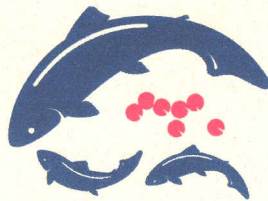
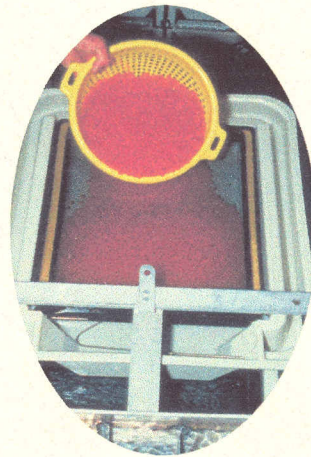
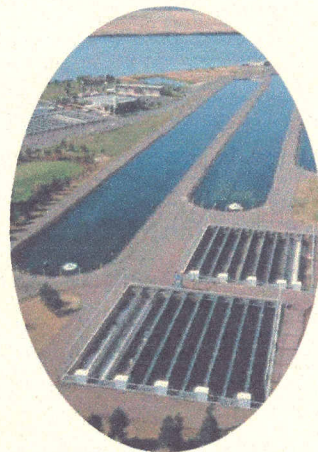


*Annual Report for Fiscal Year 2000*  
*Lower Snake River Compensation Plan Office*  
*Boise, Idaho*

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LOWER SNAKE RIVER  
COMPENSATION PLAN  
*Hatchery Program*



**Annual Report  
Fiscal Year 2000  
October 1, 1999 - September 30, 2000**

**Lower Snake River Compensation Plan Office  
U. S. Fish and Wildlife Service  
1387 S. Vinnell Way, Suite 343  
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## **I**NTRODUCTION

The Lower Snake River Compensation Plan (LSRCP) 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, maintenance, and evaluation funds (OM&E) for cooperator fisheries operations under the Lower Snake River Fish and Wildlife Compensation Plan.

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 Walla District, U.S. Army Corps of Engineers (Corps), while responsibility for fish hatchery OM&E funding was to be accomplished by "one of the Federal fisheries agencies." In 1977 the Corps, National Marine Fisheries Service (NMFS), and FWS signed an agreement stating that the FWS would budget for and administer OM&E funds for LSRCP fish hatchery programs.

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 nearly all 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 about \$200 million; the FWS costs for annual OM&E are about \$14 million. All anadromous compensation and most resident fisheries compensation expenses are allocated to project power costs. As such, all expenses through 2000 have been reimbursed with interest to the U.S. Treasury by the Bonneville Power Administration (BPA) from power revenues.

The 1976 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 11 hatcheries and 12 satellite facilities in Idaho, Oregon, and Washington. The Pittsburg Landing, Big Canyon, and Captain John Rapids Acclimation Facilities, authorized by a Congressional add-on to the Corps LSRCP Program, were completed in 1996, 1997, and 1998 respectively; their OM&E costs are directly funded by BPA and are operated by the Nez Perce Tribe (NPT). Currently, Idaho Department of Fish and Game (IDFG) operates four hatcheries, Oregon Department of Fish and Wildlife (ODFW) operates two hatcheries, Washington Department of Fish and Wildlife (WDFW), formerly Washington Department of Wildlife and Washington Department of Fisheries, operates three hatcheries, and FWS two hatcheries.

## **H**IGHLIGHTS FOR FY2000

LSRCP facilities continue to produce and release salmon, steelhead and resident trout as part of their mitigation responsibility. In Fiscal Year (FY)2000, 13,541,638 salmon, steelhead and rainbow trout weighing 1,772,673 pounds were reared and released from LSRCP facilities (Table 1). The numbers, pounds of fish produced, release sites, and sizes were adjusted again in 2000 to reduce impacts on listed species.

The LSRCP steelhead releases in 1998 and 1999 contributed significantly to the 1999-00 run of 73,880 above Lower Granite Dam. This run was similar to that of the last three years (86,217, 86,680, and 86,898). Although not all data are available, we believe the LSRCP portion of the run did not reach the adult steelhead compensation goal of 55,100 steelhead adults back to the project area. Oregon, Washington, and Idaho had fall and spring sport fisheries, and steelhead were available to the tribes in their various fisheries. Approximately 6,048,030 steelhead fingerlings and smolts (1,377,066 lbs) were released from LSRCP hatcheries in spring 2000 compared to a release of approximately 6.93 million release in 1999. Magic Valley Fish Hatchery (FH) produced the most smolts, releasing 2,044,526 weighing 486,275 pounds.

The LSRCP spring and summer chinook releases in 1997, 1998, and 1999 contributed significantly to the 2000 run of about 36,000 above Lower Granite Dam. As in past years, the LSRCP did not reach the adult spring/summer chinook compensation goal of 58,700 steelhead adults back to the project area. Idaho had May, June, and July chinook sport fisheries in the Clearwater Basin and in the South Fork Salmon River and chinook were available to the tribes in their various fisheries. The South Fork sport fishery was the first on that river since the mid-70's. An estimated 4,166 spring chinook adults and 224 jacks were harvested in sport fisheries on the Clearwater River, and 448 adult summer chinook and 204 jacks were harvested on the South Fork. The latter fisheries was allowed on certain hatchery-reared fish (identified by a missing adipose fin), even though they were intermingled in a run of fish protected under the Endangered Species Act. When the agreed to quota of listed chinook was "taken" in the fishery, the season was closed on July 5<sup>th</sup>. All seasons were considered a great success by IDFG and the sport anglers.

Considerable LSRCP staff time in FY2000 was spent on Endangered Species Act (ESA) consultations and modifications of biological assessments of hatchery production and release actions on listed Snake River steelhead and spring/summer and fall chinook, Redfish Lake

sockeye salmon, Columbia River salmonids, and bull trout. Fish hatchery production was and will continue to be adjusted where appropriate to meet ESA requirements.

The LSRCP staff and cooperators carried out their sixth year of captive broodstock programs in Oregon and Idaho. These were programs initiated with LSRCP funding to conserve listed salmon stocks for future compensation efforts. Due to the lack of a LSRCP budget increase to cover costs associated with ESA-related activities, LSRCP cooperators applied for and obtained funding to continue the programs from the NW Power Planning Act's Fish and Wildlife Program.

The FWS and BPA signed a direct funding agreement in late September which allows BPA to directly fund the LSRCP Program for expenses incurred in FY2001. The agreement includes a clause which directs the two agencies to develop a five-year agreement for the 2002-2006. Under the new agreement the two agencies will work together to make the program as efficient as possible while ensuring that it has sufficient funding to meet its goals and other legal and tribal trust responsibilities.

LSRCP staff, state agencies, and tribal cooperators continued to work with NMFS in FY2000 to renegotiate the Columbia River Fish Management Plan (CRFMP) under US vs Oregon. Co-managers clearly identified agency and tribal production and harvest positions, although little progress was made in reaching agreement on a number of policy level issues. The existing CRFMP expired without agreement among co-managers and efforts were redirected toward reaching a fall harvest agreement for implementation of the fall fishing season. Negotiations are scheduled to continue in early FY2001 with efforts focusing on developing the framework for the CRFMP and an agreement on the winter/spring fishery. 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 current plan lasted 10 years).

The LSRCP office continued meetings with co-managers in late FY2000 on development of Hatchery Genetics Management Plans (HGMP) for endemic steelhead programs in the Touchet, Tucannon, and Imnaha rivers. HGMP's are a tool developed by NMFS to meet ESA requirements under the 4(d) Rule which will allow take of listed populations. A number of policy level issues remain unresolved and will need to be addressed prior to initiating broodstock collections in 2001.

The LSRCP staff once again played a leadership role in planning and implementing the **IDAHO SALMON AND STEELHEAD DAYS**. The event occurred on September 7-9, 2000 and consisted of three student days and one evening of activities. About 3,500 4<sup>th</sup> grade students along with hundreds of teachers and parents from SW Idaho attended and learned about the biology of Idaho's anadromous fish resource. An evening barbecue with entertainment and education activities was once again part of the venue in 2000; over 850 people, mostly adults, enjoyed grilled pen-reared salmon.

## **F**Y 2000, LSRCP PROGRAM FUNDING SUMMARY

The LSRCP Office obligated \$13,674,349 in FY2000 (\$2,078,581 from carryover funds). This total included:

- \$8,876,278 to three state cooperators for hatchery operations and maintenance and pathology;
- \$2,340,982 to five state and tribal cooperators for monitoring and evaluation studies, PIT tags, and ESA requirements;
- \$1,378,447 to six FWS projects for operations, fish health, monitoring, and evaluations;
- \$377,653 for Boise LSRCP Office management and coordination; and
- \$691,989 to the Regional Office and FWS for administrative and financial accounting costs.

## **O**PERATIONS AND MAINTENANCE

A total of \$9,856,575 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 11 hatcheries, 14 associated satellite facilities, and a fish health lab (Table 1). Below are brief summaries of hatchery operation and maintenance activities in FY2000. Tables 1, 2, and 3 provide additional data on funds obligated by station and activity, fish stocked, productions 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, operated by the IDFG and is located across the North Fork of the Clearwater River from Dworshak NFH, 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 adult return goals for the program are 11,915 spring chinook salmon and 14,000 steelhead 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, 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 fish from Clearwater FH.

Red River trapped 315 spring chinook (31 wild and 284 hatchery origin) in 2000 compared to 31 in 1999, 90 in 1998, 280 in 1997 and 62 in 1996. Thirty-three fish were released in Red River to spawn naturally. Crooked River was operational for the eleventh year of trapping; a record total of 1,157 spring chinook (74 wild and 1,083 hatchery origin) were trapped and 270 were released to spawn naturally in Crooked River. This compares to a Crooked River return of 125 in 1999, 277 in 1998, 1,034 in 1997 and 299 in 1996. An additional 120 jacks were released into Newsome Creek and 124 jacks into the S.F. Clearwater River at Stites for the fishery. In 1997, Red River and Crooked River stocks were combined to make the South Fork Clearwater stock due to straying of hatchery chinook between the two drainages. A total of 376 females were spawned with eggs from 178 females culled due to high BKD levels resulting in 198 females yielding 715,014 green eggs.

