

Annual Report

Fiscal Year 1995

Lower Snake River Compensation Plan Office

Boise, Idaho

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I. INTRODUCTION

The Lower Snake River Compensation Plan Office was established with the closing of the Boise Area Office in September 1982. The Office's primary responsibility is to administer U.S. Fish and Wildlife Service (FWS) operations and maintenance funds (O&M) for cooperator fisheries operations under the Lower Snake River Fish and Wildlife Compensation Plan (LSRCP).

The LSRCP was authorized by the Water Resources Development Act of 1976 (90 Stat. 2917) to replace fish and wildlife losses caused by the construction and operation of Ice Harbor, Lower Monumental, Little Goose, and Lower Granite Lock and Dam projects on the lower 150 miles of the Snake River in Washington and Idaho. The plan described fish hatchery developments as well as improvements to the dams and powerplants to improve smolt passage. Construction responsibility for the LSRCP was assigned to the Walla District, U.S. Army Corps of Engineers (Corps), while responsibility for fish hatchery O&M funding was to be accomplished by "one of the Federal fisheries agencies." The question of O&M funding was settled in 1977 with the signing of an interagency agreement by the Corps, National Marine Fisheries Service (NMFS), and FWS; it stated that the FWS would budget for and administer O&M funds for LSRCP fish hatchery programs (responsibility for administration and O&M for fish passage and wildlife programs remains with the Corps).

Public Law 99-662, approved November 17, 1986, modified the Water Resources Development Act of 1976 in accordance with recommendations contained in a report from the Chief of Engineers, dated March 6, 1985. The Chief's 1985 report confirmed the 1977 NMFS/FWS agreement on Page 2, Section 4.d with a directive which stated: "The U.S. Fish and Wildlife Service should be designated to fund the operation and maintenance of all fish rearing facilities." Regarding ownership of property, the 1985 Report stated in Section 5.3: "Transfer of jurisdiction over all Compensation Plan fish hatcheries, appurtenant facilities and lands to the U.S. Fish and Wildlife Service for operation, maintenance, and replacement shall occur upon completion of construction by the Corps of Engineers." The Corps is transferring fee title of LSRCP hatcheries and associated satellite facilities to the FWS as they are completed and fully operational. Ownership of many hatcheries and satellites has been transferred to the FWS.

The Corps' estimated cost for construction of the authorized LSRCP off-project fisheries facilities (hatcheries and related satellite facilities) is \$177 million; the FWS costs for annual O&M now exceeds \$12 million. All anadromous fisheries compensation and most resident fisheries compensation are allocated to project power costs and are reimbursed to the U.S. Treasury with interest by the Bonneville Power Administration (BPA) from power revenues.

The LSRCP legislation authorized what was believed to be sufficient anadromous fish hatcheries and associated trapping and holding facilities to produce enough smolts to return 18,300 fall chinook adults, 58,700 spring and summer chinook adults, and 55,100 steelhead adults back to the project area, and sufficient resident fish hatcheries and stream enhancement projects to produce 93,000 pounds of trout annually to replace lost resident sport fisheries in Washington and Idaho. The program required expansion or construction of 12 hatcheries and 11 satellite facilities in Idaho, Oregon, and Washington.

Idaho Department of Fish and Game (IDFG) operates four hatcheries, Oregon Department of Fish and Wildlife (ODFW) operates three hatcheries, Washington Department of Fish and Wildlife (WDFW), formerly Washington Department of Wildlife and Washington Department of Fisheries operate three hatcheries, and FWS two hatcheries.

II. PROGRAM HIGHLIGHTS FOR FY1995

LSRCP facilities continue to produce and release large numbers of salmon, steelhead and resident trout as part of their mitigation responsibility. In FY1995, 12,636,107 salmon, steelhead and rainbow trout weighing over 1,688,700 million pounds were released from LSRCP facilities. The numbers and pounds of fish produced were lower than FY1994 and release sites and sizes were adjusted to reduce impacts on listed species.

The 1994-95 steelhead run above Lower Granite Dam of 47,147 fish was substantially lower than previous years totals of 97,000, 113,000, and 59,604. The run was comprised mostly of hatchery releases in 1992 and 1993. Returns of both salmon and steelhead were low coastwide, and like many programs, the LSRCP portion fell short of meeting its adult steelhead mitigation goal, 55,100 steelhead adults back to the project area. In 1995 approximately 5,976,400 million steelhead smolts were released from LSRCP hatcheries compared to a release of approximately 6.5 million from these facilities in 1994. In keeping with the success of the LSRCP steelhead production program, Magic Valley Fish Hatchery (FH) alone released 1,731,355 steelhead smolts this year weighing 391,825 pounds.

The Clearwater FH, the last facility to be constructed under the LSRCP, became fully operational in December 1991 and completed its fourth full year of production in FY1995. This year Clearwater FH released approximately 1,882,648 salmon and steelhead directly into the Clearwater and Selway rivers or from its satellite facilities at Powell, Crooked River and Red River.

Much of the LSRCP staff time in FY1995 was spent on Endangered Species Act (ESA) consultations and preparation of biological assessments of hatchery production and release effects on listed Snake River spring/summer and fall chinook. Fish hatchery production was and will continue to be adjusted where appropriate to meet ESA requirements. The LSRCP staff and cooperators are entering into a new production scenario at facilities in Oregon and Idaho where captive broodstock programs have been initiated as a gene conservation measure.

The LSRCP video completed two years ago by FWS in cooperation with the National Fish and Wildlife Foundation has been widely circulated during the past year. Over 300 copies were distributed to FWS Offices and to all LSRCP Cooperators. In addition, the Service entered into a partnership with Albertsons Food Stores in the northwest and the video is now available at their video departments. The video was also shown on Idaho Public Television, which transmits to Idaho and parts of Oregon and Washington. Large numbers of copies have been loaned to environmental groups and civic organizations after being advertised nationally through USA Today.

The LSRCP Offices also initiated preparation of two full color brochures, one for Clearwater FH and the other for Lookingglass FH. The Corps will print 50,000 copies of each brochure next year. These brochures will complete brochures for all facilities.

Members of the LSRCP staff have actively participated in the region's ecosystem reorganization process as either leaders or members of several of the reorganization work teams. We hope our efforts will result in a well coordinated Columbia River ecosystem team approach to resource management.

III. STATION AND COOPERATOR OPERATIONS

The Boise LSRCP Office negotiated cooperative agreements with and administered funds to three state agencies, two Indian tribes and the FWS for operation and maintenance of fish hatcheries and to conduct hatchery monitoring and evaluation studies and fish health programs. A total of \$8,689,280 was obligated to WDFW, ODFW, and IDFG or transferred to Dworshak NFH, Hagerman NFH, and Dworshak Fish Health Center (DFHC) for operation and maintenance and fish health monitoring of 12 hatcheries and 11 associated satellite facilities. An additional \$2,262,019 was obligated to the same three state cooperators, Nez Perce and Umatilla tribes, Idaho Fisheries Resource Office (IFRO), the Columbia River Coordinators Office, and the Oregon Cooperative Fish and Wildlife Research limit for hatchery monitoring and evaluation studies and Section 7 consultation work. A total of 12,636,107 salmon, steelhead and rainbow trout weighing 1,688,728 pounds were stocked from LSRCP facilities in FY1995. BPA funded a disease monitoring program at all Columbia and Snake river hatcheries until FY1991. This responsibility for all LSRCP facilities was taken over by our office in 1991 and has continued since that time. LSRCP pathologists met with the evaluation biologists during their annual meeting to discuss the status of their efforts.

Below are brief summaries of hatchery and evaluation activities in FY1995. Tables 1, 2, and 3 provide further data on funds obligated, fish stocked, production targets, construction costs, and hatchery/trap returns.

Clearwater Anadromous Fish Hatchery - Idaho

Clearwater Fish Hatchery was the last of the 12 hatcheries to be completed under the Corps' LSRCP construction program. The hatchery is operated by the IDFG and has been built across the North Fork of the Clearwater River from Dworshak NFH. It is designed to produce (with its three satellites) 1,369,500 spring chinook smolts weighing 91,300 pounds and 2,500,000 steelhead smolts weighing 350,000 pounds. The spring chinook adult return goal for the program is 11,915 salmon and the steelhead return goal is 14,000 adult returns to the Snake River basin.

The Clearwater FH is located on land (17.5 acres) purchased by the Corps in 1989. Construction of Clearwater FH began in August 1989 and was completed by the end of 1991. The water supply line was tested in November 1991, and steelhead eggs from Dworshak NFH and rainbow trout for resident fisheries program were supplied to Clearwater in 1992 for the first rearing cycle.

The Clearwater FH receives its entire water supply from Dworshak Reservoir via two pipes. The primary (and largest) line takes water from just below the reservoir's surface while a secondary (smaller) line receives cold water from an intake deep below the water surface. A distribution tank near the hatchery allows mixing of the water from the two lines to select proper temperatures for various uses at Clearwater FH and also provides a water supply line to Dworshak NFH.

Three satellite fish facilities are associated with the hatchery: Red River, which was completed in November 1986; Powell, completed in the summer of 1989 and Crooked River, completed in the spring of 1990. Red River, Crooked River and Powell are now being operated as rearing, release, and trapping facilities using excess fish from either Sawtooth FH or, more recently, Dworshak NFH.

