	256,306	13.6	12,273	053260	Eagle Creek NFH
04/29/94	77,242	13.3	12,304	053263	Eagle Creek NFH
04/29/94	256,182	13.6	12,329	053261	Eagle Creek NFH
05/06/94	39,175	12.9	0	053263	Eagle Creek NFH
05/09/94	77,387	13.3	0	053263	Eagle Creek NFH
Totals	980,327		49,588	PEF= 19.77	

total OBSD 201

Where Recovered	expanded	28	3s	4s	5s	6s	Total
Columbia River Gillnet	ODFW	59	3				3
Estuary Sport	ODFW	138	7				7
Hatchery	FWS	3,440	10	164			174
Ocean Sport	ODFW	257	13				13
Ocean Sport	WDFW	59	3				3
Ocean Troll (non-treaty)	ODFW	20	1				1
Sport (charter)	WDFW	217	11				11
Sport (private)	WDFW	474	24				24
Totals		4,664	- 10 2 6				236

		% of total	% of release
Ocean contribution	1,027	22	0.1048
Escapement to Columbia River	3,637	78	0.3710
Total Survival	4,664		0.4758
Escapement to NFH	3,440	74	0.3509
Columbia River contribution	197	4	0.0201

Ocean Contribution by Area

O A K		
0 BC		
750 WA	Columbia River	Escapement to NFH
277 OR	197	3,440
0 CA		
1,027 Total		

Stock Assessment Reference Document from CRIS and PSMFC TSI 01/28/96
 Broodyear 89 Winter Steelhead raised at Eagle Creek NFH
 and released Eagle Creek

Date	Number	#/lb	Tagged	CWT	AT	
04/25/90	22,510	11.0	21,027	052233	Eagle Creek NFH	
04/25/90	23,306	5.6	21,771	052232	Eagle Creek NFH	
04/25/90	78,167	6.0	0	052232	Eagle Creek NFH	
04/26/90	<u>45,342</u>	6.1	<u>0</u>	052232	Eagle Creek NFH	RV
Totals	169,325		42,798	PEF= 3.96		
				total OBSD	330	

Where Recovered	expanded	2s	3s	4s	5s	6s	Total
Freshwater Sport	ODFW 8		2				2
Hatchery	FWS <u>1,298</u>	-	200	126	1	1	<u>328</u>
Totals	<u>1,306</u>		202	126	1	1	<u>330</u>

	% of total	% of release
Ocean contribution	0	0.0000
Escapement to Columbia River	1,306	100
Total Survival	1,306	0.7713
Escapement to NFH	1,298	99
Columbia River contribution	8	1
		0.0047

Ocean	Contribution by Area
0 A K	
0 BC	
0 WA	Columbia River
0 OR	8
0 CA	Escapement to NFH
0 Total	1,298

Stock Assessment Reference Document from CRiS and PSMFC TSl 01/28/96
 Broodyear 90 Winter Steelhead raised at Eagle Creek NFH
 and released Eagle Creek

Date	Number	#/lb	Tagged	CWT	AT
04/22/91	58,570	6.7	0	052536	Eagle Creek NFH
04/22/91	25,030	6.7	24,786	052536	Eagle Creek NFH
04/22/91	24,870	6.7	24,635	052537	Eagle Creek NFH
04/22/91	58,570	6.7	0	052537	Eagle Creek NFH
Totals	167,040		49,421	PEF= 3.38	

total OBSD 152

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Where Recovered		expanded	2s	3s	4s	5s	6s	Total
Freshwater Sport	ODFW	7	1	1				2
Hatchery	FWS	507	5	96	45	4		150
Totals		514	6	97	45	4		152

		% of total	% of release
Ocean contribution	0	0	0.0000
Escapement to Columbia River	514	100	0.3077
Total Survival	514		0.3077
Escapement to NFH	507	99	0.3035
Columbia River contribution	7	1	0.0042

Ocean

Contribution by Area

0 AK

0 BC

0 WA

0 OR

0 CA

0 Total

Columbia River

7

Escapement to NFH

507

Stock Assessment Reference Document from CRIS and PSMFC TSl 01/28/96
 Broodyear 91 Winter Steelhead raised at Eagle Creek NFH
 and released Eagle Creek

Date	Number	#/lb	Tagged	CWT	AT
04/09/92	79,475	6.5	0	052622	Eagle Creek NFH
04/09/92	25,155	6.5	23,861	052622	Eagle Creek NFH
04/09/92	25,042	7.8	24,416	052621	Eagle Creek NFH
04/09/92	<u>21,172</u>	7.8	<u>0</u>	052621	Eagle Creek NFH
Totals	150,844		48,277	PEF= 3.12	

total OBSD 64

Where Recovered	expanded	2s	3s	4s	5s	6s	Total
Freshwater Sport	ODFW	28	1	5	2	1	9
Hatchery	FWS	<u>178</u>		6	51	-	<u>57</u>
Totals		206	- - - i i	1	53	1	66

	% of total	% of release
Ocean contribution	0	0.0000
Escapement to Columbia River	206	0.1366
Total Survival	206	0.1366

Escapement to NFH	178	86	0.1180
Columbia River contribution	28	14	0.0186

Ocean Contribution by Area

0 A K

0 BC

0 WA

0 OR

0 CA

0 Total

Columbia River

28

Escapement to NFH

178

Stock Assessment Reference Document from CRiS and PSMFC TSl 01/30/96
 Broodyear 88 Spring Chinook raised at Entiat NFH
 and released Entiat River

Date	Number	#/lb	Tagged	CWT	AT
04/19/90	262,463	19.4	39,600	051960	Entiat NFH
04/19/90	270,031	19.4	43,954	051963	Entiat NFH
04/19/90	<u>53,306</u>	19.4	<u>8,268</u>	052144	Entiat NFH
Totals	585,800		91,822	PEF= 6.38	

PSC expanded numbers		===
2s	3s	4s
		5s
		6s
		Total
		1
		84
		9
		94

Where Recovered	expanded	2s	3s	4s	5s	6s	Total
Columbia River Sport	ODFW	6			1		1
Hatchery	FWS	536		40	44		84
Treaty Ceremonial	ODFW	<u>57</u>		- 2	7		<u>9</u>
Totals		599		42	52		94

	% of total	% of release
Ocean contribution	0	0.0000
Escapement to Columbia River	599	0.1023
Total Survival	599	0.1023

Escapement to NFH	536	89	0.0915
Columbia River contribution	63	11	0.0108

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

Stock Assessment Reference Document from CRiS and PSMFC TSl
 Broodyear 89 Spring Chinook raised at Entiat NFH
 and released Entiat River

01/28/96

Date	Number	#/lb	Tagged	CWT	AT
04/04/91	15,878	20.0	0	052349	Entiat NFH
04/04/91	15,878	20.0	0	052348	Entiat NFH
04/04/91	15,878	20.0	0	052347	Entiat NFH
04/04/91	47,635	20.0	0	052334	Entiat NFH
04/04/91	157,042	20.4	28,289	052332	Entiat NFH
04/04/91	52,347	20.4	8,854	052348	Entiat NFH
04/04/91	52,347	20.4	9,942	052347	Entiat NFH
04/04/91	157,043	20.4	28,084	052334	Entiat NFH
04/04/91	47,635	20.0	0	052333	Entiat NFH
04/04/91	157,042	20.4	27,859	052333	Entiat NFH
04/04/91	52,348	20.4	8,179	052349	Entiat NFH
04/04/91	47,634	20.0	cl	052332	Entiat NFH
Totals	818,707		111,207	PEF= 7.36	

total OBSD 56

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

		% 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 by Area

0 A K

0 BC

0 WA

0 OR

0 CA

0 Total

Columbia River
7

Escapement to NFH
405

Stock Assessment Reference Document from CRiS and PSMFC TSl 01/28/96
 Broodyear 90 Spring Chinook raised at Entiat NFH
 and released Entiat River

Date	Number	#/lb	Tagged	CWT	AT
04/15/92	83,662	16.0	20,829	052611	Entiat NFH
04/15/92	82,982	16.0	27,806	052612	Entiat NFH
04/15/92	92,164	14.0	24,844	052610	Entiat NFH
04/15/92	84,342	14.0	22,203	052609	Entiat NFH
Totals	343,150		95,682	PEF= 3.59	

total OBSD

4

Where Recovered	expanded	2s	3s	4s	5s	6s	Total
Hatchery	FWS 14			- 3	1		4
Totals	14			3	1		4

	% of total	% of release
Ocean contribution	0	0.0000
Escapement to Columbia River	14	0.0041
Total Survival	14	0.0041
Escapement to NFH	14	0.0041
Columbia River contribution	0	0.0000

Ocean

Contribution by Area

0 A K

0 BC

0 WA

0 OR

0 CA

0 Total

Columbia River

0

Escapement to NFH

14

Stock Assessment Reference Document from CRIS and PSMFC TSl
 Broodyear 88 Spring Chinook raised at Kooskia NFH
 and released Clear Creek

02/25/96

Date	Number	#/lb	Tagged	CWT	AT
04/12/90	170,141	20.7	48,392	051927	Kooskia NFH
04/12/90	166,115	20.7	47,247	051928	Kooskia NFH
04/12/90	34,937	20.7	9,937	052142	Kooskia NFH
04/12/90	<u>32,508</u>	20.7	<u>9,246</u>	052143	Kooskia NFH
Totals	403,701		114,822	PEF= 3.52	
				total OBSD	286

