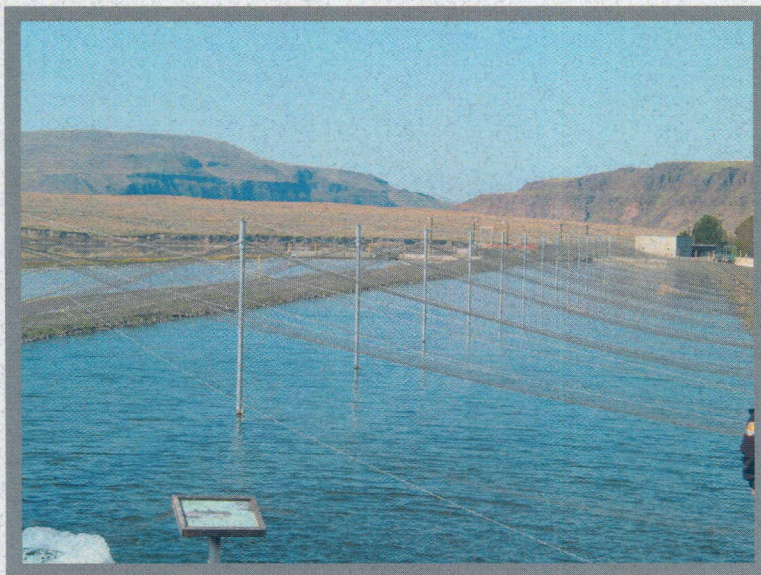


*Annual Report for Fiscal Year 2003
Lower Snake River Compensation Plan Office
Boise, Idaho*



Lower Snake River Compensation Plan Annual Report

Fiscal Year 2003

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INTRODUCTION

The Lower Snake River Fish and Wildlife Compensation Plan (LSRCP) was authorized by the Water Resource Development Act of 1976 (90 Stat. 2917) to offset fish and wildlife losses resulting from 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 Idaho and Washington. When authorized by Congress, construction responsibility for the LSRCP was assigned to the Walla Walla District, U.S. Army Corps of Engineers (Corps), while responsibility for operating, maintaining, and evaluating the hatchery segment of the overall program was to be accomplished by “one of the Federal fisheries agencies.” In 1977 the Corps, National Oceanic and Atmospheric Administration (NOAA), and U. S. Fish and Wildlife Service (FWS) signed an agreement stating that the FWS would budget for and administer funding of the LSRCP fish hatchery programs. The LSRCP Program Office was established in 1982 to administer and fund fish hatchery-related operations of the LSRCP.

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 NOAA/FWS agreement on Page 2, Section 4.d with a directive that stated: “The U.S. Fish and Wildlife Service should be designated to fund the operation and maintenance of all fish rearing facilities.” The 1985 Report further 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 has transferred fee title of all LSRCP hatcheries and associated satellite facilities to the FWS as they were completed and became fully operational.

The Corps’ estimated cost for construction of the authorized LSRCP off-project fisheries facilities (hatcheries and related satellite facilities) was approximately \$200 million; the FWS costs for annual OM&E are about \$16 million. All anadromous compensation and most resident fisheries compensation expenses are allocated to project power costs. As such, power-related expenses through Fiscal Year (FY) 2000 were reimbursed with interest to the U.S. Treasury by the Bonneville Power Administration (Bonneville) from hydroelectric generated revenues. Beginning with FY2001, the OM&E costs of the LSRCP have been reimbursed to the FWS by Bonneville through a direct funding Memorandum of Agreement (MOA) between Bonneville and the FWS.

The 1976 LSRCP legislation authorized what was believed to be sufficient anadromous fish hatcheries and associated satellite facilities to produce enough juvenile fish to return 18,300 fall Chinook salmon, 58,700 spring/summer Chinook salmon, and 55,100 steelhead adults to or above the project area (i.e. above Lower Granite Dam). The legislation also authorized 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 original program required expansion or construction of 10 hatcheries and 11 satellite trapping and release facilities in Idaho, Oregon, and Washington (Appendix B). The Corps were authorized by Congress in 1995 to construct the Pittsburg Landing, Big Canyon, and Captain John Rapids Acclimation Facilities as additional LSRCP Program facilities. They were completed in 1996, 1997, and 1998 respectively. Due to lack of sufficient FWS funds to operate the facilities, BPA directly funds the Nez Perce Tribe (NPT) to operate these fall Chinook release facilities. Currently, Idaho Department of Fish and Game (IDFG) operates the four hatcheries in Idaho, Oregon Department of Fish and Wildlife (ODFW) operates three in Oregon, Washington Department of Fish and Wildlife (WDFW) operates one hatchery complex in Washington, and the FWS operates two hatcheries in Idaho.

HIGHLIGHTS FOR FY2003

LSRCP facilities continue to produce and release salmon, steelhead and resident trout as part of their mitigation responsibility. In 2003, about 17.2 million salmon, steelhead and rainbow trout were reared and released from LSRCP facilities (Table 2). As in past years, the numbers of fish produced, release sites, and sizes were adjusted in 2003 to reduce impacts on listed species and enhance compensation.

Past releases of LSRCP-produced salmon and steelhead contributed significantly to the runs of Chinook salmon and steelhead to the Snake River basin during 2003. The hatchery steelhead count above Lower Granite Dam in 2003 was over 180,672, while the count of spring/summer Chinook salmon was over 98,763. Steelhead and spring/summer Chinook salmon returns in 2003 were both above the 10 year average. Over 21,000 fall Chinook salmon returned above Ice Harbor Dam in 2003. This is among the highest number of fall Chinook salmon to return since the lower Snake River dams were built. Although all data are not available, it appears the LSRCP program achieved some of its adult compensation goals back to and above the project area.

Oregon, Washington, and Idaho had fall and spring sport fisheries for steelhead and early summer sport fisheries for spring/summer Chinook salmon in 2003. The sport fishery on the South Fork of the Salmon River for summer Chinook salmon was one of the highlights of 2003. As a result of LSRCP efforts, the sport anglers harvested 5,457 salmon. IDFG estimated that 14,966 anglers fished a total of 80,948 hours during the season. Both the Shoshone-Bannock (SBT) and Nez Perce Tribes (NPT) conducted subsistence fisheries on the South Fork Salmon River, and the NPT also operated a commercial fishery for Chinook salmon.

LSRCP facilities released over 6.0 million steelhead fingerlings and smolts in 2003, fewer than in 2002. Almost 10.7 million spring, summer, and fall Chinook salmon were released in 2003, a slight increase over 2002. Most LSRCP Chinook and a few steelhead programs are conservation efforts permitted by NOAA under Section 10 of the Endangered Species Act (ESA).

LSRCP staff spent considerable time in FY2003 working within a variety of forums with co-managers to promote the success of the LSRCP program while assuring adherence to state and federal guidelines regarding ESA, federal laws, court orders, and other issues. Fish hatchery production, evaluation studies, and operations will continue to be adjusted where appropriate to meet ESA and other regional requirements. In FY2004 we hope to consult with NOAA on new biological opinion for 2004 and beyond.

The LSRCP Program Office and BPA members of a Joint Management Team completed the second year of a 5-Year FWS/BPA direct funding agreement. Hatchery operations and maintenance program Performance Indicator assessments were completed for a second year; whereas, 2003 was the first year for monitoring and evaluations program assessments. The LSRCP program's targeted spending level for 2003 was \$15.44 million and the actual spending level was about \$14.64 million, about 97% of the targeted level. An issue not yet resolved by the team is how construction planning and funding will be handled for major maintenance and significant modifications of LSRCP facilities. As the facilities age, the need for major maintenance and significant modifications will become greater.

FWS Regional and LSRCP staff continued to work with NOAA, state agencies, and tribal co-managers to renegotiate the *US vs Oregon* Columbia River Fish Management Plan (CRFMP). Although co-managers clearly identified agency and tribal production and harvest positions, little progress was made in reaching a long term agreement on a number of policy level issues. The existing CRFMP expired without agreement among co-managers and efforts in 2002 were once again directed toward reaching annual harvest agreements. Negotiations are scheduled to continue, with efforts focusing on developing the framework for the CRFMP and an agreement on the winter/spring fisheries. The process is very important because it will determine how the LSRCP and all other Columbia River Production Programs will be implemented for the next CRFMP period (the expired plan lasted 10 years).

The LSRCP staff once again played a leadership role in planning and implementing the **IDAHO SALMON AND STEELHEAD DAYS**. The event occurred in September 2003 at the IDFG Nature Center and consisted of three student days and one evening of activities. About 2,500 5th grade students along with hundreds of teachers and parents from Southwest Idaho attended and learned about the biology of Idaho's anadromous fish. An evening barbecue with entertainment and education activities was once again part of the venue in 2003; approximately 750 people (mostly adults) enjoyed grilled pen-reared salmon.

LSRCP Program's 2003 All-Cooperator's Meeting was convened in February. The three-day event brought fish managers, hatchery managers, fish health experts, and evaluations personnel together to discuss and resolve LSRCP program issues, share information and research findings, and improve communication. Non-LSRCP programs (e.g. Corps and Idaho Power Company) were invited to ensure discussions included a basin-wide perspective.

