Lower Snake River Compensation Plan
Annual Report

Fiscal Year 2007
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INTRODUCTION

The Lower Snake River Fish and Wildlife Compensation Plan (LSRCP) was authorized by the Water Resource Development Act of 1976 (90 Stat. 2917) to offset fish and wildlife losses resulting from the construction and operation of Ice Harbor, Lower Monumental, Little Goose, and Lower Granite Lock and Dam projects on the lower 150 miles of the Snake River in Idaho and Washington. When authorized by Congress, construction responsibility for the LSRCP was assigned to the Walla Walla District, U.S. Army Corps of Engineers (Corps), while responsibility for operating, maintaining, and evaluating the hatchery segment of the overall program was to be accomplished by "one of the Federal fisheries agencies." In 1977 the Corps, National Oceanic and Atmospheric Administration (NOAA), and U. S. Fish and Wildlife Service (FWS) signed an agreement stating that the FWS would budget for and administer funding of the LSRCP fish hatchery programs. The LSRCP Program Office was established in 1982 to administer and fund fish hatchery-related operations of the LSRCP.

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

The Corps' estimated cost for construction of the authorized LSRCP off-project fisheries facilities (hatcheries and related satellite facilities) was approximately $200 million. Today's current replacement value for facilities and equipment is nearly $400 million.

All LSRCP program OM&E costs, along with all facility maintenance and upgrade costs are reimbursed to the FWS by Bonneville Power Administration (BPA) through a direct funding Memorandum of Agreement (MOA) between Bonneville and the FWS.

The 1976 LSRCP legislation authorized what was believed to be sufficient anadromous fish hatcheries and associated satellite facilities to produce enough juvenile fish to return 18,300 fall Chinook salmon, 58,700 spring/summer Chinook salmon, and 55,100 steelhead adults to or above the project area (i.e. above Lower Granite Dam). The legislation also authorized sufficient resident fish hatcheries and stream enhancement projects to produce 93,000 pounds of trout annually to replace lost resident sport fisheries in Washington and Idaho.

The original program required expansion or construction of 10 hatcheries and 11 satellite trapping and release facilities in Idaho, Oregon, and Washington (Appendix B). The Corps were authorized by Congress in 1995 to construct the Pittsburg Landing, Big Canyon, and Captain John Rapids Acclimation Facilities as additional LSRCP Program facilities. They were

completed in 1996, 1997, and 1998 respectively. Due to lack of sufficient FWS funds to operate the facilities, BPA directly funds the Nez Perce Tribe (NPT) to operate these fall Chinook release facilities. Currently, Idaho Department of Fish and Game (IDFG) operates the four hatcheries in Idaho, Oregon Department of Fish and Wildlife (ODFW) operates three in Oregon, Washington Department of Fish and Wildlife (WDFW) operates one hatchery complex in Washington, and the FWS operates two hatcheries in Idaho.

HIGHLIGHTS FOR FY2007

LSRCP facilities continue to produce and release salmon, steelhead and resident trout to fulfill their mitigation responsibility. In 2007, nearly 16 million salmon, steelhead and rainbow trout were reared and released from LSRCP facilities.

Past releases of LSRCP-produced salmon and steelhead contributed significantly to the runs of Chinook salmon and steelhead to the Snake River basin during 2007. The hatchery steelhead count above Lower Granite Dam in 2007 was over 157,214, while the count of spring/summer Chinook salmon was over 42,584. Over 23,000 fall Chinook salmon returned above Ice Harbor Dam in 2007. This is among the highest number of fall Chinook salmon to return since the lower Snake River dams were built. Although all data are not available, it appears the LSRCP program achieved its adult compensation goals back to and above the project area for Steelhead and Fall Chinook.

Oregon, Washington, and Idaho had fall and spring sport fisheries for steelhead. Idaho and Washington also held limited sport fisheries for spring/summer Chinook in 2007. The sport fishery on the South Fork of the Salmon River for summer Chinook salmon was one of the highlights of 2007. As a result of LSRCP efforts, the sport anglers harvested 724 salmon. IDFG estimated that over 3,400 anglers fished nearly 17,000 hours during this season. Both the Shoshone-Bannock (SBT) and Nez Perce Tribes (NPT) conducted subsistence fisheries on the South Fork Salmon River, and the NPT also operated a commercial fishery for Chinook salmon.

LSRCP facilities released approximately 5.7 M million steelhead fingerlings and smolts in 2007, and provided over 500 K eggs for egg box programs. Nearly 9.2 M spring, summer, and fall Chinook salmon were released in 2007. Most LSRCP Chinook and some of our steelhead programs are conservation efforts permitted by NOAA under Section 10 of the Endangered Species Act (ESA).

LSRCP staff spent considerable time in FY2007 working within a variety of forums with co-managers to promote the success of the LSRCP program while assuring adherence to state and federal guidelines regarding ESA, federal laws, court orders, and other issues. Fish hatchery production, evaluation studies, and operations will continue to be adjusted where appropriate to meet ESA and other regional requirements.

The LSRCP Program Office and BPA members of a Joint Management Team completed the first year of a 3-Year FWS/BPA direct funding agreement. The LSRCP program's FY2007 spending obligation was just shy of $19.8 M. Of this, approximately $13.7 M was obligated for hatchery operations and maintenance, $4.0 M for monitoring, evaluation, and research, and nearly $2.0 M for program coordination and administration. We continued to improve the program's efficiency by direct purchasing many supplies and services. We estimate that these efforts save nearly 1.0 M annually in overhead and other charges.

Five Year Condition Assessments were completed on all major LSRCP facilities in FY2007, by FWS engineers. Through these assessments, along with annual LSRCP reviews, we have generated a list of needed non-reoccurring maintenance and equipment upgrade projects, totaling over $10 M. We have developed a system for identifying priorities based on FWS engineering guidelines. As our (28) facilities age, the need for major maintenance and significant modifications will become greater.

The new weir at the South Fork Salmon River Satellite became operational in 2007. The staff reports the new weir has significantly improved trapping efficiency for the Chinook salmon program. In addition to operating the new weir, staff also had to deal with significant wild fires in the area, which literally burned up to the facility's fencing. We were very lucky.

FWS Regional and LSRCP staff continued to work with NOAA, state agencies, and tribal co-managers to renegotiate the *US vs Oregon* Columbia River Fish Management Plan (CRFMP). Co-managers have reached a tentative agreement for harvest and production in the basin. They expect to put the finishing touches on a new 10 year agreement in 2008/

The LSRCP staff once again played a leadership role in planning and implementing the Idaho Salmon and Steelhead Days, an educational program for area 5th grade students. The event is held in September at the IDFG Nature Center. Approximately 2,500 students, teachers, and parents attend the event. This program fits nicely with the Service's new initiative for Connecting Children with Nature.

Hatchery operations and maintenance program Performance Indicator assessments were modified to include more programmatic indicators. The LSRCP program is now posting all monthly and annual reports on its website (www.fws.gov/lsnakecomplan). Our annual LSRCP program meeting was held in March. The three-day event brought fish managers, hatchery managers, fish health experts, and evaluations personnel together to discuss and resolve LSRCP program issues, share information and research findings, and improve communication. Non-LSRCP programs (e.g. Corps and Idaho Power Company) were invited to ensure discussions included a basin-wide perspective.

FISH HATCHERY OPERATIONS AND MAINTENANCE

Approximately $13.7 M was obligated to cooperators, including FWS projects for operation, maintenance and fish health monitoring at LSRCP hatcheries and associated satellite facilities. This amount is 69% of our total obligation. Below are brief summaries of hatchery operation and maintenance activities in FY2007.

FACILITIES

Clearwater Fish Hatchery - Idaho

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

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

Four satellite facilities are associated with the operation of the Clearwater FH. The Red River satellite facility, completed in November of 1986, is located on the Red River, 15 miles east of Elk City and 618 miles from the mouth of the Columbia River. The Upper and Lower Crooked River satellite facilities, completed in the spring of 1990, are located on the Crooked River approximately 604 miles from the mouth of the Columbia River. The adult trapping facilities (Lower Crooked River) are located one-half mile upstream of the mouth of the Crooked River, a tributary to the South Fork of the Clearwater River. The juvenile acclimation facility (Upper Crooked River) is located 10 miles upstream of the river's mouth. The Crooked River facilities are 20 miles downstream of Red River. Due to the straying of Chinook between the two drainages, the Red River and Crooked River stocks of spring Chinook salmon were combined in 1997 to make the South Fork of the Clearwater River stock of spring Chinook salmon. The Powell satellite facility, completed in the summer of 1989, is located 122 miles east of the Clearwater FH at the headwaters of the Lochsa River on Walton Creek. The Powell satellite facility is 624 miles from the mouth of the Columbia River.