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

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

Ocean

Contribution by Area

0 AK

0 BC

0 WA

0 OR

0 CA

0 Total

Columbia River

173

Escapement to NFH

907

Stock Assessment Reference Document from CRIS and PSMFC TSI
 Broodyear 90 Spring Chinook raised at Kooskia NFH
 and released Clear Creek

02/13/96

Date	Number	#/lb	Tagged	CWT	AT
04/15/92	138,418	20.5	0		Kooskia NFH
04/21/92	53,549	18.6	27,073	052538	Kooskia NFH
04/21/92	52,120	18.6	26,548	052539	Kooskia NFH
04/21/92	42,371	17.6	21,974	052540	Kooskia NFH
04/21/92	42,443	17.6	22,042	052541	Kooskia NFH
05/05/92	97,420	16.2	58,197	052628	Kooskia NFH
04/07/92	103,148	22.8	55,585	052629	Kooskia NFH
04/07/92	102,066	20.4	56,294	052630	Kooskia NFH
05/05/92	<u>95,716</u>	14.9	<u>55,226</u>	052631	Kooskia NFH
Totals	727,251		322,939	PEF= 2.25	

total OBSD

31

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PSC

expanded

numbers

===

Where Recovered		expanded	2s	3s	4s	5s	6s	Total
Columbia River Sport	ODFW	11			5			5
Hatchery	FWS	61	1	4	22			27
Hatchery	WDFW	2			1			1
Test Fishery Net	ODFW	<u>5</u>			<u>2</u>			<u>2</u>
Totals		79	- 1	4	30			35

% of
total

% of
release

Ocean contribution	0	0	0.0000
Escapement to Columbia River	79	100	0.0109
Total Survival	79		0.0109
Escapement to NFH	61	77	0.0084
Columbia River contribution	18	23	0.0025

Ocean

Contribution by Area

0 A K

01 BC

0 WA

0 OR

0 CA

0 Total

Columbia River
16

Escapement to NFH
61

Stock Assessment Reference Document from CRiS and PSMFC TSl 01/28/96
 Broodyear 88 Spring Chinook raised at Leavenworth NFH
 and released Icicle Creek

Date	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	40.2	14,695	232409	Leavenworth NFH
05/03/89	0	31.1	28,227	232358	Leavenworth NFH
05/03/89	0	40.2	14,731	232407	Leavenworth NFH
05/03/89	0	57.8	31,331	232405	Leavenworth NFH
05/03/89	148,864	57.8	31,809	232403	Leavenworth NFH
05/03/89	0	40.2	14,815	232408	Leavenworth NFH
05/03/89	0	31.8	28,193	232360	Leavenworth NFH
05/03/89	0	31.1	28,908	232361	Leavenworth NFH
05/03/89	0	31.1	29,522	232359	Leavenworth NFH
05/03/89	0	57.8	30,782	232406	Leavenworth NFH
Totals	376,984		298,462	PEF= 1.26	

total OBSD 7

===== PSC expanded numbers ===

Where Recovered	expanded	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	0.0000
Escapement to Columbia River	13	0.0034
Total Survival	13	0.0034

Escapement to NFH	6	46	0.0016
Columbia River contribution	7	54	0.0019

Ocean Contribution by Area

0 A K

0 BC +

0 WA

0 OR

0 CA

0 Total

Columbia River

7

Escapement to NFH

6

Stock Assessment Reference Document from CRiS and PSMFC TSl 01/28/96
 Broodyear 88 Spring Chinook raised at Leavenworth NFH
 and released Icicle Creek

Date	Number	#/lb	Tagged	CWT	AT
04/18/90	2,251,503	18.2	44,207	052136	Leavenworth NFH
04/18/90	0	18.2	47,539	052139	Leavenworth NFH
04/18/90	0	18.2	44,599	052137	Leavenworth NFH
04/18/90	0	18.2	47,644	052138	Leavenworth NFH
05/04/90	52,734	18.1	0	-	Leavenworth NFH

Totals 2,304,237 183,989 PEF= 12.52

total OBSD 593

Where Recovered		expanded	2s	3s	4s	5s	6s	Total
Columbia River Gillnet	ODFW	38				3		3
Columbia River Sport	ODFW	113				9		9
Fish Trap (freshwater)	ODFW	13			1			1
Freshwater Net	WDFW	676			42	12		54
Freshwater Sport	ODFW	63				5		5
Freshwater Sport	WDFW	3,469			107	170		277
Hatchery	FWS	5,035		4	211	187		402
Spawning Ground	WDFW	100				8		8
Test Fishery Net	ODFW	100			5	3		8
Treaty Ceremonial	ODFW	1,315			55	50		105
Treaty Troll	WDFW	25			2	-		2
Totals		10,947		4	423	447		874

		% of total	% of release
Ocean contribution	25	0	0.0011
Escapement to Columbia River	10,922	100	0.4740
Total Survival	10,947		0.4751

Escapement to NFH	5,035	46	0.2185
Columbia River contribution	5,887	54	0.2555

Ocean Contribution by Area

O A K
 0 BC

25 WA Columbia River Escapement to NFH
 0 OR 5,887 5,035

0 CA
 25 Total

Stock Assessment Reference Document from CRIS and PSMFC TSL 01/28/96
 Broodyear 89 Spring Chinook raised at Leavenworth NFH
 and released Icicle Creek

Date	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
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 by Area

0 A K		
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 TSl 01/28/96
 Broodyear 89 Spring Chinook raised at Leavenworth NFH
 and released Icicle Creek

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

total OBSD 249

Where Recovered	expanded	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	1,477		3	116	4		123
Hatchery FWS	2,245		1	113	72	1	187
Test Fishery Net ODFW	24			2			2
Treaty Ceremonial ODFW	360			30			30
Treaty Troll WDFW	12	-		1	-	-	1
Totals	4,394		4	274	87	1	366

		% of total	% of release
Ocean contribution	12	0	0.0005
Escapement to Columbia River	4,382	100	0.1941
Total Survival	4,394		0.1946
Escapement to NFH	2,245	51	0.0994
Columbia River contribution	2,137	49	0.0946

Ocean Contribution by Area

0 AK

0 BC

12 WA

0 OR

0 CA

12 Total

Columbia River
2,137

Escapement to NFH
2,245

Stock Assessment Reference Document from CRiS and PSMFC TSl 01/28/96
 Broodyear 90 spring Chinook raised at Leavenworth NFH
 and released Icicle Creek

Date	Number	#/lb	Tagged	CWT	AT
04/20/92	909,970	18.6	92,293	051757	Leavenworth NFH
04/20/92	1,151,473	15.9	100,099	051752	Leavenworth NFH
04/20/92	112,783	18.5	50,304	054023	Leavenworth NFH
04/20/92	<u>112,602</u>	17.9	<u>49,541</u>	054022	Leavenworth NFH
Totals	2,286,828		292,237	PEF= 7.83	

Where Recovered	expanded	2s	3s	4s	5s	6s	Total
Hatchery	FWS	78	1	6	3		10
Hatchery	WDFW	8	1				1
Treaty Ceremonial	ODFW	<u>16</u>		-	2	-	<u>2</u>
Totals		102	2	8	3		13

	% of total	% of release
Ocean contribution	0	0.0000
Escapement to Columbia River	102	0.0045
Total Survival	102	0.0045
Escapement to NFH	78	0.0034
Columbia River contribution	24	0.0010

Ocean	Contribution by Area
0 A K	
0 BC	
0 WA	Columbia River
0 OR	16
0 CA	Escapement to NFH
0 Total	7 8

Stock Assessment Reference Document from CRiS and PSMFC TSL 01/28/96
 Broodyear 84 Spring Chinook raised at Leavenworth NFH
 and released Icicle Creek

Date	Number	#/lb	Tagged	CWT	AT
10/29/85	25,892	22.0	24,727	051258	Leavenworth NFH
10/29/85	26,906	22.0	25,695	051259	Leavenworth NFH
10/29/85	0	22.0	0	-	Leavenworth NFH
Totals	52,798		50,422	PEF= 1.05	

Where Recovered			expanded	2s	3s	4s	5s	6s	Total
Freshwater	Sport	WDFW	3			3			3
Hatchery		FWS	12			10	1		11
Treaty	Ceremonial	ODFW	6			-	-	6	6
Totals			21			19	1		20

	% of total	% of release
Ocean contribution	0	0.0000
Escapement to Columbia River	21	0.0398
Total Survival	21	0.0398

Escapement to NFH	12	57	0.0227
Columbia River contribution	9	43	0.0170

Ocean Contribution by Area

0 A K		
0 BC		
0 WA	Columbia River	Escapement to NFH
0 OR	9	12
0 CA		
0 Total		

Stock Assessment Reference Document from CRiS and PSMFC TSl 01/28/96
 Broodyear 85 Spring Chinook raised at Leavenworth NFH
 and released Icicle Creek

Date	Number	#/lb	Tagged	CWT	AT
04/22/87	11,545	16.9	9,969	051756	Leavenworth NFH
04/22/87	11,350	16.9	9,478	051738	Leavenworth NFH
04/22/87	809,290	14.9	0	-	Leavenworth NFH
04/22/87	1,504,683	16.9	0	-	Leavenworth NFH
Totals	2,336,868		19,447	PEF=120.17	

