Washington State Department of Fish and Wildlife

LFH Complex
Annual Operation Report

October 1, 2004 thru September 30, 2005

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Administered by United States Fish & Wildlife Service

Operated by Washington State Department of Fish and Wildlife

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Fish Health by
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TABLE OF CONTENTS

LIST OF TABLES

TFH
Attachment 1

LFH
Attachment 2

FISH HEALTH

INTRODUCTION

Washington Department of Fish and Wildlife (WDFW) operates Lyons Ferry Complex (LFC). Funding is provided by Bonneville Power Administration through the Lower Snake River Compensation Program (LSRCP), which is administered by United States Fish & Wildlife Service. The LFC staff includes 16 permanent employees plus seasonal workers. A staff of 8-10 permanent and seasonal biologists and technicians conduct evaluations for each anadromous species produced within LFC.

The program was established as compensation for lost fish resources and fisheries resulting from construction and operation of hydroelectric projects in the Snake River. The LSRCP in Washington has programs for spring Chinook, fall Chinook, summer steelhead and resident trout. Both operational and evaluation costs are covered by the LSRCP. LFC presently rears fish for release into both Washington and Idaho waters. In addition, LFH (LFH) provides significant numbers of fall Chinook sub-yearling and yearling fish to Nez Perce Tribal (NPT) facilities. Eyed fall Chinook eggs are provided to Idaho Power Company to assist them in meeting their mitigation obligation.

Fish production began at LFH in the spring of 1982 with Wallowa summer steelhead yearlings transferred into LFH from Tucannon Fish Hatchery (TFH). These fish were held in raceways for several weeks and 27,940 were released on-site and 35,155 were released into the Grande Ronde River that spring. Phase I construction of trout facilities at the LFH site was completed in November 1983. Phase II construction of salmon facilities and steelhead acclimation facilities was completed in November 1984. Since inception, production has been directed toward meeting established Lower Snake River Compensation Plan (LSRCP) goals of returning 18,300 adult fall Chinook, 1,152 adult Tucannon River spring Chinook, 4,656 adult summer steelhead, and providing 67,500 angler days of fishing opportunity from 84,000 pounds of rainbow trout.

FACILITIES

The LFC includes LFH, TFH, Cottonwood Acclimation Facility (Cottonwood AF), Dayton Acclimation Facility (Dayton AF), and Curl Lake Acclimation Pond (Curl Lake AP). LFH is located along the Snake River at river mile 59.1, directly below the confluence of the Palouse River in Franklin County, Washington. TFH is located along the Tucannon River at river mile 36 in Columbia County, Washington. Dayton AF is located along the Touchet River at river mile 53 in Columbia County, Washington. Currently, there is an adult trapping facility on the Touchet River just upstream of Dayton AF at river mile 53.3. Cottonwood Creek AF is located along the Grande Ronde River at river mile 28.7 directly above the confluence with Cottonwood Creek in Asotin County, Washington. Currently, there is an adult trapping facility on Cottonwood Creek at river mile 0.25. Curl Lake AP is located along the Tucannon River at river mile 41 in Columbia County, Washington.

The facilities at LFH include two incubation buildings with office space and feed storage plus adult fish trapping, holding and spawning facilities. There are eight residences for staff on site to fulfill security and emergency response duties.

The LFH rearing facilities include twenty-eight raceways at 10 ft x 100 ft x 2.8 ft covered by 2" bird predation netting (added in 2005), nineteen uncovered raceways at 10 ft x 88.5 ft x 3.5 ft, and three rearing lakes covered in 4" bird predation netting (added in 2003-04), holding ~ 590,000 cubic feet (ft^3) of water each, approximately 1,100 ft x 90 ft x 10 ft in size. Netting has been added to these lakes and raceways to reduce predation losses. The north raceways, currently not covered, will probably be netted in the future, if bird predation becomes a problem there. The adult holding facilities include three 83 ft x 10 ft x 5 ft adult raceways with housed spawning facilities incorporated over the center of these ponds, two 18 ft x 150 ft x 4.3 ft and two 21 ft x 150 ft x 4.3 ft adult salmon holding ponds, which also accommodate sub-yearling rearing when not needed for adult holding in the spring of the year. In 2005, channels were cut into two of these ponds, allowing staff to divide the ponds for marking and tagging. In addition, eight 20 ft x 4 ft fiberglass circular ponds and fifteen 4 ft x 1.6 ft fiberglass circular ponds are used for a captive brood spring Chinook program. These ponds were added in 1998. The incubation facilities include 112 full stacks (2 units of 8 trays each) of vertical incubators, 24 shallow eyeing/hatching troughs, 64 hatching troughs and four 3.75 ft x 27.5 ft x 2 ft intermediate rearing troughs. Water is supplied to LFH from the Marmes pump station, which has emergency power backup generation. The Marmes pump (wells) facility has three 300 horsepower (hp) pumps, four 200 hp pumps and one 75 hp pump. The well water right for LFH is 53,200 gallons per minute (gpm), or 118.5 cubic feet per second (cfs) of flow, and water temperature is a constant 51^o F.