Dworshak National Fish Hatchery - Idaho

Dworshak NFH is located at the confluence of the North Fork Clearwater and Clearwater rivers, 504 miles from the mouth of the Columbia River. The facility is operated by the U.S. Fish and Wildlife Service as a complex in conjunction with the operation of the Kooskia NFH. The

primary purpose for the Dworshak NFH is the production of steelhead for Dworshak Dam mitigation; however, a facility expansion occurred in 1982 to accommodate a LSRCP spring Chinook salmon production program. This portion of the facility was originally designed to produce 1.4 million spring Chinook salmon smolts weighing 70,000 pounds. The adult return goal for Dworshak is 9,135 spring Chinook to the Snake River basin.

McCall Fish Hatchery - Idaho

The McCall FH is operated by the IDFG and located along the North Fork of the Payette River in the city of McCall, Idaho. McCall FH is designed to produce 1,000,000 summer Chinook smolts weighing 61,300 pounds. McCall FH is the only LSRCP summer Chinook facility and its adult return goal is 8,000 adults to the Snake River basin. The program operates a satellite facility on the South Fork of the Salmon River (SFSR) for trapping and spawning adult Chinook salmon. The smolt release site is located on the South Fork of the Salmon River upstream from the weir.

Due to ongoing supplementation studies and the desire to maintain the ability to allow sport fisheries, IDFG manages three South Fork Salmon River populations of summer Chinook salmon. The "reserve" population is maintained by spawning hatchery fish with other hatchery fish. These fish are not listed under the Endangered Species Act (ESA) and provide sport fishing opportunities when large numbers of these externally-marked adults return to the basin. The population designated as "supplementation" is a result from several different mating combinations, all which include an unmarked "wild" fish either as a parent or as a grandparent. These fish are listed under ESA and are marked with a ventral fin clip (the adipose fin remains in tack). The population designated as "wild" is also listed and have no marks or tags because they result from natural spawning parents. All the wild and supplementation fish are passed above the weir to spawn naturally. Operation of the new weir on the South Fork has significantly reduced the number of reserve fish that escape unintentionally above the weir.

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

Sawtooth Fish Hatchery - Idaho

The Sawtooth FH, is located on the upper Salmon River near Stanley, Idaho and is operated by IDFG. It was designed to rear 2,235,000 spring Chinook salmon smolts weighing 149,000 pounds and trap steelhead to collect eggs for Hagerman NFH and Magic Valley FH. A satellite facility located on the East Fork of the Salmon River is associated with the Sawtooth FH, however its use has been limited in recent years. The satellite was designed to trap adult spring Chinook for Sawtooth FH and steelhead for Hagerman and Magic Valley and to serve as a direct stream release site. The goal for the Sawtooth FH program is to return 19,455 adult Chinook salmon to the Snake River basin.

Magic Valley Fish Hatchery - Idaho

Magic Valley FH is located on the Snake River near Filer, Idaho and operated by IDFG. The hatchery was constructed on a commercial hatchery site that was purchased by the Corps in 1981. The current facility became operational in 1987.

The Magic Valley FH was designed to produce 2,000,000 steelhead smolts weighing 291,500 pounds annually. The LSRCP adult return goal for the facility is 11,660 adults back to the Snake River basin. However, recent declines in spring flows to the hatchery, has resulted in a 20% reduction in smolt production at this facility. A portion of this lost production has been shifted to the Hagerman National Fish Hatchery. Several steelhead stocks (Sawtooth, Pahsimeroi, Dworshak-B, and East Fork-B) are reared at the Magic Valley FH.

Hagerman National Fish Hatchery - Idaho

The Hagerman NFH is located about 30 miles west of Twin Falls, Idaho, just outside the town of Hagerman in the Snake River valley and is operated by the FWS. The water supply for the facility consists of approximately 30,000 gallons per minute of 59^0F water from a series of springs from the Snake River aquifer. The current facility is designed to rear 1,400,000 steelhead smolts weighing 340,000 lbs. Hagerman NFH's goal is to return 13,600 adult steelhead to the Snake River basin.

Lookingglass Fish Hatchery - Oregon

The Lookingglass FH, operated by the ODFW, is located on Lookingglass Creek north of Elgin, Oregon. Although the facility was designed to produce 1.4 million spring Chinook salmon smolts weighing 69,600 pounds for the Grande Ronde and Imnaha River drainages. The Imnaha River Satellite facility is located on the Imnaha River near the mouth of Gumboot Creek and is operated by the ODFW hatchery staff. The adult return goal to the Snake River for the Lookingglass FH program is 9,070 adult spring Chinook salmon.

Irrigon Fish Hatchery/Wallowa Fish Hatchery - Oregon

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

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

Lyons Ferry Fish Complex - Lyons Ferry and Tucannon Fish Hatcheries - Washington

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

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

SPRING / SUMMER CHINOOK SALMON PROGRAMS

Over 8.0 M spring / summer Chinook salmon were released from LSRCP facilities in FY2007 (Table 1). These programs are conducted at six fish hatcheries.

Table 1: A summary of spring / summer Chinook production at LSRCP facilities in FY2007.

FACILITY	SPECIES	STOCK	LIFE STAGE	BROOD YEAR	SIZE (FPP)	NUMBER RELEASED
McCall	SUCHK	South Fork Salmon	Smolt	2005	19.1	1,087,170
Sawtooth	SPCHK	Sawtooth	Smolt	2005	17.2	995,262
Dworshak	SPCHK	Dworshak	Smolt	2005	17.7	963,211
Clearwater - Powell	SPCHK	Powell	Pre-smolt	2005	25.4	374,129
Clearwater - Red River	SPCHK	SF Clearwater	Pre-smolt	2005	26.7	375,885
Clearwater - Up Crooked R	SPCHK	SF Clearwater	Pre-smolt	2005	24.7	127,909
Clearwater - Low Crooked R	SPCHK	SF Clearwater	Pre-smolt	2005	24.7	523,414
Clearwater - Selway	SPCHK	Selway	Pre-smolt	2005	23.4	269,525
Clearwater - Powell	SPCHK	Powell	Smolt	2005	15.4	373,977
Clearwater - Red River	SPCHK	SF Clearwater	Smolt	2005	15.4	375,759
Clearwater - Up Crooked R	SPCHK	SF Clearwater	Smolt	2005	16.0	133,829
Clearwater - Low Crooked R	SPCHK	SF Clearwater	Smolt	2005	16.0	517,092
Clearwater - Selway	SPCHK	SF Clearwater	Smolt	2005	15.4	269,349
Clearwater - Powell	SPCHK	Powell	Pre-smolt	2006	19.3	384,520
Clearwater - Red River	SPCHK	SF Clearwater	Pre-smolt	2006	23.0	122,326
Lookingglass	SPCHK	Catherine Ck Captive	Smolt	2005	25.9	21,584
Lookingglass	SPCHK	Catherine Ck Conv.	Smolt	2005	27.3	49,696
Lookingglass	SPCHK	Lostine Captive	Smolt	2005	23.3	24,629
Lookingglass	SPCHK	Lostine Conv.	Smolt	2005	21.5	205,518
Lookingglass	SPCHK	Up Grande Ronde Captive	Smolt	2005	23.2	20,620
Lookingglass	SPCHK	Up Grande Ronde Conv.	Smolt	2005	21.6	118,840
Lookingglass	SPCHK	Imnaha	Smolt	2005	21.6	432,530
Lyons Ferry	SPCHK	Tucannon - Conv.	Smolt	2005	8.0	149,466
Lyons Ferry	SPCHK	Tucannon - Captive	Smolt	2005	7.4	90,056
					TOTAL	8,006,296

Table 2: A summary of spring / summer Chinook trapped at LSRCP facilities in FY2007.