Red River trapped only four adult spring chinook this year, only 12% of the 31 adults collected last year. Two of these adults were released to spawn naturally. Crooked River was operational for the sixth year of trapping; a total of only 6 jacks were trapped and all were released. The Crooked River return was only 23% of the 25 adults and one jack trapped last year. A total of 17 steelhead were trapped at the Crooked River trap this year and all were released above the weir to spawn naturally. The Powell trap, on the Lochsa River, trapped a total of 14 chinook. One female was spawned resulting in 5,259 green eggs. The Clearwater FH is now holding a total of approximately 1,247,658 BY1994 and 1995 salmon and steelhead fingerlings for 1996 production and release from the hatchery and satellite facilities. In addition approximately 2,600 spring chinook eggs were on hand at the end of FY1995.

A total of 1,294,686 BY1993 chinook smolts weighing 70,380 pounds were released from the satellite facilities and supplementation sites in April 1995. Approximately 538,000 BY1994 spring chinook smolts were released from Crooked River pond, 290,417 were released from Powell, and 466,361 were released at 3 other sites in Papoose and Newsome creeks and American River. A total of 587,962 BY1994 N.F. Clearwater strain steelhead smolts weighing 85,363 pounds were released directly into four North Fork Clearwater River sites. In addition 50,701 BY1994 (957 lbs) and 46,306 BY1995 (800 lbs) N.F. Clearwater strain steelhead fingerlings were released into the S.F. Red River for supplementation studies.

Magic Valley Fish Hatchery - Idaho

Magic Valley FH is located on the Snake River near Filer, Idaho, and is operated by IDFG. It was completed in August 1987 and is designed to produce 2,000,000 steelhead smolts weighing 291,500 pounds annually. The return goal for Magic Valley FH is 11,660 adults back to the Snake River basin.

The hatchery was constructed on a commercial hatchery site that was purchased by the Corps in March 1981. Steelhead have been produced for the Magic Valley program since 1982. Until 1985, fish were produced onsite in a commercial facility; however, with the start of construction, fish production was transferred to unused raceways at Hagerman NFH (approximately 255,000 steelhead smolts were reared at Hagerman in 1986 for the Magic Valley program). Sawtooth FH and the East Fork Salmon River satellite serve as the juvenile release and adult trapping sites for the hatchery program. Magic

Valley FH completed its eighth rearing season this year, and released 1,731,355 steelhead smolts in March and April 1995, weighing 391,825 pounds. The releases were distributed between the East Fork of the Salmon, Slate Creek, Hazard Creek, and the Salmon River.

McCall Fish Hatchery - Idaho

Operated by IDFG, McCall FH was completed in 1981 and is located along the North Fork Payette River near McCall, Idaho. The program's adult trapping facility and the smolt release site are located on the South Fork of the Salmon River near Warm Lake (salmon do not have access to the Payette River system). McCall FH is designed to produce 1,000,000 summer chinook smolts weighing 61,300 pounds. McCall FH is the only LSRCP summer chinook facility and its adult return goal is 8,000 adults to the Snake River basin. McCall FH also has a concurrent federally-approved trout production program which is funded entirely by the IDFG.

The hatchery has achieved considerable success with its summer chinook program, trapping 2,690 adults in 1986, 2,705 in 1987, and 2,393 in 1988. Typical of the lower chinook runs throughout the basin, McCall's returns decreased in 1989 and 1990 when 939 (444 adults and 495 jacks) and 969 fish (941 adults and 28 jacks) were trapped. In 1991, 1,212 fish (391 adults and 821 jacks), 2,848 (2,645 adults, 203 jacks) in 1992, 2,703 fish (2,675 adults, 28 jacks) in 1993, and 517 fish (447 adults, 70 jacks) were trapped in 1994. This year 307 adults and 101 jacks were trapped and 136 retained for spawning. This year's egg take of 238,162 will not be sufficient to produce the target smolt goal for release in 1996. Because of ESA considerations, 85 adults were released to spawn naturally in 1995. Summer chinook returns were increasing until 1993, but since then, McCall and coastwide returns were substantially lower.

The McCall FH staff released 1,074,598, BY1993 summer chinook salmon smolts weighing 49,293 pounds in the South Fork Salmon River in March 1995; and 140,172 BY1994 fry weighing 3,561 lbs for a total of 1,214,770 summer chinook. This is above the hatchery's release target of 1,000,000 smolts. The fish were in good health throughout the rearing cycle and mortalities were low.

Sawtooth Fish Hatchery - Idaho

Sawtooth FH, located on the upper Salmon River near Stanley, was completed in January 1985 and is operated by IDFG. In addition to its primary mission of rearing 2,235,000 spring chinook salmon smolts weighing 149,000 pounds and trapping steelhead ("A" strain) for Hagerman NFH and Magic Valley FH, the staff operates a major satellite facility on the East Fork of the Salmon River. The satellite traps adult spring chinook for Sawtooth FH and steelhead ("B" strain) for Hagerman and Magic Valley and also serves as a direct stream release site. The program's goal for returns back to the Snake River basin is 19,455 adults.

About 532 steelhead returned to the Sawtooth trap in 1995 which was about 36% more than last year's 338. Returns for the years 1988, 1989, 1990, 1991, 1992

and 1993 were 994, 974, 1,056, 261, 156 and 1,598 respectively. The East Fork satellite facility trapped only 38 steelhead, compared to 73 in 1994, 176 in 1993, 156 in 1992, 119 in 1991, and 454 in 1990.

Spring chinook trapping and spawning began in June and ended in September with a total of 37 chinook trapped this year compared 96 trapped in 1994 and 587 in 1993. No spring chinook were trapped at the East Fork site this year. Last year 15 were trapped, 65 in 1992, and 62 in 1991. Numbers of chinook trapped were among the lowest on record since trapping began and typical of the low numbers that returned basinwide. The hatchery staff released 20 chinook above the Sawtooth weir as part of ESA Section 10 conditions for operation. BY1993 chinook were released in October 1994 and April 1995. The releases included 201,703 (8,322 lbs) smolt and fingerlings into head waters of the Salmon River and 25,025 (903 lbs) smolts into the West Fork of the Yankee Fork. An additional 103,695 (4,768 lbs) smolts were released into the Salmon River at the hatchery weir. A total of 48,845 smolts weighing 2,124 pounds were released into the East Fork of the Salmon River ten miles above the weir. In all a total of 379,268 BY1993 chinook were stocked from Sawtooth FH in 1995.

In addition to the LSRCP program, the State cooperates with the Shoshone-Bannock Tribe, BPA, NMFS, and other agencies in a FWS-approved sockeye salmon restoration project at Sawtooth FH. The project is funded by BPA and is an effort to recover the endangered sockeye run. This year a catchable trout holding and distribution program was instituted to stock local waters; that project was funded entirely by IDFG.

Irrigon/Wallowa Hatcheries - Oregon

Irrigon FH located on the Columbia River near Umatilla, Oregon; is operated by the ODFW and was completed in October 1985. Collector wells designed for 25,000 gallons per minute (gpm) supply water for the entire program of 1,677,000 steelhead smolts weighing 279,600 pounds. Irrigon FH's return goal is 11,200 adults back to the Snake River basin.

An expansion of ODFW's Wallowa State Hatchery was completed in May 1985; it serves as a final rearing, acclimation, and release site for about 600,000 steelhead smolts from Irrigon FH and has facilities for steelhead trapping and spawning. In 1995 a total of 318 steelhead returned to the Wallowa FH compared to 599 in 1994, 1,353 in 1993, 2,644 in 1992 and 576 in 1991.

Two other advanced rearing and trapping sites, which are satellites of the Irrigon FH, were operational in 1992. Big Canyon satellite is located at the mouth of Big Canyon Creek on the Wallowa River. It was completed in April 1987 and is capable of holding and releasing 225,000 smolts. Two hundred and sixteen adult steelhead returned to Big Canyon satellite in 1989, 336 adults in 1990, 428 in 1991, adults in 1992, 370 in 1993 and 443 in 1994. Big Canyon trapped 380 adult steelhead this year.

The Little Sheep Creek satellite station in the Imnaha basin is used as an advanced rearing pond and release site for 250,000 steelhead smolts reared at Irrigon FH. The satellite was completed and became operational in August 1987. In 1987, 1988, and 1989, 730, 286, and 322 steelhead returned to the trap respectively. In 1990, returns were high and 959 steelhead were trapped.

The run declined in 1991 and 1992 with only 395 and 789 steelhead trapped. In 1993, 1,794, approximately twice the number trapped in 1992, returned to Little Sheep Creek and last year 194 adults were trapped. This year 295 steelhead returned to the Little Sheep Creek trap. About 248 of the adults trapped at Cottonwood Creek trap were incorporated into the Wallowa FH program.

Releases for 1994 of Irrigon-reared fish totaled 1,691,513 steelhead weighing 339,458 pounds. This included releases from Irrigon's satellites Big Canyon, Little Sheep Creek, Wallowa and Imnaha as well as various direct stream releases throughout the Grande Ronde basin and Snake River. This number is approximately 200,000 less than last year due in part to requirements under ESA to lessen impacts on listed salmon.

Lookingglass Fish Hatchery - Oregon

This hatchery is located on Lookingglass Creek north of Elgin, Oregon, and was completed in November 1982. The hatchery is operated by the ODFW and is designed to produce 1.4 million spring chinook smolts weighing 69,600 pounds. Two satellites, Big Canyon Creek (discussed above) and a renovation of Oregon's Imnaha trapping site, which was completed in 1989, are part of the hatchery program. The Snake River basin return goal for the Lookingglass FH program is 9,070 adults.