The TFH is located 23 miles up the Tucannon River Road from highway 12, between the towns of Dayton and Pomeroy Washington. Fish production began in 1949 with Department of Game. In 1983, phase I design started to remodel the hatchery as established by the Lower Snake River Compensation Plan (LSRCP). In November 1984 phase II construction of the facility was completed.

The TFH includes a combined incubation / office, back-up power generation, feed storage, shop, domestic water, and well / spring buildings. There are two residences for staff on site to fulfill security and emergency response duties.

The TFH is supplied with three different water sources. River water is fed from the Tucannon River, and ranges in temperature from 34 to 56 ^{o} F, during use by the hatchery. The intake is located one half mile upstream of the hatchery. This water travels down an open channel into Rainbow Lake. From the outlet of Rainbow Lake the water travels through an 18" above ground pipeline to the hatchery. Rainbow Lake functions as a reservoir to provide the hatchery with cooler water in the summer months and warmer water in the winter months. It also provides a pool of water to draw from when encountering adverse intake conditions, resulting in temporary loss of water flows. The water right for this source is 12 cfs. Well water is pumped from two separate sources to an aeration tower, then gravity fed to the rearing units and the domestic pump house. The combined well water right is 2 cfs, with well #1 running a constant 59^o F and well #3 running a constant 61^o F. Spring

water is pumped from an underground collection site to an aerator and gravity fed to rearing units. The water right for this source is 5.3 cfs, and has a stable temperature of 51 or 52^{o} F. The rearing vessels at TFH include forty concrete 1 ft x 15 ft shallow troughs with a maximum of 7.5 cu ft of rearing area each, six concrete 40 ft round ponds with a maximum of 2,660 ft^{3} of rearing area each, two concrete 10 ft x 80 ft x 3 ft raceways with a maximum of 2,400 ft^{3} of rearing area each, one concrete 15 ft x 136 ft raceway with a maximum of 11,730 ft^{3}, and one earthen rearing pond with a maximum of 318,920 ft^{3}.

Construction of the Dayton AF was completed in October 1986. Dayton AF is asphalt lined and holds ~ 200,000 cu. ft. of water. The water right to this pond is 2,694 gpm (6 cfs) for the period Jan 1st – May 15th of each year. It is supplied with water from the Touchet River through a gravity water supply system with the intake located at the temporary adult trapping facility just upstream of the pond. Water temperatures during use by hatchery staff for steelhead acclimation range from 34 to 52^{o} F. The pond is located adjacent to the Dayton Evaluation Lab office and has a storage garage for equipment and feed. It also has a small trailer for use by staff, which are on-site at all times while the pond is in operation. It is presently used for acclimation and release of Lyons Ferry summer steelhead into the Touchet River.

Construction of Cottonwood AF was completed in February 1985. Cottonwood AF has a concrete bottom with gravel walls and holds ~357,000 cu ft of water. It has a water right of 2,694 gpm (6 cfs) for the period January 1st through July 1st. It is supplied with water from Cottonwood Creek through a gravity water supply system with the intake integrated into the adult trapping facility located ~ 0.25 miles above the pond. Water temperatures range from 34 to 52^{o} F during operation of the facility. It also has a small trailer for use by staff that are on-site at all times while the pond is in operation. It is presently used for acclimation and release of Wallowa summer steelhead into the Grande Ronde River.

The construction of Curl AP was completed in February 1985. Curl AP is an earthen pond and holds ~ 784,000 cu ft of water. It has a water right of 2,694 gpm (6 cfs). It is supplied with water from the Tucannon River through a gravity water supply system. It is currently utilized for acclimation of spring Chinook yearlings for release into the Tucannon River. Water temperatures at this time of year range from 38 to 48 ^{o} F. Chinook acclimation in Curl Lake started in 1997. After the spring Chinook are released, the pond is used for resident trout fishing.