FY2003 LSRCP PROGRAM FUNDING SUMMARY

A total of \$16,272,056 was obligated in FY2003 to fund the operations of the Lower Snake River Compensation Plan. LSRCP cooperators include three states and three tribes. Several projects managed by the FWS were also funded through the LSRCP Office. A total of \$11,406,327 was obligated for fish hatchery operations, maintenance and fish health activities, \$3,211,296 for monitoring and evaluation activities, and \$1,654,433 for LSRCP management activities, FWS Regional Office support and general administrative costs. See Appendix A for detailed funding summary.

FISH HATCHERY OPERATIONS AND MAINTENANCE

A total of \$11,406,327 was obligated to WDFW, ODFW and IDFG or transferred to FWS facilities (Dworshak NFH, Hagerman NFH, or Idaho Fish Health Center) for operation, maintenance and fish health monitoring of 11 hatcheries and 10 associated satellite facilities. This amount is 70% of our total obligation. Below are brief summaries of hatchery operation and maintenance activities in FY2003.

CLEARWATER RIVER BASIN

The following is a description of each facility in the Clearwater River Basin and the propagation programs by species.

Clearwater Fish Hatchery

The Clearwater Fish Hatchery (FH) is operated by the IDFG and is located on the North Fork of the Clearwater River, 1.5 miles down stream from Dworshak Dam and 504 miles upstream from the mouth of the Columbia River. The facility became operational early in 1992. The LSRCP adult return goals for this program are 11,915 spring Chinook salmon and 14,000 steelhead to the Snake River basin. The facility was designed to produce and release 1.7 million Chinook salmon smolts (at 15.0 f/lb) and 1.75 million steelhead smolts (at 5.0 f/lb)

The Clearwater FH receives its water supply from Dworshak Reservoir via two pipelines. The primary (larger) pipeline draws water from just below the reservoir's surface while a secondary (smaller) pipeline draws water from a deepwater intake. A distribution tank near the hatchery allows mixing of water from the two pipelines so as to maintain desired water temperatures for various uses at the Clearwater FH. A water supply line to the Dworshak National Fish Hatchery (NFH) is also maintained from this water source.

Three satellite facilities are associated with the operation of the Clearwater FH. The Red River satellite facility, completed in November of 1986, is located on the Red River, 15 miles east of Elk City and 618 miles from the mouth of the Columbia River. The Crooked River satellite facility, completed in the spring of 1990, is located on the Crooked River and is 604 miles from the mouth of the Columbia River. The adult trapping facilities for this satellite are located one-

half mile upstream of the mouth of the Crooked River, a tributary to the South Fork of the Clearwater River. The juvenile rearing ponds for the Crooked River satellite facility are located 10 miles upstream of the river's mouth. The Crooked River facility is 20 miles downstream of Red River. Due to the straying of Chinook between the two drainages, the Red River and Crooked River stocks of spring Chinook salmon were combined in 1997 to make the South Fork of the Clearwater River stock of spring Chinook salmon. The Powell satellite facility, completed in the summer of 1989, is located 122 miles east of the Clearwater FH at the headwaters of the Lochsa River on Walton Creek. The Powell satellite facility is 624 miles from the mouth of the Columbia River.

Dworshak National Fish Hatchery

Dworshak NFH is located at the confluence of the North Fork Clearwater and Clearwater rivers, 504 miles from the mouth of the Columbia River. The facility is operated by the U.S. Fish and Wildlife Service as a complex in conjunction with the operation of the Kooskia NFH. The primary purpose for the Dworshak NFH is the production of steelhead for Dworshak Dam mitigation; however, a facility expansion occurred in 1982 to accommodate an LSRCF spring Chinook salmon production program. This portion of the facility is designed to produce 1.4 million spring Chinook salmon smolts weighing 70,000 pounds. The adult return goal for Dworshak is 9,135 spring Chinook to the Snake River basin.

Spring Chinook Salmon Programs

Of the 261 spring Chinook salmon trapped at the Red River facility in 2003, 124 were released to spawn naturally (Table 1) and hatchery fish comprised nearly 88% of all the salmon trapped. A total of 1,141 spring Chinook salmon were trapped at the Crooked River facility in 2003, compared to 1,336 in 2002. Hatchery fish made up over 84% of the Chinook salmon trapped at Crooked River, and 471 adult salmon were released above the weir to spawn naturally in Crooked River.

The adult salmon trap at the Powell facility on Walton Creek was operated on an intermittent basis for part of the 2003 trapping season. A total of 1,578 (1,493 hatchery and 85 wild) Chinook salmon were trapped. Six hundred twelve adults were returned to the river in 2003. Spawning operations at all Clearwater FH satellite facilities resulted in sufficient eggs to meet all smolt production goals from this brood year of spring Chinook salmon. Eggs were also provided to the NPT for fish production programs.

The Clearwater FH released over 2.0 million brood year (BY) 2001 spring Chinook salmon smolts in FY2003, either from direct releases or via acclimation facilities. Over 883,000 (BY2002) pre-smolts were released in the fall of 2003 (Table 2). The Clearwater FH had over 1,541,567 spring Chinook salmon (BY2002) on hand at the end of FY2003.

A total of 3,397 spring Chinook salmon returned to the trap at Dworshak NFH in 2003 (Table 1). The trap was opened and closed several times during the season to properly manage the large run

of returning adults and provide maximum sport and tribal fisheries. In comparison, a total of 2,157 adult spring Chinook salmon returned to the trap in 2002.

Table 1. Adult Chinook salmon and steelhead trapped and released at LSRCP facilities in 2003

Species	Trap Site	Hatchery Fish Trapped	Wild Fish Trapped	Total Fish Trapped	Total Fish Released
Sp Chinook	Dworshak NFH (ID)	3,397	0	3,397	0
Sp Chinook	Red River Satellite (ID)	261	37	298	124
Sp Chinook	Crooked River Satellite (ID)	1,141	219	1,360	471
Sp Chinook	Powell Satellite (ID)	1,493	85	1,578	612
Sp Chinook	Sawtooth FH (ID)	505	731	1,236	731
Sp Chinook	Lookingglass FH (OR)	76	0	76	0
Sp Chinook	Imnaha River Satellite (OR)	562	728	1,290	728
Sp Chinook	Tucannon River (WA)	151	83	234	158
Total Spring Chinook (BY 2003)		7,586	1,883	9,469	2,824
Total Summer Chinook (BY 2003)		5,654	2,381	8,035	2,381
Fall Chinook	Lyons Ferry (WA)			2,766	501
Fall Chinook	Lower Granite Dam trap			2,751	491
Total Fall Chinook (BY2002)				5,517	992
Steelhead	Sawtooth FH (ID)	2,431	30	2,461	30
Steelhead	Squaw Pond (ID)	24	0	24	0
Steelhead	East Fork Salmon River (ID)	3	44	47	28
Steelhead	Wallowa FH (OR)	2,090	10	2,100	10
Steelhead	Deer Creek (Big Canyon OR)	1,369	140	1,509	140
Steelhead	Little Sheep Creek (OR)	1,904	99	2,003	1,816
Steelhead	Lyons Ferry FH (WA)	2,607	0	2,607	1,325
Steelhead	Cottonwood Creek (WA)	480	0	480	242
Steelhead	Touchet River (WA)		120	120	85
Steelhead	Tucannon River (WA)	35	51	86	51
Total Steelhead (BY 2003)		10,943	494	11,437	3,727

Hatchery personnel spawned sufficient numbers of female spring Chinook salmon in 2003 to meet smolt production targets. Early rearing of salmon for the Dworshak program is conducted at the Kooskia NFH to take advantage of cooler rearing temperatures and ensure the target size at stocking is not exceeded. Dworshak NFH had over 1,083,000 (BY2002) spring on hand at the end of FY2003 for a spring of 2004 release.

Table 2. Chinook salmon, steelhead, and rainbow trout releases from LSRCP facilities in 2003.