Adult spring chinook trapping at the Imnaha River trap was the lowest on record with only 68 fish collected (32 adults and 36 jacks). Rapid River stock adults for the Lookingglass spring chinook program were collected at Lower Granite Dam this year to reduce straying effects; 139 fish (68 males, 33 females and 51 jacks) were collected and transported to Lookingglass. In addition 72 spring chinook returned to the hatchery ladder. This represented approximately 41% of 1994 returns to Imnaha and 56% of the 1994 Lookingglass returns. A total of 658,230 BY1993 Rapid River stock spring chinook smolts (30,079 lbs), 501,983 Imnaha River stock spring chinook fingerlings (24,531 lbs), and 89,049 Imnaha River stock spring chinook smolts (5,929 lbs) were reared at Lookingglass FH. Fish were released into the Imnaha River and Lookingglass Creek.

This year marked the 1st year of a captive broodstock program with a total of 1,107 wild spring chinook parr collected from the Lostine River, Catherine Creek and the Upper Grande Ronde River. This is part of a gene conservation program to maintain stocks for ultimate use in recovery of listed stocks under ESA.

Lyons Ferry/Tucannon Fish Hatchery Complex - Washington

Located at the confluence of the Palouse and Snake rivers, the Lyons Ferry facility is two hatcheries in one. Phase I, completed in November 1983, was formally operated by WDFW. It is designed to produce 1,169,500 steelhead trout smolts weighing 116,400 pounds and 45,000 pounds of rainbow trout. Its adult return goal to the basin is 4,656.

Phase II of Lyons Ferry facility, completed in November 1984, formally operated by WDF. It is designed to produce 9,162,000 fall chinook smolts

weighing 101,800 pounds, and 132,000 spring chinook smolts weighing 8,800 pounds. Lyons Ferry FH's adult salmon return goals are 18,300 fall chinook and 1,148 spring chinook to the basin. Last year Washington combined WDFW and WDFW into a single agency, Washington Department of Fish and Wildlife. These two facilities along with Tucannon FH are now under one complex and operated as a unit.

A renovation of Tucannon State Fish Hatchery was completed in November 1984 to rear an additional 41,000 pounds of rainbow trout for WDFW and to serve as an adult trapping and smolt release site for WDFW's Tucannon River spring chinook program. The remaining 7,000 pounds of rainbow trout production stipulated in the compensation plan (the total requirement is 93,000 pounds) is to come from stream enhancement structures funded by the Corps. These structures were constructed by WDFW in the early 1980's.

The hatcheries along with the Phase I (steelhead) satellite facilities at Cottonwood Creek, Dayton Pond, and Curl Lake were completed from 1983 to 1986. The two fall chinook adult holding ponds were found to be unmanageable and were rehabilitated by the Corps in 1993. Each pond were divided into two units by construction of a dividing wall down the center, providing much more versatility for handling and sorting adults. Additional office space at the Lyons Ferry steelhead facility was constructed in 1992 by adding 400 square feet onto the administration building. This work was done by the WDFW personnel. The road to the Marmes pump site, which was originally constructed with large cobbles was smoothed and graded by hatchery personnel.

Spring chinook returns to the Tucannon trap and weir totaled 40 adults and 0 jacks in 1995, down from the previous year of 73 adults and 0 jacks and 448 adults and 0 jacks for 1993. There are currently about 130,916 BY1994 Tucannon River fish on hand for release in 1996.

This year adult fall chinook were trapped at the Lyons Ferry FH and at Lower Granite and transported to Lyons Ferry FH for holding and spawning. A total of 605 adult fall chinook and 351 jacks voluntarily entered the hatchery compared to a total of 972 last year and 1,332 in 1993. An additional 193 adults and 134 jacks were captured at Lower Granite Dam. A total of 1.5 million eggs were collected in FY1995. A considerable effort was necessary during spawning to ensure that only Snake River fall chinook adults were used for broodstock. All coded wire tags were read before spawning to ensure that the Snake River genetic stock is maintained. Strays from programs outside the basin were inadvertently used prior to 1990. The new concerted effort to spawn only Snake River stocks with each other is of particular importance because the fall chinook are listed as endangered under the ESA. All eggs from strays identified at spawning (917,900 eyed eggs) were shipped out of basin to another WDFW facility.

Because of the potential for large numbers of stray steelhead that return to the Lyons Ferry ladder in the fall (when it remains open for fall chinook returns) all trapped steelhead are checked for Lyons Ferry brands. In FY1995, 4,009 steelhead returned to the hatchery. A total of 1,772,477 eggs were taken from the 343 females spawned. Approximately 930,000 BY1995 Lyons Ferry stock steelhead will remain on hand for release in 1996. In addition a total of 450 Wallowa stock steelhead were trapped at the Cottonwood Creek satellite

facility. Approximately 100 females were spawned for the WDFW program, resulting in 511,283 eggs. About 335,000 fingerlings are on hand for rearing and release in 1996.

Releases from Lyons Ferry FH were below the goals for fall/spring chinook and steelhead. The fall chinook release totaled 349,024 smolts weighing 44,747 pounds (all at Lyons Ferry FH). A total of 138,848 spring chinook weighing 9,559 pounds were released into the Tucannon River as smolts.

A total of 814,072 steelhead smolts weighing 181,686 lbs were released from Lyons Ferry FH, hauled to the three satellite ponds, or trucked directly to streams. Lyons Ferry and Tucannon FH's combined, reared and released 625,251 catchable (8 to 9 inch) and sub-legal rainbow trout for Washington lakes and streams and the Idaho Program weighing 97,839 pounds.

Dworshak National Fish Hatchery Expansion - Idaho

Dworshak NFH is located at the confluence of the North Fork and Clearwater rivers. An expansion of the existing Dworshak NFH steelhead facility for LSRCP spring chinook production was completed by the Corps in November 1982. The FWS facility is designed to produce 1,400,000 spring chinook smolts weighing 70,000 pounds. The adult return goal for Dworshak is 9,135 spring chinook to the Snake River basin. Starting in 1986 twelve raceways formerly used to rear resident trout were converted to rearing spring chinook. This increased Dworshak's chinook rearing potential by about 20,000 pounds, for a total of 90,000 pounds. This additional rearing effort was shifted to the Clearwater FH in FY1992.

Spring chinook runs in the Clearwater River in 1995 totaled 165 (61 adults, 104 jacks) returning to the Dworshak/Kooskia Complex, compared to 305 adults last year and well below any of the last 4 years. The Dworshak Program currently has over 1.3 million BY1994 spring chinook on hand for releases in 1996.

April 1995, Dworshak NFH personnel released approximately 1,311,445 BY1993 chinook smolts weighing 93,422 pounds into the North Fork and main stem Clearwater River directly from the NFH.

Hagerman National Fish Hatchery - Idaho

Hagerman NFH, located on a 59°F spring water supply from the Snake River aquifer east of Hagerman, Idaho, was expanded by the Corps to rear 1,400,000 steelhead smolts weighing 340,000 lbs. Hagerman NFH also retained the capacity to produce 100,000 lbs of fish for FWS production commitments for programs other than LSRCP. The expansion was completed in April 1984 and the hatchery, is operated by the FWS. Hagerman NFH has a goal of returning 13,600 adult steelhead to the Snake River basin.

Hagerman NFH received a total of 1,565,565 BY1994 steelhead "A" eggs from Sawtooth and Oxbow FH's this year. No Dworshak or East Fork "B" eggs were received. Overall survival from egg to smolt was 97%.

In April 1995 Hagerman NFH released 1,151,544 BY1994 steelhead smolts weighing 243,182 pounds into various streams in the Salmon River basin. Fish health for the entire history of steelhead production for BY1994 was excellent.

IV. LSRCP OFFICE OPERATIONS

A total of \$12,371,260 was obligated for LSRCP programs in FY1995 (\$280,260 from carryover monies). This total included \$2,262,019 for cooperator monitoring and evaluation studies and ESA requirements, \$318,012 for Boise LSRCP Office management and coordination, \$82,130 for Youth Conservation Corps (YCC) (salaries and benefits), \$831,757 for the Regional Office and FWS administrative costs, and \$8,689,280 for hatchery operations and maintenance and pathology. Ten cooperative agreements were signed for FY1995 to distribute \$9,685,299 in evaluation and operation and maintenance funding to non-federal entities. In addition, \$38,062 was contracted to Oregon State for genetic assistance and \$150,000 was obligated to the University of Idaho for drug registration work.

In FY1995 the LSRCP program continued to sponsor a YCC program at a cost of \$82,130. The program was conducted on 17 state and federal LSRCP hatcheries and evaluation study projects and included 49 YCC student enrollees and team leaders. Once again the program was well received by the cooperating agencies, it not only accomplished necessary station work but also provided and environmental awareness experience and job training for local youths.