SPRING CHINOOK

Two Tucannon spring Chinook programs are currently in operation at LFC. Up to 100 adult Chinook (50 hatchery: 50 wild) are trapped from the Tucannon River for broodstock as part of the LSRCP supplementation program. Adults are held at LFH to reduce pre-spawning mortality. All fish are spawned, producing approximately 165,000 green eggs, which provide for the release of 132,000 yearling smolts with a maximum release of 150,000 yearling smolts. A captive brood program was initiated to aid in the recovery of Tucannon spring Chinook. Small distinct family groups were selected from the supplementation

program fish and are being held as part of the captive brood population. At full production the captive brood program is designed to annually produce 150 spawning females, which will provide an estimated 294,000 eggs (150,000 smolt goal annually). Fish over and above the maximum release goals for either of these two programs may be released as parr. Adult out-plants may be utilized in the captive broodstock program to keep within egg-take goals but release of marked parr will be given priority if rearing space at LFH permits. The captive brood program is funded directly by BPA, and is being phased out (2006 will be the last spawn of captive brood adults). Conventional production is scheduled to increase to a 225,000 yearling release with the 2006 or 2007 brood year returning adults, pending sufficient broodstock (the 2005-2007 Interim Management Agreement provides for 225,000 smolts). Yearling program fish are reared into the fall at LFH. They are then marked and transferred to TFH. They are reared at TFH during the winter due to the high probability of Curl Lake and its river intake freezing over. During early spring the yearling fish are transferred to Curl Lake for final acclimation and volitional release.

2004 Brood Year

The 2004 captive brood and hatchery x wild cross Tucannon spring Chinook were ponded and started feeding in December 2004. These yearling fish were reared in raceways at LFH and were marked starting in early September 2005. The captive brood and mixed (hatchery x wild) yearlings were transferred from LFH to TFH in October 2005. These fish will be transferred to Curl Lake AF in February 2006.

2005 Brood Year

The 2005 brood Tucannon spring Chinook adults arrived at the Rainbow Lake Trap between May and September of 2005. See adult collection tables 8 & 9 for adult collection. See tables 13,14, and 15 for adult spawning and table 10 for egg take information.

FALL CHINOOK

The LFH fall Chinook program is presently below its LSRCP adult mitigation goal. LFH origin fall Chinook that return to the hatchery are used for broodstock. Additionally, some LFH origin fall Chinook captured at Lower Granite Dam are transported to LFH for spawning in accordance with an agreement under the Columbia River Fish Management Plan. Annual adjustments to the agreement are expected. The program has expanded to provide sub-yearlings and yearlings for Nez Perce Tribal facilities, and eyed eggs to Idaho Power Company to allow them to fulfill their mitigation obligation. Assuming a fecundity of 3,500 eggs/female, ~1,400 females are needed to provide the 4.9 million eggs for the production programs.

Rearing density reductions occurred for the 2002 brood year sub-yearlings. Modification of the four adult salmon holding ponds allowed for rearing of sub-yearling Chinook in those ponds, providing for a Density Index target of 0.1 or less. The purpose of this change is to reduce or eliminate the occurrence of Bacterial Gill Disease (BGD), which has been a

continual problem with the expansion of the fall Chinook program to provide sub-yearling and yearling fish to Nez Perce Tribal acclimation facilities. Bird predation in the rearing lakes and raceways has been reduced due to installation of predation netting.

2004 Brood Year

The 2004 brood Snake River fall Chinook were ponded and started feeding in January 2005. The NPT acclimation facilities received 1,199,690 sub-yearlings in May 2005. The LFH released 1,116,855 sub-yearlings in June 2005. The yearling program fish were reared in raceways through the summer. The NPT acclimation yearlings and LFH yearlings were marked during the fall of 2005. The NPT fish will be kept in raceways until they are transferred to their acclimation facilities in Feb/March 2006. The yearlings at LFH will be released in the spring of 2006 directly from rearing lake 2. See Plants and Transfers Table 8.

Bacterial Gill Disease was a very minor problem with this brood of fall Chinook in the spring of 2005 compared to past years. Elimination of excessive raceway loadings by using the adult ponds for rearing (reducing densities across the program) has contributed to these results.

2005 Brood Year

Snake River fall Chinook trapping started at Lower Granite Dam and LFH in September 2005. See adult collection and spawning tables 11 and 12 for adult numbers during this reporting period.