FACILITY	SPECIES	MALE (NON-JACK)	FEMALE	JACK	NUMBER
South Fork Salmon	SUCHK	1,152	1,031	1,562	3,745
Sawtooth Hatchery	SPCHK	167	139	1,282	1,588
Dworshak	SPCHK	737	671	702	2,110
Red River/Crooked R.	SPCHK	242	319	350	911
Powell	SPCHK	406	565	279	1,250
Imnaha	SPCHK	465	349	517	1,331
Lookingglass Creek	SPCHK	54	67	66	187
Lyons Ferry	SPCHK	65	86	73	224
				TOTAL	11,346

Table 3: A summary of spring / summer Chinook egg collections at LSRCP facilities in FY2007.

FACILITY	SPECIES	STOCK	MALES SPAWNED	FEMALES SPAWNED	GREEN EGGS COLLECTED	FECUNDITY
South Fork Salmon	SUCHK	South Fork Salmon	711	335	1,440,000	4,299
Sawtooth	SPCHK	Sawtooth	83	72	376,639	5,231
Dworshak	SPCHK	Dworshak	392	342	1,455,383	4,256
Powell	SPCHK	Powell	545	526	2,000,753	3,804
Clearwater Hatch	SPCHK	South Fork Clearwater	334	142	514,694	3,625
Lookingglass	SPCHK	Catherine Creek	29	45	171,065	3,801
Lookingglass	SPCHK	Lostine	44	60	267,360	4,456
Lookingglass	SPCHK	Up Grande Ronde	26	32	122,752	3,836
Lookingglass	SPCHK	Imnaha	107	94	408,397	4,345
Lookingglass	SPCHK	Lookingglass Creek	41	22	68,055	3,093
Lyons Ferry Hatch	SPCHK	Tucannon	46	36	124,543	3,460
				TOTAL	6,949,641	

FALL CHINOOK SALMON PROGRAMS

All fall Chinook production for the LSRCP program occurs at the Lyons Ferry FH. Both yearling and sub-yearling life history strategies are reared hear. A portion of the production is directly released at the hatchery, while the remaining production is transferred to acclimation facilities operated by the Nez Perce tribe (Table 4). A total of 1,154 males (non-jacks), 563 females, and 10,293 jacks were trapped at the Lyons Ferry FH for broodstock in FY2007 (the jack count includes an unknown amount of recaptures). If trapping at Lyons Ferry FH does not yield sufficient numbers of fall Chinook for broodstock, fall Chinook trapped at Lower Granite Dam are transported to Lyons Ferry FH for spawning. In FY2007, over 2.8 M green eggs were collected from 786 females spawned with 781 males

Table 4: A summary of fall Chinook production at LSRCP facilities in FY2007.

FACILITY	SPECIES	STOCK	LIFE STAGE	BROOD YEAR	SIZE (FPP)	NUMBER RELEASED
Lyons Ferry - Direct Release	FACHK	Snake River	Yearling	2005	10.6	503,161
Lyons Ferry - To Acclimation	FACHK	Snake River	Yearling	2005	11.7	470,459
Lyons Ferry - Direct Release	FACHK	Snake River	Sub-yearling	2006	62.2	200,692
					TOTAL	1,174,312

STEELHEAD PROGRAMS

In FY2007, nearly 5.7M steelhead smolts were stocked from LSRCP facilities (Table 5). In addition to the smolt programs, LSRCP facilities provided eggs to stock egg box facilities managed by the Shoshone-Bannock Tribe.

Table 5: A summary of steelhead smolt production at LSRCP facilities in FY2007.

FACILITY	SPECIES	STOCK	LIFE STAGE	BROOD YEAR	SIZE (FPP)	NUMBER RELEASED
Magic	STL	Dworshak B	Smolt	2006	4.4	614,383
Magic	STL	Upper Salmon B	Smolt	2006	4.6	127,266
Magic	STL	East Fork Nat	Smolt	2006	4.2	50,592
Magic	STL	Pahsimeroi A	Smolt	2006	4.2	536,450
Magic	STL	Sawtooth A	Smolt	2006	4.3	338,094
Hagerman	STL	Sawtooth A	Smolt	2006	4.3	1,069,219
Hagerman	STL	Pahsimeroi	Smolt	2006	4.5	197,129
Hagerman	STL	Dworshak B	Smolt	2006	4.6	195,073
Clearwater	STL	Dworshak B	Smolt	2006	5.3	871,086
Irrigon	STL	Imnaha	Smolt	2006	4.4	100,038
Little Sheep	STL	Imnaha	Smolt	2006	4.6	158,103
Little Sheep	STL	Imnaha - residuals	Smolt	2006	4.6	9,701
Wallowa	STL	Wallowa	Smolt	2006	4.0	479,123
Big Canyon	STL	Wallowa	Smolt	2006	4.1	322,368
Cottonwood	STL	Wallowa	Smolt	2006	4.7	159,242
Lyons Ferry	STL	Lyons Ferry	Smolt	2006	4.4	341,424
Lyons Ferry	STL	Tucannon Endemic	Smolt	2006	4.4	62,940
Lyons Ferry	STL	Touchet Endemic	Smolt	2006	4.4	58,989
					TOTAL	5,691,220

Table 6: A summary of steelhead trapped at LSRCP facilities in FY2007.

FACILITY	SPECIES	MALE	FEMALE	NUMBER
Sawtooth Hatchery	STL	2,135	1,904	4,039
East Fork	STL	75	91	166
Squaw Creek	STL	26	26	52
Little Sheep	STL	764	948	1,712
Wallowa	STL	1,402	1,435	2,837
Big Canyon	STL	351	464	815
Cottonwood Creek	STL	245	313	558
Lyons Ferry	STL	790	914	1,704
Dayton Trap	STL	65	152	217
Tucannon Trap (Lower River)	STL	81	64	145
			TOTAL	12,245

Table 7: A summary of steelhead egg collections at LSRCP facilities in FY2007.

FACILITY	SPECIES	STOCK	MALES SPAWNED	FEMALES SPAWNED	GREEN EGGS COLLECTED	FECUNDITY
Sawtooth	STL	Sawtooth	526	526	2,530,006	4,810
East Fork	STL	East Fork Natural	57	46	251,181	5,460
Squaw Creek	STL	Squaw Creek B	17	21	143,521	6,834
Little Sheep	STL	Imnaha	79	79	397,990	5,038
Wallowa	STL	Wallowa	216	217	1,177,850	5,428
Cottonwood Creek	STL	Wallowa	97	106	265,538	2,505
Lyons Ferry Hatch	STL	Lyons Ferry	245	123	556,683	4,526
Lyons Ferry Hatch	STL	Touchet Endemic	17	16	73,101	4,569
Lyons Ferry Hatch	STL	Tucannon Endemic	12	13	64,129	4,933
				TOTAL	5,459,999	

RAINBOW TROUT PROGRAMS

All rainbow trout production for the LSRCP program occurs at the Lyons Ferry Complex. Over 219,000 catchable size (2.9 fpp) rainbow trout were released in southeast Washington to meet LSRCP mitigation responsibilities. In addition, the Lyons Ferry Complex reared and transferred over 170,000 fingerlings (58.8 fpp) and 54,000 catchable size (13.2 fpp) rainbow trout to Idaho for the LSRCP program.

MONITORING AND EVALUATIONS

The LSRCP obligated approximately $4.0 M for monitoring and evaluation (M&E) studies and PIT tag costs related to its program in FY2007. Those receiving funding included IDFG, ODFW, WDFW, FWS Idaho Fishery Resource Office, the NPT, the Confederated Tribes of the Umatilla Indian Reservation (CTUIR), and the SBT. The LSRCP Office staff met with representatives from each cooperating entity in a variety of settings to discuss issues dealing with specific items to budgets to proposal modifications. Below is a brief summary of the FY2007 M&E programs for each of the cooperating entities. Individual M&E program reports can be obtained from the LSRCP office and or downloaded from the LSRCP Website.

Idaho Department of Fish and Game

During the 2007 fiscal year, the Hatchery Evaluation Study (HES) staff completed three steelhead (2002, 2003, and 2004) and three Chinook salmon (1992-1999, 2002, and 2003) evaluation reports that summarize yearly juvenile survival, adult return estimates and brood year reconstructions for all LSRCP fish hatchery facilities in Idaho.

During February and March HES assisted with PIT tagging 121,000 juvenile steelhead and Chinook salmon from the LSRCP hatcheries for estimating both juvenile and adult survival rates to Lower Granite Dam and also to provide state fisheries managers a tool to assess in-season Chinook salmon adult return expectations. Evaluation staff assisted with development of a PIT tagging plan to increase steelhead tagging by approximately 50,000 tags for the 2008 out-migrants to evaluate adult returns for each hatchery facility.