The 30 minute LSRCP video "To Restore a Legacy - the Struggle for the Snake River's Salmon and Steelhead Trout" which was completed 2 years ago has received a great deal of attention throughout the country. The video, produced by award winning cinematographer Stefan Dobert and narrated by movie and TV personality Robert Wagner, received excellent reviews. Copies of the video are now in every Albertson's food store video department in the Northwest and it has been shown many times on public television across the country. All of our cooperators have copies and are showing it throughout their respective areas. We've sent copies to all Northwest Congressmen, private conservation groups, the Governors of Washington, Oregon and Idaho and the Director of the FWS and Secretary of Interior. It has been advertised in National magazines and USA Today and we have received over 100 requests for copies from conservation groups, national companies, and universities and individuals throughout the country. The LSRCP office has shown the video to large professional organizations on several occasions. Over 250 copies have been distributed to date.

The LSRCP office also completed the Clearwater and Lookingglass FH brochures and the Corps, Walla District in cooperation with our office will print 50,000 full color copies of each brochure in FY1996. This will complete brochures for all LSRCP facilities in Washington, Oregon and Idaho. These brochures have also received wide recognition and are made available to the general public and a wide ranging audience throughout the Northwest.

V. EVALUATION STUDIES

In 1995 all five operating agencies and two Indian Tribes had fully operational evaluation studies underway. By the end of the fiscal year, a total of \$2,172,719 had been obligated for studies being carried out by the IDFG, ODFW, WDFW, FWS Idaho Fishery Resource Office (IFRO), and the Nez Perce and Umatilla Tribes. Below is an overview of the FY1995 evaluation program followed by a synopsis of state and tribal evaluation programs. The IFRO evaluation program is discussed in the next section, **FWS Cooperative Programs**. Results of LSRCP-funded evaluation studies are available in our cooperator's annual reports; a listing of reports is found in Section XIII of this document.

Evaluation Study Committee (ESC) meetings were initiated in 1985 and continued through 1995. The eight-member ESC consists of the LSRCP Office evaluation studies coordinator and a single representative from each operating agency and cooperating Indian Tribe. The ESC meetings often include additional staff members from each agency/tribe and occasionally visiting experts. An all-cooperator ESC meeting was held in November 1994 and several partial committee meetings were held to discuss specific topics, such as ESA and review of study proposals. The annual meeting was primarily an update all members on ongoing and proposed LSRCP-funded studies.

The cooperating LSRCP evaluation biologists dedicated a significant effort in 1995 to assist the LSRCP office in meeting ESA responsibilities. They worked with our office in writing our 1995-1999 LSRCP Programmatic Biological Assessment and developed applications and modifications for scientific and enhancement permits under Section 10 of the ESA. Most LSRCP (direct take) scientific and enhancement programs were issued five-year permits in 1994.

On April 5, 1995, NMFS issued a biological opinion for our proposed actions for 1995 through 1998. We will continue to work with NMFS to amend our BA for changes in our program in 1995 and beyond and to help them develop and implement a final recovery plan.

IDFG's Evaluation Program

IDFG conducted their investigations under a single study in 1995, the **LSRCP Fish Hatchery Evaluations-Idaho**, which combines three projects--*Hatchery Evaluations*, *Hatchery-Wild Composition of the Idaho Steelhead Harvest*, and *Coded-Wire Tag Analyses*. Idaho's first LSRCP studies were initiated in 1982 and are being conducted to 1) ensure that accurate and adequate monitoring of hatchery practices occurs so the most cost effective mode of operation for each hatchery is implemented, and 2) assess the LSRCP contribution to fisheries and escapement. The *Hatchery Evaluations* studies include monitoring and evaluation of hatchery rearing; size, time, and location of releases; and adult returns. These types of studies are long-term because constant monitoring is required to identify problems before they result in catastrophic fish losses and to determine which hatchery rearing and release practices will result in the best adult returns.

Several evaluation studies initiated in previous years to address specific hatchery problems and needs were continued in 1995. Production groups of salmon from all LSRCP programs were PIT-tagged to determine migration timing

and interrogation rates at Snake and Columbia River dams. IDFG continued to collect scales from known chinook hatchery adults (i.e. those tagged as juveniles) and wild fish and provide them to ODFW biologists who are developing scale pattern models which may eventually be used to identify hatchery fish for broodstock and other management purposes. Survival determinations of high, medium, and low density chinook rearing conditions continued as adult returns are analyzed from 1991 and 1992 releases. To assess effects of handling and CWTing, BY1988 through BY1990 summer chinook in one pond at McCall FH were marked with TM-100 for comparison to ad-clipped/CWTed fish in the adjacent pond. The study continued this year as adults returned and bone samples were taken and analyzed for a T-100 mark.

IDFG evaluations and hatchery personnel continued natural rearing experimentation of chinook at Sawtooth and Clearwater FH's initiated in 1993. They will rely on CWT's and PIT's of BY1992 through BY1994 releases to assess effects of various raceway alterations and other rearing conditions on juvenile and adult survival. IDFG continued a time of release study of South Fork Salmon River summer chinook salmon (reared at McCall FH in 1994) to help identify the optimum time of release into the South Fork.

Steelhead size at release experiments designed to identify the optimum size with the greatest survival and lowest residualism continued as adult returns were analyzed from 1991 and 1992 releases into the Salmon River (reared at Hagerman NFH). Steelhead acclimation studies continued as adults returned from acclimated (21 days) and control groups reared at Hagerman NFH and released at Sawtooth FH. All fish were CWT and PIT tagged to determine juvenile interrogation and adult survival rates.

In late 1984 Idaho began an angler survey to assess the LSRCP contribution to Idaho's steelhead fishery, estimate the total escapement of LSRCP fish, recover information on marked fish, and obtain data for managing the fishery while protecting wild stocks. This survey is the major means of recovering adult steelhead tagged as fingerlings under other evaluation studies. These efforts were funded through 1995 and will be continued annually (at some level) until compensation goals have been met, and periodically thereafter.

The process of reading tags and analyzing marks was first funded in 1992 as part of the evaluation study, whereas actual marking costs remain a part of each hatchery's budget. In 1995 several hundred tags (many recovered under the Harvest Study described above) from several state and tribal LSRCP programs were removed from fish and decoded at IDFG's Lewiston lab.

IDFG and Shoshone-Bannock Tribal evaluation personnel collaborated to collect juvenile spring chinook salmon from three Idaho streams to initiate a captive propagation effort to conserve those threatened populations. This effort will be continued in 1996 when detailed planning for all future activities (including evaluations) will occur.

ODFW's Evaluation Study Program

ODFW conducts nearly all of their evaluations under one study, **An Evaluation of the LSRCP Program in Oregon**. The ODFW began a few evaluations under this study in 1983 but full-scale studies did not begin until FY1984. Their

evaluation program currently encompasses monitoring and evaluating hatchery practices; implementing size, time, and location of release studies; marking activities (CWTing, branding); assisting with disease monitoring efforts; determining the LSRCP contribution to Oregon's steelhead fishery (while recovering tagged fish); and determining the success of maintaining the genetic integrity of native wild stocks potentially effected by the LSRCP program. In addition to being the evaluation studies coordinator, the principal LSRCP investigator in Oregon also coordinates the broodstock selection, egg-taking programs, and outplanting program for all of Oregon's LSRCP program. The following paragraphs describe specific studies that go beyond the standard monitoring of ongoing efforts.

ODFW conducted a fifth year of acclimated versus direct stream releases of steelhead at Little Sheep and Big Canyon Creeks. Similar studies at Wallowa FH were completed with the release of smolts in 1991. Adult returns from releases at all three locations are being compiled and assessed as the studies continue with BY1995. Size at release studies of steelhead released from Wallowa FH are in the final stages of data collection and analysis. The last juveniles were released for those experiments in 1991.

Chinook acclimation versus direct stream release studies, initiated at Imnaha facility with BY1990 progeny releases, continued with releases of BY1993 juveniles in 1995. Data from adult returns of BY1990 releases were collected and are being analyzed. Complications and lack of sufficient fish prevent this study from continuing at this time. Spring chinook size at release (25 vs 15 fpp) experiments initiated with BY1988 Imnaha fish were not continued with releases in 1995 but will continue with releases of BY1994 smolts in 1996. The last size experiment releases from Lookingglass FH (Rapid R. stock) occurred in 1992. Outmigration timing and survival and adult return rates of past releases are currently being compiled and evaluated for both Imnaha and Rapid River stocks.

A density experiment using Rapid River stock chinook reared at 50 percent of normal densities was continued with collection adults released as BY1992 juveniles in 1994 at Lookingglass FH. This density study will continue at Lookingglass FH comparing densities from 1/4 to 1/8 of normal.

In 1990 a study was initiated to develop a discriminate function model based on scale growth patterns to allow identification of hatchery and wild-origin adult salmon at Lower Granite Dam and points above (e.g. hatchery racks, spawning grounds). This effort was continued in FY1995 and incorporated Idaho's scale collection effort (as noted above).

Two new evaluation projects were initiated by ODFW in 1992 and continued in 1995. The first was to develop a Snake River chinook life-cycle model to evaluate combinations of downstream migration, upstream migration, harvest, and production management measures with respect to rebuilding depressed runs. The study will take about four years to complete and will provide a means to analyze various recovery proposals for listed Snake River stocks.

ODFW's continued with its fourth year of study to identify the characteristics and interactions of residual steelhead with natural chinook in N.E. Oregon. ODFW's 1995 objectives were to 1) characterize yearly variation in the

relative abundance of juvenile residual steelhead at index areas, 2) continue to evaluate potential for predation by hatchery-reared steelhead on juvenile spring chinook, 3) describe characteristics of steelhead which residualize, 4) determine strategies to reduce the number of residual steelhead, and 5) develop a strategy to implement new steelhead management plans.