SUMMER STEELHEAD

LFC currently uses three stocks of steelhead in the Snake River Basin (LFH, Tucannon, and Wallowa), and two stocks in the Walla Walla Basin (Touchet and LFH). All of these stocks are collected from a variety of traps located throughout SE Washington.

The LFH stock are trapped on-station at LFH from volunteers which enter between September and November. The Trapping of Wallowa stock occurs on Cottonwood Creek (small tributary to the Grande Ronde River). Cottonwood Creek supplies water to the Cottonwood AF, and large numbers of hatchery adults return every year to the creek. A small trapping structure was installed in 1992 to capture returning adults for broodstock. Trapping of the Tucannon River Endemic Stock begins in September at a temporary weir/trap that is set up annually in the lower Tucannon River (river mile 10.6). The trap is run intermittently until April, when high stream flows usually disable the trap. Broodstock collections take place over the entire trapping period. Trapping of Touchet River Endemic stock begins in February at the Dayton adult trap and typically ends in May. The Dayton adult trap was constructed with minor modifications to the water intake structure for the Dayton AF.

The National Marine Fisheries Service's 1999 Biological Opinion ruled that continued use of LFH and Wallowa steelhead stocks constituted jeopardy to listed steelhead populations in the Snake and Columbia Rivers. Concerns about within and out-of-basin straying, and swamping of natural populations by the hatchery stocks, led NMFS to propose the development of endemic broodstocks where possible, and eventual elimination of non-endemic stocks. Following that ruling, WDFW and the co-managers were responsive to the BIOP by initiating endemic broodstock programs in the Tucannon and Touchet rivers, and have since followed with a decrease in production of the LFH and Wallowa stocks.

Prior to any of the endemic steelhead being collected for broodstock, WDFW and the co-managers decided that the endemic programs should be tested and evaluated for 5-years at a minimum production level (50,000 smolts annually), before abandoning the LFH or Wallowa stocks from hatchery production, or increasing the production of endemic stocks. Each endemic broodstock program began with the 2000 BY, with the original goal to collected 16 pairs for spawning. Adjustments have been made to the broodstock collections because fecundity estimates and in-hatchery survival were greater than expected.

Lyons Ferry Stock

During August and September, fish are adipose fin clipped and transferred to rearing lake 1 at LFH. A release goal of 345,000 smolts is the program for the 2004 & 2005 brood year smolts. Following is the release goal for each release location in 2004 and 2005: 85,000 from the Dayton AF into the Touchet River, 100,000 direct release into the Tucannon River, 100,000 direct release into the Walla Walla River, and 60,000 on-site release at LFH. During December each year, about 85,000 are transferred from Lake 1 to four raceways for additional marking. In January, ~20,000 fish programmed for transfer to the Dayton AF received a coded wire tag (CWT) and left ventral fin clip (LV). The Tucannon mark group, ~20,000 fish, received CWT +LV marks. The LFH release marked group, ~20,000 fish, received CWT+LV marks. The Walla Walla River mark group, ~20,000 fish, received a CWT+LV mark.

In February of each year Lyons Ferry summer steelhead are transferred to Dayton AP. These fish are acclimated on Touchet River water. The discharge outlet screens are removed on April 1st and the fish are volitional released through April 20$^{th.}$ After that date, feeding is discontinued and the pond level slowly lowered until the pond is completely drained on April 30th

2005 Brood Year

There were 566,878 brood year 2005 Lyons Ferry summer steelhead eggs taken. See adult collection and spawning table 17 and egg take table 10 for 2005 brood adult collection and spawned numbers. The yearling fish were reared into August in the raceways and were then adipose fin clipped and transferred to rearing lake 1.

2006 Brood Year

Brood collection of 2006 brood Lyons Ferry summer steelhead started in September 2005. See Table 20 for adult collection numbers during this reporting period.

Wallowa Stock

In August and September these fish are adipose fin clipped and transferred into rearing lake 3. In December, ~ 50,000 fish are removed from lake 3 and split between two raceways. During January, ~ 42,000 of these fish will receive a CWT. During February Wallowa stock are transferred to Cottonwood AP. Transfer dates can vary due snow conditions. The discharge outlet screens are removed on April 1st and the fish are volitionally released through April 20th. After that date, feeding is discontinued and the pond level slowly lowered until completely drained on April 30th.

2004 Brood Year

There were 150,442 yearling 2004 brood Wallowa summer steelhead released into the Grande Ronde River in April of 2005. See Table 8.

2005 Brood Year

There were 282,675 eggs taken in April from brood year 2005 Wallowa summer steelhead adults. See table 10 for more egg take information. They will be reared in raceways until they are adipose fin clipped in August and September and moved into rearing lake 3.