Hatchery	Species	Brood Year	Life Stage	Total Fish Reared for Release
Clearwater	Spring Chinook	2001	Smolt	2,041,021
Clearwater	Spring Chinook	2002	Pre-smolt	883,094
Sawtooth	Spring Chinook	2001	Smolt	1,096,739
Dworshak	Spring Chinook	2002	Smolt	1,033,982
Lookingglass	Spring Chinook	2001	Smolt	877,895
Lyons Ferry/Tucannon	Spring Chinook	2001	Smolt	287,318
Spring Chinook Total				6,220,049
McCall	Summer Chinook	2001	Smolt	1,127,242
McCall	Summer Chinook	2002	Pre-smolt	80,340
Summer Chinook Total				1,207,582
Lyons Ferry	Fall Chinook	2001	Yearling	518,436
Lyons Ferry	Fall Chinook	2001	Subyearling	300,111
Lyons Ferry (NPT Acclimation)	Fall Chinook	2002	Yearling	446,112
Lyons Ferry (NPT Acclimation)	Fall Chinook	2002	Subyearling	2,020,867
Fall Chinook Total				3,285,526
Clearwater	Steelhead	2002	Smolt	872,000
Clearwater	Steelhead		Pre-smolt	22,599
Magic Valley	Steelhead	2002	Smolt	1,970,121
Hagerman NFH	Steelhead	2002	Smolt	1,265,544
Irrigon	Steelhead	2002	Smolt	1,178,671
Lyons Ferry	Steelhead	2002	Smolt	690,858
Lyons Ferry	Steelhead	2002	Parr	13,482
Total Steelhead				6,013,275
Tucannon	Rainbow trout	2002	Catchable	97,607
Tucannon	Rainbow trout	2003	Fingerling	15,015
Lyons Ferry	Rainbow trout	2002	Catchable	116,089
Lyons Ferry (transfer to Idaho)	Rainbow trout	2003	Fingerling	200,940
Rainbow trout Total				429,651
Grand Total All Species				17,156,083

Steelhead Programs

Trapping operations at the Crooked River and Red River facilities captured thirteen and eleven steelhead, respectively, during the spring of 2003. The Clearwater FH received over 1.545 million green eggs (BY2003) from the Dworshak NFH for rearing full-term smolts for release into the Clearwater River basin. In addition, over 1.48 million steelhead eggs from the Dworshak NFH were early incubated at the Clearwater FH and distributed as eyed eggs to Magic Valley FH and Hagerman NFH.

Approximately 872,000 (BY2002) steelhead smolts and 22,600 pre-smolts were produced at the Clearwater FH and released at seven locations in 2003. Over 1.1 million BY2003 steelhead fry were ponded for spring of 2004 releases. In addition to the Clearwater FH releases, about 190,133 BY2002 Clearwater River stock steelhead were reared at the Hagerman NFH and released into the American River (102,040) and into Newsome Creek (88,093) during the spring of 2003.

SALMON RIVER BASIN

The following is a description of each facility in the Salmon River Basin and the propagation programs by species.

McCall Fish Hatchery

The McCall FH is operated by the IDFG and located along the North Fork of the Payette River in the city of McCall, Idaho. 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. The program operates a satellite facility on the South Fork of the Salmon River (SFSR) for trapping and spawning adult Chinook salmon. The smolt release site is located on the South Fork of the Salmon River upstream from the weir.

Due to ongoing supplementation studies and the desire to maintain the ability to allow sport fisheries, IDFG manages three South Fork Salmon River populations of summer Chinook salmon. The “reserve” population is maintained by spawning hatchery fish with other hatchery fish. These fish are not listed under the Endangered Species Act (ESA) and provide sport fishing opportunities when large numbers of these externally-marked adults return to the basin. The population designated as “supplementation” can result from several different mating combinations, all which include an unmarked “wild” fish either as a parent or as a grandparent. These fish are listed under ESA and are marked only with a ventral fin clip (the adipose fin remains in tack). The population designated as “wild” is also listed and have no marks or tags because they result from natural spawning parents. The majority of all wild and supplementation fish are passed above the weir to spawn naturally, with only a small portion of each population retained for ongoing supplementation research. None of the reserve fish are intentionally passed above the weir.

In addition to LSRCF program activities, the staff of the McCall FH is cooperating with the NPT to carry out an artificial propagation project (BPA funded) on Johnson Creek. Not only does this include rearing summer Chinook salmon smolts for release into Johnson Creek, but also assisting with spawning of adults from Johnson Creek, which held at the South Fork Salmon River Satellite.

Sawtooth Fish Hatchery

The Sawtooth FH, is located on the upper Salmon River near Stanley, Idaho and is operated by IDFG. Its primary mission is to rear 2,235,000 spring Chinook salmon smolts weighing 149,000 pounds and trap steelhead ("A" strain) to collect eggs for Hagerman NFH and Magic Valley FH.

A satellite facility located on the East Fork of the Salmon River is associated with the Sawtooth FH, although its use has been limited in recent years. The satellite was designed to trap adult spring Chinook for Sawtooth FH and steelhead ("B" strain) for Hagerman and Magic Valley and to serve as a direct stream release site. The goal for the Sawtooth FH program is to return 19,455 adult Chinook salmon to the Snake River basin.

Magic Valley Fish Hatchery

Magic Valley FH is located on the Snake River near Filer, Idaho and operated by IDFG. The hatchery was constructed on a commercial hatchery site that was purchased by the Corps in 1981. Steelhead were produced at the site from 1982 until 1986 when construction of the current facility began. The current facility became operational in 1987.

The Magic Valley FH was designed to produce 2,000,000 steelhead smolts weighing 291,500 pounds annually. The LSRCF adult return goal for the facility is 11,660 adults back to the Snake River basin. Several steelhead stocks (Sawtooth, Pahsimeroi, Dworshak-B, and East Fork-B) are reared at the Magic Valley FH.

Hagerman National Fish Hatchery

The Hagerman NFH is located about 30 miles west of Twin Falls, Idaho, just outside the town of Hagerman in the Snake River valley and is operated by the FWS. The water supply for the facility consists of approximately 30,000 gallons per minute of 59⁰F water from a series of springs from the Snake River aquifer. The current facility is designed 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 LSRCF. Hagerman NFH's goal is to return 13,600 adult steelhead to the Snake River basin.

Summer Chinook Salmon Program

A total of 8,035 adult summer Chinook salmon were trapped at the SFSR facility in 2003 compared to 8,603 in 2002. Of the total trapped in 2003, 5,654 were considered hatchery fish (70.4%) and 2,381 fish were released above the weir for natural spawning (wild and supplementation fish). Spawning operations at the facility produced almost 2.2 million green eggs for the South Fork Salmon River production program.

Due to the large numbers of returning reserve population (non-listed) adults in 2003, a sport salmon fishing season was authorized for the South Fork Salmon River. Data compiled at the mandatory check station indicated that 14,966 anglers fished a total of 80,948 hours to harvest 5,457 salmon during the 30-day season.

In the spring of 2003, a total of 1,127,242 summer Chinook salmon smolts (BY2001) were released in the South Fork Salmon River from Knox Bridge (Table 4, Appendix A). Also 80,340 listed summer Chinook salmon parr (BY2002) were stocked into the Stolle Pond for acclimation and subsequently a fall release as part of ongoing supplementation research. The McCall FH had over 1.1 million summer Chinook salmon (BY2002) on hand at the end of FY2003 for release in spring 2004.

Spring Chinook Salmon Program

The Sawtooth FH trap was put into operation for spring Chinook salmon on June 12, and was operated until September 9, 2003. The East Fork Satellite trap was not operated for Chinook salmon in 2003.

The first spring Chinook salmon was trapped at the Sawtooth FH trap on June 12, 2003. A total of 1,236 salmon were trapped in 2003, compared to 1,786 in 2002. Seven hundred and thirty-one of those trapped were not marked and released above the weir to spawn naturally. A total of 33 females were spawned to yield 174,575 green eggs for Sawtooth FH incubation.

A total of 1,096,739 BY2001 spring Chinook salmon smolts were released in the spring of 2003 from the Sawtooth FH, a significant increase over the 385,671 smolts released in 2002. At the end of FY2003, the Sawtooth FH had over 825,100 spring Chinook salmon (BY2002) on hand for release in 2004.

Steelhead Programs

Steelhead trapping at the Sawtooth FH began March 18, 2003. A total of 2,461 were collected, considerably fewer than the 7,104 trapped in 2002. The number of unmarked steelhead trapped was 30 or 12 percent, about the same proportion as last year (13 percent). All unmarked fish were released to spawn naturally. A total of 508 females were spawned, resulting in 2,807,840 green eggs which were incubated to the eyed stage at the Sawtooth FH. Eyed steelhead eggs were delivered to the Magic Valley FH and Hagerman NFH for LSRCF steelhead production programs.

The East Fork Satellite trap was operated in the spring of 2003. A total of 47 "B" run steelhead were trapped (3 marked and 44 unmarked). Twenty-eight of the unmarked fish were released above the weir for spawning. Spawning activities at the East Fork site yielded 86,184 green eggs from 11 females. A weir and trap located at the outlet of the Squaw Creek acclimation/release pond was monitored for adult steelhead. Twenty-four "B" run and 60 "A" run steelhead were collected. The eight unmarked steelhead collected were released above the weir. Spawning of fish collected at this site yielded 128,379 green eggs.

In the spring of 2003, Magic Valley FH received approximately 2.4 million eyed eggs from five stocks. The proportion of stocks reared along with location of release sites is determined primarily through co-management efforts. At the end of FY2003 the Magic Valley FH had about 1.84 million BY2003 steelhead on hand for release as smolts in the spring of 2003.

In spring 2003, 1,971,121 BY2002 steelhead were hauled from the Magic Valley FH for release at various locations throughout the Salmon River basin. All smolts received an adipose fin-clip except those dedicated to Salmon River supplementation efforts; these included 83,157 destined for the Lemhi River, 27,469 for the Yankee Fork, and 27,707 for the East Fork.