Where Recovered	expanded	2s	3s	PSC	expanded	numbers	===
Columbia River Sport	ODFW	1,442				12	12
Fish Trap (freshwater)	WDFW	120			1		1
Freshwater Sport	ODFW	601				5	5
Freshwater Sport	WDFW	2,644			16	6	22
Hatchery	FWS	1,322			7	4	11
Spawning Ground	WDFW	240			2		2
Test Fishery Net	ODFW	721			3	3	6
Treaty Ceremonial	ODFW	3,244			23	4	27
Total6		10,334			52	34	86

	% of total	% of release
Ocean contribution	0	0.0000
Escapement to Columbia River	10,334	0.4422
Total Survival	10,334	0.4422
Escapement to NFH	1,322	0.0566
Columbia River contribution	9,012	0.3856

Ocean Contribution by Area

0 A K		
0 BC		
0 WA	Columbia River	Escapement to NFH
0 OR	9,012	1,322
0 CA		
0 Total		

Stock Assessment Reference Document from CRiS and PSMFC TSl 01/28/96
 Broodyear 86 Spring Chinook raised at Leavenworth NFH
 and released Icicle Creek

Date	Number	X/lb	Tagged	CWT	AT
04/20/88	283,491	16.0	46,719	051707	Leavenworth NFH
04/20/88	283,408	16.0	46,458	051706	Leavenworth NFH
04/20/88	283,704	16.0	44,688	051708	Leavenworth NFH
04/20/88	283,667	16.0	48,630	051709	Leavenworth NFH
04/20/88	0	16.0	34,212	232321	Leavenworth NFH
04/20/88	1,073,024	16.0	33,919	232318	Leavenworth NFH
04/20/88	0	16.0	34,652	232320	Leavenworth NFH
04/20/aa	0	16.0	34,462	232319	Leavenworth NFH
Totals	2,207,294		323,740	PEF= 6.82	

total OBSD 283

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Where Recovered	expanded	2s	3s	4s	5s	6s	Total
Columbia River Gillnet	ODFW 14				2		2
Columbia River Sport	ODFW a9			13			13
Freshwater Net	WDFW 95				14		14
Freshwater Sport	WDFW 757		2	a5	24		111
Hatchery	FWS 1,207		1	110	66		177
Test Fishery Net	ODFW 27			4			4
Treaty Ceremonial	ODFW 409			33	27		60
Totals	2,598		3	245	133		381

% of
total

% of
release

Ocean contribution	0	0	0.0000
Escapement to Columbia River	2,598	100	0.1177
Total Survival	2,598		0.1177

Escapement to NFH	1,207	46	0.0547
Columbia River contribution	1,391	54	0.0630

Ocean contribution by Area

0 AK

0 BC

0 WA

0 OR

0 CA

0 Total

Columbia River
1,391

Escapement to NFH
1,207

Stock Assessment Reference Document from CRiS and PSMFC TSL 01/28/96
 Broodyear 87 Spring Chinook raised at Leavenworth NFH
 and released Icicle Creek

Date	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
02/05/88	113,530	178.0	0	-	Leavenworth NFH
03/20/88	96,000	238.0	0	-	Leavenworth NFH
04/22/88	0	52.8	32,822	232324	Leavenworth NFH
04/22/88	0	52.8	32,695	232323	Leavenworth NFH
04/22/88	0	52.8	24,344	232325	Leavenworth NFH
04/22/88	124,887	52.8	32,478	232322	Leavenworth NFH
05/16/88	0	44.5	29,203	232329	Leavenworth NFH
05/16/88	0	44.5	27,671	2 3 2 3 2 7	Leavenworth NFH
05/16/88	0	44.5	28,634	232328	Leavenworth NFH
05/16/88	114,800	44.5	28,353	232326	Leavenworth NFH
06/06/88	94,209	80.0	0	-	Leavenworth NFH
Totals	939,426		236,200	PEF= 3.98	

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

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

Ocean Contribution by Area

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

Stock Assessment Reference Document from CRIS and PSMFC TSL 01/28/96
 Broodyear 87 Spring Chinook raised at Leavenworth NFH
 and released Icicle Creek

Date	Number	#/lb	Tagged	CWT	AT
04/19/89	0	20.6	48,854	051954	Leavenworth NFH
04/19/89	0	20.6	46,646	051957	Leavenworth NFH
04/19/89	0	20.6	47,437	051953	Leavenworth NFH
04/19/89	2,109,923	20.6	47,364	051951	Leavenworth NFH
05/03/89	0	1a.5	32,784	232402	Leavenworth NFH
05/03/89	129,754	18.5	32,313	232362	Leavenworth NFH
05/03/89	0	18.5	31,960	232363	Leavenworth NFH
05/03/89	0	1a.5	31,407	232401	Leavenworth NFH
Totals	2,239,677		318,765	PEF= 7.03	

total OBSD 644

Where Recovered	expanded	2s	3s	4s	5s	6s	Total	
Columbia River Gillnet	ODFW	105			15		15	
Columbia River Sport	ODFW	365		35	17		52	
Freehwater Net	WDFW	400		35	22		57	
Freshwater Sport	WDFW	1,216		136	31	6	173	
Hatchery	FWS	3,232	4	178	277	1	460	
Hatchery	WDFW	7	1				1	
Ocean Troll (non-treaty)	CDFO	28		4			4	
Spawning Ground	WDFW	14		2			2	
Test Fishery Net	ODFW	7		1			1	
Treaty Ceremonial	ODFW	871		74	50		124	
Totals		6,245	1	4	465	412	7	889

		% of total	% of release
Ocean contribution	28	0	0.0013
Escapement to Columbia River	6,217	100	0.2776
Total Survival	6,245		0.2788

Escapement to NFH	3,232	52	0.1443
Columbia River contribution	2,985	48	0.1333

Ocean Contribution by Area

0 A K

28 BC

0 WA

0 OR

0 CA

28 Total

Columbia River

2,978

Escapement to NFH

3,232

Stock Assessment Reference Document from CRiS and PSMFC TSl 01/29/96
 Broodyear 82 Spring Chinook raised at L White Salmon NFH
 and releaeed L White Salmon River

Date	Number	#/lb	Tagged	CWT	AT				
03/15/83	130,800	600.0	0	-	L White	Salmon	NFH		
06/24/83	130,961	44.2	46,067	051139	L White	Salmon	NFH		
05/04/83	426,307	68.2	48,145	051141	L White	Salmon	NFH		
Totals	688,068		94,212	PEF= 7.30					
				total OBSD	34				
				=====	PSC	expanded	numbere	===	
Where Recovered			expanded	2s	3s	4s	5s	6s	Total
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	3a	2		41
				% of	% of				
				total	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	
0 A K		
0 BC		
0 WA	Columbia River	Escapement to NFH
0 OR	95	204
0 CA		
0 Total		

Stock Assessment Reference Document from CRiS and PSMFC TSl 01/29/96
 Broodyear 82 Spring Chinook raised at L White Salmon NFH
 and released L White Salmon River

Date	Number	#/lb	Tagged	CWT	AT
04/19/84	89,737	11.3	0		L White Salmon NFH
04/19/84	<u>123,257</u>	12.4	<u>44,575</u>	051140	L White Salmon NFH
Totals	<u>212,994</u>		<u>44,575</u>	PEF= 4.78	
				total OBSD	92

Where Recovered		expanded	2s	3s	4s	5s	6s	Total
Columbia River Gillnet	ODFW	29				6		6
Freshwater Sport	WDFW	10			2			2
Hatchery	FWS	401		1	57	26		84
Test Fishery Net	ODFW	19			3	1		4
Treaty Ceremonial	ODFW	<u>10</u>	-	-	-	2		<u>2</u>
Totals		<u>469</u>		1	62	35		<u>98</u>

		% of total	% of release
Ocean contribution	0	0	0.0000
Escapement to Columbia River	469	100	0.2202
Total Survival	469		0.2202

Escapement to NFH	401	86	0.1883
Columbia River contribution	68	14	0.0319

Ocean Contribution by Area

0 AK

0 BC

0 WA

0 OR

0 CA

0 Total

Columbia River
68

Escapement to NFH
401

Stock Assessment Reference Document from CRiS and PSMFC TSl 01/29/96
 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	

Where Recovered		expanded	PSC expanded numbers					Total
			2s	3s	4s	5s	6s	
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	
0 AK		
0 BC		
0 WA	Columbia River	Escapement to NFH
0 OR	48	150
0 CA		
0 Total		

Stock Assessment Reference Document from CRIS and PSMFC TS1 01/29/96
 Broodyear 83 Spring Chinook raised at L White Salmon NFH
 and released L White Salmon River

Date	Number	X/lb	Tagged	CWT	AT
04/17/85	408,000	10.4	47,849	051460	L White Salmon NFH
Totals	1,354,959		47,849	PEF= 28.32	

total OBSD 258

Where Recovered	expanded	2s	3s	4s	5s	6s	Total
Columbia River Gillnet	ODFW 340				12		12
Freshwater Sport	WDFW 2,180			48	29		77
Hatchery	FWS 5,748		13	142	48		203
Test Fishery Net	ODFW a5			3			3
Traaty Ceremonial	ODFW 1,076	-		29	9		38
Totals	9,429		13	222	98		333

		% of total	% of release
Ocean contribution	0	0	0.0000
Escapement to Columbia River	9,429	100	0.6959
Total Survival	9,429		0.6959
Escapement to NFH	5,748	61	0.4242
Columbia River contribution	3,681	39	0.2717