Tucannon Stock

All Tucannon River endemic stock steelhead are reared in standard raceways at LFH. These fish are CWT + VI tagged in January. In mid-February the fish are transferred to TFH and placed into the large acclimation raceway (formerly used for spring Chinook holding and acclimation). They are then released into the Tucannon River near Curl Lake during early April. PIT tags are inserted into VI tagged fish captured at the smolt trap to monitor out-migration, and for comparison of within-year variation of migration performance among release groups. They are also being compared to natural origin smolts captured in the smolt trap.

2004 Brood Year

In April 2005 there were 61,238 yearlings at 4.8 fpp planted into the Tucannon River above the Curl Lake intake. See table 1 for additional release information.

2005 Brood Year

The 2005 brood Tucannon wild steelhead adults were captured at the Ducharme Trap (river mile 11.0) in the lower Tucannon River for spawning use. 77,131 eggs were obtained using

14 wild females and 27 wild males. See table 19 for more adult collection and spawning information and table 10 for additional egg information. See Tables 5 & 6 for rack counts of fish handled at the Rainbow Lake Trap.

Touchet Stock

All Touchet River Endemic stock are reared in standard raceways at LFH. These fish are all CWT+VI tagged in January. They were direct stream released in late April / early May into the upper basin above the WDFW trap on the Touchet River. PIT tags to monitor out-migration and for comparison of within-year variation of migration performance between release groups are inserted before the groups are released.

2004 Brood Year

In April 2005, 55,706 yearlings at 5.4 fpp were released into the Touchet River at river mile 57.2. See table 8 for more information on this release.

2005 Brood Year

There were 78,813 eggs obtained using 14 wild females and 27 wild males. See tables 10 and 18 for spawning and egg information. These fish started feeding in shallow troughs, were transferred to intermediate troughs where they were reared into September, and then were transferred to a raceway. They will be reared until release in a raceway and will be planted in May of 2006 into the Touchet River.

RESIDENT FISH

Rainbow trout are reared to fulfill the resident fishing opportunity mitigation under LSRCP. Eggs are obtained from WDFW's Spokane Hatchery (Spokane stock) and from Idaho Fish and Game's (IDFG) Hayspur Hatchery (Kamloops stock). The production goal is 237,500 yearlings and 160,000 sub-yearling Spokane rainbow, and 50,000 fingerling Kamloops (triploid) rainbow. This requires 500,000 eyed Spokane stock rainbow trout eggs for the Washington program, and 70,000 triploid eyed Kamloops stock eggs (provided by IDFG) to meet part of the LSRCP mitigation requirement within Idaho. IDFG prefer to use Kamloops for certain releases because of a survival advantage over the Spokane stock when released into the Clearwater and Salmon Rivers. A small State funded program at TFH utilizes Spokane stock rainbow reared to1½ lbs each to provide a unique fishing opportunity in local lakes. Resident brood year 2003 and 2004 Spokane rainbow and Kamloops rainbow plants and transfers are listed on table 1 for TFH and table 8 for LFH.

FISH HEALTH

The following section is a summary of fish health activities for the LFC for October 1, 2004 to September 30, 2005. Adult sampling for viral and bacterial pathogens and fish health inspections are included.

Major fish health problems at LFH were historically bacterial gill disease (BGD) in yearling fall Chinook, and bacterial coldwater disease (BCWD) in rainbow trout and steelhead. At TFH, BCWD in rainbow trout was the single fish disease issue. The only fish health concern at the acclimation sites was BGD in Wallowa steelhead smolts at the Cottonwood AF.

Preventative fish health management was employed with BGD, bacterial kidney disease (BKD) and infectious hematopoietic necrosis (IHN). With BGD in sub-yearling fall Chinook, low rearing densities were followed. BKD preventive measures for Chinook included erythromycin injection of female brood fish, screening and segregation of progeny, low rearing densities, and feeding of erythromycin medicated rations. With IHN in steelhead, female brood fish were screened and segregation and destruction of infected progeny was employed.

Lyons Ferry Hatchery

Lyons Ferry Fall Chinook

Adults - 2004 Spawning

At spawning, samples are collected for viral and BKD-ELISA testing. Only female fall Chinook from the second, third, fourth and fifth spawning week were sampled for BKD-ELISA testing. No viral pathogens were detected (Table 22).