IDFG trapped adult chinook at the LSRCP facility off of Walton Creek (a Lochsa tributary) and for the third year on Crooked Fork Creek to assess hatchery strays. A total of 1,602 fish were trapped at both sites (59 wild and 1,543 hatchery origin). A total of 262 fish were released to spawn naturally in Colt Killed Creek (a White Sands Creek tributary) and Crooked Fork above the weir. This compares to 188 in 1999, 541 in 1998, 718 in 1997 and 186 trapped in 1996. Five hundred fifty-one females were spawned with eggs from 45 females culled due to high BKD levels resulting in 506 females yielding 2,035,086 green eggs.

Sixteen steelhead (6 wild and 10 hatchery origin) were trapped at the Crooked River trap in 2000, with 13 released above and 3 below the weir. An additional 5 fish were trapped at Dworshak NFH and released in Crooked River to spawn naturally. No steelhead were trapped at Red River. No problems were encountered at both trap sites due to high flows and debris during 2000.

Clearwater FH received 676,014 BY2000 Rapid River stock spring chinook eyed eggs from adults trapped at Lower Granite Dam and spawned at Lyons Ferry FH and 913,538 BY2000 Rapid River stock spring chinook eyed eggs from Rapid River FH for the NPT program.

A total of 848,633 Brood Year (BY) 1998 spring chinook weighing 56,565 pounds were released from Red River and Powell satellite facilities and Walton Creek from March to April 2000. Approximately 185,342 BY1999 South Fork Clearwater spring chinook weighing 8,724 pounds were released in September 2000 into Red and Crooked rivers. A total of 735,266 BY1999 North Fork Clearwater strain steelhead smolts weighing 153,257 pounds were released into Clear Creek, South Fork Clearwater River, Crooked River, and Red River in April and May 2000.

The Clearwater FH is currently holding approximately 608,000 BY1999 spring chinook fingerlings and 789,7000 BY2000 steelhead fingerlings for production and release from the hatchery and satellite facilities in 2001. In addition approximately 3.2 million BY2000 spring chinook eggs (includes 0.656 million Rapid River stock) are on hand for transfer or release in 2001 and 2002.

### **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 thirteenth rearing season in 2000, and released 1,106,133 Dworshak "B" (259,950 lbs), 51,866 East Fork "B" (13,150 lb), 413,079 Pahsimeroi "A" (102,075 lbs), 358,025 Sawtooth "A" (84,000 lbs), 115,423 Oxbow "A" (27,100 lbs) strain BY1999 steelhead smolts in April and May 2000. The releases were distributed in the East Fork Salmon River, Squaw Creek Pond, Stinky Springs, Shoup Bridge, Red Rock Access, Tunnel Rock, Lemhi Hole, Cottonwood Access, McNabb Point, Squaw Creek, Lewis and Clark, Wagonhammer, Eye Hole, Kilpatrick, Colston Corner, Challis Ramp, Newsome Creek, American River, Mill Creek, Red River, and Meadow Creek. In addition, 3,000 BY1999 Dworshak "B" steelhead (700 lbs) removed from Squaw Creek acclimation pond; 48,700 BY1999 Oxbow "A" steelhead (1,975 lbs); and 63,120 BY1999 Pahsimeroi "A" steelhead (2,600 lbs) were used as catchable plants in reservoirs. Magic Valley currently has 2,098,330 BY2000 steelhead fingerlings on hand for release in 2001.

### **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. In addition to LSRCP program activities, McCall FH is cooperating with the NPT with early implementation of their Johnson Creek (BPA-funded) project; and IDFG has a trout production/distribution program at McCall that is funded entirely by the IDFG.

The hatchery achieved considerable success with its summer chinook program from 1986 through 1993, ranging from 939 to 2,848 fish trapped each year. Typical of the lower chinook runs throughout the basin, McCall's returns decreased in 1994 and 1995 to only 517 and 408 fish. From 1996 to 1999, 1,199 (461 adults and 738 jacks), 3,659 (3,614 adults and 45 jacks), 974 (898 adults and 76 jacks), and 1,961 (1,218 adults and 743 jacks) summer chinook were trapped respectively at the South Fork Salmon weir. In 2000 a record total of 6,812 (3,306 adults and 3,416 jacks) summer chinook were trapped at the South Fork facility. Three hundred sixty-one

females were spawned producing 1,487,809 green eggs. A total of 1,120 fish were released above the weir and 2,352 released below the weir to spawn naturally in 2000. An additional 150 pair of reserve adults were transported to Sawtooth FH and spawned for the Shoshone Bannock egg box program and 100 pair transported and stocked into the upper East Fork South Fork Salmon River for natural spawning.

The McCall FH staff released 1,039,930 BY1998 summer chinook salmon smolts (44,632 lbs) in April 2000 into the South Fork Salmon River. The Nez Perce Tribe released 213,618 BY1999 summer chinook fingerlings (3,322 lbs) into tributaries of the South Fork Salmon in August 2000. These releases are slightly above the hatchery's release target of 1,000,000 smolts. McCall currently has 1,078,715 (reserve HxH crosses) and 88,536 (supplementation (listed) HxW crosses) BY1999 summer chinook fingerlings on hand for release in April 2001. There are currently 1,071,378 BY2000 eggs on hand for fingerling and smolt releases in 2001 and 2002 in the South Fork Salmon River and Johnson Creek. The Shoshone Bannock Tribes received 191,000 eyed (reserve) BY2000 eggs for stream-side incubators in the South Fork Salmon drainage.

### **Sawtooth Fish Hatchery - Idaho**

Sawtooth FH, located on the upper Salmon River near Stanley, was completed in January 1985 and is operated by IDFG. Its primary mission is to rear 2,235,000 spring chinook salmon smolts weighing 149,000 pounds and trapping steelhead ("A" strain) for Hagerman NFH and Magic Valley FH; the hatchery staff has also been operating a satellite facility on the East Fork of the Salmon River since 1983. 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 program's goal is to return 19,455 adults to the Snake River basin.

Spring chinook trapping at Sawtooth FH produced a total of 986 adult and jacks in 2000 compared to 196 in 1999, 153 in 1998, 254 in 1997, 156 in 1996, 37 in 1995, 96 in 1994 and 587 in 1993. The East Fork trap was not operated for spring chinook broodstock in 2000. Numbers of jacks trapped were up in 2000 with a total of 376 (38.1% of the total trapped) at Sawtooth. As part of ESA Section 10 conditions for operation, the hatchery staff released 525 spring chinook above the Sawtooth weir (compared to 129 in 1999, 92 in 1998, 112 in 1997, 94 in 1996 and 20 in 1995). Eighty-nine females were spawned from Sawtooth FH returns resulting in 386,671 eyed eggs.

A total of 123,425 BY1998 chinook supplementation (listed) smolts (7,504 lbs) were released into the Salmon River at the hatchery weir in April. Sawtooth currently has a total of 57,222 BY1999 chinook (3,716 lbs) on hand for release in 2001 and 376,642 BY2000 chinook eggs/fry on hand for release in 2002.

A total of 2,061 steelhead returned to the Sawtooth trap in 2000 compared to 933, 768, 1,243, 553, 532 and 338 trapped in 1999, 1998, 1997, 1996, 1995 and 1994 respectively. The East Fork satellite facility trapped 48 steelhead, compared to 56 in 1999, 27 in 1998, 149 in 1997, 54 in 1996, 38 in 1995, and 73 in 1994. A total of 870 females were spawned from Sawtooth and 15 females from the East Fork Salmon resulting in 3,950,1036 green eggs from Sawtooth and 67,389 green eggs from the East Fork Salmon sites.

A steelhead acclimation/release pond was constructed on Squaw Creek in the fall of 1997. The pond was stocked with steelhead smolts in the spring of 2000 for IDFG's third consecutive year volitional release program. Of the 110,185 smolts planted into the pond, an estimated 109,185 smolts migrated into the Salmon River. The remaining 1,000 smolts were transported to other non-anadromous sites or left in the pond for resident trout angling. In 2000 the pond was set up to trap the first adult steelhead returns from the program. One marked male was trapped and sacrificed for the CWT.

Sawtooth FH shipped a total of 917,989 BY2000 Sawtooth and 217,358 BY2000 Pahsimeroi steelhead eggs to Hagerman NFH and 946,368 BY2000 Pahsimeroi, 51,384 BY2000 East Fork "B", and 991,665 Sawtooth steelhead eggs to Magic Valley FH for rearing and release in 2001. In addition a total of 66,084 Pahsimeroi and 376,429 Sawtooth eggs were shipped to the Shoshone- Bannock Tribe for their streamside incubators.

This year marked the 6th year of a captive rearing program for the Lemhi River, East Fork Salmon River, and West Fork of the Yankee Fork Salmon River. The strategy of the program is to prevent cohort collapse of the specific target populations by ensuring (with releases of captively-reared adults) that there are a minimum of 20 pairs of adult spawners in the natural environment on an annual basis.

In the fall of 2000, eyed-eggs were collected from naturally spawned redds in the Yankee Fork Salmon River ( $N=250$ ), West Fork Yankee Fork Salmon River ( $N=305$ ), and East Fork Salmon River ( $N=500$ ). These eggs were immediately transported to the Eagle Fish Hatchery for incubation and initial rearing. Progeny from these collections will be reared separately by stream origin and redd (family unit) until they can be PIT-tagged. Once PIT-tagged, individual family units will be combined by stream origin (Yankee Fork and West Fork Yankee Fork juveniles will be further combined into a single group). At smoltification the rearing groups will be divided, and most will be transported to the NMFS Manchester, WA marine facility. A small number from each stream will remain at the Eagle Fish Hatchery to guard against catastrophic loss. These fish will be reared through maturity and will then be released in their natal systems to spawn volitionally.