Ocean Contribution by Area

0 A K
 0 BC
 0 WA
 0 OR
 0 CA
 0 Total

Columbia River	Escapement to NFH
3,681	5,748

Stock Assessment Reference Document from *CRIS* and PSMFC TSl 01/29/96
 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
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
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
Totals	665,939		145,128	PEF= 4.59	

total OBSD 208

===== PSC expanded numbers ===

Where Recovered	expanded	2s	3s	4s	5s	6e	Total
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
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Ocean contribution	0	0.0000
Escapement to Columbia River	1,234	0.1853
Total Survival	1,234	0.1853

Escapement to NFH	803	0.1206
Columbia River contribution	431	0.0647

Ocean Contribution by Area

0 A K

0 BC

0 WA

0 OR

0 CA

0 Total

Columbia River
431

Escapement to NFH
803

Stock Assessment Reference Document from CRiS and PSMFC TSl 01/29/96
 Broodyear 84 Spring Chinook raised at L White Salmon NFH
 and released L White Salmon River

Date	Number	#/lb	Tagged	CWT	AT				
04/14/86	207,649	11.3	24,368	051439	L White	Salmon	NFH		
04/14/86	204,563	11.3	24,005	051440	L White	Salmon	NFH		
Totals	412,212		48,373	PEF= a.52					
				total OBSD	31				
				=====	PSC	expanded	numbers	===	
Where Recovered			expanded	2s	3s	4s	5s	6s	Total
Freshwater	Sport	WDFW	68			6	2		a
Hatchery		FWS	230		2	21	4		27
Treaty	Ceremonial	ODFW	26		-	3	-		3
Totals			324		2	30	6		38

		% of	% of
		total	release
Ocean contribution	0	0	0.0000
Escapement to Columbia River	324	100	0.0786
Total Survival	324		0.0786
Escapement to NFH	230	71	0.0558
Columbia River contribution	94	29	0.0228

Ocean	Contribution by Area	
0 A K		
0 BC		
0 WA	Columbia River	Escapement to NFH
0 OR	94	230
0 CA		
0 Total		

Stock Assessment Reference Document from CRiS and PSMFC TSl 01/29/96
 Broodyear 88 Spring Chinook raised at L White Salmon NFH
 and released L White Salmon River

Date	Number	#/lb	Tagged	CWT	AT			
04/18/90	230,723	15.0	25,006	052234	L White Salmon NFH			
04/18/90	230,723	15.0	24,897	052235	L White Salmon NFH			
Totals	461,446		49,903	PEF= 9.25				
				total OBSD	343			
				=====	PSC expanded numbers ===			
Where Recovered		expanded	2s	3s	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
Test Fishery Net	ODFW	55			4	2		6
Treaty Ceremonial	ODFW	731		-	26	53		79
Totals		4,826		5	241	276		5 2 2
				% of	% of			
				total	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 by Area							
0 A K								
0 BC								
0 WA			Columbia River		Escapement to NFH			
0 OR			2,385		2,441			
0 CA								
0 Total								

Stock Assessment Reference Document from CRIS and PSMFC TSL 01/29/96
 Broodyear 89 Spring Chinook raised at L White Salmon NFH
 and released L White Salmon River

Date	Number	#/lb	Tagged	CWT	A	T
04/15/91	508,353	17.0	24,248	052351		L White Salmon NFH
04/15/91	508,353	17.0	23,630	052534		L White Salmon NFH
Totals	1,016,706		47,878	PEF=	21.24	

Where Recovered		expanded	2s	3s	4s	5s	6s	Total
Freshwater Sport	WDFW	1,189			49	7		56
Hatchery	FWS	1,019	1		35	12		48
Treaty Ceremonial	ODFW	a5			4	-		4
Totals		2,293	1		88	19		108

		% of total	% of release
Ocean contribution	0	0	0.0000
Escapement to Columbia River	2,293	100	0.2255
Total Survival	2,293		0.2255

Escapement to NFH	1,019	44	0.1002
Columbia River contribution	1,274	56	0.1253

Ocean . Contribution by Area

0 A K

0 BC

0 WA

0 OR

0 CA

0 Total

Columbia River

1,274

Escapement to NFH

1,019

stock Assessment Reference Document from CRiS and PSMFC TSl 01/29/96
 Broodyear 84 Upriver Bright FCS raised at L White Salmon NFH
 and releaeed L White Salmon River

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

		total OBSD 1,366						
		===== PSC expanded numbers =====						
Where Recovered		expanded	2s	3s	4s	5s	6s	Total
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	208		19	5	13		37
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	a79
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	a1	6	325
Sport (charter)	WDFW	90		14	2			16
Sport (private)	WDFW	135	2	14		a		24
Treaty Troll	WDFW	79		10	4			14
Totals		20,674	53	885	1,805	864	71	3,678

		% of total	% of release
Ocean contribution	8,331	40	0.7967
Escapement to Columbia River	12,343	60	1.1803
Total Survival	20,674		1.9770

Escapement to NFH	2,175	11	0.2080
Columbia River contribution	10,168	49	0.9723

Ocean	Contribution by Area	
1,800 AK		
5,496 BC		
580 WA	Columbia River	Escapement to NFH
399 OR	10,123	2,175
17 CA		
8,292 Total		

Stock Assessment Reference Document from CRiS and PSMFC TSl 01/29/96
 Broodyear 84 Upriver Bright FCS raised at L White Salmon NFH
 and released L White Salmon River

Date	Number	#/lb	Tagged	CWT	AT			
04/14/86	21,543	17.6	18,941	051441	L	White	Salmon	NFH
04/14/86	21,887	17.6	19,217	051442	L	White	Salmon	NFH
04/14/86	20,342	17.6	17,860	051443	L	White	Salmon	NFH
04/14/86	22,058	17.6	19,367	051444	L	White	Salmon	NFH
Totals	85,830		75,385	PEF= 1.14				

Where Recovered			expanded	2s	3e	4s	5s	6s	Total
Columbia River Gillnet	ODFW		17				a	7	15
Commercial Seine	ADFG		2		2				2
Hatchery	FWS		5		1	1	2		4
Mixed Net and Seine	CDFO		2		2				2
Ocean Troll (non-treaty)	ADFG		2			2			2
Ocean Troll (non-treaty)	CDFO		2	-	-	2	-	-	2
Totals			30		5	5	10	7	27

		% of total	% of release
Ocean contribution	a	27	0.0093
Escapement to Columbia River	22	73	0.0256
Total Survival	30		0.0350

Escapement to NFH	5	17	0.0058
Columbia River contribution	17	57	0.0198

Ocean Contribution by Area

4 A K

4 BC

0 WA

0 OR

0 CA

a Total

Columbia River
17

Escapement to NFH
5

Stock Assessment Reference Document from CRiS and PSMFC TS1 01/29/96
 Broodyear 85 Upriver Bright FCS raised at L White Salmon NFH
 and released L White Salmon River

Date	Number	#/lb	Tagged	CWT	AT				
04/15/87	46,566	16.6	41,299	051811	L White Salmon NFH				
04/15/87	47,168	16.6	41,833	051812	L White Salmon NFH				
Totals	93,734		83,132	PEF= 1.13					
				total OBSD	164				
				=====	PSC	expanded	numbers	=====	
Where Recovered			expanded	2s	3s	4s	5s	6s	Total
Columbia River Gillnet	ODFW		124		13	64	23	10	110
Columbia River Sport	ODFW		17				15		15
Estuary Sport	ODFW		3			3			3
Hatchery	FWS		91		8	29	32	12	81
Mixed Net and Seine	CDFO		12		3	5	3		11
Multiple Gear	ADFG		2			1	1		2
Ocean Sport	ADFG		1			1			1
Ocean Troll (non-treaty)	ADFG		28			7	18		25
Ocean Troll (non-treaty)	CDFO		100			46	40	3	89
Ocean Troll (non-treaty)	ODFW		1			1			1
Ocean Troll (non-treaty)	WDFW		16				14		14
Sport (charter)	WDFW		7		2	2	2		6
Sport (private)	WDFW		9			5	3		8
Test Fishery Net	ODFW		1			1			1
Totals			412		26	165	151	25	367

		% of	% of
		total	release
Ocean contribution	176	43	0.1878
Escapement to Columbia River	236	57	0 . 2 5 1 8
Total Survival	412		0.4395
Escapement to NFH	91	22	0.0971
Columbia River contribution	145	35	0.1547

Ocean Contribution by Area

31 AK

112 BC

32 WA

1 OR

0 CA

176 Total

Columbia River
145

Escapement to NFH
91

Stock Assessment Reference Document from CRiS and PSMFC TSl 01/29/96
 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	190,363	165.0	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	50,310	106.8	48,147	051810	L White Salmon NFH
Totals	1,169,825		195,310	PEF= 5.99	

		total		OBSD		347		PSC expanded numbers		===	
Where Recovered		expanded	2s	3s	4s	5s	6s			Total	
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 TSl 01/29/96
 Broodyear 89 Upriver Bright FCS raised at L White Salmon NFH
 and released L White Salmon River