ODFW, CTUIR, and NPT personnel collaborated to collect juvenile spring chinook salmon from three Oregon streams to initiate a captive propagation program to conserve the threatened populations. The effort will be continued in 1996 with detailed planning for all activities (including evaluations).

WDFW's Salmon Evaluation Study Program

The WDFW field evaluation program was initiated in 1985 when a principal investigator was hired and stationed in Dayton, Washington. Their 1994 studies combine fall and spring chinook under one multiple-objective study including 1) monitoring and evaluation of hatchery practices, juvenile outputs, adult returns, and contribution to fisheries; 2) time, size, and location of release studies; and 3) evaluation of impacts of hatchery releases on wild chinook stocks. Because the hatchery stocks are comprised entirely of endemic fall and spring chinook stocks, special attention is being paid to quantifying and monitoring genetic variables in each population. The following paragraphs summarize some of WDFW's specific efforts in 1995.

As has been true for the last several years, major efforts were taken in 1995 by evaluation and hatchery staffs to identify the origin of fall chinook broodstock captured at Ice Harbor and Lower Granite Dams and returning to the Lyons Ferry ladder. WDFW is trying to ensure that future broodstocks contain no non-endemic fish as has happened in some past years. All Lyons Ferry FH fall chinook releases are being marked so Lyons Ferry origin adults can be identified in future returns.

All BY1995 Tucannon River spring chinook returning to the weir were collected and spawned in the hatchery and used to conduct a controlled mating study. WDFW is attempting to determine if there are measurable genetic or survival differences between progeny of hatchery x hatchery and natural x natural single pair matings. As in previous years, these crosses will be compared through the hatchery rearing period and uniquely marked to determine adult return rates. Adults from previous releases were collected and analyzed in 1995.

A study was initiated in 1993 to evaluate the effectiveness of outplanting spring chinook adults and presmolts to increase spawner density in the upper Tucannon River. Direct stream fingerling releases were evaluated in the fall of 1994. As stated above, all adults were collected at the Tucannon River weir in 1995 and retained for hatchery spawning and rearing; therefore, no adults were outplanted above the weir. Juvenile releases from portable acclimation ponds and directly into the Tucannon River were tested in the spring 1995. Juvenile and adult survival of upper river acclimated and direct stream releases versus Tucannon FH acclimated releases will be compared.

Other studies initiated in previous years and continued in 1995 included documenting juvenile rearing and releases, determining smolt outmigration

timing and relative survival from Tucannon (spring chinook) and Lyons Ferry (fall chinook) FH's, determining the extent and cause of prespawning mortalities of adult spring chinook, estimating production and migration timing of naturally-produced Tucannon R. spring chinook, collecting spring and fall chinook stock profile data (meristic, morphometric, electrophoretic monitoring), and evaluating success of cryopreserving spring and fall chinook milt.

WDFW, NPT, and FWS evaluation personnel began a joint effort to develop an evaluation and monitoring plan for yearling fall chinook releases scheduled for the Snake River above Lower Granite in 1996. This effort will continue and be implemented in spring 1996.

WDFW's Trout Evaluation Study Program

WDFW's trout evaluation program is conducted under one study, **Lyons Ferry FH Evaluation Study - Steelhead**. This long term program includes objectives for evaluating both the steelhead and resident trout hatchery programs, with the steelhead objectives having the highest priority and requiring the most funding (over 90 percent of the total). An additional objective initiated in 1991 and continued in 1995 is similar to IDFG's 1992 residualism studies and ODFW's ongoing efforts to investigate interactions of hatchery-reared steelhead and resident trout and natural chinook.

The hatchery evaluations and related field studies at Lyons Ferry and Tucannon FH's have been underway since 1983, when the steelhead and trout production programs were initiated. Major concerns which have surfaced as a result of evaluations have been the large numbers of residuals below some satellite release facilities, lower than expected returns to the Tucannon River (from Curl Lake releases), and poor fall/early winter returns to the Cottonwood pond area (Grande Ronde R.). In addition, surveys since 1986 showed large portions of the Lyons Ferry FH and Curl Lake-released fish are returning above Lower Granite Dam, well above their release sites. A WDFW/ODFW radio tagging study conducted several years ago confirmed that many Lyons Ferry and Tucannon River adult returns are wintering above Lower Granite; and, although some drop back to the dam, most fail to return to their release area.

In an effort to directly reduce residualism in 1993, WDFW tested a method which could actually reduce the number of fish planted in Curl Lake that residualize in the river. This was done by preventing the remaining juveniles from leaving Curl Lake during the volitional release when 80% of the fish remaining in the pond were males and a high percent were precocious. In past years all fish were forced into the river when volitional movement had ceased. The same approach was used and monitored in 1995. Although results varied between years, preliminary indications are that this type of pond management can reduce numbers of residual steelhead in the Tucannon River.

Development of endemic wild broodstocks may also result in improved homing behavior of hatchery-reared fish. WDFW captured wild broodstock on the Tucannon River in 1992 and 1993 for rearing, release, and comparison to existing hatchery broods during migration (with PIT tags) and at adult return. No adults were collected in 1994 or 1995. Although a similar program was delayed for Touchet River in 1992, the logistics of trapping and handling fish

were tested there in 1993, 1994 and again in 1995. An effort to trap adults in Cummings Creek (a Tucannon River tributary) failed due to high flows.

Other studies initiated in previous years and continued in 1995 included enumerating naturally- and hatchery-produced steelhead adults at the Tucannon weir; estimating percent residualism of hatchery steelhead in the Tucannon River; estimating adult returns to fisheries, Lower Granite Dam, Lyons Ferry FH, and tributary spawning areas; estimating juvenile population densities in index streams effected by LSRCP programs; and collecting baseline stock profile data on southeast Washington wild steelhead populations.

Tribal Evaluation Study Programs

In 1986 the LSRCP office initiated funding for tribal involvement in the LSRCP program. Because the Tribes do not operate any LSRCP propagation facilities and because their primary concerns are for the compensation of tribal fisheries and natural production, their projects are oriented toward evaluating the implementation and success of the program rather than solving fish culture problems.

Nez Perce Tribe

The Nez Perce Tribe (NPT) initiated their **Nez Perce Tribe LSRCP Evaluation Study** in 1986 and continued it in 1995 to develop tribal stocking and outplanting priorities, monitor tribal harvest, evaluate effects of hatchery plants on native production, and assist IDFG, ODFW, and FWS in their evaluation studies. The NPT's major initiative in 1991 was to develop a long-term plan for monitoring natural production in the Imnaha River. The plan was closely coordinated with ODFW and the CTUIR, completed in late FY1991, initially funded for field studies in 1992, and funded for continuing studies in 1995.

The Tribe's major field activities in 1995 involved the long term Imnaha River study. NPT continued to use two rotary screw traps in the Imnaha River to capture and PIT tag juvenile chinook. The Imnaha River study objectives in 1994 were to 1) determine the timing of migration, travel time and survival (or interrogation rate) of natural vs hatchery-reared chinook and steelhead in the Imnaha River and Snake River to Lower Granite Dam and 2) determine outmigration patterns, related river conditions, biological characteristics, and timing of natural and LSRCP FH-produced chinook salmon in the Imnaha River.

Other studies initiated in previous years and continued in 1995 included coordinating planning, evaluation studies, and management recommendations; monitoring tribal chinook harvest of LSRCP stocks; conducting chinook salmon spawning ground surveys in selected streams; collecting and preserving male chinook gametes in Snake River tributaries; and monitoring the abundance of juvenile chinook and steelhead in stocked and unstocked streams in Idaho and Oregon.

Confederated Tribes of the Umatilla Indian Reservation

The Confederated Tribes of the Umatilla Indian Reservations (CTUIR) became cooperators in the LSRCP Program for the first time in FY1987 (they were subcontractors of the Nez Perce in 1986). The CTUIR biologist assigned to the LSRCP program is supervised by the LSRCP ODFW research coordinator because of the close coordination required for their joint studies in Oregon. In 1991 CTUIR initiated a program to evaluate the success of reestablishing a naturally reproducing population of spring chinook in Lookingglass Creek. A study plan was drafted in FY1992 and continued to undergo review and revision in 1993. The field program was initiated in 1992 with the release of Lookingglass FH/Rapid River stock above the weir and the monitoring of their movements and spawning effort. Funding was provided in 1995 to assess: 1) reproductive success of adults released to spawn naturally, 2) survival of naturally-produced migrants to adult, 3) long term performance of Rapid River stock for reintroduction, and 4) ecological interactions between naturally-produced chinook and their environment. Due to extremely low adult returns and disease concerns at Lookingglass FH (which relies on Lookingglass Creek for its water supply), no adults were released above the Lookingglass weir in 1995. Studies of juvenile survival and behavior continued.

VI. FWS COOPERATIVE PROGRAMS

The LSRCP program funded a variety of studies with other FWS stations. Most can be categorized as evaluation studies and were funded to investigate and solve specific hatchery production problems or assist with ESA-related activities.