Mature chinook salmon, collected as parr from the Lemhi River and reared in captivity, were released into Big Springs Creek (tributary to the Lemhi River) in July 2000. A total of 32 females (brood years 1995 and 1996) and four males (brood year 1996) were included in this release, and were monitored for spawning behavior and success. Seventeen potential redds were constructed by captive-reared fish, and 15 of these were sampled in November 2000. Eggs were collected from 13 of the 15 redds sampled, and the percentage of live eggs ranged from 0%-96%.

In addition to Sawtooth's LSRCP program, IDFG cooperates with the SBT, BPA, NMFS and other agencies in a FWS-approved sockeye salmon restoration project at Sawtooth FH. This project is funded by BPA and is in place to maintain the remnant endangered population and develop techniques to increase population abundance. The Sawtooth FH provides facility space and staff time for egg incubation, juvenile fish rearing and anadromous adult holding.

## **Irrigon/Wallowa Hatcheries - Oregon**

Irrigon FH is located on the Columbia River near Umatilla, Oregon, was completed in October 1985, and is operated by the ODFW. Collector wells designed for 25,000 gallons per minute (gpm) supply water for the program which 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 with three acclimation and release facilities.

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 2000 a total of 968 steelhead (471 females and 497 males) returned to the Wallowa FH. A total of 405 females were spawned from Wallowa and Big Canyon steelhead returns resulting in 2,046,530 green eggs.

Big Canyon satellite, located at the mouth of Deer Creek on the Wallowa River, was completed in April 1987 and is capable of holding and releasing 225,000 smolts. Three hundred eighty-three adult hatchery steelhead (222 females and 161 males) returned to Big Canyon satellite in 2000. A total of 50 wild adult steelhead (21 females and 29 males) were released to spawn naturally.

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 2000, 520 steelhead (323 females and 197 males) returned to the Little Sheep Creek trap with 337 (197 females and 140 males) released to spawn naturally in both Little and Big Sheep creeks. One hundred twenty females were spawned producing 568,500 green eggs.

Releases for 2000 of Irrigon-reared fish totaled 228,206 BY1999 Imnaha steelhead smolts (53,087 lbs) and 891,948 BY 1999 Wallowa steelhead smolts (223,904 lbs). This included smolt releases from Irrigon's satellites Big Canyon, Little Sheep Creek, Wallowa, and the Imnaha River. This number is lower than last year due in part to requirements under ESA to lessen impacts on listed salmon. Irrigon currently has 1,479,800 BY2000 Wallowa and 464,730 BY2000 Imnaha steelhead eggs on hand.

## **Lookingglass Fish Hatchery - Oregon**

This hatchery is located on Lookingglass Creek north of Elgin, Oregon, and was completed in November 1982. It is designed to produce 1.4 million spring chinook smolts weighing 69,600 pounds and is operated by the ODFW. Two satellites, Big Canyon Creek (discussed above) and a renovation of Oregon's Imnaha River trapping site near Gumboot Creek, 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 in 2000 at the Imnaha River trap totaled 1,106 (197 females, 236 males, 671 jacks, and 2 subjacks) compared to 396 in 1999 and 383 fish collected in 1998. Four hundred fifty-seven chinook (128 females, 161 males, and 168 jacks and 2 subjacks) were released back into the Imnaha to spawn naturally, 50 hatchery-origin jacks were released into

Lick Creek, and 250 hatchery-origin jacks were outplanted into Big Sheep Creek. Sixty-seven females were spawned resulting in 333,824 green eggs.

In 2000 all Rapid River spring chinook collected at Lower Granite Dam (534) were trucked to Lyons Ferry FH (WDFW). All Rapid River stock spring chinook returning to Lookingglass FH (total return of 107 females and 131 males) were released (104 females and 120 males) into Lookingglass Creek to spawn naturally.

The fifth year of the conventional endemic brood program was continued in the upper Grande Ronde River, Catherine Creek, and Lostine River in 2000. Temporary weirs were installed on each stream. Seventeen spring chinook adults were collected at the upper Grande Ronde River weir (released to spawn naturally), 24 adults and 3 jacks at the Catherine Creek weir (released to spawn naturally), and 54 adults and 37 jacks at the Lostine River weir (13 females and 45 males released to spawn naturally). A total of 33 Lostine River spring chinook (8 females and 25 males) were transported and held at Lookingglass FH for broodstock. Eight Lostine females were spawned yielding a total of 32,000 green eggs.

A total of 24,201 BY1999 Rapid River stock spring chinook fingerlings (339 lbs) were released into Lookingglass Creek in June 2000. About 179,716 BY1998 Imnaha River stock spring chinook smolts (9,394 lbs) were released into the Imnaha River in April 2000. Due to a lack of chilled well water at Lookingglass FH, all BY2000 Imnaha green eggs were shipped to Oxbow (292,371) and Irrigon (41,453) FH's. All eyed eggs will be reared at Irrigon FH. Lookingglass FH currently has on hand 123,275 BY1999 Imnaha fingerlings (5,927 lbs); 134,770 BY1999 Lostine River fingerlings (5,622 lbs); 2,582 BY1999 upper Grande Ronde fingerlings (151 lbs); and 138,732 BY1999 Catherine fingerlings (5,773 lbs). In addition a total of 315,486 BY2000 Imnaha eggs and 33,546 BY2000 Lostine River eggs are being reared at Oxbow FH.

This year marked the 6th year of the captive broodstock program for the Lostine River, Catherine Creek, and the upper Grande Ronde River. A total 994 wild spring chinook parr were collected from the Lostine River (497 parr) and Catherine Creek (497 parr) in 2000. This compares to 1,498 collected in all three tributaries in 1999, 1,500 collected in 1998, 1,496 collected in 1997, 979 collected from the Lostine River and Catherine Creek in 1996 and 1,107 collected in the three tributaries in 1995. This is part of a conservation program to maintain various 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. All are reared initially at 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. The progeny of these broodstock will be raised at Oxbow, Irrigon, and/or Lookingglass FH for subsequent release as smolts back into their rivers of origin.

### **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 initially operated by Washington

Department of Wildlife (WDW) and designed to produce 1,169,500 steelhead trout smolts weighing 116,400 pounds with an adult steelhead return goal to the basin of 4,656. Phase I was also designed to produce 45,000 of the original 93,000-pound resident trout goal.

Phase II of Lyons Ferry facility was completed in November 1984 and was initially operated by Washington Department of Fisheries (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. Recently, the State of Washington combined WDW and WDF into a single agency, Washington Department of Fish and Wildlife (WDFW). These two facilities along with Tucannon FH are now under one complex manager and operated as a single unit.

A renovation of Tucannon State Fish Hatchery was completed in November 1984 to rear an 41,000 pounds of rainbow trout and serve as an adult trapping and smolt release site for the Tucannon River spring chinook program. The remaining 7,000 of the 93,000 pound trout goal was delegated to stream enhancement structures funded by the Corps. These structures were constructed by WDW in several SE Washington streams in the early 1980's.

The hatcheries along with the steelhead satellite facilities at Cottonwood Creek, Dayton Pond, and Curl Lake were completed from 1983 to 1986. The two fall chinook adult holding ponds at Lyons Ferry FH did not work well for broodstock collection and handling 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.

Spring chinook returns to the Tucannon trap and weir totaled 205 in 2000 compared to 137 in 1999, 93 in 1998, 259 in 1997, 135 in 1996, 40 in 1995, and 73 in 1994. Ten wild adults, 3 wild jacks, 99 hatchery adults, and 5 hatchery jacks were released above the weir to spawn naturally. Seventeen adult strays were also collected. Seventy-two adults (62 hatchery and 10 natural) and 9 jacks (4 hatchery and 5 natural) were retained for spawning and produced 136,500 green eggs. Currently, Tucannon FH has 104,784 BY1999 Tucannon River chinook (4,191 lbs) and 104,890 BY1999 Spokane rainbow trout (14,773 lbs) on hand for release in 2001. In addition, they have juveniles from three Tucannon River spring chinook captive broodstock year-classes: 180 BY1997 (396 lbs), 299 BY1998 (598 lbs), and 450 BY1999 (22.5 lbs) and 16,200 eggs spawned from BY1997 captive broodstock.

This year adult fall chinook were trapped at the Lyons Ferry FH and Lower Granite Dam and transported to Lyons Ferry FH for holding and spawning. A total of 2,250 fall chinook voluntarily entered the hatchery in 2000 compared to 2,047 in 1999, 1,194 in 1998, 1,311 in 1997, 2,256 in 1996, 956 in 1995, 972 in 1994 and 1,332 in 1993. An additional 1,934 were captured at Lower Granite Dam compared to 1,567 in 1999, 927 in 1998, 293 in 1997, 703 in 1996, and 327 in 1995. A total of 3,980,455 green eggs were collected in FY2000, only from known Lyons Ferry fall chinook. 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 threatened under the ESA. All eggs from strays identified at spawning (687,812 eyed eggs) were shipped out of basin to another WDFW facility. Lyons Ferry currently has 914,451 BY1999 fall chinook (36,120 lbs) on hand for release in 2001.

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 FY2000, 3,808 steelhead returned to the hatchery compared to 2,973 in 1999, 5,947 in 1998, 5,598 in 1997, 5,920 in 1996 and 4,009 in 1995. A total of 871,858 green eggs were taken from the 185 females spawned. About 2,820 steelhead were released back into the river. In addition to these, a total of 291 Wallowa stock steelhead were trapped at the Cottonwood Creek satellite facility compared to 248 in 1999, 450 in 1998, 224 in 1997, 430 in 1996, and 460 in 1995. One hundred seven females were spawned for the WDFW program, resulting in 523,011 green eggs. Approximately 509,070 (31,619 lbs) BY2000 Lyons Ferry and 257,100 (6,802 lbs) BY2000 Wallowa stock steelhead remain on hand for release in 2001.