Evaluation staff played a key role in the ongoing development of a statewide hatchery database. During the 2007 contract period, the adult trapping module was tested and put into production at two of the three LSRCP hatcheries operated by IDFG and will be fully implemented by the spring of 2008. A beta version of the "spawning and final disposition" module is being tested and is scheduled to be released in the spring of 2008. Historic adult trapping data from McCall and Sawtooth fish hatcheries back to 1993 and 1991, respectively, has been uploaded to the new database and historic data from Clearwater Fish Hatchery will follow closely.

Coded Wire Tag (CWT) lab staff processed 4,760 steelhead and Chinook salmon snouts during 2007. All steelhead snouts collected from the fall 2006 and spring 2007 sampling were extracted verified and entered into the IDFG database. Steelhead snouts collected in the fall and all Chinook salmon snouts collected in the summer and fall will be processed in the December-February period and all 2007 recoveries will be uploaded to the Regional Mark Information System (RMIS) shortly after.

The Squaw pond steelhead acclimation facility was operated jointly with staff from HES and Sawtooth Fish Hatchery in an ongoing effort to evaluate the effectiveness of retaining non-migrant or "residual" steelhead in the pond to avoid competition with resident species and also to create a locally-adapted run of "B-run" steelhead derived from Dworshak National Fish Hatchery parental stock. Evaluation of non-migrant retention was disrupted in 2007 by blockage of flow through the pond intake pipe. As a result, dam boards were immediately pulled and all remaining fish were forced from the pond and evaluation of the non-migrant retention was terminated for 2007.

In 2007, Harvest Monitoring Program (HMP) staff provided a draft 2001-2004 annual report to the Boise office for review and comment. Staff also created tables and appendices for the 2004-2007 annual report and provided creel sample rate values to the IDFG HES staff for entry into the RMIS database for years 1986 to Spring 2007.

During the 2007 contract period, creel personnel interviewed 25,672 steelhead anglers, checked 7,522 fish for marks and collected 939 steelhead snouts with CWTs. Harvest monitoring staff developed and refined data entry forms, data queries, and databases for the creel program and developed creel target goals for the number of fish checked for marks in all river sections. Creel schedules were subsequently refined by reviewing periods of intensive monthly harvest. In addition, project specific safety protocols for creel personnel were developed. Lewiston creel personnel developed a system for working with guides and outfitters to collect fish snouts so the snouts could be checked for coded wire tags. The outfitter and guide program contributed to approximately 10% of the fish checked for marks (451 snouts) on the lower Salmon River and Clearwater River during the Spring 2007 season.

Also during 2007, staff worked with a biometrician associated with the University of Idaho to develop a bootstrap method for creating 90% confidence intervals for harvest estimates by coded wire tag group. Results of the statistical work and additional program information were presented to state fishery mangers in Boise during an internal program review.

Oregon Department of Fish and Wildlife

The ODFW LSRCP Chinook salmon evaluation staff worked on a wide variety of projects in 2007 from monitoring hatchery spawning and rearing of Chinook salmon from the Imnaha and Grande Ronde river basins at Lookingglass Fish Hatchery to spawning ground surveys to writing annual reports and research papers to publishing scientific articles and giving presentations at scientific meetings. The following is a review of our M&E efforts in 2007:

Spawning at Lookingglass Fish Hatchery

Deb Eddy and Sally Gee collected data, scales, and snouts from salmon spawned at Lookingglass Fish Hatchery in 2007. At eye-up, they also weighed a sample of 20 eggs per female to compare with the Captive Broodstock Program. We sent the snouts to the ODFW lab in Clackamas for the tags to be extracted and read to determine age of the hatchery adults. Deb and Sally have been mounting and pressing the scales and will read them to determine age of the natural salmon.

Monitoring Growth of Juvenile Chinook Salmon at Lookingglass Fish Hatchery

Fred Monzyk, Deb Eddy, and Sally Gee sampled parr from the 2005 and 2006 brood years at Lookingglass Fish Hatchery to monitor growth, which can be compared between the Captive and Conventional broodstock programs and among stocks. The BY 2005 parr were sampled on 6 February 2007 and mean weight of the Imnaha River, Catherine Creek, upper Grande Ronde River, and Lostine River stocks ranged from 15.2-20 g. The BY 2006 parr were sampled on 20 March 2007 (mean weights ranged from 0.73-1.03 g) and on 5 June 2007 (mean weights ranged from 4.5-5.0 g). They also checked the 2005 brood year for coded-wire tag retention and fin clip quality. In October, Dan La Point, Fred Monzyk, and Christian Jilek PIT-tagged a representative sample of the Chinook salmon parr in each of the stocks held at Lookingglass Fish Hatchery.

Spawning Ground Surveys

Fred Monzyk and Christian Jilek coordinated the spawning ground surveys in the Grande Ronde (9 streams) and Imnaha (3 streams) river basins in 2007. In general, redd counts were down from recent years. In the Imnaha Basin, the 2007 redd counts were 43% below the most recent five year mean. In the Grande Ronde Basin, the 2007 count was 57% below the five year mean.

Reports, Publications and Presentations

We completed the 2004 annual report. The 2005 annual report is being prepared, as the coded wire tag data become available. The 2006 and 2007 reports will be completed as the coded wire tag data become available.

Glenda O'Connor (ODFW Fish Health, La Grande) and Tim Hoffnagle (ODFW Fish Research) published a paper in the journal Diseases of Aquatic Organisms entitled, "Use of ELISA for Monitoring Bacterial Kidney Disease in Naturally Spawning Chinook Salmon." This paper demonstrated that ELISA can be used to monitor BKD in naturally spawning salmon populations using kidney samples collected form intact carcasses collected during spawning ground surveys. This provides us with a tool to monitor BKD in nature and examine whether BKD prevalence is changing over time, such as with supplementing natural populations with hatchery salmon.

Lastly, Fred Monzyk (with assistance from Tim Hoffnagle) has nearly completed a report on characteristics of the migrations of smolts from Catherine Creek and the Lostine River to Lower Granite Dam. He found that: (1) - smolts survive better in faster flowing sections of this migration corridor and that Lostine River smolts, not having a slow moving reach to migrate through, survive better than Catherine Creek smolts, (2) - natural smolts migrate more slowly through the upper reaches but more quickly in the Snake River than do hatchery smolts, (3) - smaller smolts have a lower survival rate through the upper reaches of the corridor, but not through the lower reaches.

An offshoot of this report resulted in Fred and Christian Jilek surveying for PIT tags on the ground below a great blue heron rookery. They calculated that a minimum of 1-2% of the annual smolt production from Catherine Creek, along with a small number of salmon from the Grande Ronde River, are eaten by herons in this colony.

Tim Hoffnagle gave two presentations on the Imnaha River Chinook salmon supplementation program that compared abundance (total and natural) and productivity (recruits per spawner) of Imnaha River Chinook salmon with those of Chinook salmon in unsupplemented streams in Idaho. This analysis shows that the Imnaha River supplementation program has not been increasing the abundance of natural spawners in the Imnaha River and that productivity has decreased since supplementation began.

Fiscal year 2007 ODFW steelhead monitoring efforts in the Grande Ronde River Basin were largely a continuation of ongoing projects to develop alternative, locally adapted steelhead broodstock for hatchery operations, evaluate the impact of hatchery fish on native fish populations, and assess the success of recreational fisheries. One such project seeks to develop an experimental hatchery broodstock, derived from early-returning hatchery-origin steelhead, in the belief that progeny from these fish will have reduced stray rates. Thus, for the fourth consecutive year early-arriving adult steelhead were collected from the lower Grande Ronde River in October and transported to the Wallowa Hatchery. There, approximately 7,700 juveniles consisting of progeny from early-returning fish and those from standard production broodstock were PIT-tagged to facilitate monitoring the timing of returning adult migrations past mainstem-dam facilities. Furthermore, a PIT tag detector was installed at the Wallowa Hatchery to gather information on timing of adult returns to the hatchery. Fish were also coded-wire tagged and given a unique fin clip to determine stray rates into other Columbia River tributaries. This year we collected data from returning adult steelhead from the first and second releases (2004 and 2005 cohorts) of experimental progeny, with preliminary results suggesting that experimental fish pass mainstem dams and return to the Grand Ronde River earlier than normal production fish. As yet, information on stray rates from coded-wire tag recoveries has not been analyzed.