In spring 2003, Hagerman NFH received a total of 1,405,008 BY2003 steelhead eggs, composed of Sawtooth (939,025), Clearwater (247,234), and Pahsimeroi (218,749) stocks. At the end of FY2003, Hagerman NFH had 894,070 Sawtooth, 214,364 Clearwater, and 211,604 Pahsimeroi stocks on hand for spring of 2004 release.

During the spring of 2003, Hagerman NFH hauled 1,265,544 BY2002 steelhead smolts for release at several sites within the Salmon River basin, including the Little Salmon River, the upper Salmon River, and the Yankee Fork of the Salmon River. Of these, 195,725 were Pahsimeroi and 879,786 were Sawtooth stock.

Non- LSRCP Programs

In addition to LSRCP programs, our cooperators also work closely with a variety of entities on several projects. For example, Sawtooth FH personnel collected approximately 380,000 steelhead eggs for a stream side incubation program operated by the SBT. Summer Chinook salmon from the SFSR satellite were held and spawned and the eggs incubated at the Sawtooth FH for a SBT egg box program in the South Fork. Over 374,580 steelhead eggs from the Pahsimeroi FH (Idaho Power Company funded, IDFG-operated) were incubated at the Sawtooth FH to take advantage of cooler incubation temperatures. Summer Chinook eggs (1,176,958) from the Pahsimeroi FH were transferred to the Sawtooth FH to take advantage of pathogen free incubation and early rearing water; some fish returned to Pahsimeroi as fry with the remainder returned as parr. In return, Pahsimeroi FH personnel trap and spawn steelhead for LSRCP programs. The Sawtooth staff also assists the sockeye salmon recovery project with trap monitoring, adult holding, egg incubation, rearing, and stocking and help with IDFG's catchable rainbow trout redistribution and mountain lake stocking. Johnson Creek summer Chinook adults were held for spawning at the SFSR trap and juveniles are reared in the outflow channel of the two large McCall FH smolt rearing ponds.

GRANDE RONDE AND IMNAHA RIVER BASINS

The following is a description of each facility in the Grande Ronde and Imnaha River basins and the propagation programs by species.

Lookingglass Fish Hatchery

The Lookingglass FH, operated by the ODFW, is located on Lookingglass Creek north of Elgin, Oregon. Although the facility was designed to produce 1.4 million spring Chinook salmon smolts weighing 69,600 pounds, recent agreements among co-managing entities have reduced the desired fish rearing densities that limits the current production capacity. The Imnaha River Satellite facility is located on the Imnaha River near the mouth of Gumboot Creek and is operated by the ODFW hatchery staff. The adult return goal to the Snake River for the Lookingglass FH program is 9,070 adult spring Chinook salmon.

Irrigon Fish Hatchery/Wallowa Fish Hatchery

The Irrigon FH, operated by the ODFW, is located on the Columbia River near Umatilla, Oregon. Collector wells designed for 25,000 gallons per minute (gpm) supply water for the program which is targeted to rear 1,677,000 steelhead smolts weighing 279,600 pounds. Irrigon FH's return goal is 11,200 adults back to the Snake River basin.

Irrigon FH operates in conjunction with three other facilities. The Wallowa FH located in Enterprise, Oregon along the Wallowa River, serves as a steelhead trapping, spawning and acclimation facility for steelhead reared at Irrigon FH. Hatchery personnel from the Wallowa FH also manage trapping, spawning, and acclimation operations at the Big Canyon Satellite facility, located at the confluence of Deer Creek and the Wallowa River, and the Little Sheep Creek Satellite facility in the Imnaha River drainage. The Wallowa facility can acclimate up to 600,000 steelhead smolts, while the Big Canyon and Little Sheep Creek acclimation facilities can accommodate up to approximately 250,000 smolts each.

Spring Chinook Programs

A total of 1,290 adult spring Chinook salmon were trapped in 2003 at the Imnaha River trap, compared to 1,200 adults trapped in 2002 (Table 1). Of the fish trapped in 2003, 728 were unmarked and 562 were of hatchery origin. A total of 728 adult spring Chinook salmon were released for natural spawning in the Imnaha Basin. Fish designated for broodstock were transported to the Lookingglass FH where 98 Imnaha River females were spawned to yield 497,969 green eggs.

Conventional and captive brood stock programs were developed over the last several years to maintain endemic Chinook salmon stocks in the upper Grande Ronde and Lostine rivers and Catherine Creek (see **Note** below). The conventional projects consist of operation of trapping and acclimation sites in each of the basins, whereas most of the facilities for captive rearing are located outside the basin. While the trapping, acclimation, and captive brood rearing are funded by BPA under the Northwest Planning and Conservation Council (NPCC) Program, adults from

there programs are spawned at LSRCP facilities and the eggs produced from all programs are incorporated into LSRCP smolt production targets. Fish trapped for the conventional brood stock program in 2003 were transported from each site to Lookingglass FH for spawning. Spawning efforts produced approximately 106,646 Lostine stock, 120,733 Grande Ronde River, and 103,916 Catherine Creek stock eggs.

In spring 2003, almost 879,000 BY2001 Chinook smolts were transported from the Lookingglass FH to acclimation sites in four basins: 129,682 (24,392 from the conventional program) into Catherine Creek; 237,036 (26,923 conventional) into the upper Grande Ronde River; 242,749 (100,882 conventional) into the Lostine River; and 268,426 (all conventional) into the Imnaha River. At the end of FY2003, the Lookingglass FH had over 399,000 Imnaha and 616,000 Grande Ronde BY2002 Chinook salmon on hand for release in the spring of 2004.

[**Note:** This year marked the 9th year for collecting approximately 500 parr from each of the Lostine River, Catherine Creek, and the upper Grande Ronde River for the captive broodstock program. The program was initiated as an effort to conserve and maintain several Chinook populations for ultimate use in recovery of listed stocks under ESA and to enable the LSRCP to return to their compensation responsibilities in the future. Parr are initially reared at the Lookingglass FH, and then transferred to either the Manchester facility (salt water) in Washington or Bonneville FH (freshwater) in Oregon for rearing. When fish are expected to mature, they are transferred to Lookingglass FH maturation and spawning. As described above, the progeny of these broodstocks are raised for subsequent release as smolts back into their rivers of origin.]

Steelhead Program

In 2003 a total of 2,100 steelhead were trapped at the Wallowa FH, compared to 2,961 trapped in 2002 (Table 1). Over 1.2 million eggs were collected from 222 females. A total of 1,509 steelhead returned to the Big Canyon Satellite facility in 2003, compared to almost twice as many (2,946) in 2002. No eggs were collected there and a total of 140 unmarked steelhead were released above the Big Canyon weir into Deer Creek. About 2,000 adult steelhead returned to the Little Sheep Creek trap in 2003, compared to 3,464 in 2002 (Table 1). Of these 1,816 were released for spawning and 467,350 eggs were collected from 84 females. Eggs from both spawning operations were incubated at the Wallowa FH until the eyed stage, and then shipped to the Irrigon FH for hatching and rearing.

In 2003, the Irrigon FH delivered BY2002 steelhead smolts to the three acclimation facilities in Northeast Oregon. The estimated releases from these facilities are as follows: Wallowa FH – 524,390, Big Canyon Satellite – 292,120, and Little Sheep Creek Satellite – 234,000. Big Sheep Creek received a direct release of 114,110 steelhead smolts. About 1.13 million steelhead (BY2003) for the LSRCP program were on hand at the Irrigon FH at the end of FY2003.

SNAKE, WALLA WALLA, TUCANNON, TOUCHET, AND GRANDE RONDE RIVERS BASINS

The following is a description of each facility in the Snake, Walla Walla, Tucannon, Touchet, and Grande Ronde Rivers basins and the propagation programs by species.

Lyons Ferry Fish Complex - Lyons Ferry and Tucannon Fish Hatcheries

Programs at the Lyons Ferry FH and the Tucannon FH work in conjunction to form the basis for the Lyons Ferry Fish Hatchery (FH) complex managed by the WDFW. The Lyons Ferry FH, the largest LSRCF facility, is located at the confluence of the Palouse and Snake Rivers in Southeast Washington. The facility, originally operated as two independent facilities, was designed to produce 1,169,500 (116,400 lbs.) steelhead smolts, 9,162,000 (101,800 lbs.) fall Chinook salmon smolts, 132,000 (8,800 lbs.) spring Chinook salmon smolts, and 45,000 pounds of trout for resident fishery programs. Adult return goal to the Snake Rivers, to the basin, for this program include 4,656 steelhead, 18,300 fall Chinook salmon, and 1,148 spring Chinook salmon. Staff from the LFFH complex oversee operations of steelhead acclimation facilities on the Touchet River near Dayton, Washington and on Cottonwood Creek in the Grande Ronde River basin. The Cottonwood facility also serves as an adult steelhead trapping site for egg collections.