A total of 20 "wild" Touchet River steelhead (8 males and 12 females) and 51 "wild" Tucannon River steelhead (34 males and 17 females) were trapped in FY2000 at the Dayton Pond and Rainbow Lake traps, respectively. Twelve Touchet and 17 Tucannon females were spawned resulting in 53,139 and 80,850 green eggs, respectively. Approximately 40,003 "wild" Touchet River (400 lbs) and 47,546 "wild" Tucannon River fish are on hand for release in 2001.

In 2000 Lyons Ferry FH released a total of 456,401 BY1998 fall chinook yearlings (48,699 lbs) and 196,643 BY1999 subyearlings (4,326 lbs) into the Snake River at Lyons Ferry. In addition, a total of 411,802 BY1998 yearlings (33,114 lbs) and 2,202,074 BY1999 subyearlings (36,632 lbs) were transferred to the three NPT-operated acclimation sites (see below) and 39,063 yearlings (595 lbs) were transferred to research projects for release. A total of 127,939 BY1998 Tucannon spring chinook (10,276 lbs) were released into the Tucannon River in April 2000.

About 495,864 BY1999 Lyons Ferry steelhead weighing 123,097 lbs, 274,146 BY1999 Wallowa steelhead weighing 50,293 lbs, and 88,372 BY2000 Lyons Ferry and Wallowa steelhead fingerlings weighing 1,073 lbs were released from Lyons Ferry FH, hauled to Cottonwood acclimation pond, trucked directly to the Tucannon and Walla Walla rivers, or released into inland lakes. Lyons Ferry and Tucannon FH's combined, reared and released 516,086 catchable (8 to 9 inch) and sub-legal rainbow trout (89,557 lbs) for Washington lakes and streams and the Idaho Program.

### **Pittsburg Landing, Big Canyon, and Captain John Rapids Acclimation Sites**

As noted above the Pittsburg Landing, Big Canyon, and Captain John fall chinook acclimation and release facilities were completed by the Corps in 1995, 1996, and 1998 respectively and were operated by the NPT in cooperation with WDFW. The facilities receive fall chinook from Lyons Ferry FH for acclimation and release. In 2000, 140,781 BY1998 yearlings (11,055 lbs) and 403,697 BY1999 subyearlings (5,515 lbs) were transferred to Pittsburg Landing, 136,160 BY1998 yearlings (11,005 lbs) and 898,597 BY1999 subyearlings (15,441 lbs) were transferred to Big Canyon, and 134,861 BY1998 yearlings (11,054 lbs) and 899,780 BY1999 subyearlings (15,676) were transferred to Captain John Rapids.



## **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. 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 2000 totaled 4,783 fish returning to the Dworshak/Kooskia Complex, compared to 957 in 1999, 1,323 in 1998, 4,807 in 1997, 1,165 in 1996, 165 in 1995 and 305 adults in 1994. In addition there were an estimated 1,173 spring chinook taken in the tribal harvest in the North Fork Clearwater River and ten spring chinook taken in the tribal harvest in Clear Creek. There were an estimated 3,908 spring chinook taken in the sport harvest in 2000 in the Clearwater River. A total of 439 females at Dworshak and 278 females at Kooskia were spawned producing 1,172,404 and 710,972 green eggs respectively. The Dworshak Program currently has approximately 335,000 BY1999 Dworshak and 80,000 BY1999 Kooskia spring chinook on hand for release in 2001.

In 2000, Dworshak/Kooskia NFH personnel released 1,017,873 BY1998 spring chinook smolts weighing 42,395 pounds into the North Fork Clearwater River and 449,454 BY1998 spring chinook smolts (21,798 lbs) into Clear Creek from Kooskia 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 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 1,389,050 BY2000 steelhead "A" eggs composed of Sawtooth (944,050), Clearwater (232,000), and Pahsimeroi (231,000) stocks this year. No Dworshak or East Fork "B" eggs were received.

In April 2000 Hagerman NFH released 1,174,882 BY1999 steelhead smolts weighing 280,805 pounds into the Little Salmon River, Salmon River at Sawtooth FH, and to acclimation ponds at Sawtooth FH. An additional 123,396 steelhead (2,845 lbs) were planted into Magic Reservoir in November. Hagerman currently has 878,595 BY2000 Sawtooth stock (43,181 lbs), 186,732 BY2000 Clearwater stock (13,114 lbs), and 214,879 Pahsimeroi stock (13,377 lbs) on hand.

## **M**ONITORING AND EVALUATIONS

In 2000 \$2,349,474 was obligated for monitoring and evaluation studies to IDFG,

ODFW, WDFW, FWS Idaho Fishery Resource Office (IFRO), and the NPT and Confederated Umatilla Tribes (CTUIR). Below is a brief overview of the FY2000 evaluation program followed by a synopsis of state, tribal, and the FWS IFRO programs. Results of LSRCP-funded evaluation studies are available in our cooperator's annual reports; a listing of reports is found in the *Available Reports* Section below.

### **Program Overview**

The Evaluation Study Committee (ESC) is an eight-member workgroup consisting of the LSRCP Office evaluation studies coordinator and a single representative from each cooperating agency and tribe: IDFG, ODFW, WDFW, FWS-IFRO, NPT, CTUIR, and SBT. Since 1985 the group has met for an annual program review and issue discussion meeting; and, in addition, several partial committee meetings are held each year to discuss specific topics, such as budget and study proposal modifications. The annual meetings often include additional staff members from each agency/tribe and occasionally visiting experts.

The FY2000 ESC meeting was held in early January and combined with a meeting of LSRCP hatchery managers. Discussion topics included: Columbia River Multi-Species Framework and Subbasin Planning, Fish and Wildlife Project Reviews, Artificial Propagation Review and IHOT, NMFS's implementation of the ESA's Section 4(d) rule, Hatchery and Genetic Management Plans, Section 7 consultations, conservation programs for listed steelhead populations, and Myxobolus infections in Idaho. Non-LSRCP participants included Chip McConnaha and Mark Fritsch (NWPPC) and Steve Smith (NMFS).

The LSRCP Office continued to submit necessary modifications under our current Biological Opinion to avoid jeopardy of steelhead populations (Snake River and Upper Columbia River ESU's) listed in December 1997. The LSRCP Office also continued consultations with the FWS for bull trout listed in October 1998 in the Columbia River basin.

### **Idaho Department of Fish and Game**

IDFG's LSRCP Fish Hatchery Evaluations-Idaho includes three projects--*Hatchery Evaluations*, *Hatchery-Wild Composition of the Idaho Steelhead Harvest*, and *Coded-Wire Tag Analyses*. Idaho's evaluation program goals are 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) determine the LSRCP contribution to fisheries and escapement. The studies conducted under the *Hatchery Evaluations* project 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 *Hatchery Evaluations* initiated in previous years to address specific hatchery problems and needs were continued in 2000. 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 collected scales from known chinook hatchery adults (i.e. those tagged as juveniles) and wild fish and used scale patterns to identify hatchery fish for broodstock and other

management purposes. Production and test groups were marked (CWT'ed and/or fin clipped) and returns are used to assess survival rates (by sex and age).

IDFG evaluations and hatchery personnel continued their assessment of natural rearing experiments on chinook at Sawtooth and Clearwater FH's initiated in 1993. They are relying 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. Returns from BY1994 were complete with the 2000 returns. In October 1997 IDFG began testing NATURES rearing at Sawtooth FH with BY1997 chinook; this test continued in 2000 with the releases of BY1998 smolts.

IDFG has completed analyses of detection data from South Fork Salmon River summer chinook salmon time of release studies and "environmental cue" data for comparison with detection data. They will report their findings in an upcoming annual report and look at need for additional controlled studies. Size at release studies were conducted at Clearwater FH with BY1997 and 1998 progeny; data on returning fish were be collected in 2000.

Comparisons were continued of juvenile steelhead reared at Hagerman NFH and released directly or after 21 days of acclimation at Sawtooth FH. Adults returning from previous releases were trapped at Sawtooth FH or other weir sites or intercepted in fisheries. In 1998 IDFG evaluation personnel designed and implemented a volitional release study for an acclimation pond on Squaw Creek whose construction was funded by NMFS. Those studies continued in 2000. IDFG, IFRO, and Hagerman NFH personnel began a feeding/rearing study in 1997 at Hagerman to determine the efficacy of meeting steelhead size restrictions at facilities in the Hagerman Valley; those cooperative studies continued in 2000 until they were curtailed for fish health reasons.

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. In 1998 pre- and in-season run projections were provided. This survey is also the major means of recovering adult steelhead tagged as fingerlings under other evaluation studies. These efforts were funded through 2000 and will be continued annually (at some level) until compensation goals have been met, and periodically thereafter. In 2000 surveys were conducted to monitor fisheries on hatchery-reared adult chinook salmon produced at McCall and Clearwater FH's and Dworshak NFH.

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 FY2000 several 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.

### **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. The following paragraphs describe specific studies *beyond* the routine juvenile rearing, adult return, spawning ground, and ESA monitoring and reporting duties.

In 1996, ODFW completed its sixth release 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; data from those releases were compiled and assessed in 1997. The last returns from the Big Canyon and Little Sheep releases arrived in 2000 and are being compiled for analysis.

ODFW began pilot studies in FY1996 with BY1995 fish to compare smolt-to-adult survival and juvenile outmigration performance of summer steelhead smolts released volitionally with standard releases. These efforts are an offshoot of ODFW's 1991 through 1995 studies to monitor the characteristics and interaction of residual steelhead on listed natural chinook in several NE Oregon streams, determine strategies to reduce the number of residual steelhead, and develop a strategy to implement new steelhead management plans. Field studies associated with this pilot project continued with ODFW's effort to characterize yearly variation in the relative abundance of juvenile residual steelhead in index areas and to describe the characteristics of steelhead which residualize. Detailed volitional studies began with the release of BY1996 fish in 1997 and will be completed with the BY2000 releases from Wallowa FH and the Big Canyon facility in 2001.