In August, ODFW and NOAA Fisheries researchers conducted a genetic sampling of juvenile and adult *Oncorhynchus mykiss* in Little Sheep Creek, a tributary to the Imnaha River. The purpose of the project is to assess whether ongoing hatchery steelhead supplementation in Little Sheep Creek, an effort that serves the dual purpose of restoring natural populations and enhancing recreational opportunities, would have an effect on genetic characteristics of the natural population. Since all adult steelhead returning to Little Sheep Creek must pass a collection weir, the results from this study will assist ODFW managers in deciding how many hatchery-origin steelhead should be allowed to pass the weir and spawn with natural-origin fish.

ODFW conducts annual steelhead creel surveys on the Grande Ronde, Wallowa, and Imnaha rivers to aid in estimating adult production from LSRCP facilities and to judge the success of reestablished sport fisheries. Creel surveys begin on 1 October and end on 15 April. The most recent annual creel survey report, completed for the 2003-2004 run year, indicates that fishing effort in recent years has been increasing on the Grande Ronde and Imnaha rivers. Similarly, catch rates on these two rivers were some of the highest reported since creel surveys began in the fall of 1985. Hatchery steelhead dominated the catch on the Grande Ronde and Wallowa rivers, illustrating the importance of a successful hatchery program to the success of steelhead fisheries on these rivers. Although final steelhead catch estimates are not yet available for the 2006-2007 run year, we can report that hatchery fish again dominated the catch.

The 2003 LSRCP Oregon Summer Steelhead Annual Progress Report, which reports on the percent attainment of compensation goals in the Grande Ronde and Imnaha river basins, was completed in this fiscal year. As reported, 7,852 hatchery origin adult steelhead returned to the Grande Ronde Basin compensation area in 2003, representing 85.5% of the compensation area goal, while 3,182 adults returned to the Imnaha Basin compensation area, representing 159.1% of the compensation goal

Nez Perce Tribe

Fall juvenile salmonid trapping in the lower Imnaha River

Fall trapping on the Imnaha River began October 4, 2006 and ended on November 29, 2006. LSRCP and SMP personnel fished the trap for 1261.5 hours. A total of 4,060 (PIT-tagged 3,951) natural Chinook salmon and 202 (PIT-tagged 1) natural steelhead were captured.

The incidental catch totaled 1,884 fish comprising five families of fish: Salmonidae (86.0 %), Castomidae (8.7 %), Cyprinidae (4.0 %), Centrarchidae (1.3 %), and Petromyzotidae (0.1 %).

Spring juvenile salmonid trapping in the lower Imnaha River

Spring trapping and tagging operations on the Imnaha River began April 1 and ended June 20. LSRCP and SMP personnel fished the trap for 1910.25 hours. A total of 71,087 hatchery Chinook salmon, 9,205 natural Chinook salmon, 36,195 hatchery steelhead and 10,191 natural steelhead smolts were captured. NPT personnel PIT tagged 6,099 natural Chinook salmon, 7,058 natural steelhead and 1,492 hatchery steelhead. In addition, 1,565 hatchery Chinook salmon and 62 hatchery steelhead previously tagged by Oregon Department of Fish and Wildlife (ODFW) were recaptured.

The incidental catch totaled 987 fish comprising five families of fish: Salmonidae (23%), Cyprinidae (22%), Castomidae (24%), Cottidae (1%), Petromyzotidae (29%), Centrarchidae (<1%) and unknown species (<1%). The surprise of the season was the capture of 817 juvenile lamprey that, due to their size, were believed to be all Pacific Lamprey. Prior to this season we have only captured 12 juvenile Pacific Lamprey in the previous 14 years.

Adult Steelhead Trapping

The Lightning and Cow creek adult steelhead weirs operated almost continually during the months of April through June. Two short periods of downtime for the Lightning Creek weir occurred due to high flow and debris accumulation (5-1 and 5-2 and 5-11 to 5-13). The Lightning Creek weir passed forty-five unique adult steelhead upstream; 22 natural males, 19 natural females, one hatchery male and 3 hatchery females. The Cow Creek weir had 29 unique steelhead passed upstream; 14 natural males, 12 natural females, 2 hatchery males and one hatchery female.

In 2007 a Logie 2100 C 3 channel fish counter was installed in early February approximately 20 meters below the adult picket weir on Lightning Creek to test for impedance effects and validate the picket weir fish counts. Results from the resistivity fish counter that was installed below the Lightning Creek weir in 2005 and 2006 suggested weir impedance effects. However, fish count validation was not possible due to an inability of the resistivity counter to detect all passage events.

Chinook salmon spawning ground surveys

NPT LSRCP performed multiple pass redd/carcass surveys below the LSRCP adult facility on the South Fork Salmon River (SFSR), and in upper Big Creek (MFSR) during August and September, 2007. Fire activity in the South Fork Salmon River provided us challenges accessing areas for surveys. Normal spawning ground surveys include 4 passes, however most sections had at least one pass that was cancelled due to fire excluding access. A total of 259 redds were counted in the SFSR, with 61 carcasses recovered. A total of 25 redds were counted in Big Creek, with 2 carcasses recovered. LSRCP staff also assisted Oregon Department of Fish and Wildlife with multiple pass redd surveys in the Imhaha and Grande Ronde River Basins.

Cryopreservation assistance

LSRCP staff assisted with the collection of Chinook salmon gametes for long term storage (cryopreservation). Gamete samples from 60 natural origin males and 6 hatchery origin males were cryopreserved from 10 Snake River basin Chinook salmon populations.

Confederated Tribes of the Umatilla Indian Reservation

CTUIR operated a rotary screw trap at rm 2.5 yearround, collecting juvenile spring Chinook salmon, *O. mykiss* and bull trout. We PIT-tagged spring Chinook salmon and O. mykiss for trap efficiency estimates and migration timing and survival estimates. We provided incidental catch information for bull trout to ODFW and the U. S. Fish and Wildlife Service. We swapped out screw traps and repaired one.

We sampled naturally-produced juvenile spring Chinook salmon parr during June-August at several sites in Lookingglass Creek to estimate seasonal growth and condition.

We estimated parr abundance of naturally-produced spring Chinook salmon parr above the Lookingglass Hatchery weir in August by PIT-tagging, also using this group for comparison of migration timing, growth and survival to other populations in the Grande Ronde Basin.

We developed a plan for using a remote PIT tag antenna array in Lookingglass Creek, purchased materials, built and used a test antenna, located a suitable site, and built an additional antenna.

We tabulated adult spring Chinook salmon and summer steelhead catch data for the Lookingglass Hatchery adult trap, outplanted adult spring Chinook salmon above the Lookingglass Hatchery weir, and conducted spawning ground surveys above and below the Lookingglass Hatchery weir. We collected data from spring Chinook salmon spawned at Lookingglass Hatchery.

We obtained and tabulated coded wire tag, PIT tag, stream flow, and water temperature data from various online databases or agencies.

We attended two LSRCP meetings in Boise, and coordinated activities with the U. S. Fish and Wildlife Service, Oregon Department of Fish and Wildlife Research and Lookinglass Hatchery, Umatilla National Forest, and Forest Capital, LLC.

We provided project assistance to ODFW Fish Research and Lookinglass Hatchery staff in collecting and sampling captive broodstock spring Chinook salmon parr, pre-transfer sampling of spring Chinook salmon, conducting spawning ground surveys for spring Chinook salmon in Grande Ronde Basin other tributaries, and a short-term study of spring Chinook spawning behavior in Lookingglass Creek.

We submitted on annual report, made progress on several other overdue reports, completed the 2008 budget and statement of work, and renewed the agreement with Forest Capital, LLC to work on their lands.

Shoshone-Bannock Tribe

The Shoshone Bannock Tribes Fishery Department (SBT), under the cooperative agreement with the Lower Snake River Compensation Plan (LSRCP), completed several various objectives during the 2007 fiscal year. Included in those objectives are to participate in planning activities associated with anadromous fish, utilize hatchery supplementation as an artificial propagation strategy, monitor and evaluate supplementation activities, develop future adaptive management programs, and provide timely reporting to LSRCP. Specific projects under these objectives include: Chinook Salmon Supplementation in Dollar Creek, a tributary to the South Fork Salmon River; development of the Yankee Fork Spring Chinook Supplementation Program; Steelhead Stream-Side Incubation in Upper Salmon River Tributaries; and Steelhead Smolt Supplementation in Yankee Fork, Valley Creek, and Slate Creek.