BKD prevalence was low with 98.3% Below-Low females (Table 23). Progeny of Below-Low BKD females were selected for the yearling programs. Progeny of all other females were utilized in the sub-yearling programs.

2003 Brood Year

As a BKD preventative strategy, the fish were treated with erythromycin-medicated feed in November 2004.

Bacterial gill disease was diagnosed in yearling fall Chinook rearing in lake #2 in late December 2004. The fish were treated with potassium permanganate at 1.0 ppm in an 8-hour drip for three consecutive days. Water flow was also increased. The estimated loss to BGD was 16,000 fish or 3.5%. The fish recovered and were healthy at release in spring, 2005.

2004 Brood Year

Bacterial gill disease was diagnosed in sub-yearling fall Chinook reared in north raceway #11 in March 2005. The fish were successfully treated with chloramine-T at 10 ppm in a 1 hr drip for three consecutive days.

Dropout syndrome was later noted in sub-yearling fall Chinook in most raceways. The cause was not known and total loss was minimal.

Tucannon Spring Chinook

Adults - 2005 Spawning

At spawning, samples are collected for viral testing and BKD-ELISA testing. IHN virus pathogens were detected (Table 22). No management action was taken because of the positive virus finding.

The BKD-ELISA has not been completed for the samples collected from the 2005 spawning season.

2003 Brood Year

The 2003 brood year Tucannon spring Chinook were healthy throughout the rearing cycle at LFH. The fish were transferred to TFH in October 2004.

2004 Brood Year

As a BKD preventative strategy, the fish were treated with erythromycin-medicated feed in May 2005. They were generally healthy throughout the rearing cycle at LFH.

Tucannon Spring Chinook - Captive Broodstock

Adults - 2005 Spawning

At spawning, samples are collected for viral testing and BKD-ELISA testing. IHN virus was detected (Table 22). No management action was taken because of the positive virus finding.

The BKD-ELISA has not been completed for the samples collected from the 2005 spawning season.

2003 Brood Year

The 2003 brood year Tucannon spring Chinook were healthy throughout the rearing cycle at LFH. The fish were transferred to TFH in October 2004.

2004 Brood Year

As a BKD preventative strategy, the fish were treated with erythromycin-medicated feed in May 2005. They were healthy throughout the rearing cycle at LFH.

Lyons Ferry Summer Steelhead

Adults - 2005 Spawning

All female steelhead adults were sampled for viral pathogens at spawning. No viral pathogens were detected. See Table 22.

2004 Brood Year

The 2004 brood year Lyons Ferry summer steelhead were healthy throughout the reporting period and upon release.

2005 Brood Year

BCWD was observed in the 2005 brood year Lyons Ferry summer steelhead in May through July 2005. Three raceways of Lyons Ferry summer steelhead were successfully treated with florfenicol coated fish pills at 15 mg/kg. After recovery from the BCWD outbreak, the fish were healthy throughout the reporting period.

Wallowa Summer Steelhead

Adults - 2005 spawning at Cottonwood AF

All female steelhead adults were sampled for viral pathogens at spawning. No viral pathogens were detected. See Table 22.

2004 Brood Year

The 2004 brood year Wallowa summer steelhead fish were healthy throughout the reporting period and upon release.

2005 Brood Year

The 2005 brood year Wallowa summer steelhead fish were healthy throughout the reporting period.

Tucannon River Summer Steelhead

Adults - 2005 Spawning
All female steelhead adults were sampled for viral pathogens at spawning. In 2005, no viral pathogens were detected (Table 22).

2004 Brood Year

The 2004 brood year Tucannon River summer steelhead fish were healthy throughout the reporting period and upon release.

2005 Brood Year

The 2005 brood year Tucannon River summer steelhead fish were healthy throughout the reporting period.

Touchet River Summer Steelhead

Adults - 2005 Spawning

All female steelhead adults were sampled for viral pathogens at spawning. IHN virus was detected in 5 of 18 (28%) females spawned (Table 22). On May 13, 2005 4,957 eyed eggs were placed in an artificial redd and 9,986 fry were directly released into the Touchet River at river mile 56.5. On June, 14 9,494 fry were released at the same location.

2004 Brood Year

The 2004 brood year Touchet River summer steelhead fish were healthy throughout the reporting period and upon release.

2005 Brood Year

The 2005 brood year Touchet River summer steelhead fish were healthy throughout the reporting period.

Spokane Rainbow Trout

Spokane rainbow trout are received as eyed eggs from the Spokane Hatchery. The Spokane rainbow broodstock are annually sampled for viral agents, and have been certified free of viral pathogens.