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*. These efforts were expanded in 1999 to include collection of samples for genetic analyses and were continued in 2000. They are also investigating the feasibility of using otolith micro-chemistry analyses to identify maternal origin of juveniles. 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 determine if hatchery populations can be and should derived from local resident populations.

In 1998, ODFW initiated studies to compare migration timing and survival of various crosses among and between anadromous and resident forms using BY1998 and 1999 adults. BY1998 crosses were PIT-tagged, released in spring 1999, and compared to Wallowa stock releases. The study was continued with BY2000 steelhead returns and resident rainbow.

Spring chinook size at release (25 vs 15 fpp) experiments were initiated with BY1988 Imnaha fish and, with the exception of BY1993 releases, were continued with releases of BY1996 smolts in 1998. The last size at release experiments from Lookingglass FH (Rapid River 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. The last BY1996 Imnaha releases will return in 2001.

A restricted diet study was initiated with Imnaha stock to help determine if reducing mesenteric fat would promote fish to return at older ages. Juveniles were released in 2000. An exercise study was conducted in 1994 - 1996 using Rapid River brood. The last adults from those studies were collected in 2000 and data are being compiled and analyzed.

Although a density experiment using Rapid River stock chinook reared at 50 percent of normal densities was not continued with releases in 1995 or 1996, collection of adults released as juveniles in 1993 and 1994 continued at Lookingglass FH. A similar study was initiated in 1995 using BY1994 Imnaha stock reared at Lookingglass FH to compare rearing densities from 1/4 to 1/8 of normal. Although this effort continued in 1998 with releases of BY1996 fish, full production and other factors prevented tests from continuing. Adults returning from releases in 1996 and 1997 were collected in FY2000.

ODFW, CTUIR, and NPT personnel continued their collaborative effort to collect juvenile spring chinook salmon from three Oregon streams and maintain the captive propagation program initiated in 1995. As noted above, ODFW evaluation personnel joined other LSRCP cooperators in 1996 to form a technical committee for dealing with LSRCP-funded captive propagation efforts and formed a local integrated team to serve the coordination needs for the effort in Oregon. ODFW evaluation personnel took the lead on monitoring and evaluating the Oregon captive populations in 1995 and continued this effort in 2000, participating in state/NMFS/tribal chinook technical meetings held in conjunction with a sockeye TOC meeting.

### **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. The following paragraphs summarize some of WDFW's efforts in 2000 beyond their ongoing fish culture monitoring programs and ESA monitoring and reporting duties.

WDFW evaluation and hatchery staffs continued efforts to ensure that fall chinook broodstocks retained at Lyons Ferry FH contain no non-endemic fish by identifying the origin of fall chinook broodstock captured at Lower Granite Dam and returning to the hatchery ladder. All Lyons Ferry FH fall chinook releases targeted as potential broodstock are being marked so Lyons Ferry origin adults can be identified in future returns.

WDFW continued their ongoing efforts to determine smolt outmigration timing and relative survival from Lyons Ferry (fall chinook) and Tucannon (spring chinook) FH's. In coordination with the Nez Perce Tribe, their fall chinook efforts were expanded in 1996 and continued in 2000 to include monitoring and evaluating outplants from the Pittsburg Landing, Big Canyon (Clearwater), and Captain John Rapids facilities. This was the third year for adult returns from the Pittsburg outplants. The evaluation of these sites is a joint WDFW/FWS/NPT effort funded by BPA and will continue.

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. In 1996 all adults were collected at the Tucannon River weir and retained for hatchery spawning and rearing; therefore, no adults were outplanted above the weir. A larger run in 1997 allowed outplanting of radioed

adults, which were monitored through the spawning season. Direct stream fingerling releases were evaluated in the fall of 1994; and, in the spring 1996, yearling juveniles were released from portable acclimation ponds above Tucannon FH, directly into the river above Tucannon FH, and from the Tucannon FH ponds using a volitional release strategy. In 1997, 1998, and 1999 juveniles were released from Tucannon FH, Curl Lake, and (a small release) into the river at Curl Lake. Due to lower numbers available, all 2000 releases were released from Curl Lake. Juvenile migration success and adult survival of all release strategies are being compared using PIT tagged juveniles and CWT'ed adult returns.

Other salmon studies initiated in previous years and continued in 2000 included: 1) documenting juvenile spring and fall chinook rearing, releases, outmigration timing (both in the Tucannon River and downstream for spring chinook), and relative survival; 2) determining the extent and cause of prespawning mortalities of adult spring chinook; 3) estimating production and migration timing of naturally-produced Tucannon River spring chinook; 4) collecting spring and fall chinook stock profile data (meristic, morphometric, electrophoretic monitoring); and 5) cryopreserving spring and fall chinook milt. WDFW evaluation and hatchery personnel designed and received Fish and Wildlife Program funding for a captive broodstock program for Tucannon spring chinook from the NW Power Planning Council. Juveniles are currently being reared for that program.

*WDFW's Steelhead Evaluation Study* includes objectives for evaluating both the steelhead and resident trout hatchery programs, with the steelhead objectives having the highest priority and requiring virtually all the funding. 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. The 2000 objectives continued many of the directions initiated in 1990 regarding developing new broodstocks, improving hatchery management practices, and modifying juvenile steelhead release strategies.

As noted above, development of endemic steelhead broodstocks is a recent goal of the program which should help reduce residualism and improve homing to the rivers of release. 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 when efforts to trap adults in Cummings Creek (a Tucannon River tributary) failed due to high flows. 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. In 1996 flood problems eliminated any attempts and no fish were trapped in 1997. Weir improvements allowed WDFW to continue to monitor adult steelhead returns to the Tucannon and Touchet Rivers in 2000. Plans were developed to initiate broodstock trapping programs in 2001 in both rivers.

Other studies initiated in previous years and continued in 2000 included: 1) estimating percent residualism of hatchery steelhead in the Tucannon and Touchet rivers; 2) estimating the incidental take of wild juvenile steelhead in the rainbow trout fishery; 3) estimating egg-to-fry survival rates and juvenile population densities of naturally-produced steelhead in index streams effected by LSRCP programs; 4) quantifying out-migration of hatchery and natural juveniles; 5) estimating adult returns to fisheries, Lower Granite Dam, Lyons Ferry FH, and tributary spawning areas; 6) collecting baseline genetic information on wild steelhead populations; and 7) cryopreserving milt.

## Nez Perce Tribe

The Nez Perce Tribe (NPT) initiated their Nez Perce Tribe LSRCP Evaluation Study in 1986 and continued it in 2000 to develop tribal stocking and outplanting priorities; monitor tribal harvest; evaluate effects of hatchery plants on native production; assist IDFG, ODFW, and FWS in their evaluation studies; and collect and preserve adult male chinook salmon sperm plasm. NPT evaluation personnel joined the LSRCP Office and other LSRCP cooperators in 1996 to form the CONSPOT for dealing with LSRCP-funded captive propagation efforts and, with the Oregon co-managers, formed a local team to serve the coordination needs for the captive program in Oregon. This effort continued until early 1997 when the CONSPOT determined regular meetings were not needed. The NPT participates in Snake River spring/summer chinook TOC meetings facilitated by BPA.

The Tribe's major field activities in 2000 involved the long term Imnaha River study. NPT continues to use two rotary screw traps in the Imnaha River to capture and PIT-tag juvenile chinook. The Imnaha River study objectives in 2000 were to: 1) determine the outmigration timing, travel time and recapture rate of spring migrating natural and LSRCP FH-produced chinook salmon and steelhead from the lower Imnaha River trap through the Snake River to Lower Granite Dam and 2) determine and compare timing, travel time, and recapture rates at Lower Granite Dam and other dams of natural chinook salmon that overwinter in the Snake River versus those that overwinter in the Imnaha River.

As a new effort for 1999, the NPT initiated a study of hydrologic characteristics of selected steelhead streams in the Imnaha basin. They began literature searches of past studies and planned field studies to determine flows and water temperatures of Lightning, Cow, Horse, Big Sheep, Freezeout, Gumboot, and Grouse creeks. In 2000 the NPT installed weirs to enumerate and collect biological (including genetic) information from migrating adult steelhead into Lightning Creek and to enumerate and collect biological data from spawned-out adults there and in Cow Creek.

Other LSRCP-funded studies initiated in previous years and continued in 2000 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 using cryopreservation techniques; and monitoring the abundance of juvenile chinook and steelhead in stocked and unstocked streams.

In 1997 the NPT began a new study to monitor and evaluate releases of fall chinook from two new LSRCP facilities, Pittsburg Landing and Big Canyon on the Clearwater River. Captain John Rapids, completed in late 1997, was added to the study program in 1998. The objectives of the study are to compare pre-lease and release conditions, post-release behavior, migration timing, and survival of yearling fall chinook released at Pittsburg Landing, Big Canyon, Captain Johns Rapids, and Lyons Ferry FH. Because the NPT operates the Pittsburg Landing, Big Canyon, and Captain John Rapids facilities, their study efforts include solving fish culture problems and monitoring and evaluating the implementation and success of their overall program. Contribution and distribution of adult returns and smolt-to-adult survivals are being monitored and compared in cooperation with WDFW and FWS investigators. Starting in 1998 most of monitoring and

evaluation and all of the operations and maintenance costs were funded under the NWPPC's Fish and Wildlife Program.

### **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 CTUIR biologist assigned to the LSRCP program continues to be 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 re-establishing 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.