In-stream Chinook Salmon Supplementation Program

SBT personnel participated in spawning 98 pairs of returning chinook salmon at the McCall Fish Hatchery (MFH) on three separate occasions. During spawning, genetic samples and fork lengths were taken from 196 individuals. After spawning, eggs were transferred to MFH and incubated to the eyed stage separately from general production gametes. Eggs were randomized and distributed into twenty-two in-stream boxes based on volumetric calculations obtained at MFH. There were a total of 334,580 eggs outplanted in Dollar Creek in the winter of 2006.

Boxes were monitored monthly from November 2006 to March 2007 at which point fry volitionally emigrated into the stream. During monthly monitoring, staff recorded temperature, dissolved oxygen, conductivity, pH, flow, sediment accumulation, and embryo stage as well as cleaned and removed debris from in-stream boxes. Due to limited funding, the SBT Fisheries Department was unable to conduct juvenile sampling for density estimates and genetic tissue collection. Furthermore, eyed egg to hatch estimates is assumed to be approximately 85% from historical information.

Yankee Fork Spring Chinook Salmon Supplementation Program (YFCSS)

The SBT Fisheries Department completed the Hatchery and Genetics Management Plan (HGMP) for the YFCSS in February 2007 and has submitted the plan to NOAA-Fisheries, LSRCP, and Idaho Department of Fish and Game. Parties are currently developing a coordination meeting for the review and approval of the HGMP.

Steelhead Stream-Side Incubation (SSI) Program

The objective of the SSI program is to outplant 1.0 million eyed steelhead eggs in five Upper Salmon River tributaries. During three spawning dates at the Sawtooth Fish Hatchery (SFH), SBT personnel actively participated in spawning 97 pairs of returning steelhead adults. The crew collected genetic samples from 194 individuals and recorded fork length for each fish. Steelhead eyed eggs from SFH were outplanted in Basin Creek and Yankee Fork while eggs obtained from Pahsimeroi Fish Hatchery were outplanted in Morgan Creek, Indian Creek, and Panther Creek.

There were a total of 1,070,060 eyed eggs outplanted into fourteen stream-side incubators in five tributaries. Two incubators were located in Morgan Creek, two in Indian Creek, three in Panther Creek, two in Basin Creek, and five in Yankee Fork with each tributary allotted 149,897, 124,023, 299,277, 138,510, 358,353 eggs, respectively.

Steelhead incubators were monitored twice weekly from 4/12/2007 through 7/20/2007. Staff recorded water condition, temperature, dissolved oxygen, conductivity, pH, and embryo stage as well as cleaned and removed debris from head pipe screens. Upon full volitional emigration, hatch success was estimated from enumerating dead eggs. Average hatch success for all fourteen incubators equaled 83.41% (0 – 99.91%) with a total of 896,278 fry seeded in the Upper Salmon tributaries. Hatch success from the five incubators in Yankee Fork averaged 92.90% (84.91 – 98.85%) with a total of 333,194 fry seeded from outplanting 358,353 eyed eggs.

During September and October, SBT completed three-pass removal block net electrofishing at twenty-two, 100 meter randomly stratified reaches throughout the Yankee Fork Salmon River. The crew sampled 1,948 salmonid species from 24,541.5 m^2 of total area. SBT staff collected lengths and weights from *Oncorhynchus mykiss* (1,450), chinook salmon (183), bull trout (107), cutthroat trout (127), and mountain whitefish (81). Genetic samples were taken from 866 *O. mykiss* (743 0+; 123 1+) for parentage analysis, 181 chinook salmon (179 0+; 2 1+) for genetic stock identification, and 31 bull trout for Abernathy Fish Technology Center (AFTC). SBT staff is currently awaiting genetic analysis from AFTC (January 2008) to estimate proportion of SSI fish to natural fish, survival estimates, and productivity. Initial results indicate low densities for overall salmonids and *O. mykiss*, well below historical values for Yankee Fork, although higher than densities observed in 2006.

Yankee Fork, Valley Creek, and Slate Creek Steelhead Smolt Supplementation Program

The goal of the steelhead smolt supplementation program is to release approximately 480,000 smolts; 330,000 in Yankee Fork, 50,000 in Valley Creek, and 100,000 in Slate Creek. To accomplish this, SBT personnel spawned 96 pairs of returning steelhead at SFH and genotyped and recorded fork length for all 192 individuals. All other adults utilized for Valley Creek and Slate Creek smolt production were spawned by SFH personnel. There were 339,090 smolts released into Pond Series 1 and 4 in Yankee Fork, 54,640 smolts into Valley Creek, and 100,392 smolts into Slate Creek for a total of 494,122 smolts released into the three tributaries. Initial estimates of juvenile survival and migration timing through the hydrosystems were conducted by monitoring PIT tags and using the SURPH model. Additional evaluations will be conducted once trapping is initiated in Yankee Fork and parentage analysis is completed.

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

Administration

We responded to eleven requests from outside research and management agencies for assistance or coordination with proposed or ongoing research projects involving spring Chinook salmon at Dworshak NFH or summer steelhead at Hagerman NFH. Three requests were to continue ongoing projects and eight were for new projects. Only one of the new requests was denied.

The Clearwater AOP was successfully developed and coordinated with all the participating agencies in the basin. We cooperated in the development of the Salmon River AOP.

We led the coordination of the LSRCP steelhead M&E biologists to develop and implement a PIT tagging program to evaluate LSRCP steelhead adult returns. This program includes all the LSRCP cooperating agencies and tribes to cover all LSRCP steelhead programs.

We provided assistance in the on-going US v. Oregon negotiations which are seeking to reach an agreement by December, 2008. This included technical assistance and recommendations for steelhead and spring and fall Chinook programs funded by the LSRCP.

We conducted sampling for New Zealand Mud Snails at established monitoring sites in the Clearwater and Salmon rivers in September. No NZMS were collected in either basin.

Fish Culture and Production

The BY07 adult return forecast was estimated to be 1,641 to the rack at Dworshak NFH. The total rack return was 2,110, slightly greater than was estimated. All adults were inventoried for length, sex, marks, and tags. Data were used to document run timing, age composition of returning adults. We coordinated with the Nez Perce Tribe and Idaho Department of Fish and Game for the use of excess brood stock.

Releases of spring Chinook salmon at Dworshak NFH were timed with optimum environmental conditions and were coordinated with the Nez Perce Tribe, the IDFG, and the Fish Passage Center. Information on the distribution and release of summer steelhead from Hageman NFH were submitted to the Lower Columbia River Fisheries Program Office.

We completed the final report for the Production Capacity Assessment Project at Hagerman NFH and developed a proposal to continue various aspects of the project involving adult returns for the next several years.

We designed, implemented and completed a project to evaluate various starter feeds for spring Chinook salmon at Kooskia and Dworshak NFHs. The project at Dworshak NFH was discontinued before the end of the project based on recommendations from Abernathy.

Catch Accounting

For BY06, a total of 120,000 spring Chinook salmon were coded wire tagged to monitor contributions of regular production groups to fisheries in the ocean and downriver fisheries.

Estimating Project Area Escapement

The total adult return for BY07 spring Chinook salmon at Dworshak NFH has not been completely estimated. The rack return numbers have been completed, but data on sport and Tribal harvest has not been obtained. Estimated completion of this activity is January 2008.

Electronic Database Systems

Requirements for reporting and submitting coded-wire tag information to PSMFC for BY05 and BY06 spring Chinook Salmon at Dworshak NFH were met. Data on the adult returns of spring Chinook salmon to Dworshak NFH during the spring of 07 have been incorporated into on-station databases.

Peer Review, Biometric Review, Analysis, and Reporting

We completed the summary report for the 2006 adult spring Chinook salmon returns to Dworshak NFH.

Washington Department of Fish and Wildlife

Washington's Evaluation staff actively pursued evaluation studies for all three anadromous species reared as part of the LSRCP program in Washington. These studies covered a broad range of hatchery and field based activities, including: coded wire and PIT tag studies of both hatchery and wild origin smolts, spawning ground surveys, creel surveys, PIT tag monitoring in returning adult salmon and steelhead, escapement estimations and development of new statistical data management approaches to improve data accuracy and precision, and extensive data analysis and report writing. Summaries of species-specific activities during 2007 are provided below.