The Tucannon FH is located on the upper Tucannon River. The primary production goal for this facility is the production of 41,000 pounds of trout for resident fishery programs. Spring Chinook salmon trapping also occurs at Tucannon FH. Staff manages the Curl Lake spring Chinook salmon acclimation facility a few miles upstream of the FH on the Tucannon River.

Spring Chinook Salmon Program

Spring Chinook salmon returns to the Tucannon River trap totaled 234 in 2003, compared to 780 in 2002 (Table 1). Of the fish trapped, 83 were unmarked and 151 were of hatchery origin. A total of 158 fish were passed above the weir to spawn. Thirty-seven females were spawned, producing over 133,200 eyed-eggs. The captive brood stock program, sponsored by FWP) for Tucannon River spring Chinook produced about 187,000 eggs from spawning 223 females. Approximately 140,400 captive (from the Curl Lake) and 146,920 conventional Tucannon River spring Chinook (BY2001) salmon smolts were released into the Tucannon River in 2003. At the end of FY2003, over 617 Tucannon River spring Chinook salmon from various brood years remained at the Lyons Ferry FH as part of the captive broodstock program. In addition, over 173,000 Tucannon River spring Chinook salmon (BY2002) were on hand at Lyons Ferry Fish Complex facilities for release in spring 2004.

Fall Chinook Salmon Program

A total of 2,766 fall Chinook salmon were trapped at the Lyons Ferry FH in September through November 2002, compared to 2,080 trapped in 2001. The trap was opened and closed throughout the season due to a large return of fall Chinook. A trapping operation at the Lower Granite Dam also provided fish for the Lyons Ferry fall Chinook salmon spawning operation. During the spawning process, the origin of the fish must be verified to determine the appropriate use for the gametes from an individual fish. Only eggs from Snake River origin fish are used for

LSRCP programs. The concerted effort to spawn only Snake River stock fall Chinook salmon with each other is of particular importance because the natural spawning population is listed as threatened under the ESA. Spawning of 1,322 female Snake River origin fall Chinook salmon produced 4,627,000 eggs.

A total of 518,436 (BY2001) fall Chinook salmon yearlings and 200,092 (BY2002) sub-yearlings were released into the Snake River from the Lyons Ferry FH ponds. In addition, 100,019 sub-yearlings were hauled and released at the Couse Creek boat launch near river mile 158.

In a cooperative venture between WDFW, NPT and FWS, yearling and sub-yearling fall Chinook salmon are transferred to the three acclimation sites within the basin operated by NPT and funded under the FWP. A total of 296,096 (BY2001) yearlings were transferred to the Captain John's Rapids and Pittsburg Landing acclimation facilities on the Snake River in 2003, while 150,016 (BY2001) yearlings were transferred to the Clearwater River Big Canyon acclimation facility. About 1,206,520 (BY2002) sub-yearlings were transferred to the Snake River acclimation facilities and 513,626 (BY2002) to Big Canyon for late spring releases. Lastly, 231,334 sub-yearlings were transferred to Nez Perce Tribal Hatchery and 69,387 were released at Lower Granite Dam for research purposes. At the end of FY2003, over 945,000 million fall Chinook (BY2002) were on hand at the Lyons Ferry FH for 2004 releases.

Steelhead Programs

A total of 2,607 steelhead were trapped at the Lyons Ferry FH for the 2002/2003 run year, and 1,325 were released back into the Snake River for the fishery (Table 1). Spawning of 126 females produced 630,000 eggs in 2003. Releases of Lyons Ferry steelhead stock smolts (BY2002) are as follows: a) 60,000 to Snake River at Lyons Ferry, b) 105,045 to Touchet River via the Dayton acclimation pond, c) 115,496 to Tucannon River, and d) 102,975 to Walla Walla River (Table 4). Approximately 415,000 (BY2003) Lyons Ferry steelhead were on hand for release in FY2004.

Trapping operations at the Cottonwood facility produced 480 adult Wallowa stock steelhead, of which 242 were released upstream of the weir into Cottonwood Creek (Table 1). Spawning of 65 females yielded over 325,000 steelhead eggs at the Cottonwood facility. A total of 236,627 BY2002 smolts were acclimated and released at this site (Table 4). Over 177,000 BY2003 Wallowa stock steelhead were on hand for release in FY2004.

A trapping operation on the Touchet River, near Dayton, Washington yielded 120 unmarked adult steelhead (Table 1). Sixteen females were spawned, producing 80,000 eggs. A total of 31,444 (BY2002) smolts from this listed stock were released into the Touchet River in 2003. Approximately 63,000 Touchet River stock steelhead (BY2003) were on hand for release in FY2004.

Trapping operations on the Tucannon River yielded 149 unmarked and 6 marked steelhead at two traps of which 51 unmarked and 6 marked fish were released back into the river. Fourteen Tucannon River stock fish were spawned and produced over 70,000 eggs. A total of 43,870

(BY2002) listed smolts were released into the Tucannon River in spring 2003. Over 43,000 Tucannon River stock steelhead (BY2003) were on hand for release in FY2004.

Rainbow Trout Programs

The Lyons Ferry Fish Complex manages the LSRCP resident trout production program. During 2003, the Lyons Ferry Fish Complex stocked 213,696 yearling and 15,015 fingerling rainbow trout into local fishing ponds and inland lakes in Southeast Washington. The Lyons Ferry Fish Complex also produced and transferred 200,940 rainbow trout to the Idaho Fish and Game Department for stocking into lakes and rivers. At the end of FY2003 over 277,042 rainbow trout were on hand at the Tucannon FH, and over 48,079 rainbow trout were being reared at the Lyons Ferry Fish Complex.

MONITORING AND EVALUATIONS

The LSRCP obligated \$3,211,296 for monitoring and evaluation (M&E) studies and PIT tag costs related to its program in FY2003. Those receiving funding included IDFG, ODFW, WDFW, FWS Idaho Fishery Resource Office, the NPT, the Confederated Tribes of the Umatilla Indian Reservation (CTUIR), and the SBT. The LSRCP Office staff met with representatives from each cooperating entity in a variety of settings to discuss issues dealing with specific items to budgets to proposal modifications. Below is a brief summary of the FY2003 M&E programs for each of the cooperating entities. Individual M&E program reports can be obtained from the LSRCP office and or downloaded from the LSRCP Website.

Idaho Department of Fish and Game

The goal of the IDFG LSRCP monitoring and evaluation (M&E) program is to identify hatchery rearing and release strategies that will allow the LSRCP program to meet its compensation requirements, along with monitoring the effects of LSRCP programs on wild salmonid populations. IDFG M&E efforts are divided among *Hatchery Evaluation Studies* (HES), a *Harvest Monitoring Program* (HMP), and a *Coded Wire Tag Analysis Project* (CWT). IDFG's LSRCP M&E program requires a close cooperative effort among staff dedicated to HES, HMP, and CWT projects.

HES studies concentrate on determining relationships between hatchery practices and adult returns. The studies conducted by the HES staff include monitoring and evaluation of hatchery rearing; comparison and analysis of size, time, and location of releases; and documentation and analysis of adult returns. By necessity, these studies are long-term monitoring and trend studies.

Several HES projects initiated in previous years to address specific hatchery concerns and needs were continued in FY2003. These include assessing migration characteristics of hatchery-reared fish; documentation and analysis of straying of hatchery Chinook salmon; nature's rearing studies; time and size of release studies, analysis of steelhead acclimation, and comparison of spawn timing.

HES staff assisted with and provided technical guidance on a variety of other projects in FY2003, including tagging operations, tissue sample collection for genetics studies, fish transfers, weir installations, and creel station operations. The HES team also provided information to develop and facilitate annual marking and tagging plans for steelhead and Chinook salmon. The HES staff maintains historic run spreadsheets, reviews hatchery run reports, coordinates CWT and mark databases, responds to numerous data requests from outside entities, participates in the NPCC sub-basin planning process, and develops LSRCP funding proposals.

The HMP staff conducted creel surveys on the Clearwater, Snake and Salmon rivers to document the LSRCP contribution to fisheries in Idaho. Information gathered from creel efforts includes recovery of CWT's; age, sex, and length information; and information concerning hatchery/wild ratios in the fishery. The HMP staff spent a great deal of time in FY2003 compiling and analyzing data, completing reports, determining run projections, and responding to data requests.

IDFG maintains a lab for reading and analyzing coded wire tags to document LSRCP adult returns and their contribution to fisheries. Actual marking costs for fish reared at LSRCP facilities in Idaho are included in individual hatchery budgets.

HES, HMP and CWT staff devoted a considerable amount of time to coordinating research and management activities for the LSRCP program. Staff attended coordination meetings for the Sawtooth, Clearwater, and McCall FH's and Dworshak and Hagerman NFH's. Information on brood year management, run information, projected adult returns, weir management plans, fish marking plans, fish health, sport fisheries, research and future needs are developed at these meetings. The staff also participated in hatchery evaluation team meetings, IDFG anadromous meetings, and technical oversight meetings for other projects (e.g. captive brood).