The Lookingglass Creek study objectives in 2000 were to: 1) evaluate the survival of early life stage releases into Lookingglass Creek of progeny from unmarked BY1999 salmon returns to Lookingglass FH, 2) determine the arrival distributions and survival of releases of 1998 brood hatchery-reared pre-smolts released into Lookingglass Creek in 1999, 3) determine the genetic diversity and origin, age, and juvenile-to-adult survival of unmarked adult chinook returning to Lookingglass Creek, and 4) assess the ecological interactions between spring chinook and their environment. All releases since 1998 have been and will continue to be pre-smolts from unmarked adult returns. Also in 2000, the CTUIR began life history studies (migration timing, age structure, etc.) of Lookingglass Creek steelhead juveniles and adults.

### **Fish and Wildlife Service -- Idaho Fisheries Resources Office**

The IFRO was funded by the LSRCP program in FY2000 to conduct hatchery monitoring and evaluation studies at Dworshak and Hagerman NFH's. IFRO's on-hatchery program is similar to those conducted by the state agencies and tribes and is closely coordinated with IDFG and the NPT. 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.

## **FISH AND WILDLIFE SERVICE COOPERATIVE PROGRAMS**

The LSRCP Office obligated \$243,873 to three other FWS programs which helped the LSRCP Program accomplish its FY2000 mission. The Dworshak Fish Health Center receives LSRCP funds for diagnostic activities at Dworshak and Hagerman NFH's and for health monitoring coordination among State and Federally-operated LSRCP hatcheries. 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, and gene conservation issues.



## **O** **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 ODFW 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 Oregon and Idaho, the Grande Ronde endemic stock programs in Oregon, the Umatilla Hatchery, the NPT's Johnson Creek Program, IDFG's supplementation (ISS) 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 program. ODFW utilizes several raceways at Irrigon FH to temporarily hold catchable rainbow trout for release in eastern Oregon. IDFG uses Sawtooth and Clearwater FH's to act as distribution points for catchable trout stocking in surrounding waters, and McCall and Clearwater FH's 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.

## **C** **CORPS CONSTRUCTION ACTIVITIES**

The U.S. Army Corps of Engineers (Corps), Walla Walla District, has transferred to the Service all of the facilities originally constructed for the program. Some operational problems still remain at the Captain John Rapids fall chinook acclimation pond which has delayed its transfer. The Corps is making the necessary changes and we are hopeful that it will be ready for transfer in FY2001. Oregon's underground storage tanks (UST's) are scheduled for replacement by the Service in FY2001. After the new tanks are installed, the Corps will be removing the old tanks and cleaning the sites. When those jobs are completed, all UST's will have been removed from LSRCP facilities.

## **F** **UTURE OUTLOOK**

Although steelhead returns from 1997 to 2001 were higher coast wide and close to meeting our goals for the LSRCP mitigation program, getting steelhead to return back at the desired time and to the traditional fishing areas still remains a problem for some programs. The listing of Snake River and upper Columbia River steelhead in 1998 required re-initiation of consultations with NMFS. The one-year 1999 Hatchery Biological Opinion by NMFS stated that several LSRCP steelhead programs were jeopardizing listed steelhead. In response, the LSRCP Program took steps to reduce this threat by reducing the numbers of some releases and changing time and location of others. The Service and LSRCP Program is now consulting with the NMFS to determine appropriate actions for 2001 and beyond which will eliminate jeopardy. We anticipate that Opinion will require us to improve the assessments of our proposed actions in order to identify appropriate Reasonable and Prudent Alternatives and Conservation Measures. For some

programs, only minor modifications may be necessary. For others, we may determine that significant changes are needed, such as phasing out non-endemic stock programs while converting to endemic, listed stocks.

Even though LSRCP hatchery chinook returns are higher than those of most naturally-produced (listed) fall and spring/summer chinook in the Snake River basin and we had fishing seasons in some areas, we are not achieving programmed hatchery rates of return. Rearing and release strategies are continuing to be fine tuned and we hope the changes will improve this situation. Most LSRCP chinook facilities are now operating and, are likely to continue operating, under Section 10 enhancement and/or research permits under the ESA. Returns of hatchery-reared fish are expected to be higher in 2001 than in 2000, and we anticipate limited sport fisheries in Idaho and perhaps Oregon and Washington.

The LSRCP will continue efforts 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. For programs switching to endemic stocks, compensation for losses to tribal and non-tribal fishers may be lower than desired during the conversion period.

Six years ago the LSRCP began funding cooperators for three captive rearing programs in Idaho and three broodstock programs in Oregon as gene conservation measures to assist in conservation and recovery. As noted above, those programs are now funded by the BPA through the NWPPC's Fish and Wildlife Program. The LSRCP Office will continue to participate in the technical teams to address ongoing captive broodstock issues and other ESA issues. Eggs produced by Oregon's captive broods have already been incorporated into LSRCP production programs, and we hope eventually they will also contribute to our compensation effort.

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 and to determine our effects on conservation of listed species. We substantially increased funding for this phase of the LSRCP program in BY1993; continued funding will be needed for an adequate hatchery evaluation program which ensures protection and enhancement of naturally reproducing populations.

We are optimistic that with normal precipitation and ocean conditions, return rates of hatchery-reared steelhead in many basins may meet model predictions. The chinook salmon return rates and adult returns to the basin, however, are currently much below the level anticipated and used to design the LSRCP facilities. Only moderate improvements in adult chinook return rates are expected with changes in production release strategies, increased disease treatment and prevention, improvements in smolt emigration, and ocean-rearing conditions. Captive broodstock efforts, if successful, will develop critical culture expertise needed in the immediate future for conservation of listed Snake River species. If regional managers can implement measures that significantly increase the man-affected system productivity of listed populations, the conservation efforts implemented now will help speed salmon and steelhead recovery and may eventually result in widespread fishery opportunities for tribal, sport and commercial fishers.

The LSRCP Office, with the cooperation of the BPA staff, completed a direct funding agreement for FY2001. A schedule has been drafted to complete a five-year 2002 through 2006 agreement early in FY2001.

During FY2001 the LSRCP Office and its cooperators will continue to work with Columbia River basin co-managers to renegotiate the CRFMP. Although many current programs and perhaps some new programs will emphasize conservation of populations, the LSRCP will continue to attempt to compensate for losses associated with construction and operation of the Lower Snake River dams.

## **S**TAFFING

A total of 4.25 permanent full time (FTE) staff years were used for operation of the LSRCP Office in FY2000. Edouard J. Crateau, LSRCP Coordinator since 1988, retired December 31, 1999 and his position remained vacant through the remainder of the FY.

LSRCP Boise Office employees as of September 30, 2000:

Daniel M. Herrig, LSRCP Coordinator

Joseph J. Krakker, Fishery Biologist

Tammy A. Froscher, Secretary

Margaret M. Anderson, Cooperative Agreement Assistant

## **M**EETINGS

10/4/99	NWFCC Planning Committee Meeting, Ed
10/8/99	LSRCP Program and salmon and steelhead issues in Idaho with the Boise Exchange Club, Joe
10/8/99	Conference call on Lookingglass chiller repairs and Imnaha production issues with ODFW, NPT, CTUIR, Joe
10/12-15/99	Acting Program Assistant Regional Director, Portland, OR, Ed
10/14-15/99	FWS meeting to review All-H Paper, Boise, ID, Dan, Joe
10/18-19/99	Attend NWPPC Meeting in Portland, OR, Dan
10/19-20/99	Hatchery Mitigation Work Group Meeting, Nashville, TN, Ed
10/19-21/99	Tribal Workshop in Boise, ID, Joe
10/21/99	Attend Federal Caucus Meeting in Portland, OR, Dan
10/21/99	Tour Dale Hollow FH, Tern and Wolf Creek, KY, Ed
10/25-27/99	Hatchery Managers Meeting, Richland, WA, Ed and Dan
10/28-29/99	Pacific Fisheries Biologist Meeting, Astoria, OR, Ed
11/15-16/99	Columbia River winter, spring, summer harvest allocations with Columbia River Treaty tribes, SBT, WDFW, ODFW, IDFG, NMFS, BIA in Portland, OR, Joe
11/18/99	Dworshak Coordination Meeting with IDFG, NPT, USGS, in Ahsahka, ID, Ed
11/19/99	Clearwater FH Coordination Meeting with Clearwater FH staff and manager in Ahsahka, ID, Ed
12/1-2/99	Meet with WDFW hatchery and evaluation managers in Dayton, WA, Dan, Joe