Fall Chinook Activities

Estimates of Snake River fall Chinook (hatchery and wild) escaping to above Lower Granite Dam (run reconstruction) are used in US-Canada discussions to set commercial fisheries. Run reconstruction has become increasingly difficult because of the complex hatchery fish marking strategy agreed upon by the co-managers, and steadily rising returns of hatchery and wild fish. This strategy allows for releases of marked and unmarked hatchery fish, making it difficult to distinguish them from wild fish upon return. WDFW and Nez Perce Tribe evaluation staffs, with funds from LSRCP and the Pacific Salmon Commission , have devised and implemented systematic sampling protocols for fall Chinook at Lower Granite Dam. We then worked with a statistician from the University of Idaho to refine the statistical analysis of mark and tag data recovered during the trapping/spawning season, resulting in more accurate estimates of returns of hatchery release groups, with 95% confidence intervals around those estimates. A published article describing the methodology is expected to follow.

WDFW staff proposed expanded PIT tagging of hatchery-site yearling and subyearling releases. Because of inconsistent trapping at the hatchery site from year-to- year, estimates of returns of adults from those releases have been incomplete. By using PIT tags, an estimate of returns to the Snake River can by made from detections at Lower river dams, regardless of trapping actions at the hatchery. This approach for on-site releases will be evaluated for 3-5 years.

Spring Chinook Activities

Captive broodstock have been used for the last several years to improve adult returns to the Tucannon. Despite intensive efforts by hatchery staff to rear and release high quality captive brood origin spring Chinook smolts, adult returns have been extremely poor. The captive brood program is scheduled for discontinuation after 2008.

Returns of adult Chinook to the Tucannon River from traditional broodstock (50% hatchery/wild each) have also been below expectations. A new rearing strategy and evaluation study were begun in 2007 comparing performance and returns from smolts reared larger than standard size. Results are expected in 3-5 years.

Steelhead Activities

Endemic steelhead have been identified in NOAA Biological Opinions as a necessary improvement in Washington's steelhead program to decrease the impacts of hatchery steelhead

on ESA listed populations. Evaluations of the Touchet and Tucannon programs continued in 2007 with greater numbers of adult returns than in previous years. SARs for these groups are now approaching the 0.5% LSRCP goal, but remain much less than traditional hatchery stock returns.

We conducted a spawning study on hatchery steelhead returning to the Cottonwood acclimation pond in spring 2007. Partially spawned females were tagged and released to spawn naturally and their success was measured by recovering carcasses and excavating their redds to assess their ability to spawn after being stressed by partial spawning. Success was documented, but the study must be repeated in 2008 to increase sample size. This may be a critical method to increase effective population size when developing endemic brood programs from limited numbers of fish.

The first returns from PIT tag studies for endemic and hatchery steelhead releases were tracked in 2007. PIT tag detections provided excellent tracking of returns through the downriver dams. Plans for expanded PIT tagging of steelhead groups were finalized and will provide time sensitive results. The accuracy and cost effectiveness, when compared with more traditional CWT recovery programs, will be evaluated.

Standardization of data collection and estimation procedures for population estimates, spawning ground surveys and CWT recovery and expansion were a priority for the year. These actions will ensure comparability of population and hatchery performance results over the history of evaluations in Washington, as well as improve comparability with other evaluation programs.

An LSRCP annual report and one technical manuscript were completed in 2007. The 2005 Fall Chinook Annual report was completed and the 2006 report drafted. An LSRCP annual report, and a progress report on the Captive Broodstock program to BPA were completed in 2007.

FISH AND WILDLIFE SERVICE COOPERATIVE PROGRAMS

The LSRCP Office obligated approximately $130,000 to two other FWS programs which helped the LSRCP Program with its mission. The FWS's Columbia River Fisheries Program Office provided their assistance to the LSRCP Office on regional issues, particularly with regard to those relating to the CRFMP renegotiations and regional biological opinions. The Abernathy Salmon Technology Center assists the LSRCP Program on regional planning, hatchery evaluations, proximate analysis of feed, and genetic conservation issues.

OTHER COOPERATIVE PROGRAMS

The LSRCP Office works closely with all our cooperators to ensure that our programs compliment and sometimes supplement other anadromous fish programs they might be involved in. For example, the SBT, NPT, CTUIR, ODFW, WDFW, and IDFG have BPA-funded Fish and Wildlife Program projects which must be closely integrated with LSRCP programs because of joint use of facilities (rearing space), people, and equipment. These include captive brood and rearing programs; the Grande Ronde endemic stock programs in Oregon; the Umatilla Hatchery; the Nez Perce Tribal Hatchery; the NPT’s Johnson Creek summer Chinook program; the Idaho

Supplementation Studies; and the Redfish Lake sockeye salmon propagation program. The complexity of integrating these types of programs is becoming more and more difficult.

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

LSRCP OFFICE

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AVAILABLE REPORTS

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

APPENDIX A: Summary of all production from LSRCP facilities in FY2007

FACILITY	SPECIES	STOCK	LIFE STAGE	BROOD YEAR	SIZE (FPP)	NUMBER RELEASED
McCall	SUCHK	South Fork Salmon	Smolt	2005	19.1	1,087,170
Sawtooth	SPCHK	Sawtooth	Smolt	2005	17.2	995,262
Dworshak	SPCHK	Dworshak	Smolt	2005	17.7	963,211
Clearwater - Powell	SPCHK	Powell	Pre-smolt	2005	25.4	374,129
Clearwater - Red River	SPCHK	SF Clearwater	Pre-smolt	2005	26.7	375,885
Clearwater - Up Crooked	SPCHK	SF Clearwater	Pre-smolt	2005	24.7	127,909
Clearwater - Low Crooked	SPCHK	SF Clearwater	Pre-smolt	2005	24.7	523,414
Clearwater – Selway	SPCHK	Selway	Pre-smolt	2005	23.4	269,525
Clearwater – Powell	SPCHK	Powell	Smolt	2005	15.4	373,977
Clearwater - Red River	SPCHK	SF Clearwater	Smolt	2005	15.4	375,759
Clearwater - Up Crooked	SPCHK	SF Clearwater	Smolt	2005	16.0	133,829
Clearwater - Low Crooked	SPCHK	SF Clearwater	Smolt	2005	16.0	517,092
Clearwater - Selway	SPCHK	SF Clearwater	Smolt	2005	15.4	269,349
Clearwater - Powell	SPCHK	Powell	Pre-smolt	2006	19.3	384,520
Clearwater - Red River	SPCHK	SF Clearwater	Pre-smolt	2006	23.0	122,326
Lookingglass	SPCHK	Catherine Ck Captive	Smolt	2005	25.9	21,584
Lookingglass	SPCHK	Catherine Ck Conv.	Smolt	2005	27.3	49,696
Lookingglass	SPCHK	Lostine Captive	Smolt	2005	23.3	24,629
Lookingglass	SPCHK	Lostine Conv.	Smolt	2005	21.5	205,518
Lookingglass	SPCHK	Up Grande Ronde Cap	Smolt	2005	23.2	20,620
Lookingglass	SPCHK	Up Grande Ronde Conv	Smolt	2005	21.6	118,840
Lookingglass	SPCHK	Imnaha	Smolt	2005	21.6	432,530
Lyons Ferry	SPCHK	Tucannon - Conv.	Smolt	2005	8.0	149,466
Lyons Ferry	SPCHK	Tucannon – Captive	Smolt	2005	7.4	90,056
Magic	STL	Dworshak B	Smolt	2006	4.4	614,383
Magic	STL	Upper Salmon B	Smolt	2006	4.6	127,266
Magic	STL	East Fork Nat	Smolt	2006	4.2	50,592
Magic	STL	Pahsimeroi A	Smolt	2006	4.2	536,450
Magic	STL	Sawtooth A	Smolt	2006	4.3	338,094
Hagerman	STL	Sawtooth A	Smolt	2006	4.3	1,069,219
Hagerman	STL	Pahsimeroi	Smolt	2006	4.5	197,129
Hagerman	STL	Dworshak B	Smolt	2006	4.6	195,073
Clearwater	STL	Dworshak B	Smolt	2006	5.3	871,086
Irrigon	STL	Imnaha	Smolt	2006	4.4	100,038
Little Sheep	STL	Imnaha	Smolt	2006	4.6	158,103
Little Sheep	STL	Imnaha - residuals	Smolt	2006	4.6	9,701
Wallowa	STL	Wallowa	Smolt	2006	4.0	479,123
Big Canyon	STL	Wallowa	Smolt	2006	4.1	322,368
Cottonwood	STL	Wallowa	Smolt	2006	4.7	159,242
Lyons Ferry	STL	Lyons Ferry	Smolt	2006	4.4	341,424
Lyons Ferry	STL	Tucannon Endemic	Smolt	2006	4.4	62,940
Lyons Ferry	STL	Touchet Endemic	Smolt	2006	4.4	58,989
Sawtooth - SBT egg box	STL	Sawtooth A	egg	2007	n/a	497,380
Sawtooth - SBT egg box	STL	Pahsimeroi	egg	2007	n/a	75,000