Date	Number	#/lb	Tagged	CWT	AT				
06/25/90	719,186	110.6	22,444	052337	L	White	Salmon	NFH	
06/25/90	719,186	110.6	22,360	052338	L	White	Salmon	NFH	
Totals	1,438,372		44,804	PEF= 32.10					
				total	OBSD	58			
				=====	PSC	expanded	numbers	=====	
Where Recovered			expanded	2s	3s	4s	5s	6s	Total
Columbia River Gillnet	ODFW		161			5			5
Hatchery	FWS		995			10	21		31
Mixed Net and Seine	CDFO		161			5			5
Ocean Sport	CDFO		64				2		2
Ocean Troll (non-treaty)	ADFG		931		5	18	6		29
Ocean Troll (non-treaty)	CDFG		225				7		7
Ocean Troll (non-treaty)	CDFO		353		2	6	3		11
Spawning Ground	WDFW		642	-		7	13		20
Totals			3,532		7	51	52		110
				% of		% of			
				total		release			
Ocean contribution			1,734	49		0.1206			
Escapement to Columbia River			1,798	51		0.1250			
Total Survival			3,532			0.2456			
Escapement to NFH			995	28		0.0692			
Columbia River contribution			803	23		0.0558			

Ocean	Contribution by Area		
931 AK			
578 BC			
0 WA	Columbia River	Escapement to NFH	
0 OR	803	995	
225 CA			
1,734 Total			

Stock Assessment Reference Document from CRiS and PSMFC TSl 01/29/96
 Broodyear 90 Upriver Bright FCS raised at L White Salmon NFH
 and released L White Salmon River

Date	Number	#/lb	Tagged	CWT	AT				
06/24/91	2,014,579	101.8	24,909	052626	L White Salmon NFH				
06/24/91	2,014,579	101.8	25,368	052627	L White Salmon NFH				
Totals	4,029,158		50,277	PEF= 80.14					
				total OBSD	116				
				=====	PSC expanded numbers ===				
Where Recovered			expanded	2s	3s	4s	5s	6s	Total
Columbia River Gillnet	ODFW		1,042		2	4	7		13
Hatchery	FWS		7,052	3	7	31	47		88
Hatchery	ODFW		80				1		1
Ocean Sport	ADFG		80				1		1
Ocean Sport	CDFO		321			4			4
Ocean Troll (non-treaty)	ADFG		2,084		5	11	10		26
Ocean Troll (non-treaty)	CDFO		1,443		5	4	9		18
Spawning Ground	WDFW		481			6	-		6
Totals			12,583	3	19	60	75		157

		% of	% of
		total	release
Ocean contribution	3,928	31	0.0975
Escapement to Columbia River	8,655	69	0.2148
Total Survival	12,583		0.3123
Escapement to NFH	7,052	56	0.1750
Columbia River contribution	1,603	13	0.0398

Ocean	Contribution by Area	
2,164 AK		
1,764 BC		
0 WA	Columbia River	Escapement to NFH
0 OR	1,523	7,052
0 CA		
3,928 Total		

Stock Assessment Reference Document from CRIS and PSMFC TSL 02/19/96
 Broodyear 80 Tule Fall Chinook raised at Spring Creek NFH
 and released Columbia River

Date	Number	#/lb	Tagged	CWT	AT	
05/08/81	12,984	65.0	0		Spring Creek NFH	FB
03/26/81	4,914,598	90.0	104,666	050740	Spring Creek NFH	
04/15/81	3,194,579	71.0	76,731	050741	Spring Creek NFH	
05/05/81	3,204,979	65.0	63,119	050742	Spring Creek NFH	
03/26/81	1,354,838	118.0	28,825	050748	Spring Creek NFH	
04/15/81	1,286,949	71.0	30,911	050749	Spring Creek NFH	
03/26/81	642,858	114.0	13,746	050750	Spring Creek NFH	
03/26/81	722,783	102.0	15,378	050751	Spring Creek NFH	
08/14/81	290,766	15.2	7,182	050752	Spring Creek NFH	
Totals	15,625,334		340,558	PEF= 45.88		

total OBSD 250

Where Recovered		expanded	2s	3s	4s	5s	6s	Total
Columbia River Gillnet	ODFW	5,001	5	70	29	5		109
Estuary Sport	WDFW	2,294	9	41				50
Hatchery	FWS	4,634	6	66	29			101
Hatchery	ODFW	184		3	1			4
Mixed Net and Seine	CDFO	367	8					8
Mixed Net and Seine	WDFW	275	6					6
Ocean Sport	CDFO	459		6	4			10
Ocean Troll (non-treaty)	CDFO	11,837	6	209	43			258
Ocean Troll (non-treaty)	ODFW	229		5				5
Ocean Troll - Day Boat	WDFW	92		2				2
Ocean Troll - Trip Boat	WDFW	1,560		34				34
Sport (charter)	WDFW	642	2	12				14
Sport (private)	WDFW	413	1	8				9
Treaty Troll	WDFW	1,147	2	23	-	-		25
Totals		29,134	45	479	106	5		635

		% of total	% of release
Ocean contribution	17,021	58	0.1089
Escapement to Columbia River	12,113	42	0.0775
Total Survival	29,134		0.1865

Escapement to NFH	4,634	16	0.0297
Columbia River contribution	7,479	26	0.0479

Ocean	Contribution by Area	
0 AK		
12,663 BC		
4,129 WA	Columbia River	Escapement to NFH
229 OR	7,295	4,634
0 CA		
17,021 Total		

Stock Assessment Reference Document from CRIS and PSMFC TSL 02/19/96
 Broodyear 81 Tule Fall Chinook raised at Spring Creek NFH
 and released Columbia River

Date	Number	#/lb	Tagged	CWT	AT
07/30/82	24,108	17.2	466	050753	Spring Creek NFH
07/30/82	22,680	17.2	440	050754	Spring Creek NFH
03/25/82	7,200,329	110.0	151,366	051050	Spring Creek NFH
04/15/82	2,170,007	78.2	38,854	051051	Spring Creek NFH
05/20/82	2,937,115	48.6	58,312	051052	Spring Creek NFH
04/15/82	44,278	74.0	43,171	051053	Spring Creek NFH
04/15/82	49,786	70.0	48,541	051054	Spring Creek NFH
04/15/82	42,354	75.0	41,295	051055	Spring Creek NFH
04/15/82	49,519	76.0	48,281	051056	Spring Creek NFH
Totals	12,540,176		430,726	PEF= 29.11	

total OBSD 739

Where Recovered		expanded	2s	3s	4s	5s	6s	Total
Columbia River Gillnet	ODFW	13,160	30	363	59			452
Estuary Sport	ODFW	262		9				9
Estuary Sport	WDFW	815	21	7				28
Fish Trap (freshwater)	FWS	58				2		2
Groundfish Observer (CA/	NMFS	116	4					4
Hatchery	FWS	7,366	28	183	42			253
Hatchery	ODFW	1,514	9	31	11	1		52
Mixed Net and Seine	CDFO	378	7	3	3			13
Mixed Net and Seine	WDFW	466	13	3				16
Ocean Sport	CDFO	349	10	2				12
Ocean Sport	ODFW	873	15	15				30
Ocean Troll (non-treaty)	CDFG	378		13				13
Ocean Troll (non-treaty)	CDFO	16,362		517	45			562
Ocean Troll (non-treaty)	ODFW	1,514		52				52
Ocean Troll (non-treaty)	WDFW	1,135		37	2			39
Sport (charter)	WDFW	757	20	6				26
Sport (private)	WDFW	611	3	18				21
Test Fishery Net	ODFW	29	1					1
Treaty Troll	WDFW	466		16	-	-		16
Totals		46,609	161	1,275	162	3		1,601

		% of total	% of release
Ocean contribution	23,405	50	0.1866
Escapement to Columbia River	23,204	50	0.1850
Total Survival	46,609		0.3717

Escapement to NFH	7,366	16	0.0587
Columbia River contribution	15,838	34	0.1263

Ocean	Contribution by Area	
0 AK		
17,089 BC		
3,435 WA	Columbia River	Escapement to NFH
2,387 OR	14,266	7,366
378 CA		
23,289 Total		

Stock Assessment Reference Document from CRiS and PSMFC TSl 02/19/96
 Broodyear 82 Tule Fall Chinook raised at Spring Creek NFH
 and released Columbia River

Date	Number	#/lb	Tagged	CWT	AT
04/08/83	7,744,218	89.0	0	-	Spring Creek NFH
04/28/83	3,191,611	65.0	0	-	Spring Creek NFH
05/19/83	3,169,128	79.0	0	-	Spring Creek NFH
04/28/83	51,025	54.0	49,749	051142	Spring Creek NFH
04/28/83	52,259	55.0	51,266	051143	Spring Creek NFH
04/28/83	52,557	55.0	51,716	051144	Spring Creek NFH
04/28/83	53,132	55.0	52,282	051145	Spring Creek NFH
Totals	14,313,930		205,013	PEF= 69.82	

total OBSD 929

Where Recovered	expanded	2s	3s	4s	5s	6s	Total
Columbia River Gillnet	ODFW 43,498	56	449	118			623
Estuary Sport	ODFW 349	3	2				5
Estuary Sport	WDFW 7,959	67	26	21			114
Fish Trap (freshwater)	FWS 2,374			34			34
Groundfish Observer (CA/	NMFS 489	7					7
Hatchery	FWS 16,268	33	161	38	1		233
Hatchery	NIFC 349				5		5
Hatchery	ODFW 11,171	13	100	46	1		160
Mixed Net and Seine	CDFO 2,374	24	4	6			34
Mixed Net and Seine	WDFW 1,187	9	8				17
Ocean Sport	CDFO 1,536		12	10			22
Ocean Sport	ODFW 1,047		15				15
Ocean Troll (non-treaty)	CDFG 279		4				4
Ocean Troll (non-treaty)	CDFO 26,322	1	291	80	5		377
Ocean Troll (non-treaty)	ODFW 8,029		111	4			115
Ocean Troll (non-treaty)	WDFW 11,800		166	3			169
Sport (charter)	WDFW 838	3	9				12
Sport (private)	WDFW 3,142	3	32	10			45
Test Fishery Net	ODFW 419		4	2			6
Treaty Troll	WDFW 1,885		27	-	-		27
Totals	141,315	2191	421	372	12		2,024