Oregon Department of Fish and Wildlife

ODFW's evaluation program includes: 1) monitoring and evaluating hatchery practices; 2) investigating size, time, and location of release of hatchery-reared juveniles; 3) marking activities (CWTing, branding); 4) assisting with disease monitoring efforts; 5) determining the LSRCP contribution to Oregon's steelhead fishery; 6) determining the effects on natural spawning populations; and 7) determining the success of maintaining the genetic integrity of native wild stocks potentially effected by the LSRCP program.

In 1997 ODFW began monitoring natural spawning of summer steelhead in NE Oregon and assessing the relationship between anadromous and resident forms of *O. mykiss*. In the summers of 1999, 2000 and 2001 ODFW, WDFW, NPT, and CTUIR collected tissue samples from Grande Ronde and Imnaha river basin wild juvenile parr to determine stock structure. They also investigated the feasibility of using otolith micro-chemistry analyses to identify maternal origin of juveniles. The results of the genetic analyses were reported in 2003 and the mico-chemistry results are pending. ODFW and their tribal co-managers hope to learn more about the characteristics and relationships of the various populations in NE Oregon and about the fate of hatchery adults that escape to their river of release but are not caught at traps or by anglers. Findings from this and the other studies will help co-managers determine if hatchery populations can be and should be derived from local resident populations.

ODFW M&E personnel are planning experiments using Imnaha stock spring Chinook to evaluate the effect of various feeding regimes on the number of jacks produced. Captive broodstock progeny are being used to evaluate the effects of parental rearing regime and BKD segregation. Spring Chinook salmon sport fisheries were monitored and evaluated by ODFW M&E personnel on the Imnaha River and on Lookingglass Creek in 2003 along with steelhead sport fisheries throughout Northeast Oregon.

ODFW personnel continued a collaborative effort with Confederated Tribes of the Umatilla Indian Reservation (CTUIR) and NPT personnel to maintain a captive broodstock/propagation program that was initiated in 1995 with LSRCP funding. In 2003, spring Chinook salmon smolts from both the conventional rearing and the captive broodstock programs were released into the Imnaha River and at several locations throughout the Grande Ronde River basin. Survival of the two programs will be compared during outmigration and when they return as adults.

Washington Department of Fish and Wildlife

WDFW's evaluations of fall and spring Chinook are combined under one multiple-objective study including: 1) monitoring and evaluation of hatchery practices, juvenile outputs, adult returns (including homing studies), and contribution to fisheries; 2) time, size, and location of release (including acclimation) studies; and 3) evaluation of effects of hatchery releases on naturally producing Chinook stocks (including parr density monitoring and spawning ground counts). 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.

Fish from all release groups from the Lyons Ferry FH and the Tucannon FH were sampled prior to liberation to document growth parameters, fin clip quality, tag retention, and percent precocious males in releases. WDFW M&E personnel continued their ongoing efforts to determine out-migration timing and relative survival of salmon and steelhead released. The staff operated a trap near the mouth of the Tucannon River from March through November to estimate the number of emigrating salmon and steelhead smolts and biological data and abundance estimates was compared to previous years.

The M&E staff coordinated the tagging and marking of spring and fall Chinook salmon and steelhead reared at the Lyons Ferry Fish Complex. Efforts included the use of PIT tags for emigration evaluations. Study groups were established to monitor and evaluate survival and return of releases in comparison with project goals.

M&E personnel monitored the fall Chinook salmon run and coordinated the return of excess fall Chinook salmon broodstock adults to the Snake River above Lower Granite Dam (LGD). They also assisted with spawning efforts and the recovery of coded wire tags. Efforts were continued to determine the origin of all spawned fall Chinook and remove known stray and unknown origin adults from the spawning process to maintain the genetic integrity of the Lyons Ferry broodstock. M&E personnel provided a detailed database of adult fall Chinook salmon that returned to Lyons Ferry Fish Complex and to LGD to regional managers and assisted NOAA personnel with the development of a run reconstruction at LGD. The fall Chinook salmon run

reconstruction is a central element to the *US vs Oregon* mandated annual management agreement for the Columbia River.

A severely depressed spring Chinook salmon population in the Tucannon River was the impetus for a captive broodstock program initiated in 1997. In 2003 WDFW M&E personnel assisted the hatchery staff with selection and ponding of juveniles, selection and spawning of ripe adults, and coded wire tag marking of juvenile fish. WDFW M&E personnel will continue to direct the program through 2006 with the goal of rebuilding this spring Chinook salmon population.

M&E personnel trapped adult steelhead on the Touchet and Tucannon rivers to assess the status of ESA listed natural populations. The staff collected adult steelhead for broodstock and assisted Lyons Ferry Fish Complex personnel with spawning efforts. The M&E staff completed the third year of a five year study on the development and success of endemic brood steelhead reared in a hatchery.

A fall Chinook salmon spawning survey was completed on the lower 12 miles of the Tucannon River. The staff documented the number of redds, collected biological data and genetic samples from carcasses, and estimated total spawning escapement. Steelhead spawning surveys were conducted on index sections of the Touchet and Tucannon rivers and Asotin Creek and spawning escapement was estimated. M&E personnel also completed electro fishing surveys of index sites to estimate juvenile steelhead site densities and calculate river system abundance by age class for the rivers.

M&E personnel conducted spring Chinook salmon spawning surveys of the Tucannon River and Asotin Creek, and redd construction enumerations and estimates of spawning escapement (both hatchery and wild origin) were made. Estimates of egg deposition from these tasks are coupled with juvenile abundance sampling and smolt trapping to estimate egg to smolt and smolt to adult survivals which are critical biological indices of population health and stability.

The M&E staff conducted a creel survey of steelhead sport anglers throughout Southeast Washington to recover coded wire tags and document the level of sport harvest. Estimation of harvest of all fish with unique coded wire tag codes was made and provided to regional researchers. Staff members also attended numerous regional planning and management forums (including subbasin planning efforts) and provided data collected under the LSRCP program. WDFW M&E personnel served as regional experts on the status of salmon and steelhead populations (abundance and trends) in Southeast Washington.

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. The objectives of the CTUIR's LSRCP 2003 monitoring and evaluation program were to 1) evaluate the re-introduction of spring Chinook salmon into Lookingglass Creek using naturally produced adults or captive broodstock juveniles, 2) monitor the adult returns and juvenile life history of Chinook salmon and steelhead in Lookingglass Creek, 3) monitor and evaluate the summer steelhead populations in the Grande Ronde River basin, and 4) cooperate with ODFW to maintain ongoing LSRCP evaluation activities.

Spring Chinook salmon study activities in Lookingglass Creek study during 2003 included 1) evaluate the production of naturally spawning adults, 2) determine migration parameters of pre-smolts released in 2001, 3) determine genetic diversity and life history characteristics of returning adults, 4) assess ecological interactions between spring Chinook and the environment, and 5) cooperate on the development of an endemic brood stock.

Summer steelhead activities conducted in 2003 included: 1) monitor and evaluate survival and migration parameter for summer steelhead produced in Lookingglass Creek, 2) describe adult summer steelhead populations returning to Lookingglass Creek, and 3) monitor population genetics of summer steelhead in the Grande Ronde River basin.

Nez Perce Tribe

The NPT conducted LSRCF monitoring and evaluation activities in FY2003. These activities include: 1) monitoring LSRCF hatchery production performance; 2) describing natural production status and performance of anadromous salmonids in select waters, along with quantifying interactions between hatchery and natural juveniles; 3) promoting genetic conservation; and 4) participating in coordination of LSRCF program, including hatchery operations and project specific permitting.

Timing and survival of natural and hatchery juvenile Chinook salmon and steelhead leaving the Imnaha River sub-basin was monitored with emigration traps in fall 2002 and spring 2003. A lower trap was operated in both the spring and fall, whereas their upper trap was operated only in the fall. Both natural and hatchery origin fish were PIT tagged to estimate survival from the trap to LGD and to other mainstream dams. Survival estimates to the lower Imnaha River emigration trap site for hatchery produced Chinook salmon acclimated and released from the Imnaha Satellite Facility are pending. PIT tagging of steelhead was accomplished cooperatively with the Imnaha River Smolt Monitoring Program project during the spring trapping period at the lower Imnaha River site.

NPT M&E personnel conducted multiple pass spawning ground surveys throughout the Salmon River basin, including the South Fork Salmon River. Salmon carcasses were sampled for biological data along with tags and marks. Estimation of the percentage of hatchery origin and natural Chinook salmon contributing to spawning is pending. NPT M&E personnel monitored the escapement of adult steelhead into Cow and Lightning creeks, tributaries to the Imnaha River through the use of temporary weirs.

As noted above in the ODFW section, a sample collection strategy was developed and initiated in 1999 to allow DNA genetic analysis of stock structure of steelhead in the Imnaha and Grande Ronde river basins. NPT M&E personnel were responsible for sample collection in eight streams, and the staff share sample collection responsibility with ODFW in two other streams. Tissue sample analyses was conducted by NOAA with LSRCF funding and reported in 2003.