The IFRO was funded by the LSRCP program in FY1995 to conduct hatchery monitoring and evaluation studies at Dworshak and Hagerman NFH's. IFRO's program was similar to those conducted by the state agencies; and they, in fact, closely coordinate all work with IDFG. Their study, **Evaluation and Technical Coordination for FWS LSRCP Hatchery Programs**, is a long-term effort designed to: 1) define and solve cultural and management problems affecting LSRCP success (adult returns), 2) provide intra- and interagency coordination, 3) determine fishery contribution and escapements of Dworshak and Hagerman NFH's LSRCP programs, and 4) aid the NFH's with the development and maintenance of a database system for hatchery management. The IFRO's LSRCP-funded studies are summarized in their annual report.

LSRCP funds were provided to the Dworshak Fish Health Center for diagnostic activities at Dworshak and Hagerman NFH's and for health monitoring coordination between State and Federally-operated LSRCP hatcheries. FY1995 monies were also obligated to FWS's Office of the Columbia River Coordinator for their assistance to the LSRCP office on regional issues.

VII. OTHER COOPERATIVE PROGRAMS

IDFG, the Shoshone-Bannock Tribe, BPA, NMFS, and others are attempting to restore sockeye salmon runs to Redfish Lake. To assist in the restoration effort, facilities at Sawtooth FH are being made available for the sockeye

salmon propagation program which is funded by BPA. IDFG and the LSRCP Office also entered into an informal agreement which allowed the Sawtooth FH to act as a distribution point for catchable trout stocking in surrounding waters.

ODFW utilized several raceways at Irrigon FH to hold rainbow trout for release in eastern Oregon and to serve as a catchable trout distribution point under the state's catchable trout program.

Cooperative agreements are in place with all State agencies for the temporary loan of equipment and vehicles between programs.

VIII. CORPS CONSTRUCTION ACTIVITIES

The Corps of Engineers has statutory responsibility to design and construct all LSRCP facilities. The LSRCP Office does not get deeply involved in this process although we do review designs and the Corps always seeks our advice, particularly on items which would affect operation and maintenance of a new facility.

The Corps has completed clean-up contracts for most of the remaining LSRCP facilities. The remaining items at Wallowa FH, Big Canyon, Little Sheep Creek, Powell, Red River and Crooked River satellites have been completed and the Corps is in the process of transferring of these facilities to the Service. In addition transfer documents for Lyons Ferry and Lookingglass FH's have been sent to the Secretary of Interior's Office for signature and acceptance of transfer. The Service is in the process of completing a pre-acquisition contaminants survey before the transfer can be completed. Fencing at the Imnaha satellite facility remains to be completed before this facility has been completed and this facility is acceptable for transfer to the Service.

All facilities including of Irrigon and Clearwater fish hatcheries will have been transferred to the Service by FY1996. Water supply problems at Irrigon should be rectified in FY1996 and additional clean-up contracts for Clearwater FH will be identified and hopefully completed this coming fiscal year.

Pertinent data relating to hatchery design and construction schedules and costs are included in Table 2. Approximate facility locations are identified on the LSRCP facility map (Figure 1).

IX. STAFFING

A total of 5.0 permanent full time (FTE) staff years are now being utilized for operation of the LSRCP Office.

LSRCP Boise Office employees as of September 30, 1995
Edouard J. Crateau, LSRCP Coordinator, GM-13
Daniel M. Herrig, Evaluation Study Coordinator, GS-12
Joseph J. Krakker, Fishery Biologist, GS-11
Virginia Neunaber, Cooperative Agreement Assistant, GS-7
Tammy A. Froscher, Secretary, GS-6

X. FUTURE OUTLOOK

Although still a relatively new program in the Columbia River basin, the Lower Snake River Compensation Plan Program is well underway with the last hatchery, Clearwater, recently completed. The Corps' contractor Morgan and Oswood, began construction of Clearwater FH the in spring of 1990 with completion in late 1991. All Clearwater satellite facilities have been completed. They serve to support full hatchery production, providing broodstock trapping and holding capabilities and smolt acclimation and release ponds.

The Corps has in most cases done an excellent job in constructing and equipping LSRCP hatcheries and satellites facilities and, where problems have been experienced, the Corps has been willing to make the necessary repairs and changes in an attempt to help them reach their full capability. With the exception of the new facilities, the Corps advertised clean-up contracts on 11 facilities in FY1991, 1992, 1993, and 1994 and most major changes and repairs were completed this year.

The adult steelhead return goals to the Snake River basin set in the original LSRCP were met in 1993 when approximately 121,000 steelhead returned to the mitigation area above Lower Granite Dam and were close to being met in 1994 with a total of nearly 60,000 steelhead counted at Lower Granite Dam. The returns of steelhead in FY1995 were low coastwide and below our goals for the LSRCP mitigation program. Also, getting steelhead to return back at the right time and to the right place still remains as a problem.

As evident by the listing of naturally-produced fall and spring/summer chinook 2 years ago, we are still experiencing difficulties in achieving programmed rates of return for hatchery chinook salmon. Changes are being made in rearing and release strategies which we hope will improve this situation, and research is underway to solve outmigration and disease problems that we hope will further improve our performance. Most LSRCP chinook facilities are now operating and are likely to continue operating under Section 10 enhancement and/or research permits under the ESA. These efforts to save listed stocks will also help to increase hatchery adult return rates. This year we are also embarking on a captive rearing/broodstock program as a gene conservation measure to assist in recovery when mainstem passage problems are sited.

Hatchery monitoring and evaluation programs are being improved, redesigned, and refined each year to assist hatcheries in providing the best rate of return of released hatchery smolts. We substantially increased funding for this phase of the LSRCP program in BY1993 and continued funding will be needed for an adequate hatchery evaluation program which ensures protection and enhancement of naturally reproducing populations.

As noted above, the LSRCP is a relatively new program with the average age of hatcheries at only 10 to 11 years and satellite facilities about 9 years. This translates to about two full chinook life cycles and a little over two for steelhead.

We are optimistic about the future of the LSRCP Program and the general trends indicate that, with normal precipitation, snow packs, etc., increases in the return rates of steelhead which may exceed model predictions. The chinook

salmon return rates and adult returns to the basin are currently much below the level anticipated and used to design the LSRCP facilities. Improved adult chinook return rates are expected with changes in production release strategies, increased disease treatment and prevention, and improvements in smolt emigration. Captive broodstock efforts, if successful, will help conserve the most imperiled populations.

XI. MEETINGS ATTENDED IN FY1995

10/11/94 ODFW and CTUIR, Lookingglass Creek evaluation studies, LaGrande, OR, (Dan)

10/13/94 Conference call with Dept. of Justice and Solicitor's attorneys, Hagerman NFH, RO personnel, Hagerman NFH water rights, LSRCP Office, (Dan)

10/13/94 COE, IDFG, FWS, Clearwater intake adjustment problems associated with spill and low reservoir levels, Dworshak NFH, (Ed)

12/5-8/94 45th Annual Fish Culture Conference, Sunriver, OR, (Ed, Dan, Joe)

1/17/95 Dan Diggs, Ecosystem Management and ESA Issues, Boise, ID, (Ed, Dan, Joe)

1/13-14/95 Diggs, Miller, Kenworthy, Dworshak Transition, budgets, etc., Orofino, ID, (Ed)

2/3/95 Corps, State Agencies, Tribes, \$5 million add-on for LSRCP Construction, Walla, Walla, WA, (Ed, Dan)

2/3/95 NMFS, Snake River Recovery Plan and 1995-1999 LSRCP Biological Opinion, Portland, OR, (Dan, Ed)

2/15/95 ODFW, NPT, CTUIR, AOP Meeting, LaGrande, OR, (Ed)

2/22/95 IDFG, USFWS, SBT, IFRO, Hagerman NFH Coordination Meeting, Hagerman, ID, (Joe)

2/22/95 Mike Spear, Bill Shake, Chuck Dunn, Dan Diggs, Phyllis Barney, Fred Olney, Tom Sheldrake, Ed Forner, Speros Doulos, Ed LaMotte, Briefing on Fish Hatchery and Fisheries Program, Little White Salmon NFH, (Ed)

2/22-23/95 IDFG, USFS, Review potential steelhead acclimation sites, Challis/Stanley Area, ID, (Dan)

2/23/95 Sockeye Salmon TOC Meeting, Regular meeting and hearing to review proposals, Stanley, ID, (Dan)

3/6-7/95 FWS, COE, Meeting on Hagerman Lab and meet with COE regarding Hatfield Amendment to LSRCP, Hagerman, ID, (Ed)

3/8/95 NMFS, Biological Opinion for 1995-1998 and draft Recovery Plan guidelines, NMFS Office, Portland, OR, (Ed, Dan, Joe)

3/9/95 NMFS, Tribes and State cooperators, 1995-1998 Biological Opinion and draft Recovery Plan guidelines, NMFS Office, Portland, OR, (Dan, Joe)

3/10/95 IDFG research & management staff, 1995 Evaluation Studies work plan, IDFG research and management staff, (Dan)

4/10-13/95 Jackson NFH, helped fin clip cutthroat trout for a 4 year program for Palisades Reservoir, (Tammy)

4/17-18/95 IDFG, Sho-Ban, Nez Perce Tribes, Recovery Plan, unresolved issues, LSRCP Office, (Ed)

4/24/95 ODFW, Nez Perce, Umatilla Tribes, NMFS, Recovery Plan, Bio. Opinion, developing management plans, LaGrande, OR, (Ed, Dan, Joe)

4/27/95 WDFW, Nez Perce, CTUIR, CRITFC, NMFS, Recovery Plan, Management Plans, Interim Plans, Walla Walla, WA, (Ed, Dan, Joe)