		% of total	% of release
Ocean contribution	58,928	42	0.4117
Escapement to Columbia River	82,387	58	0.5756
Total Survival	141,315		0.9873

Escapement to NFH	16,268	12	0.1137
Columbia River contribution	66,119	47	0.4619

Ocean	Contribution by Area	
0 AK		
30,232 BC		
18,852 WA	Columbia River	Escapement to NFH
9,076 OR	52,225	16,268
279 CA		
58,439 Total		

Stock Assessment Reference Document from CRiS and PSMFC TSl 02/19/96
 Broodyear 83 Tule Fall Chinook raised at Spring Creek NFH
 and released Columbia River

Date	Number	#/lb	Tagged	CWT	AT
04/16/84	5,028,387	75.2	0	-	Spring Creek NFH
05/16/84	5,798,526	63.5	0	-	Spring Creek NFH
07/31/84	16,607	35.4	0	-	Spring Creek NFH
04/16/84	50,760	68.0	48,415	051146	Spring Creek NFH
04/16/84	49,462	68.0	48,695	051150	Spring Creek NFH
04/16/84	48,384	68.0	46,449	051151	Spring Creek NFH
04/16/84	48,854	69.0	46,899	051152	Spring Creek NFH
Totals	11,040,980		190,458	PEF= 57.97	

Where Recovered	expanded	2s	3s	4s	5s	6s	Total
Columbia River Gillnet	ODFW 7,188	9	111	4			124
Estuary Sport	WDFW 348		6				6
Fish Trap (freshwater)	FWS 870		15				15
Hatchery	FWS 986	5	9	3			17
Hatchery	ODFW 174		3				3
Mixed Net and Seine	CDFO 174	3					3
Mixed Net and Seine	WDFW 174		3				3
Ocean Sport	CDFO 464	4	4				8
Ocean Troll (non-treaty)	CDFO 3,478		60				60
Ocean Troll (non-treaty)	ODFW 116		2				2
Ocean Troll (non-treaty)	WDFW 928		16				16
Sport (charter)	WDFW 174	2	1				3
Sport (private)	WDFW 812		10	4			14
Treaty Troll	WDFW 116		2				2
Totals	16,002	- E - - - 242	11				276

	% of total	% of release
Ocean contribution	6,436 40	0.0583
Escapement to Columbia River	9,566 60	0.0866
Total Survival	16,002	0.1449

Escapement to NFH	986 6	0.0089
Columbia River contribution	8,580 54	0.0777

Ocean Contribution by Area

0 AK		
4,116 BC		
2,204 WA	Columbia River	Escapement to NFH
116 OR	7,536	986
0 CA		
6,436 Total		

Stock Assessment Reference Document from CRIS and PSMFC TSL 02/19/96
 Broodyear 84 Tule Fall Chinook raised at Spring Creek NFH
 and released Columbia River

Date	Number	#/lb	Tagged	CWT	AT
02/28/85	2,483,583	207.0	0	-	Spring Creek NFH
02/28/85	5,187,684	148.0	0	-	Spring Creek NFH
02/25/85	2,847,474	167.0	47,462	051534	Spring Creek NFH
02/25/85	3,222,158	167.0	53,653	051535	Spring Creek NFH
02/28/85	42,593	147.3	41,826	051536	Spring Creek NFH
02/28/85	43,401	147.0	42,707	051537	Spring Creek NFH
02/28/85	39,381	145.0	37,373	051538	Spring Creek NFH
02/28/85	<u>39,143</u>	145.0	<u>36,912</u>	051539	Spring Creek NFH
Totals	13'905,417		259,933	PEF= 53.50	

total OBSD 51
 ===== PSC expanded numbers ===

Where Recovered		expanded	2s	3s	4s	5s	6s	Total
Columbia River Gillnet	ODFW	1,712	7	17	8			32
Fish Trap (freshwater)	FWS	214		4				4
Hatchery	FWS	481	1	4	4			9
Hatchery	ODFW	481	1	8				9
Mixed Net and Seine	CDFO	428	8					8
Mixed Net and Seine	WDFW	267		5				5
Ocean Sport	ODFW	160	3					3
Ocean Troll (non-treaty)	CDFO	856		10	6			16
Ocean Troll (non-treaty)	ODFW	214		4				4
Ocean Troll (non-treaty)	WDFW	535		10				10
Sport (charter)	WDFW	107		2				2
Sport (private)	WDFW	749		14				14
Treaty Troll	WDFW	<u>214</u>	<u>1</u>	<u>3</u>				<u>4</u>
Totals		6,418	20	79	21			120

		% of total	% of release
Ocean contribution	3,530	55	0.0254
Escapement to Columbia River	2,888	45	0.0208
Total Survival	6,418		0.0462

Escapement to NFH	481	7	0.0035
Columbia River contribution	2,407	38	0.0173

Ocean Contribution by Area

0 AK		
1,284 BC		
1,872 WA	Columbia River	Escapement to NFH
374 OR	1,712	481
0 CA		
3,530 Total		

Stock Assessment Reference Document from CRIS and PSMFC TSL 02/19/96
 Broodyear 85 Tule Fall Chinook raised at Spring Creek NFH
 and released Columbia River

Date	Number	#/lb	Tagged	CWT	AT
03/06/86	1,873,070	123.8	91,229	B50109	Spring Creek NFH
04/08/86	1,785,630	69.0	93,292	B50110	Spring Creek NFH
05/15/86	1,713,442	38.5	96,854	B50111	Spring Creek NFH
03/06/86	844,132	123.8	44,147	850112	Spring Creek NFH
03/06/86	1,009,580	123.8	51,218	850113	Spring Creek NFH
04/08/86	820,910	69.0	43,406	B50114	Spring Creek NFH
04/08/86	1,084,630	69.0	51,921	B50115	Spring Creek NFH
05/15/86	688,395	38.5	41,980	B50208	Spring Creek NFH
05/15/86	775,104	38.5	52,508	B50209	Spring Creek NFH
Totals	10,594,893		566,555	PEF= 18.70	

total OBSD 240

Where Recovered		expanded	2s	3s	4s	5s	6s	Total
Columbia River Gillnet	ODFW	4,563	4	131	96	13		244
Estuary Sport	ODFW	112	3	3				6
Estuary Sport	WDFW	430	5	9		9		23
Hatchery	FWS	785	4	29	8	1		42
Hatchery	ODFW	206		8	3			11
Mixed Net and Seine	CDFO	56				3		3
Mixed Net and Seine	WDFW	449	24					24
Ocean Sport	CDFG	168		9				9
Ocean Sport	CDFO	393		7	14			21
Ocean Sport	ODFW	37	2					2
Ocean Troll (non-treaty)	CDFO	3,703		167	23	4	4	198
Ocean Troll (non-treaty)	ODFW	767		37	4			41
Ocean Troll (non-treaty)	WDFW	954		36	15			51
Sport (charter)	WDFW	187		10				10
Sport (private)	WDFW	187		6	4			10
Test Fishery Net	ODFW	19			1			1
Treaty Troll	WDFW	711	4	30	4			38
Totals		13,727	- 46	8 2	172	30	4	734

		% of total	% of release
Ocean contribution	7,612	55	0.0718
Escapement to Columbia River	6,115	45	0.0577
Total Survival	13,727		0.1296

Escapement to NFH	785	6	0.0074
Columbia River contribution	5,330	39	0.0503

Ocean Contribution by Area

0 AK
 4,152 BC
 2,488 WA
 804 OR
 168 CA
 7,612 Total

Columbia River
 5,124

Escapement to NFH
 785

Stock Assessment Reference Document from CRiS and PSMFC Ts1 01/29/96
 Broodyear 86 Tule Fall Chinook raised at Spring Creek NFH
 and released Columbia River

Date	Number	#/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	288,762	63.6	48,971	051859	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
05/21/87	684,848	42.1	46,113	051863	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	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	4s	5s	6s	Total
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	1,777	19	56	21			96
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		45,995	222	1,777	478	8		2,485

		% of total	% of release
Ocean contribution	22,359	49	0.2101
Escapement to Columbia River	23,636	51	0.2221
Total Survival	45,995		0.4323

Escapement to NFH	5,812	13	0.0546
Columbia River contribution	17,824	39	0.1675

Ocean	Contribution by Area	
0 AK		
9,144 BC		
8,791 WA	Columbia River	Escapement to NFH
4,220 OR	17,102	5,812
0 CA		
22,155 Total		

Stock Assessment Reference Document from CRiS and PSMFC TSl 01/29/96
 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			
		expanded	2s	3s	4s	5s	6s
Where Recovered							
Columbia River Gillnet	ODFW	6,156	49	180	156		
Estuary Sport	ODFW	144		6	3		
Estuary Sport	WDFW	656	6'	35			
Hatchery	FWS	5,244	19	208	100	1	
Hatchery	ODFW	416	3	15	8		
Mixed Net and Seine	CDFO	272	15	2			
Mixed Net and Seine	WDFW	64	2	2			
Ocean Sport	CDFO	1,503	15	72	7		
Ocean Sport	ODFW	48		3			
Ocean Sport	WDFW	32		1	1		
Ocean Troll (non-treaty)	CDFG	48		3			
Ocean Troll (non-treaty)	CDFO	6,188		333	54		
Ocean Troll (non-treaty)	ODFW	1,087		68			
Ocean Troll (non-treaty)	WDFW	1,519		91	4		
Sport (charter)	WDFW	368	3	17	3		
Sport (private)	WDFW	1,039	17	44	4		
Test Fishery Net	ODFW	16		1			
Treaty Troll	WDFW	2,510	62	90	5	-	
Totals		27,310	191	1,171	345	1	