NPT staff continued efforts in 2003 to document the reproductive success of hatchery adult Chinook salmon out-plants in Lick Creek, a tributary to the Imnaha River. Snorkeling surveys have been conducted annually in Lick Creek since 1992. Hatchery origin adults have been out-

planted in four of the last eleven years. Spawning redds have only been observed in Lick Creek in those years in which adults were out-planted. Juvenile Chinook salmon were observed during the following each adult out-plant year.

NPT personnel have been banking adult male Chinook salmon and steelhead gametes with the intent to establish a germ plasma repository for Snake River populations as an insurance policy against extirpation. LSRCP support of this FWP-funded effort is focused on preserving genetic material from LSRCP production facilities and natural production areas.

Coordination of NPT involvement in the LSRCP program with other LSRCP cooperators was accomplished through planning, process, and technical meetings, along with on the ground assistance during 2003. NPT personnel participated in 2003 Annual Operations Planning in Washington and Oregon, along with attending Dworshak NFH coordination meetings. ESA Section 10 permit requirements for listed salmonids were completed by and submitted through the Columbia River Inter-Tribal Fish Commission.

Shoshone-Bannock Tribe

The Shoshone-Bannock Tribe received LSRCP funding for the first time in 2002. Their 2003 efforts included full participation in all LSRCP coordination efforts (work groups, meetings, etc.). They plan to design a study to determine contribution of salmon and steelhead in-stream and streamside egg incubators. Their study design will be peer reviewed by the LSRCP evaluation study coordinators using revised evaluation study guidelines. We expect the SBT to become fully engaged in LSRCP O&M and M&E efforts in 2004.

U.S. Fish and Wildlife Service - Idaho Fisheries Resources Office

The U.S. Fish and Wildlife Service's Idaho Fisheries Resources Office (IFRO) was funded by the LSRCP program in FY2003 to conduct hatchery monitoring and evaluation studies at the Dworshak and Hagerman NFH's. The IFRO's M&E program is similar to those conducted by the state agencies and tribes and is closely coordinated with IDFG and the NPT. The majority of their efforts focus on evaluating the progress being made at the Dworshak and Hagerman NFH's in meeting their LSRCP goals. Hatchery Evaluation Teams (HET) have been established for both federal hatcheries to develop and oversee research efforts. The M&E staff from the IFRO also facilitates inter- and intra-agency coordination and cooperation with FWS LSRCP hatchery production and evaluation programs in Idaho.

The staff continued to work as cooperators on the Salmon Supplementation Studies in Idaho Rivers (ISS), participating with monitoring tributaries in the Clearwater basin. The staff also participated as cooperators at a number of state and regional meetings and forums.

FISH AND WILDLIFE SERVICE COOPERATIVE PROGRAMS

The LSRCP Office obligated \$130,000 to two other FWS programs which helped the LSRCP

Program accomplish its FY2002 mission. The FWS's Columbia River Fisheries Program Office provided their assistance to the LSRCP Office on regional issues, particularly with regard to those relating to the CRFMP renegotiations and regional biological opinions. The Abernathy Salmon Technology Center assists the LSRCP Program on regional planning, hatchery evaluations, proximate analysis of feed, and genetic conservation issues.

OTHER COOPERATIVE PROGRAMS

The LSRCP Office works closely with all our cooperators to ensure that our programs compliment and sometimes supplement other anadromous fish programs they might be involved in. For example, the SBT, NPT, CTUIR, ODFW, WDFW, and IDFG have BPA-funded Fish and Wildlife Program projects which must be closely integrated with LSRCP programs because of joint use of facilities (rearing space), people, and equipment. These include the captive brood and rearing programs in Washington, Oregon and Idaho; the Grande Ronde endemic stock programs in Oregon; the Umatilla Hatchery; the Nez Perce Tribal Hatchery; the NPT's Johnson Creek spring Chinook and Clearwater coho programs; the Idaho Supplementation Studies; and the Redfish Lake sockeye salmon propagation program. The complexity of integrating these types of programs is becoming more and more difficult.

The LSRCP Office also works cooperatively with the states to implement a number of resident trout programs at no cost to the LSRCP program. ODFW utilizes several raceways at Irrigon FH to temporarily hold catchable rainbow trout for release in eastern Oregon. IDFG uses the Sawtooth, McCall, and Clearwater FH's to act as distribution points for catchable trout stocking in surrounding waters. The McCall FH and the Clearwater FH also rear resident trout for part of their life cycle. Lastly, cooperative agreements are in place with all State agencies for the temporary loan of equipment and vehicles between programs.

The LSRCP Office funded NOAA Seattle genetics lab to analyze steelhead tissue samples collected by LSRCP cooperators in Oregon and Washington in 1999, 2000, and 2001. The results will help cooperators and other regional bodies (e.g. NOAA technical recovery teams) characterize steelhead populations in the Grande Ronde and Imnaha Basin. Additional samples from Idaho's streams were added to the effort in 2003. A report was provided in June 2003.

CORPS CONSTRUCTION ACTIVITIES

The Corps Walla Walla District Office has transferred all LSRCP property to the FWS except the real and personal property (e.g. equipment) at the Captain John Rapids fall Chinook acclimation pond and the personal property at the Big Canyon (Clearwater River) and Pittsburg Landing acclimation facilities. The Corps continued to work with the NPT and Service in 2003 to address pumping and sediment problems at Captain Johns; when these problems have been addressed to the satisfaction of the FWS and the NPT, that real and personal property will be transferred to the FWS. The Corps plans to transfer the personal property at Big Canyon and Pittsburg Landing to the Service in 2004.

FUTURE OUTLOOK

The LSRCP Office initiated Section 7 consultations with the NOAA Fisheries in FY2003. The biological opinion, which we expect will cover LSRCP actions over the next several years, will likely include a number of Reasonable and Prudent Alternatives (RPA) and Conservation Measures for addressing impacts of steelhead programs. The RPA's may require investigating significant changes such as phasing out non-endemic stock programs while converting to locally derived, listed stocks. NOAA is revising their artificial propagation policy and plans to develop rules on the use of hatchery-reared fish for conservation and recovery in 2004. We are not certain how these actions will affect our consultation efforts but they may delay issuance of a new opinion.

The 2000 Federal Columbia River Power System Biological Opinion described measures that are to be implemented by the action agencies (Bureau of Reclamation, Corps, BPA) to offset adverse impacts of the hydroelectric facilities. Among those listed is a measure to investigate "reforms" of existing hatcheries (Action Item 169). The purpose of these reforms would be to greatly reduce or eliminate adverse impacts of hatcheries on listed species, and, where possible, to positively affect listed fish. The action agencies would fund and be given "credit" for "offsite mitigation" resulting from these efforts. Action Item 169 stated that reform HGMP's (called Phase II/III HGMP's) for all Columbia basin hatchery programs should to be completed and approved by NOAA by the 3-year check-in (end of FY2003). In late 2003, we began working with our cooperators and NOAA Fisheries to complete Phase II HGMP's for LSRCP Programs; they should be completed in early 2004. Our first priority will, of course, be to address any RPA's associated with our Biological Opinion.

Most LSRCP Chinook facilities are now operating and, are likely to continue operating, under Section 10 enhancement and/or research permits under the ESA. We anticipate sufficient returns in 2004 to allow sport and tribal fishing opportunities in each state.

In the near term, the LSRCP will continue to maintain non-listed Chinook salmon, steelhead, and rainbow trout programs for compensation of losses associated with the construction and operation of the four Lower Snake River dams, while ensuring that they do not jeopardize the listed stocks. As noted above, a new biological opinion from NOAA may lead to changes in some programs.

LSRCP-funded monitoring and evaluation programs are being improved, redesigned, and refined each year to assist hatcheries in providing the best rearing conditions and rates of return of hatchery-reared juveniles and to improve our efforts to help conserve listed species. The 1985 LSRCP Evaluation Study Guidelines were evaluated by a team of monitoring and evaluation biologists in 2003 and progress was made in revising them. We hope to complete revised guidelines in 2004 that will help identify and prioritize LSRCP-funded projects in the future. We anticipate monitoring and evaluation costs will continue to be about 20 percent of our total budget.

The LSRCP Program Office and BPA staff will continue to work together to implement our 2002 through 2006 direct funding agreement. In doing so, we have worked with LSRCP cooperators to develop Performance Indicator plans for hatchery operations and monitoring and evaluation programs. FY2004 will be the third year application for the O&M plan and the second for the M&E plan.

The LSRCP Office and its cooperators will continue to work with Columbia River Basin co-managers to renegotiate the CRFMP and with the NPCC, Columbia Basin Fish and Wildlife Authority, and BPA to develop sub-basin plans and strategies. Although many current programs and perhaps some new programs will emphasize conservation of populations, the LSRCP will continue to provide compensate for losses associated with construction and operation of the Lower Snake River dams whenever and wherever possible.