12/6/99 Smolt Workshop, Seattle, WA, Dan, Joe  
 12/6-9/99 Attend and worked at NW Fish Culture Conference in Seattle, Ed, Dan, Joe, Tammy, Margaret  
 12/14/99 Meet with IDFG and Dan Campton to discuss genetics studies in Idaho, Dan  
 12/15/99 Attend FONS Workshop in Portland, OR, Dan  
 12/22/99 Lookingglass FH Management Meeting with NPT, CTUIR, ODFW in Boise, ID, Dan  
 1/6-7/00 LSRCP Hatchery and Evaluation Programs Coordination Meeting, Boise, ID, Dan, Joe  
 1/7/00 Ed Crateau's retirement party, Boise, ID, all LSRCP staff  
 1/14/00 CRFMP renegotiations with Columbia River Treaty tribes, WDFW, ODFW, IDFG, NMFS, FWS in Portland, OR, Joe  
 1/15/00 AOP conference call, ODFW, CTUIR, NPT, Joe  
 1/19/00 McCall FH and Johnson Creek Project Production Coordination with IDFG, NPT in McCall, ID, Dan  
 1/20/00 Tribal spring fishery BA on production and adult outplanting proposals with FWS, NMFS and Portland, OR, Joe  
 1/26/00 National Fish Hatchery initiative and LSRCP activities briefings in Idaho with Laurel Hall, Rep. Mike Simpson's Resources staff, Ben Bibb, external affairs, Speros Doulos, White Salmon NFH manager in Idaho Falls, ID, Dan  
 2/1/00 Hatchery initiative and LSRCP briefing with Senators Crapo's and Craig's and Rep. Chenoweth's staffs in Boise, Dan Diggs, Dan  
 2/10/00 FY2000 budget needs with Tom Rogers, IDFG at IDFG headquarters, Dan  
 2/14/00 CRFMP production and adult outplanting proposal meeting with FWS, NMFS in Portland, OR, Joe  
 2/15-16/00 Attend Hagerman HET and Coordination's meetings, Dan  
 2/23/00 Public Meeting on All-H Paper, Boise, ID, Dan, Joe  
 2/28/00 Conference call on LSRCP issues, FWS, Dan, Joe  
 2/29/00 LSRCP briefing the natural resources staff members from Senator's Crapo and Craig Offices in Boise Senators Office, Dan, Joe and Byran Kenworthy  
 3/2/00 Meet at CBFWA regarding NEOH with co-managers, Dan  
 3/7/00 CRFMP Production and adult outplanting meeting, FWS, NMFS in Portland, OR, Joe  
 3/7-8/00 Participate in All-H Paper hearings in Idaho Falls, and Twin Falls, Dan and Joe  
 3/9/00 Attend Dworshak NFH Coordination Meeting, Dan  
 3/13-15/00 Fishery issues with Idaho Chapter AFS in Coeur d'Alene, ID, Joe  
 3/13-15/00 Pacific Coast steelhead Management Workshop with NW agencies/tribes in Fort Warden, WA, Dan  
 3/20/00 CRFMP Production and adult outplanting conference call briefing with RO FWS, Joe  
 3/31/00 NEOH Meeting at CBFWA, Portland, OR, Dan  
 4/4-5/00 NWPPC Meeting in Portland, OR, Dan  
 4/15/00 NMFS, FWS, IDFG meeting to discuss federal strategy for ESA, Boise, ID, Joe  
 4/18/00 CRFMP Meeting, Portland, OR, Joe  
 4/20/00 Meet with IDFG Director, Rod Sando, Dan, Joe  
 4/25-27/00 Meet with CBS 60-minutes film and production crew in Lewiston area, Dan  
 4/27/00 Hydrosystem BO and All-H paper with NMFS, FWS in Portland, OR, Joe

4/25-27/00 Video for 60 minutes broadcast with CBS film crew in Lewiston and the Tucannon River, Dan

4/28/00 Met with COE's regarding fuel tank removals and small hydro agreement at Clearwater FH water supply in Walla Walla, WA

5/1-3/00 Production issues with CRFMP in Portland, OR, Joe

5/9-10/00 Met with regional staff on management issues, Portland, OR, Dan

5/15/00 Conference call interview for ODFW Regional Hatchery Coordinator position, Joe

5/18/00 LSRCP retreat - LSRCP Staff

5/24/00 Johnson Creek/McCall FH Coordination Meeting, McCall, Dan

6/1/00 Discussion natural resources policy issues at the Andrus Policy Center in Boise, ID, Dan

6/5-6/00 Snake River Genetic's Studies Coordination Meeting, Portland, Dan, Joe

6/9/00 Dworshak NFH Fish Day Celebration, Dan, Tammy

6/15/00 APR performance standards meeting, FWS, Boise, ID, Dan, Joe

6/16/00 Fish Management Personnel Meeting in Portland, OR, Dan

6/16/00 Methow River issue meeting, Olympia, WA, Joe

6/19-20/00 Field review NEOH hatchery proposals with BPA/NPT/NWPPCC members and staff in NE Oregon, Dan

6/19-20/00 Supplementation workshop, Portland, OR, Joe

6/21/00 Ground breaking ceremony with NPT and others at NPT hatchery site, Dan

6/22-23/00 Tour LSRCP facilities with Doug Dehart, RO Fisheries, Dan

7/6/00 Performance standards and indicators for use of artificial production for anadromous salmonids populations in Pacific NW with NWPPCC/NMFS in Portland, OR, Joe

7/5/00 2001 SOW review with NPT evaluation biologists in Lapwai, ID, Dan

7/6/00 Tour for WA Congressman Nethercutt Jr., Congressman's staff, local county officials with WDFW hatchery, evaluations, outreach, at Lyons Ferry FH, Dan

7/6/00 Discuss use of Dayton Pond by Irrigation District with Lyons Ferry FH Manager, WDFW Regional FH Manager, WDFW evaluation personnel at Dayton Pond, in Dayton, WA, Dan

7/11/00 Conference call on Grande Ronde steelhead HGMP - WDFW, ODFW, CTUIR, NPT, NMFS, Joe, Dan

7/12/00 South Fork Salmon River adult returns with IDFG, SBT, NPT, NMFS at McCall, ID, Joe

7/12/00 Idaho NWPPC staff briefing of LSRCP Program, Boise, Dan

7/13/00 Johnson Creek/McCall NFH Program Coordination Meeting, Boise, Dan

7/18/00 Conference call on Grande Ronde steelhead HGMP, WDFW, ODFW, CTUIR, NPT, NMFS, Dan, Joe 8/1/00 2001 funding agreement with BPA and RO staff at BPA Office in Portland, OR, Dan

8/4/00 Discuss various LSRCP-related management topics with NPT in Boise, ID, Dan

8/11/00 APR performance standards and indicators with FWS in Vancouver, WA, Joe

8/17/00 Fall chinook meeting, IPC, NPT, IDFG, WDFW, ODFW, NMFS in Boise, ID, Joe

9/5-6/00 Umatilla Program Review, FWS, CTUIR in Pendleton, OR, Joe

9/6-7/00 Salmon and Steelhead Days, Boise, Tammy, Margaret, Dan, Joe

9/12/00 Conference call on development of HGMP's for Imnaha, Tucannon, and Touchet river steelhead programs, NPT, WDFW, ODFW, NMFS, Joe and Dan

9/13/00 APR performance standards and indicators with ODFW, WDFW, NWPPC, CBFWA, NMFS, Yakima's in Portland, OR, Joe  
 9/20/00 Attend NWPPC meeting in Spokane, WA, Dan  
 9/21/00 Chinook TOC meeting, NMFS, IDFG, WDFW, ODFW, BPA in Manchester, WA, Joe  
 9/21-24/00 Wenatchee River Salmon Festival 2000, Leavenworth, WA, Tammy

# T RAINING

*Dan Herrig*

None

*Joseph Krakker*

None

*Margaret Anderson*

None

*Tammy Froscher*

Simplified Acquisition Refresher 2/15-17/00



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TABLE 1. LOWER SNAKE RIVER COMPENSATION PLAN ACTIVITIES FOR FY 2000

INSTALLATION/PROGRAM	FUNDING LEVELS	SPECIES	TYPE	FISH RELEASED																																																	
				NUMBERS	POUNDS																																																
<b>STATE OF IDAHO</b>																																																					
McCALL FH and SOUTH FORK SATELLITE	\$429,420	SUCS	SMOLTS	1,039,930	44,632																																																
		SUCS	FINGERLING	124,480	2,855																																																
		SUCS	EGGS	191,000																																																	
SAWTOOTH FH and EAST FORK SATELLITE	\$611,858	SPCS	SMOLTS	123,425	7,504																																																
MAGIC VALLEY FH	\$729,915	STT	SMOLTS	2,044,526	486,275																																																
		STT	FINGERLING	114,820	5,275																																																
CLEARWATER FH and SATELLITE FACILITIES	\$1,310,713	SPCS	SMOLTS	848,633	56,565																																																
		SPCS	FRY	185,342	8,724																																																
		STT	SMOLTS	735,266	153,257																																																
FISH MARKING	\$251,103																																																				
IDFG EVALUATIONS	\$533,996																																																				
IDFG ESA COORDINATOR	\$47,397																																																				
EAGLE LAB	\$370,370																																																				
<b>STATE OF OREGON</b>																																																					
LOOKINGGLASS FH, IMNAHA and OXBOW	\$946,831	SPCS	FRY	24,201	339																																																
		SPCS	SMOLTS	179,716	9,394																																																
IRRIGON/WALLOWA FH and LITTLE SHEEP/BIG CANYON	\$1,375,210	STT	SMOLTS	1,120,154	276,991																																																
		STT	FINGERLING	0	0																																																
FLOOD DAMAGE																																																					
ODFW EVALUATIONS	\$531,511																																																				
ODFW PATHOLOGY LAB	\$115,276																																																				
<b>STATE OF WASHINGTON</b>																																																					
LYONS FERRY FH	\$2,275,139	SPCS	SMOLTS	127,939	10,276																																																
FUEL TANK REPLACEMENT	\$175,566	FCS	FINGERLING	2,437,780	41,553																																																
		FCS	SMOLTS	868,203	81,813																																																
		STT	SMOLTS	770,010	173,390																																																
		STT	FINGERLING	88,372	1,073																																																
		RBT	FINGERLING	198,676	5,732																																																
		RBT	CATCHABLE	104,406	35,652																																																
TUCANNON FH	\$284,877	RBT	CATCHABLE	136,617	46,367																																																
		RBT	FINGERLING	76,387	1,806																																																
FLOOD DAMAGE																																																					
WDFW EVALUATIONS	\$590,893																																																				
<b>TRIBAL PROGRAMS</b>																																																					
CTUIR EVALUATIONS	\$191,944																																																				
NEZ PERCE EVALUATIONS	\$337,853																																																				
NPT BIG CANYON O&M	\$0				(FISH REARED AT LYONS FERRY)																																																
NPT CAPT. JOHN O&M	\$0				(FISH REARED AT LYONS FERRY)																																																
NPT PITTSBURG O&M	\$0				(FISH REARED AT LYONS FERRY)																																																
<b>FISH AND WILDLIFE SERVICE</b>																																																					
HAGERMAN NFH	\$610,769	STT	SMOLTS	1,174,882	280,805																																																
DWORSHAK NFH	\$369,528	SPCS	SMOLTS	1,017,873	42,395																																																
IDAHO FHC	\$114,367																																																				
COLUMBIA RIVER COORD.	\$79,696																																																				
IDAHO FRO EVALUATIONS	\$163,277																																																				
ABERNATHY SCTC	\$49,810																																																				
ICFWRU ERYTHRO STUDY	\$0																																																				
PIT TAGS	\$107,388																																																				
REGIONAL OFFICE	\$691,989																																																				
LSRCP MANAGEMENT/COORD.	\$377,653																																																				
TOTAL OBLIGATED	\$13,674,349																																																				
		<table border="1"> <thead> <tr> <th colspan="2">SPECIES SUMMARY</th> <th>NUMBER</th> <th>POUNDS</th> </tr> </thead> <tbody> <tr> <td>FCS</td> <td>FINGERLING</td> <td>2,437,780</td> <td>41,553</td> </tr> <tr> <td>FCS</td> <td>SMOLTS</td> <td>868,203</td> <td>81,813</td> </tr> <tr> <td>SUCS</td> <td>FRY</td> <td>124,480</td> <td>2,855</td> </tr> <tr> <td>SUCS</td> <td>SMOLTS</td> <td>1,039,930</td> <td>44,632</td> </tr> <tr> <td>SPCS</td> <td>FRY</td> <td>209,543</td> <td>9,063</td> </tr> <tr> <td>SPCS</td> <td>SMOLTS</td> <td>2,297,586</td> <td>126,134</td> </tr> <tr> <td>STT</td> <td>FINGERLING</td> <td>203,192</td> <td>6,348</td> </tr> <tr> <td>STT</td> <td>SMOLTS</td> <td>5,844,838</td> <td>1,370,718</td> </tr> <tr> <td>RBT</td> <td>FINGERLING</td> <td>275,063</td> <td>7,538</td> </tr> <tr> <td>RBT</td> <td>CATCHABLE</td> <td>241,023</td> <td>82,019</td> </tr> <tr> <td colspan="2">TOTALS</td> <td>13,541,638</td> <td>1,772,673</td> </tr> </tbody> </table>				SPECIES SUMMARY		NUMBER	POUNDS	FCS	FINGERLING	2,437,780	41,553	FCS	SMOLTS	868,203	81,813	SUCS	FRY	124,480	2,855	SUCS	SMOLTS	1,039,930	44,632	SPCS	FRY	209,543	9,063	SPCS	SMOLTS	2,297,586	126,134	STT	FINGERLING	203,192	6,348	STT	SMOLTS	5,844,838	1,370,718	RBT	FINGERLING	275,063	7,538	RBT	CATCHABLE	241,023	82,019	TOTALS		13,541,638	1,772,673
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RBT=RAINBOW TROUT, FCS=FALL CHINOOK, SPCS=SPRING CHINOOK, SUCS=SUMMER CHINOOK, STT=STEELHEAD