		% of total	% of release
Ocean contribution	14,678	54	0.1658
Escapement to Columbia River	12,632	46	0.1427
Total Survival	27,310		0.3086
Escapement to NFH	5,244	19	0.0592
Columbia River contribution	7,388	27	0.0835

Ocean

Contribution by Area

O A K
 7,963 BC
 5,532 WA
 1,135 OR
 48 CA
 14,678 Total

Columbia River
 6,972

Escapement to NFH
 5,244

Stock Assessment Reference Document from CRiS and PSMFC TSL 01/29/96
 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			
		-----		PSC		expanded		numbers	
Where Recovered		expanded	2s	3s	4s	5s	6s	Total	
Columbia River Gillnet	ODFW	23,218	128	759	111			998	
Columbia River Sport	ODFW	163		7				7	
Estuary Sport	ODFW	721	3	28				31	
Estuary Sport	WDFW	3,304	81	57	4			142	
'Groundfish Observer (CA/	NMFS	140	6					6	
Hatchery	FWS	14,331	152	373	91			616	
Hatchery	ODFW	2,955	12	82	33			127	
Mixed Net and Seine	CDFO	558	22	2				24	
Mixed Net and Seine	WDFW	163	7					7	
Ocean Sport	CDFG	93		4				4	
Ocean Sport	CDFO	1,652	25	41	5			71	
Ocean Sport	ODFW	1,326	5	52				57	
Ocean Sport	WDFW	209	1	8				9	
Ocean Troll (non-treaty)	CDFO	10,237		361	79			440	
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		79,125	660	2,390	351			3,401	

		% of	
		total	release
Ocean contribution	34,223	43	0.2236
Escapement to Columbia River	44,902	57	0.2933
Total Survival	79,125		0.5169
Escapement to NFH	14,331	18	0.0936
Columbia River contribution	30,571	39	0.1997

Ocean		Contribution by Area	
O A K			
12,447	BC		
16,006	WA	Columbia River	Escapement to NFH
5,537	OR	27,616	14,331
93	CA		
34,083	Total		

Stock Assessment Reference Document from CRiS and PSMFC TSl 01/29/96
 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			
		=====		PSC		expanded		numbers	
Where Recovered		expanded	2s	3s	4s	'5s	6s	Total	===
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	1,775	24	98	21			143	
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	1,564	11	86	29			126	
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		46,682	286	2,760	708	6		3,760	

		% of	% of
		total	release
Ocean contribution	26,668	57	0.2606
Escapement to Columbia River	20,014	43	0.1956
Total Survival	46,682		0.4562
Escapement to NFH	8,368	18	0.0818
Columbia River contribution	11,646	25	0.1138

Ocean	Contribution by Area	
O A K		
9,113 BC		
14,339 WA	Columbia River	Escapement to NFH
3,179 OR	10,082	0,368
37 CA		
26,668 Total		

Stock Assessment Reference Document from CRiS and PSMFC TSl 01/29/96
 Broodyear 90 Tule Fall Chinook raised at Spring Creek NFH
 and released Columbia River

14,348,604 released with 622,029 tagged fish and 17 CWTs PEF= 23.07

		total		OBSD		502		numbers	===
Where Recovered		expanded	2s	3s	4s	5s	6s		
Columbia River Gillnet	ODFW	-3,760	22	112	28	1			163
Columbia River Sport	ODFW	92		4					4
Estuary Sport	ODFW	69		3					3
Estuary Sport	WDFW	692	9	17	4				30
Freshwater Sport	ODFW	23		1					1
Hatchery	FWS	5,998	31	147	82				260
Hatchery	ODFW	669	10	12	7				29
Mixed Net and Seine	CDFO	231	6	4					10
Ocean Sport	CDFG	69		3					3
Ocean Sport	CDFO	807	11	21	3				35
Ocean Sport	ODFW	69	3						3
Ocean Troll (non-treaty)	CDFO	2,768		102	18				120
Ocean Troll (non-treaty)	ODFW	300		13					13
Ocean Troll (non-treaty)	WDFW	1,938		84					84
Sport (charter)	WDFW	92		4					4
Sport (private)	WDFW	807	12	23					35
Test Fishery Net	ODFW	23		1					1
Treaty Troll	WDFW	2,284	9	85	- 5	-			99
Totals		20,691	113	636	147	1			897

		% of total	% of release
Ocean contribution	9,365	45	0.0653
Escapement to Columbia River	11,326	55	0.0789
Total Survival	20,691		0.1442

Escapement to NFH	5,998	29	0.0418
Columbia River contribution	5,328	26	0.0371

Ocean Contribution by Area

O A K

3,806 BC

5,121 WA

369 OR

69 CA

9,365 Total

Columbia River

4,659

Escapement to NFH

5,998

Stock Assessment Reference Document from CRIS and PSMFC TSL 02/19/96
 Broodyear 87 Spring Chinook raised at Warm Springs NFH
 and released Warm Springs River

609,409 released with 472,278 tagged fish and 16 CWTs PEF= 1.29

		total OBSD		550		PSC expanded numbers		
		=====	2s	3s	4s	5s	6s	=====
Where Recovered	expanded							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	253		20	164	12		196
Hatchery	FWS	555	1	21	374	34		430
Test Fishery Net	ODFW	3			2			2
Treaty Ceremonial	ODFW	32		2	11	12		25
Treaty Subsistence	ODFW	43		6	25	2		33
Totals		931	- 4 9	1	605	66		721

		% of total	% of release
Ocean contribution	0	0	0.0000
Escapement to Columbia River	931	100	0.1528
Total Survival	931		0.1528
Escapement to NFH	555	60	0.0911
Columbia River contribution	376	40	0.0617

Ocean ,	Contribution by Area	
0 A K		
0 BC		
0 WA	Columbia River	Escapement to NFH
0 OR	376	555
0 CA		
0 Total		

Stock Assessment Reference Document from CRiS and PSMFC TSl 01/29/96
 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		PSC expanded		numbers	====	
Where Recovered		expanded	2s	3s	4s	5s	6s	Total		
Columbia River Gillnet	ODFW	4				3		3		
Columbia River Sport	ODFW	42			28	4		32		
Fish Trap (freshwater)	ODFW	4	3					3		
Freshwater Sport	ODFW	305	6	22	195	10		233		
Freshwater Sport	WDFW	7			5			5		
Hatchery	FWS	851	2	50	506	91		649		
Test Fishery Net	ODFW	12			9			9		
Treaty Ceremonial	ODFW	54			35	6		41		
Treaty Subsistence	ODFW	62		8	36	3		47		
Totals		1,341	-	i i 80	814	117		1,022		

		% of		% of	
		total		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 by Area

0 A K

0 BC

0 WA

0 OR

0 CA

0 Total

Columbia River
490

Escapement to NFH
851

Stock Assessment Reference Document from CRiS and PSMFC TSl 01/29/96
 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		PSC expanded		numbers	===
		S=D							
Where Recovered		expanded	2s	3s	4s	5s	6s	Total	
Freshwater Sport	ODFW	62		6	49			55	
Hatchery	FWS	141	5	3	105	12		125	
Test Fiehery 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 by Area

0 A K

0 BC

0 WA,

0 OR

0 CA

0 Total

Columbia River

80

Escapement to NFH

141

Stock Assessment Reference Document from CRiS and PSMFC TSl 01/29/96
 Broodyear 90 Spring Chinook raised at Warm Springs NFH
 and released Warm Springs River

Date	Number	#/lb	Tagged	CWT	AT
11/04/91	6,018	7.6	5,471	052514	Warm Springs NFH
04/22/92	45,191	12.0	41,083	052514	Warm Springs NFH
11/04/91	2,503	3.8	2,265	052515	Warm Springs NFH
04/22/92	48,497	12.0	43,884	052515	Warm Springs NFH
04/22/92	10,637	11.7	9,644	052516	Warm Springs NFH
04/22/92	10,694	13.4	9,696	052516	Warm Springs NFH
04/22/92	10,741	12.3	9,738	052516	Warm Springs NFH
04/22/92	8,283	11.8	7,510	052516	Warm Springs NFH
04/22/92	42,672	13.8	39,002	052517	Warm Springs NFH
04/22/92	47,406	12.4	45,165	052518	Warm Springs NFH
04/22/92	3,850	13.4	3,666	052519	Warm Springs NFH
04/22/92	11,534	13.0	10,984	052519	Warm Springs NFH
04/22/92	10,279	11.4	9,788	052519	Warm Springs NFH
04/22/92	32,338	12.6	30,641	052520	Warm Springs NFH
04/22/92	34,051	12.4	31,060	052521	Warm Springs NFH
04/22/92	9,100	11.4	8,267	052522	Warm Springs NFH
04/22/92	3,600	12.4	3,270	052522	Warm Springs NFH
04/22/92	23,896	11.2	21,868	052523	Warm Springs NFH
04/22/92	24,532	13.1	22,234	052524	Warm Springs NFH
04/22/92	34,807	12.7	32,015	052525	Warm Springs NFH
04/22/92	18,193	12.9	16,489	052526	Warm Springs NFH
04/22/92	38,286	12.0	34,948	052527	Warm Springs NFH
04/22 /92	37,319	12.2	35,208	052528	Warm Springs NFH
04/22/92	37,942	12.4	35,763	052529	Warm Springs NFH
04/22/92	37,709	13.3	34,474	052530	Warm Springs NFH
04/22/92	38,188	11.9	35,061	052531	Warm Springs NFH
04/22/92	13,771	9.7	13,075	052712	Warm Springs NFH
04/22/92	17,470	12.1	16,597	052713	Warm Springs NFH
Totals	659,507		608,866	PEF= 1.08	

total OBSD 27

Where Recovered	expanded	2s	3s	4s	5s	6s	Total
Freshwater Sport	6		6				6
Hatchery	27	1	2	22			25
Totals	33	1	8	22			31