5/1/95 IDFG, Sho-Ban, Oregon State University, Ed Bowles, Sharon Kiefer, Dave Cannamela, Ken Currens, Keith Kutchins, Lavern Bronco, Interim Recovery Plan Action in Idaho, Boise, ID, (Ed, Dan, Joe)

5/9-11/95 Project Leaders Meeting, Portland, OR, (Ed)

6/1-6/95 NMFS, Genetic effects of straying of non-native hatchery stocks into natural population, Ed gave opening remarks for FWS, Seattle, WA, (Ed, Dan, Joe)

6/3-5/95 COE, WDFW, BPA, Umatilla, Tour of Spring chinook and steelhead facility and meeting to decide interim measures for John Day drawdown and what to do with Umatilla and Irrigon FH fish for interim drawdown period, Ringold FH, Cowlitz, WA, (Ed)

7/10-11/95 CH₂M Hill engineer, IDFG, Salmon River field visit of potential steelhead acclimation sites, (Dan)

7/17/95 NMFS, all LSRCP cooperators, Captive rearing/captive broodstock section 10 permit application discussions, Portland, OR, (Ed)

7/26/95 WDFW, Evaluation studies review, Dayton, WA (Dan)

8/1/95 NPT, WDFW, COE, IFRO, Pittsburg Landing construction, O&M, and M&E meetings, (Ed, Dan)

8/17/95 NMFS, Dan Diggs, Recovery and conservation management plans, captive brood and rearing programs, Portland, OR, (Ed, Joe, Dan)

8/28/95 CBFWA, Wally Steuke, Dave Riley, Dan Diggs, Fred Olney, Tom Sheldrake, Alternatives forces hatcheries, Portland, OR, (Ed)

9/25/95 CBFWA, IDFG, WDFW, ODFW, NMFS, NPT, SBT, PEIS/CEA hatchery operations meeting, Portland, OR, (Joe)

9/29/95 CRAMP Policy Committee Members, Amending the CRAMP, Portland, OR, (Joe)

XII. TRAINING

Ed Crateau
Pre-Retirement Counseling 01/24-26/95

Dan Herrig
Facilitation Skills for Team Leadership 01/10-12/95
Conducting Effective Meetings 01/09/95
Freedom of Information Act Training 05/16/95

Ginny Neunaber
Administrative Training, 8/8-10/95

XXI. Reports

A list of LSRCP reports is available from the LSRCP Office

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Table 1. LOWER SNAKE RIVER COMPENSATION PLAN ACTIVITIES FOR FY 1995

INSTALLATION/PROGRAM	FUNDING LEVELS	SPECIES	TYPE	FISH RELEASED	
				NUMBERS	POUNDS
STATE OF IDAHO					
McCall FH and South Fork Satellite	\$376,460	SuCS	Fingerling	140,172	3,561
Sawtooth FH and East Fork Satellite	\$741,000	SpCS	Smolts	1,074,598	49,293
Magic Valley FH	\$526,580	SpCS	Smolts	330,423	13,993
Clearwater FH and Satellite Facilities	\$1,050,440	STT	Smolts	48,845	2,124
		STT	Smolts	1,731,355	391,825
		STT	Smolts	587,962	85,363
		STT	Fingerling	97,107	1,757
		SpCS	Smolts	1,294,686	70,380
Fish Marking	\$395,900				
IDFG Evaluations	\$525,033				
IDFG ESA Coordinator	\$49,300				
Eagle Lab	\$287,300				
STATE OF OREGON					
Lookingglass FH	\$875,437	SpCS	^{Smolts} Fingerlings	658,230	30,079
Imnaha Satellite		SpCS	Fingerlings	501,983	24,531
		SpCS	Smolts	89,049	5,929
Irrigon/Wallowa FH, Little Sheep & Big Canyon Satellite	\$998,739	STT	Smolts	1,691,513	339,458
ODFW Evaluations	\$491,617				
ODFW Pathology Lab	\$113,948				
STATE OF WASHINGTON					
Lyons Ferry FH (salmon)	\$725,324	SpCS	Smolts	138,848	9,559
		FCS	Smolts	349,024	44,747
Lyons Ferry FH (trout)	\$1,248,278	STT	Smolts	814,072	181,686
		RBT	Catchables	113,345	44,843
		RBT	Fingerlings	294,756	10,802
Tucannon FH Satellite	\$261,874	RBT	Catchables	183,599	41,629
		RBT	Fingerlings	33,551	565
WDFW Evaluations	\$511,069				
TRIBAL EVALUATIONS					
CTUIR	\$200,000				
Nez Perce	\$307,000				
FISH AND WILDLIFE SERVICE					
Hagerman NFH	\$700,000	STT	Smolts	1,151,544	243,182
Dworshak NFH	\$314,000	SpCS	Smolts	1,311,445	93,422
Dworshak FHC	\$74,000				
Columbia River Coord.	\$40,000				
Idaho FRO Evaluations	\$138,000				
Univ of Idaho (drug studies)	\$150,000				
Oregon St. U. (Research Unit)	\$38,062				
YCC Program	\$82,130				
Regional Office	\$393,757				
FWS Gen. Administrative Costs	\$438,000				
LSRCP Management/Coord.	\$318,012				
TOTAL OBLIGATED	\$12,371,260				

SPECIES SUMMARY:			
FCS	Smolts	349,024	44,747
SuCS	Smolts	1,074,598	49,293
SuCS	Fingerlings	140,172	3,561
SpCS	Smolts	3,213,296	195,407
SpCS	Fingerlings	1,160,213	54,610
STT	Smolts	5,976,446	1,241,514
STT	Fingerlings	97,107	1,757
RBT	Catchables	296,944	86,472
RBT	Fingerlings	328,307	11,367
TOTALS		12,636,107	1,688,728

RBT=rainbow trout, FCS=fall chinook salmon, SpCS=spring chinook salmon, SuCS=summer chinook salmon
STT-steelhead trout.

Table 2. Pertinent Data for Lower Snake River Fish and Wildlife Compensation Plan Fish Hatchery Facilities.

Hatchery (Operator) ^a	Fish Type	Pound	Total Cost (\$1,000)	Satellite Facilities	Date of Completion
Lookingglass (ODFW)	Spring Chinook	69,600	\$ 8,993	Big Canyon Ck. Imnaha	Nov. 82
			\$ 2,763		Apr. 87
			\$ 1,525		Jul. 89
Irrigon/Wallowa (ODFW)	Steelhead	279,600	\$15,646	(Wallowa) ^b Little Sheep Ck (Big Canyon Ck)	Oct. 85
			\$ 3,230		May 85
			\$ 2,545		Aug. 87
Lyons Ferry:			\$31,831 ^c		
Phase I (WDW)	Steelhead	116,400			Nov. 83
	Trout	45,000			
Phase II (WDF)	Trout	41,000	\$ 801	Cottonwood	Feb. 85
			\$ 1,182	Dayton Pond	Oct. 86
	Fall Chinook	101,800	\$ 4,235	Tucannon FH	Nov. 84
			\$ 230	Curl Lake	Feb. 85
Spring Chinook	8,800			Nov. 84	
Sawtooth (IDFG)	Spring Chinook	149,000	\$13,543	E.Fk. Salmon R.	Jan. 85
			\$ 2,067		Nov. 83
Dworshak (FWS)	Spring Chinook	70,000	\$ 2,234		Nov. 82
Clearwater (IDFG)	Steelhead	350,000	\$37,128		Dec. 91
	Spring Chinook	91,300			
			\$ 1,651	Red River	Nov. 86
			\$ 2,054	Crooked River	May 90
			\$ 2,320	Powell	Aug. 89
Magic Valley (IDFG)	Steelhead	291,500	\$19,520	(Sawtooth)	Aug. 87
				(East Fork)	
Hagerman (FWS)	Steelhead	340,000	\$ 9,801	(Sawtooth)	Apr. 84
				(East Fork)	
McCall (IDFG)	Summer Chinook	61,300	\$ 5,741		Sep. 81
			\$ 1,149	S.Fk. Salmon R.	Jul. 80
Eagle Lab (IDFG)	Disease Diagnostic		\$ 1,300		Apr. 89

^a ODFW - Oregon Department of Fish and Wildlife
WDFW - Washington Department of Wildlife
WDFW - Washington Department of Fisheries
IDFG - Idaho Department of Fish and Game
FWS - U.S. Fish and Wildlife Service

^b Parentheses used when dual-use hatchery/satellite is listed a second or third time.

^c Total cost of Lyons Ferry Phases I and II

Table 3. Hatchery or trap rack returns to LSRCP hatcheries operating in 1994 and 1995.

Species/Hatchery	Hatchery/Trap Adults	Returns Jacks
Summer Chinook		
McCall FH/South Fork	307	101
Spring Chinook		
Clearwater FH ¹	28	6
Sawtooth FH	33	4
East Fork Trap	0	0
Lookingglass FH ²	160	58
Imnaha Trap	32	36
Big Canyon Trap	0	0
Dworshak NFH ³	61	104
Tucannon FH	40	0
Fall Chinook		
Lyons Ferry FH ⁴	798	485
Steelhead Trout		
Irrigon FH:		
Wallowa FH	318	
Little Sheep Trap	295	
Big Canyon Trap	380	
Lyons Ferry FH ⁵	1,029	
Cottonwood Creek Trap, WA	450	
Hagerman NFH/Magic Valley FH ⁶	570	
Crooked River Trap, ID	17	

¹ Returns to Powell, Red River and Crooked River traps only.