2003 Brood Year

The fish were healthy throughout the reporting period and upon release.

2004 Brood Year

Bacterial coldwater disease was observed in the Spokane rainbow in April and May 2005. Two raceways of rainbow trout were successfully treated with florfenicol coated fish pills. The fish recovered and were healthy throughout the remaining reporting period.

Tucannon Hatchery

Tucannon Spring Chinook

2003 Brood Year

The 2003 brood year Tucannon spring Chinook were healthy. As a BKD preventative strategy, the fish were treated with erythromycin-medicated feed in November 2004.

Tucannon Spring Chinook - Captive Broodstock

The 2003 brood year Tucannon spring Chinook (captive broodstock progeny) were healthy. As a BKD preventative strategy, the fish were treated with erythromycin-medicated feed in November 2004.

Spokane Rainbow Trout

2003 Brood Year

The external parasite, *Ichthyophthirius sp*. was observed in rainbow trout fingerlings reared in the earthen pond in November 2004. The fish were treated with formalin at 25 ppm for an 8-hour drip. The fish recovered and were healthy upon release.

2004 Brood Year

BCWD was noted in the Spokane rainbow trout in June 2005. The fish were successfully treated with florfenicol coated fish pills. The fish recovered and were healthy throughout the remaining reporting period. The fish recovered and were healthy upon release.

Kamloops Rainbow Trout

2004 Brood Year

The 2004 brood year Kamloops rainbow trout from Hayspur Hatchery were healthy throughout the reporting period.

Cottonwood Pond

Bacterial gill disease was diagnosed in Grande Ronde summer steelhead smolts in March 2005. The fish were treated with potassium permanganate at 2.0 ppm in a 10 hr drip every

other day for three days. Low water flow due to drought created the conditions for the bacterial gill disease outbreak. The fish recovered and were healthy upon release.

Table 22. Broodstock viral testing at LFH, 2004 - 2005.

Location	Date	Species-Stock	No. OF	No. KS	Results
Lyons Ferry	11-04	CHF-Snake River	60	60	Negative
Lyons Ferry	01-04	SS-Lyons Ferry	133	60	Negative
Lyons Ferry	03-04	SS-Tucannon River	14	14	Negative
Cottonwood Pond	04-04	SS-Wallowa	20	20	Negative
Lyons Ferry	04-04	SS-Touchet River	18	18	IHNV
Lyons Ferry	09-04	CHS-Tucannon River	52	52	IHNV
Lyons Ferry	09-04	CHS-Tucannon Captive	60	60	IHNV

OF = ovarian fluid
KS = kidney/spleen

Table 23. BKD-ELISA testing of female Chinook broodstocks at LFH in 2004 - 2005.

Species-Stock	No. Tested	%Below Low	%Low	%Mod.	%High
CHF-Snake R.	872	98.3	1.3	0.1	0.3
CHS-Tucannon-Anadromous		Not completed			
CHS-Tucannon-Captive		Not completed			

Below-Low = < 0.10
Low = 0.11 - 0.199
Mod = 0.2 - 0.45
High = > 0.45

PERSONNEL/PURCHASES/MAINTENANCE

Tucannon Hatchery

Personnel

Mike Manky started work at the TFH on the first of January, 2005. He has filled the vacant Fish Hatchery Specialist Two position previously held by Lyle Leslie.

Significant Purchases

21' Tilting, bumper pull, flatbed trailer, with 14 ton gross weight

Replaced 1958 Baker forklift with a 6,000 lb capacity Toyota forklift

Projects

Temporary repairs were performed on the East side of Curl Lake dam. WDF&W engineering staff completed the project in January 2005, after discovering a significant leak in the dam in the summer of 2004. This work entailed digging a 3'x 6'x 35' trench along the East side of the dam. They installed geo textile fabric along both sides, filled with soil, then packed each 12" to 16" layer. They then added a final layer of four to six inches of 5/8" crushed rock to grade. This project was periodically inspected by the department of Ecology.

WDF&W engineering staff installed a brail system at the TFH intake adult trap. This systems application created a sub-floor lift system, thus preventing unnecessary stress to ESA listed adult salmon caused by staff using nets to catch them. The brail floor is raised to water surface elevation, forcing the fish to settle into vinyl pockets where they can be easily retrieved. This project was intended for completion in 1997, following the February 1996 flood event.