	% of total	% of release
Ocean contribution	0	0.0000
Escapement to Columbia River	33	0.0050
Total Survival	33	0.0050

Escapement to NFH	27	82	0.0041
Columbia River contribution	6	18	0.0009

Ocean	Contribution by Area
0 A K	
0 BC	
0 WA	Columbia River
0 OR	6
0 CA	
0 Total	27

Stock Assessment Reference Document from CRIS and PSMFC TSL 01/28/96
 Broodyear 89 Spring Chinook raised at Winthrop NFH
 and released Methow River

Date	Number	#/lb	Tagged	CWT	AT
04/11/91	193,320	19.0	27,754	052331	Winthrop NFH
04/11/91	157,615	20.4	27,219	052330	Winthrop NFH
04/11/91	92,949	17.3	27,581	052329	Winthrop NFH
04/11/91	224,709	19.1	0	052330	Winthrop NFH
04/11/91	291,430	20.5	0	052331	Winthrop NFH
04/11/91	95,033	17.3	25,116	052328	Winthrop NFH
Totals	1,055,056		107,670	PEF= 9.80	

		expanded	2s	3s	4s	5s	6s	Total
Where Recovered								
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

		% 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 by Area

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

Stock Assessment Reference Document from CRiS and PSMFC TSl 01/28/96
 Broodyear 90 Spring Chinook raised at Winthrop NFH
 and released Methow River

Date	Number	#/lb	Tagged	CWT	AT
04/15/92	158,397	15.8	22,120	052607	Winthrop NFH
04/15/92	156,280	15.6	16,900	052608	Winthrop NFH
04/15/92	187,193	16.3	24,161	052624	Winthrop NFH
04/15/92	<u>122,901</u>	16.6	<u>27,439</u>	052625	Winthrop NFH
Totals	624,771		90,620	PEF= 6.89	

total	OBSD	1
=====	PSC	expanded
2s	3s	4s
		5s
		<u>1</u>
		1
		numbers
		65
		Total
		<u>1</u>
		1

Where Recovered	expanded	2s	3s	4s	5s	65	Total
Hatchery	WDFW	<u>7</u>			<u>1</u>		<u>1</u>
Totals		7			1		1

	% of total	% of release
Ocean contribution	0	0
Escapement to Columbia River	7	100
Total Survival	7	0.0011
Escapement to NFH	0	0
Columbia River contribution	7	1.00

Ocean	Contribution by Area
0 A K	
0 BC	
0 WA	Columbia River
0 OR	0
0 CA	0
0 Total	Escapement to NFH

Stock Assessment Reference Document from CRIS and PSMFC TSl 01/29/96
 Broodyear 92 Coho raised at Willard NFH
 and released L White Salmon River

Date	Number	#/lb	Tagged	CWT	AT
04/14/94	1,992,332	15.7	49,602	053305	Willard NFH
Totals	1,992,332		49,602	PEF= 40.17	

				total	OBSD	42			
				=====	PSC	expanded	numbers	===	
Where Recovered			expanded	2s	3s	4s	5s	6 s	Total
Columbia River Gillnet	ODFW		161		4				4
Hatchery	FWS		1,486	2	35				37
Ocean Sport	ODFW		120		3				3
Sport (charter)	WDFW		120		3				3
Sport (private)	WDFW		120		3				3
Totals			2,007	-	24	8			50

		% of	% of
		total	release
Ocean contribution	360	18	0.0181
Escapement to Columbia River	1,647	82	0.0827
Total Survival	2,007		0.1007

Escapement to NFH	1,486	74	0.0746
Columbia River contribution	161	8	0.0081

Ocean Contribution by-Area

0 AK

0 BC

240 WA

120 OR

0 CA

360 Total

Columbia River

161

Escapement to NFH

1,486

Stock Assessment Reference Document from CRIS and PSMFC TSL 01/29/96
 Broodyear 91 Coho raised at Willard N^{FH}
 and released L White Salmon River

Date	Number	X/lb	Tagged	CWT	AT
04/15/93	1,531,807	16.8	24,805	052719	Willard N ^{FH}
04/15/93	1,531,808	16.8	25,120	052728	Willard N ^{FH}
Totals	3,063,615		49,925	PEF= 61.36	

Where Recovered	expanded	2s	3s	4s	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	- 3 5	1			36

	% of total	% of release
Ocean contribution	0	0.0000
Escapement to Columbia River	2,209	100
Total Survival	2,209	0.0721

Escapement to N ^{FH}	1,657	75	0.0541
Columbia River contribution	552	25	0.0180

Ocean Contribution by Area

0 A K

0 BC

0 WA

0 OR

0 CA

0 Total

Columbia River

552

Escapement to N^{FH}

1,657

stock Assessment Reference Document from CRiS and PSMFC Tsl 01/29/96
 Broodyear 90 Coho raised at Willard NFH
 and released L White Salmon River

Date	Number	#/lb	Tagged	CWT	AT
04/15/92	784,643	14.0	24,875	052749	Willard NFH
04/15/92	<u>784,644</u>	14.0	<u>24,267</u>	052750	Willard NFH
Totals	1,569,287		49,142	PEF= 31.93	

total OBSD 27

=m=me

PSC expanded numbers ==

Where Recovered		expanded	2s	3s	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	<u>543</u>		17				<u>17</u>
Totals		1,726	- 2 5	2				54

% 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 by Area

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

Stock Assessment Reference Document from CrIS and PSMFC TSI 01/29/96
 Broodyear 89 Coho raised at Willard NFH
 and released L White Salmon River

Date	Number	#/lb	Tagged	CWT	AT
04/15/91	11286,661	14.6	23,930	052532	Willard NFH
04/15/91	<u>1,286,662</u>	14.6	<u>23,813</u>	052533	Willard NFH
Totals	2,573,323		47,743	PEF= 53.90	

total OBSD 79

Where Recovered		expanded	2s	3s	PSC	expanded	numbers	===
					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	<u>162</u>	-	<u>3</u>				<u>3</u>
Totals		8,355	1	154				155

		% 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 by Area

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

Stock Assessment Reference Document from CRIS and PSMFC TSI 01/29/96
 Broodyear 88 Coho raised at Willard NFH
 and released L White Salmon River

Date	Number	#/lb	Tagged	CWT	AT
04/18/90	1,449,095	14.5	22,526	052225	Willard NFH
04/18/90	1,449,045	14.5	22,714	052226	Willard NFH
Totals	2,898,140		45,240	PEF= 64.06	

total OBSD 373

Where Recovered		expanded	2s	3s	4s	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)	CDFG	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	- i i i -	-716	1			768

		% 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 by Area

O A K

1,473 BC

8,521 WA

12,813 OR

5,189 CA

27,996 Total

Columbia River

8,776

Escapement to NFH

11,787

Stock Assessment Reference Document from CRIS and PSMFC TSL 03/10/96
 Broodyear 81 Coho raised at Willard NFH
 and released L White Salmon River

2,849,568 released with 406,576 tagged fish and 19 CWTs PEF= 7.01

		total OBSD 1,262						
		===== PSC expanded numbers ===						
Where Recovered		expanded	2s	3s	4s	5s	6s	Total
Columbia River Gillnet	ODFW	1,703		243				243
Columbia River Sport	ODFW	140		20				20
Estuary Sport	ODFW	449		64				64
Hatchery	F W S	7,359		1,050				1,050
Hatchery	ODFW	42		6				6
Ocean Sport	CDFO	42		6				6
Ocean Sport	ODFW	582		83				83
Ocean Troll (non-treaty)	CDFG	14		2				2
Ocean Troll (non-treaty)	CDFO	231		32,	1			33
Ocean Troll (non-treaty)	ODFW	42		6				6
Ocean Troll (non-treaty)	WDFW	42		6				6
Sport (charter)	WDFW	378		54				54
Sport (private)	CDFG	112		16				16
Sport (private)	WDFW	820		117				117
Treaty Troll	WDFW	14		2				2
Totals		11,970		1,707	1			1,708

		% of total	% of release
Ocean contribution	2,277	19	0.0799
Escapement to Columbia River	9,693	81	0.3402
Total Survival	11,970		0.4201
Escapement to NFH	7,359	61	0.2582
Columbia River contribution	2,334	19	0.0819

Ocean	Contribution by Area	
0 AK		
273 BC		
1,254 WA	Columbia River	Escapement to NFH
624 OR	2,292	7,359
126 CA		
2,277 Total		