Lyons Ferry - Direct Rel	FACHK	Snake River	Yearling	2005		
Lyons Ferry - Acclimation	FACHK	Snake River	Yearling	2005	11.7	470,459
Lyons Ferry - Direct Rel	FACHK	Snake River	Sub-year	2006		
Lyons Ferry	RBT		Catchable	2006	2.9	219,254
Lyons Ferry	RBT		Fry	2007	496.0	21,229
Lyons Ferry - (to Idaho)	RBT		Fingerling	2007	58.8	170,125
Lyons Ferry - (to Idaho)	RBT		Catchable	2006	13.2	54,324
					TOTAL	15,205,287

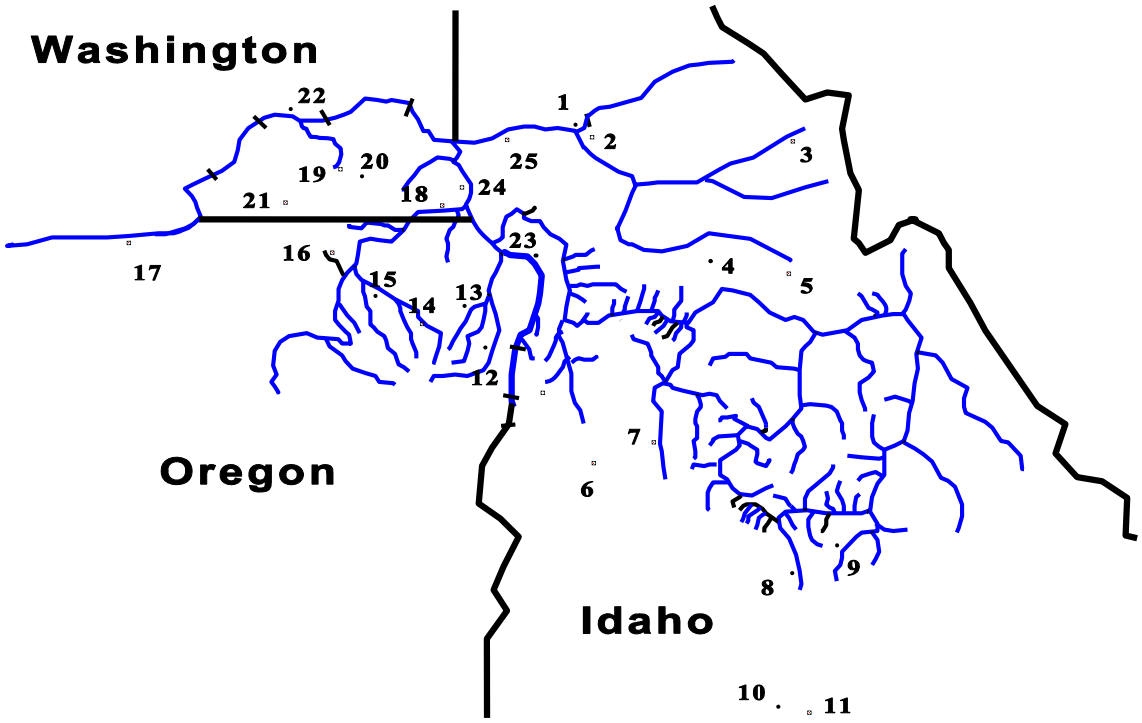
APPENDIX B: Summary of all trapped at LSRCP facilities in FY2007

FACILITY	SPECIES	MALE (NON-JACK)	FEMALE	JACK	NUMBER
South Fork Salmon	SUCHK	1,152	1,031	1,562	3,745
Sawtooth Hatchery	SPCHK	167	139	1,282	1,588
Dworshak	SPCHK	737	671	702	2,110
Red River/Crooked R.	SPCHK	242	319	350	911
Powell	SPCHK	406	565	279	1,250
Imnaha	SPCHK	465	349	517	1,331
Lookingglass Creek	SPCHK	54	67	66	187
Lyons Ferry	SPCHK	65	86	73	224
Sawtooth Hatchery	STL	2,135	1,904	n/a	4,039
East Fork	STL	75	91	n/a	166
Squaw Creek	STL	26	26	n/a	52
Little Sheep	STL	764	948	n/a	1,712
Wallowa	STL	1,402	1,435	n/a	2,837
Big Canyon	STL	351	464	n/a	815
Cottonwood Creek	STL	245	313	n/a	558
Lyons Ferry	STL	790	914	n/a	1,704
Dayton Trap	STL	65	152	n/a	217
Tucannon Trap (Lower River)	STL	81	64	n/a	145
Lyons Ferry	FACHK	1,154	563	10293	12,010
	TOTALS	10,376	10,101	15,124	35,601

APPENDIX C: Summary of egg collection activities at LSRCP facilities in FY2007.

FACILITY	SPECIES	STOCK	MALES SPAWNED	FEMALES SPAWNED	GREEN EGGS COLLECTED	FECUNDITY
South Fork Salmon	SUCHK	South Fork Salmon	711	335	1,440,000	4,299
Sawtooth	SPCHK	Sawtooth	83	72	376,639	5,231
Dworshak	SPCHK	Dworshak	392	342	1,455,383	4,256
Powell	SPCHK	Powell	545	526	2,000,753	3,804
Clearwater Hatch	SPCHK	South Fork Clearwater	334	142	514,694	3,625
Lookingglass	SPCHK	Catherine Creek	29	45	171,065	3,801
Lookingglass	SPCHK	Lostine	44	60	267,360	4,456
Lookingglass	SPCHK	Up Grande Ronde	26	32	122,752	3,836
Lookingglass	SPCHK	Imnaha	107	94	408,397	4,345
Lookingglass	SPCHK	Lookingglass Creek	41	22	68,055	3,093
Lyons Ferry Hatch	SPCHK	Tucannon	46	36	124,543	3,460
Sawtooth	STL	Sawtooth	526	526	2,530,006	4,810
East Fork	STL	East Fork Natural	57	46	251,181	5,460
Squaw Creek	STL	Squaw Creek B	17	21	143,521	6,834
Little Sheep	STL	Imnaha	79	79	397,990	5,038
Wallowa	STL	Wallowa	216	217	1,177,850	5,428
Cottonwood Creek	STL	Wallowa	97	106	265,538	2,505
Lyons Ferry Hatch	STL	Lyons Ferry	245	123	556,683	4,526
Lyons Ferry Hatch	STL	Touchet Endemic	17	16	73,101	4,569
Lyons Ferry Hatch	STL	Tucannon Endemic	12	13	64,129	4,933
Lyons Ferry Hatch	FACHK	Snake River	781	786	2,819,004	3,587
		TOTALS	4405	3639	15,228,644	

APPENDIX D: LOWER SNAKE RIVER COMPENSATION FACILITIES MAP



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

Nez Perce Tribe
23. Pittsburg Landing SF
24. Captain Johns SF
25. Big Canyon SF

Fish and Wildlife Service
2. Dworshak NFH Expansion
10. Hagerman NFH

Oregon Department of Fish and Wildlife
12. Imnaha SF
13. Little Sheep Creek SF
14. Wallowa FH SF
15. Big Canyon SF
16. Lookingglass FH
17. Irrigon FH

Washington Department of Fish and Wildlife
18. Cottonwood Creek SF
19. Tucannon FH SF
20. Curl Lake SF
21. Dayton Pond SF
22. Lyons Ferry FH (salmon and trout)