WDF&W engineering staff completed the permanent repairs to the Curl Lake Dam in April of 2005. This project description is consistent with the temporary repairs that were completed in January of 2005. They made three modifications to the work that was done in January:

1) The trench only required a depth of four feet for the remainder of the dam instead of six feet;
2) A "French" drain was installed at the toe of the dam to provide necessary drainage; and
3) Vegetation was removed from the east side of the dam to prevent a major breech in the future.

WDF&W engineering staff updated the ground fault electrical system in the shop. They also added some lighting in the storage areas next to the shop.

Hatchery staff replaced two sets of exterior doors (four doors total) on the main hatchery building. They were installed during the fall, and final painting will occur in the summer of 2006. These doors replaced the original 1949 entry doors that were damaged from rust.

Hatchery staff completely restored the wood on the TFH interpretive center. The redwood had turned black from years of using linseed oil as a preservative, along with adverse weather conditions.

Hatchery staff remodeled the area between the asphalt and hatchery building. This area had old shrubs that were difficult to maintain. All of the shrubs were removed and replaced with gray rock, and accented with black fish silhouette stepping-stones.

WDF&W engineering staff replaced 1,735' of existing 18" steel pipe that supplies river water from Rainbow lake to the hatchery facility. The pipe was replaced to the original specifications with the addition of welded joints and concrete supports.

A local vendor replaced the windows and seals on the shop garage roll up doors.

Housing Maintenance

Residence #1 had a minor electrical upgrade in the kitchen area. The garage door was replaced with a new door opener installed. A 220 heater was installed in the garage.

Residence #2 deck was replaced on the back of the house. Hatchery staff completed the project.

Significant Events

Tucannon Valley (School) Fire: On August 6, 2005 the hatchery was directly in the path of a major wildfire that burned over 50,000 acres of timber/grass on state, federal and private lands. Within 24 hours of the first notification, available hatchery staff were taking action to prevent impacts to the facility. The fire started within the Wooten Wildlife area, approximately seven miles south of the hatchery facility. No structural damage occurred within the hatchery grounds from the fire. If not for the existing fire system and assistance from Columbia County volunteer fire fighters, structural loss at the hatchery would have certainly occurred.

Lyons Ferry Hatchery

Personnel

Hatchery Specialist One Jason Salme did not pass his probation, and was let go in June, 2005. Due to Agency hiring restrictions, a permanent replacement was not secured during this reporting period.

Significant Purchases

6,000 lb. capacity Toyota forklift.

38 knife-gate inlet valves for the 19 north side raceway ponds.

Six 16'X39"X33" fiberglass rearing troughs were purchased for installation near the round tanks.

Ford Expedition seven passenger SUV

Projects

WDF&W construction crew covered the 28 south side raceway ponds with predation netting. This has eliminated bird predation on these raceways, but the birds have migrated to the north side. Bids are currently being sought to net the north side in 2006.

The hatchery crew replaced all 38 inlet valves for the 19 north side raceways.

The hatchery crew built beautification/retaining walls around the entrance gardens and generator building. They also trimmed and thinned the greenbelts around all structures.

Plant Mechanic Gary Griffen completed significant and necessary upgrades to the fish elevator in the salmon spawning building. These upgrades were necessary for safe operation and to provide flexibility in the event of electrical problems.

The water lubricated pump providing fire and maintenance water for the hatchery failed, and was replaced with an internal lubricated pump to keep the domestic water building dry and clean.

Problems with Marmes well #1 resulted in a complete pump rebuild by WDF&W maintenance staff.

Housing Maintenance

Hatchery staff completed necessary upgrades to the landscaping around residence #1, including building a retaining wall, tree removal, parking improvements, etc.

WDF&W construction crew erected a significant retaining wall in front of residence #2 and at the entrance to the south residences, and installed safety chain link fencing around two residences (#1 and #2).

A new septic system was installed at residence #6.

Significant landscaping occurred at all residences, particularly involving removal of overgrown trees and pruning.

Significant Events

While repairing the overhead rail bridge just east of the hatchery, railroad workers started two small fires in the sagebrush. Although the railroad committed to have fire suppression equipment and staff on standby, they were woefully unequipped to handle the fires. Hatchery staff "assisted" in containing and putting out the first fire, and handled the second exclusively. In addition to the fires, the bridge repair created a significant safety hazard to hatchery visitors, employees, and their families. Over the course of several weeks, workers sent hundreds of pounds of metal scrap down onto the entrance road and in the field east of the facility. A memo is being drafted to send to the railroad, the WDFW safety office, etc.