Table 2. Design Information for Lower Snake River Fish and Wildlife Compensation Plan Fish Hatchery Facilities (not including fall chinook acclimation facilities).

Hatchery (Operator) <sup>a</sup>	Fish Type	Production (Pounds)	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) <sup>b</sup> Little Sheep Ck (Big Canyon Ck)	Oct. 85
			\$ 3,230		May 85
			\$ 2,545		Aug. 87
Lyons Ferry:			\$31,831 <sup>c</sup>		
Phase I (WDW)	Steelhead	116,400		Cottonwood Dayton Pond Tucannon FH Curl Lake	Nov. 83
	Trout	45,000			Feb. 85
			\$ 801		Oct. 86
			\$ 1,182		Nov. 84
Phase II (WDF)	Trout	41,000	\$ 4,235		Feb. 85
	Fall Chinook	101,800	\$ 230		Nov. 84
	Spring Chinook	8,800			
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	Red River Crooked River Powell	Dec. 91
	Spring Chinook	91,300			Nov. 86
Magic Valley (IDFG)	Steelhead	291,500	\$19,520	(Sawtooth ) (East Fork)	Nov. 86
					May 90
					Aug. 89
Hagerman (FWS)	Steelhead	340,000	\$ 9,801	(Sawtooth) (East Fork)	Apr. 84
McCall (IDFG)	Summer Chinook	61,300	\$ 5,741	S.Fk. Salmon R.	Sep. 81
			\$ 1,149		Jul. 80
Eagle Lab (IDFG)	Disease Diagnostic		\$ 1,300		Apr. 89

<sup>a</sup> 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

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

<sup>c</sup> Total cost of Lyons Ferry Phases I and II

Table 3. Hatchery or trap rack returns to LSRCP hatcheries operating in 1999 and 2000.

Species/Hatchery	Hatchery/Trap Adults	Returns Jacks
Summer Chinook		
McCall FH/South Fork	3,396	3,416
Spring Chinook		
Clearwater FH <sup>1</sup>	2,091	983
Sawtooth FH	610	376
East Fork Trap	na	na
Lookingglass FH <sup>2</sup>	220	18
Imnaha Trap	435	671
Big Canyon Trap	0	0
Grande Ronde River <sup>3</sup>	6	0
Lostine River <sup>3</sup>	7	0
Catherine Creek <sup>3</sup>	21	14
Dworshak NFH <sup>4</sup>	3,596	1,187
Tucannon FH	189	16
Fall Chinook		
Lyons Ferry FH <sup>5</sup>	3,416	768
Steelhead Trout		
Irrigon FH:		
Wallowa FH	968	
Little Sheep Trap	443	
Big Canyon Trap	333	
Lyons Ferry FH	3,808	
Cottonwood Creek Trap, WA	291	
Touchet River Trap, WA	20	
Tucannon River Trap, WA	28	
Hagerman NFH/Magic Valley FH <sup>6</sup>	2,110	
Crooked River Trap, ID	16	
Red River Trap, ID	0	

- <sup>1</sup> Returns to Powell, Red River and Crooked River traps only.
- <sup>2</sup> Does not include those trapped at Lower Granite Dam.
- <sup>3</sup> Endemic broodstock program.
- <sup>4</sup> Dworshak and Kooskia returns.
- <sup>5</sup> Includes ladder returns plus Lower Granite trapping (including strays).
- <sup>6</sup> Includes returns to East Fork, Squaw Ck., and Sawtooth FH racks.

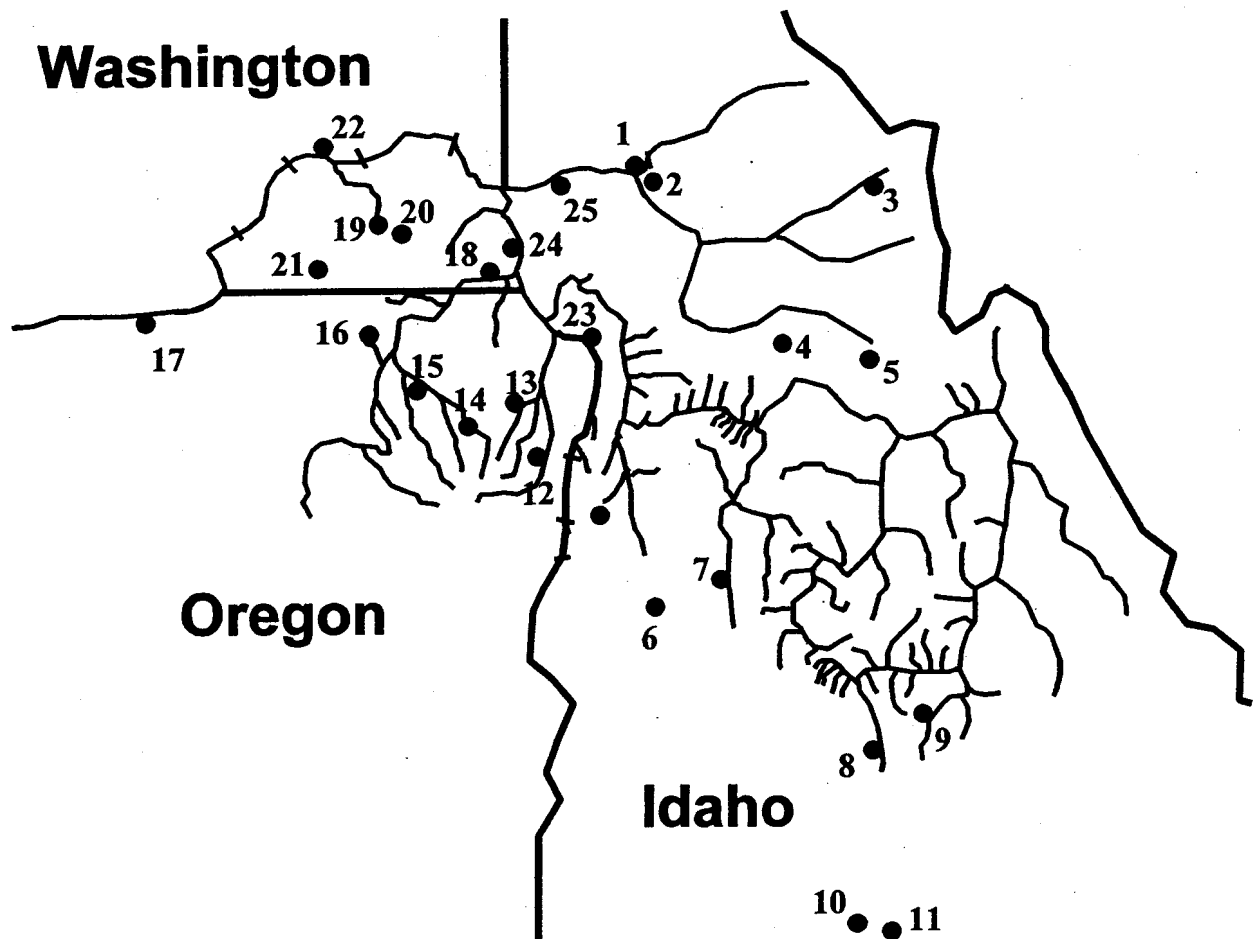


Figure 1. Location of LSRCP facilities

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

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)

Fish and Wildlife Service

- 2. Dworshak NFH Expansion
- 10. Hagerman NFH