We are optimistic that with normal or above precipitation and good ocean conditions the LSRCP program can continue to meet most adult return goals and provide fishing opportunities while continuing conservation efforts. In the mean time, we will continue to do what we can to improve production release strategies, disease treatment and prevention, and smolt quality. If society decides to implement measures that significantly increase system productivity for listed populations, our conservation efforts will help speed salmon and steelhead recovery and should eventually result in more widespread fishery opportunities for tribal, sport and commercial fishers.

LSRCP OFFICE

Daniel M. Herrig, LSRCP Coordinator, Project Leader
Joseph J. Krakker, Fishery Biologist
Christopher J. Starr, Fishery Biologist
Tammy A. Froscher, Secretary
Margaret M. Anderson, Administrative Officer

AVAILABLE REPORTS

The LSRCP Office maintains a list and copies of annual hatchery O&M and M&E reports generated from all project activities. These are available from the LSRCP Office or on the LSRCP Website.

MEETINGS AND OTHER ACTIVITIES

The LSRCP staff continued involvement in a variety of state and regional forums which relate directly to the operations of the LSRCP program. The following is a summary of activities LSRCP staff members participated in during FY2003:

1. Northwest Power Planning Council Fish and Wildlife Program
 - Participate in Sub-Basin planning efforts.
 - Participate in Artificial Production Review and Evaluation (APRE) process.

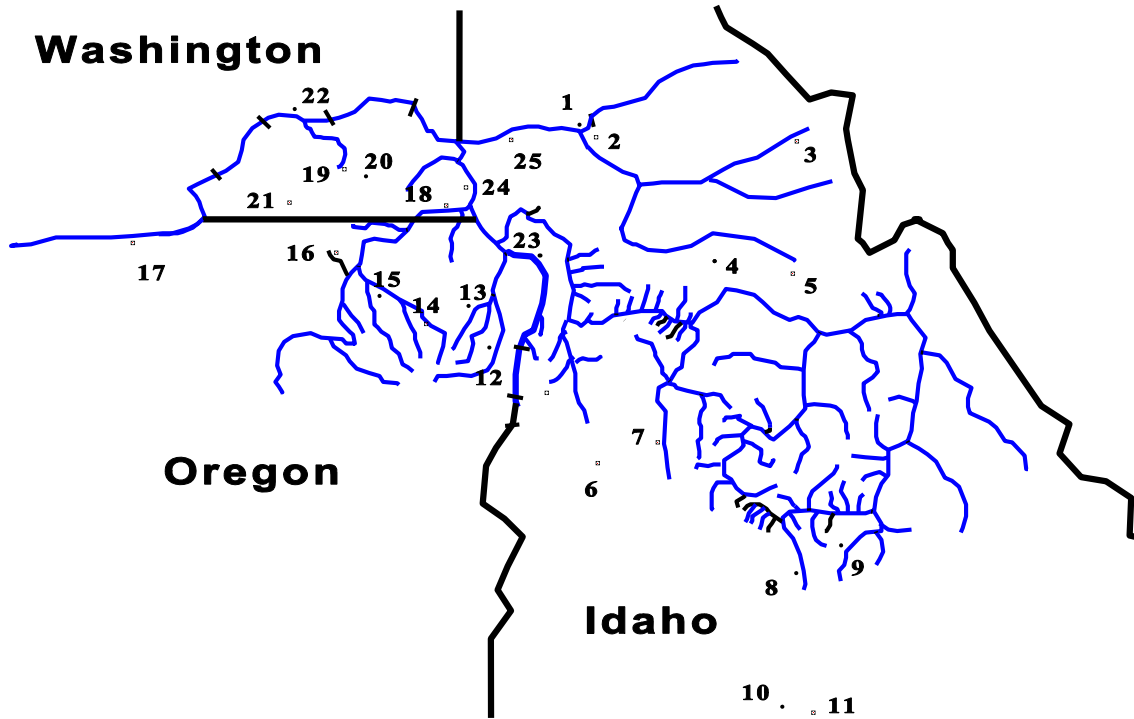
2. *US vs Oregon* Columbia River Fish Management Plan renegotiations
 - USFWS technical representative in renegotiations for development of a new Columbia River Fish Management Plan and interim fishery and production agreements.

3. Chinook Technical Oversight Committee (Captive Broodstock Programs).
4. Fall Chinook Planning (umbrella management plan for Snake River fall Chinook salmon).
5. Hatchery and Genetic Management Plan (HSMP).
 - Participated with cooperators to develop Phase II HGMP's for FCRPS BiOp
6. Joint Management Committee (BPA direct funding agreement).
 - Implementation of Performance Indicator Plan for LSRCP hatcheries.
 - Regular coordination meetings per our direct funding agreement.
 - Development of Performance Indicator Plan for LSRCP M&E programs.
7. Salmon and Steelhead Days (Boise)
 - Assisted in the develop and implementation of this educational program for local elementary students.
8. Initiated Adopt-A-Highway program for LSRCP and ES Offices.
9. Mid-Snake River Waste Load Allocation Process.
10. Environmental Compliance and Safety Reviews for LSRCP hatcheries.
11. Northeast Oregon Hatchery planning process.
 - NEOH core planning team member
12. Johnson Creek Artificial Production Program planning process.
 - JCAPE planning team member.
15. Dworshak NFH Coordination and Hatchery Evaluation Team (HET) Meetings.
16. Hagerman NFH Coordination Meetings and Hatchery Evaluation Team (HET) Meetings.
17. Individual coordination meetings with States and Tribes.
18. Hazzard Analysis and Critical Control Points (HACCP) training for aquatic invasive species.

APPENDIX A: Lower Snake River Compensation Plan FY2002 Funding Summary

	<u>FUNDING</u>
<u>Fish Hatchery Operations and Maintenance</u>	
IDFG - McCall FH and South Fork Salmon River Satellite	\$ 470,797
IDFG - Sawtooth FH and East Fork Salmon River Satellite	\$ 805,805
IDFG - Magic Valley FH	\$ 720,203
IDFG - Clearwater FH, Red R., Crooked R. and Powell Satellites	\$1,609,061
IDFG - Fish Marking	\$ 434,005
IDFG - Eagle Fish Health Lab	\$ 372,544
ODFW - Lookingglass FH, Oxbow FH, and Imnaha Satellite	\$ 966,985
ODFW - Irrigon FH	\$1,029,259
ODFW - Wallowa FH, Little Sheep and Big Canyon Satellites	\$ 441,405
ODFW - Fish Distribution	\$ 228,861
ODFW - Fish Pathology Lab	\$ 129,902
WDFW - Lyons Ferry FH, Dayton Pond and Cottonwood Satellite	\$2,462,157
WDFW - Tucannon FH and Curl Lake Satellite	\$ 325,650
NPT- NE Oregon Operation	\$ 28,216
USFWS - Hagerman NFH	\$ 808,076
USFWS - Dworshak NFH	\$ 420,352
USFWS - Idaho Fish Health Center	\$ 153,049
Subtotal	<hr/> \$11,406,327
<u>Monitoring and Evaluations Programs:</u>	
Idaho Department of Fish and Game	\$ 744,462
Oregon Department of Fish and Wildlife	\$ 598,379
Washington Department of Fish and Wildlife	\$ 678,122
Confederated Tribes of the Umatilla Indian Reservation	\$ 228,609
Nez Perce Tribe	\$ 563,254
Shoshone-Bannock Tribe	\$ 40,198
U.S. Fish and Wildlife Service (IFRO)	\$ 107,447
Columbia River Coordination/Abernathy SCTC	\$ 130,000
PIT Tags	\$ 120,825
Subtotal	<hr/> \$3,211,296
<u>Management, Regional Administration, and Cooperative Programs:</u>	
LSRCP Office Management and Coordination	\$ 496,674
Regional Office Coordination	\$ 462,251
General Administrative (Indirect Costs)	\$ 695,508
Subtotal	<hr/> \$1,654,433
Grand Total	\$16,272,056

APPENDIX B: LOWER SNAKE RIVER COMPENSATION FACILITIES MAP



Idaho Department of Fish and Game

- 1. Clearwater Fish Hatchery (FH)
- 3. Powell Satellite Facility (SF)
- 4. Crooked River SF
- 5. Red River SF
- 6. McCall FH
- 7. South Fork Salmon River SF
- 8. Sawtooth FH
- 9. East Fork SF
- 11. Magic Valley FH

Nez Perce Tribe

- 23. Pittsburg Landing SF
- 24. Captain Johns SF
- 25. Big Canyon SF

Fish and Wildlife Service

- 2. Dworshak NFH Expansion
- 10. Hagerman NFH

Oregon Department of Fish and Wildlife

- 12. Imnaha SF
- 13. Little Sheep Creek SF
- 14. Wallowa FH SF
- 15. Big Canyon SF
- 16. Lookingglass FH
- 17. Irrigon FH

Washington Department of Fish and Wildlife

- 18. Cottonwood Creek SF
- 19. Tucannon FH SF
- 20. Curl Lake SF
- 21. Dayton Pond SF
- 22. Lyons Ferry FH (salmon and trout)