² Includes those trapped at Lower Granite Dam and at the Lookingglass FH trap.

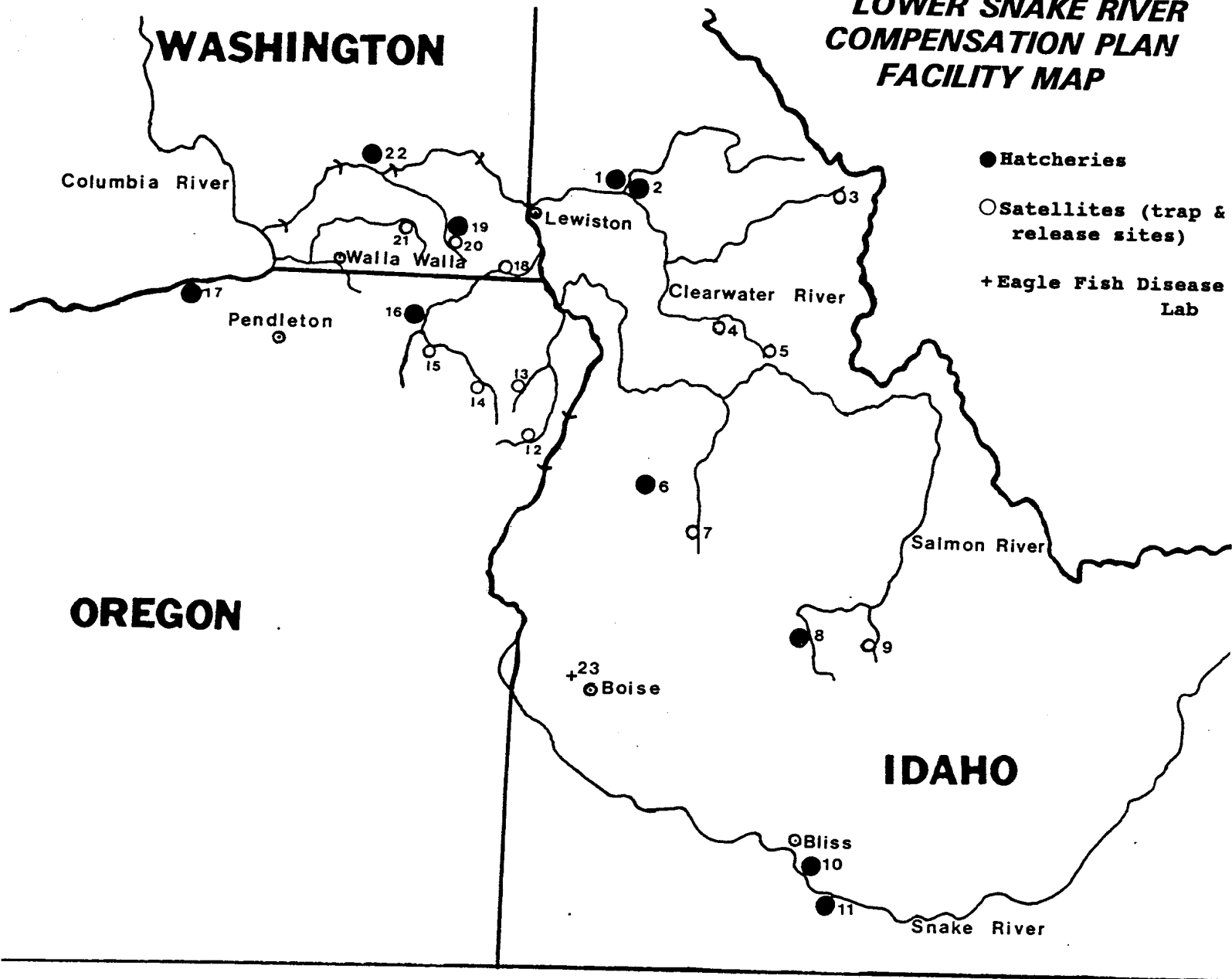
³ Dworshak and Kooskia returns.

⁴ Includes ladder returns plus Lower Granite trapping (including strays).

⁵ Shown is total adults spawned, about 4,009 were trapped in fall 1994.

⁶ Includes returns to East Fork, Sawtooth FH racks.

LOWER SNAKE RIVER COMPENSATION PLAN FACILITY MAP



- Hatcheries
- Satellites (trap & release sites)
- + Eagle Fish Disease Lab

Operating Agencies

Idaho Department of Fish and Game

1. Clearwater FH
3. Powell
4. Crooked River Satellite Facility
5. Red River Satellite Facility
6. McCall FH
7. South Fork Salmon River Satellite
8. Sawtooth FH
9. East Fork Satellite Facility
11. Magic Valley FH
23. Eagle Fish Disease Lab

U.S. Fish and Wildlife Service

2. Dworshak NFH Expansion
10. Hagerman NFH

Oregon Department of Fish and Wildlife

12. Imnaha Satellite Facility
13. Sheep Creek Satellite Facility
14. Wallowa FH
15. Big Canyon Satellite Facility
16. Lookingglass FH
17. Irrigon FH

Washington Department of Fisheries

22. Lyons Ferry FH - Salmon

Washington Department of Wildlife

18. Cottonwood Creek Satellite Facility
19. Tucannon FH
20. Curl Lake Satellite Facility
21. Dayton Pond Satellite Facility

Station: 14110 - LSRCP Field Office

OPERATIONS/MAINTENANCE COST DATA

Fiscal Year: 1995

1. Salaries, Permanent (Including Benefits):
(Includes awards)
2. Salaries, Temporary (Including Benefits):
(YCC)
3. Operating Costs:
 - A. Utilities
 - 1. Telephone
 - 2. Electricity
 - 3. Heating Oil
 - 4. Natural Gas
 - 5. Other
 - B. Vehicle Maintenance
 - 1. Distribution Vehicles

Total Mileage:

Funding Source			
Operations (Fisheries) 1	Cyclical Maintenance (Fisheries) 2	Quarters Maintenance 3	Other Funding 4
241,492			
59,961			
3,658			

Station: LSRCP Office

OPERATIONS/MAINTENANCE COST DATA

Fiscal Year: 1995

3. B. Vehicle Maintenance (continued)

2. Non-Distribution Vehicles

Total Mileage: 17,938

C. Fuel for Vehicles/Equipment (gallons)

D. Supplies

- 1. Fish Food
 - 2. Chemicals/Drugs
 - 3. Fertilizer
 - 4. Tags and Tagging Supplies
 - 5. Office Supplies/Custodial/Other Supplies
- E. Travel

Funding Source				
Operations (Fisheries)	Cyclical Maintenance (Fisheries)	Quarters Maintenance	Other Funding	
1	2	3	4	
958				
1,165				
4,530				
20,630				

Station: LSRCP Office

OPERATIONS/MAINTENANCE COST DATA

Fiscal Year: 1995

Funding Source				
Operations (Fisheries) 1	Cyclical Maintenance (Fisheries) 2	Quarters Maintenance 3	Other Funding 4	
521				
9,685,299				
10,018,214				
21,169				
21,169				
10,039,383				
				10,039,383

- 3. F. Moving Expense
- C. Miscellaneous (List)
- 4. Operations (Total: Lines 1, 2, 3A-C)
- 5. Vehicles/Equipment Purchased (Over \$1,000)
- 6. Cyclical Maintenance
- 7. Quarters Maintenance
- 8. Total Maintenance (Total: Lines 5, 6, and 7)
- 9. Column Totals (Total: Lines 4 and 8)
- 10. Total Expenditures (Add Totals of Column 1-4)

PUBLIC RELATIONS

Station: 14110 - LSRCP Field Office

Fiscal Year: 1995

1. Presentations:	Number of Groups	Number of People
On Site	<u>0</u>	<u>0</u>
Off Site	<u>2</u>	<u>Estimate over 100,000</u>
2. Number of Visitors:		
Official		<u>0</u>
Public		<u>0</u>
3. Other Public Relation Activities:		
Type of Activity		
A. Participation in "free fishing" day at Dworshak NFH - June 1995	<u></u>	<u>1200</u>
B. Outreach booth at Boise State Fair August 1995	<u></u>	<u>Estimate over 100,000</u>
<u></u>	<u></u>	<u></u>
<u></u>	<u></u>	<u></u>

Remarks:

Station: LSRCP Field Station

REPORT OF STATION PERSONNEL

Fiscal Year: 1995

Part I - Permanent Personnel (FTE's: 5)				
Name Of Employee	Functional Title	Grade	Period Worked	Remarks
Edouard J. Grateau	LSRCP Coordinator	GM-13	10/1/94 - 9/30/95	
Daniel M. Herring	LSRCP Evaluation Coord.	GS-12	10/1/94 - 9/30/95	
Joseph J. Krakker, Jr.	Fisheries Biologist	GS-11	10/1/94 - 9/30/95	
Virginia M. Neunaber	Coop. Agreement Assistant	GS-7	10/1/94 - 9/30/95	
Tammy A. Froscher	Secretary	GS-6	10/1/94 - 9/30/95	

Part II - Temporary Personnel (FTE's:)				
Name Of Employee	Functional Title	Grade	Period Worked	Remarks