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Department of
**FISH AND
WILDLIFE**

**Lyons Ferry Hatchery Complex
Annual Operation Report**

October 1, 2001 thru September 30, 2002

Funded by Bonnaville Power Administration

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INTRODUCTION

Lyons Ferry Complex (LFC) is operated by Washington Department of Fish and Wildlife (WDFW). It is funded 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 the Hatchery Complex Manager, 14 permanent Fish Hatchery Specialists, a Plant Mechanic and seasonal workers. A staff of 8-10 permanent and seasonal biologists and technicians conduct evaluations for each species produced at 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. Lyons Ferry Complex presently rears fish for release into both Washington and Idaho waters. In addition, Lyons Ferry Hatchery provides significant numbers of fall chinook sub-yearling and yearling fish as well as eggs to Nez Perce Tribal facilities. Eyed fall chinook eggs are also provided to Idaho Power Company to assist them in meeting their mitigation obligation.

Fish production began at Lyons Ferry Hatchery in the spring of 1982 with Wallowa summer steelhead yearlings transferred into Lyons Ferry Hatchery from Tucannon Hatchery. These fish were held in North series 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 Lyons Ferry Hatchery 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 (at 3 fish/lb).

FACILITIES

Lyons Ferry Complex includes Lyons Ferry Hatchery, Tucannon Hatchery, Cottonwood Acclimation Pond, Dayton Acclimation Pond, Curl Acclimation & Fishing Pond. Lyons Ferry Hatchery is located along the Snake River at river mile 58, directly below the confluence of the Palouse River in Franklin County, Washington. Tucannon Hatchery is located along the Tucannon River at river mile 36 in Columbia County, Washington. Dayton Acclimation Pond 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 the acclimation pond at river mile 53.3. Cottonwood Creek Acclimation pond 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 Acclimation Pond is located along the Tucannon River at river mile 41 in Columbia County, Washington.

The facilities at Lyons Ferry Hatchery include two incubation buildings with office space and feed storage. Plus adult fish trapping, holding and spawning facility. There are eight residences for staff on site to fulfill security and emergency response situations.

The Lyons Ferry Hatchery rearing facilities include twenty-eight raceways @ 10 ft x 100 ft x 2.8 ft (water depth), nineteen raceways @ 10 ft x 88.5 ft x 3.5 ft (water depth), three rearing lakes ~ 590,000 cu ft of water each. The adult holding facilities include three 83 ft x 10 ft x 5 ft (water depth) adult raceways with housed spawning facilities incorporated over the center of these ponds; two 18 ft x 150 ft x 4.3 ft (water depth) and two 21 ft x 150 ft x 4.3 ft (water depth) adult salmon holding ponds that will be modified this year to accommodate sub-yearling rearing when not needed for adult holding in the spring of the year. In addition, eight 20 ft x 4 ft (water depth) fiberglass circular ponds and fifteen 4 ft x 1.6 ft (water depth) 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 (water depth) intermediate rearing troughs. Water is supplied to Lyons Ferry Hatchery from the Marmes pump station, which has emergency power backup generation. The Marmes pump (wells) facility has three 300 hp pumps, four 200 hp pumps and one 75 hp pump. The well water right for Lyons Ferry Hatchery is 53,200 gpm (118.5 cfs).

The Tucannon Hatchery 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 Tucannon Hatchery 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 situations.

Tucannon Hatchery is supplied with three different water sources. River water, which is fed from the Tucannon River. 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, pumped up to an aeration tower, then gravity fed to the rearing units and the domestic pump house. The combined well water right is 2 cfs. 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.

The rearing vessels at Tucannon Hatchery 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 cu ft of rearing area each; two concrete 100 ft x 80ft raceways with a maximum of 2,390 cu ft of rearing area each.; one concrete 15 ft x136 ft raceway

with a maximum of 11,730 cu. ft; and one earthen rearing pond with a maximum of 318,920 cu ft.

Construction of the Dayton Acclimation pond was completed in October 1986. Dayton Acclimation Pond 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 and temporary adult trapping facility just upstream of the pond. 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 who 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 Creek Acclimation Pond was completed in February 1985. Cottonwood Acclimation Pond 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. It also has a small trailer for use by staff who 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 Acclimation Pond was completed in February 1985. Curl Acclimation Pond 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. 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 brood stock 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 has been initiated to aid in the recovery of Tucannon spring chinook. Small distinct family groups have been 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 brood stock 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. Yearling program fish are reared into the fall at Lyons Ferry Hatchery. They are then marked and transferred to Tucannon Hatchery. They are reared at Tucannon

Hatchery 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.

2000 Brood Year

The captive brood and mixed (hatchery x wild) yearlings were transferred from Tucannon Hatchery to Curl Lake Acclimation Pond in mid-February 2002. The fish were allowed to volitionally leave the pond starting March 15, 2002. They were fed their normal feed ration until April 1st. On April 1st their feed was reduced for one week and then discontinued. During the last week of operation, the pond was lowered in increments and the remaining fish forced from the pond on April 23rd.

2001 Brood Year

The first take of 2001 captive brood Tucannon spring chinook started feeding on December 10, 2001. The first take of 2001 hatchery x wild crosses started feeding on December 7, 2001. There were 21,043 hatchery x wild cross sub-yearling and 20,592 captive brood sub-yearlings planted into the Tucannon River on May 6, 2002 at river mile 26.9. The yearling fish were reared in raceways at Lyons Ferry Hatchery and were marked starting on September 10, 2002. The captive brood and mixed (hatchery x wild) yearlings were transferred from Lyons Ferry Hatchery to Tucannon Hatchery on October 10 & 11, 2002. These fish will be transferred to Curl Lake Acclimation Pond in February 2003. See Plants and Transfers Tables 19 & 20.

2002 Brood Year

The first 2002 brood Tucannon spring chinook adult arrived at the Rainbow Lake Trap on May 4, 2002. The last spring chinook adult arrived on September 16, 2002. Please see Adult Collection and Spawning Tables 8 & 9 for adult collection. Please see Adult Collection and Spawning Tables 34 & 35 for adult spawning and Table 8 & 9 for egg take information.

SNAKE RIVER 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 brood stock. 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 eggs, 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. The 2001 spawning matrix called for using 2 males per female. The mating protocol for 2002 was changed to 1 x 1.

Rearing density reductions are planned for the 2002 brood year sub-yearlings. The planned modification of the four adult salmon holding ponds to allow for rearing by adding walkways will hopefully allow the rearing of sub-yearling chinook at a Density Index of 0.13 or less. This will hopefully reduce or eliminate the occurrence of Bacterial Gill Disease (BGD) which has been a continual problem recently with the expansion of

the fall chinook program to provide sub-yearling and yearling fish to Nez Perce Tribal Acclimation facilities. The expansion of this program caused the rearing density of the fall chinook to increase to levels reared during the first years of operation at Lyons Ferry Hatchery. During the early years, Bacterial Gill Disease was a chronic problem. Only reduction of rearing densities reduced or eliminated the occurrence of BGD. Bird predation in the rearing lakes continues to be a serious problem. It appears that covering the ponds with netting is needed.

2000 Brood Year

During the period February 6 thru March 7, 2002 a total of 491,678 yearling brood year 2000 Snake River fall chinook were transferred to Nez Perce Tribal Acclimation facilities. The 432,511 Lyons Ferry Hatchery yearling program was released April 1 – 11, 2002. The LFH yearling program was reared in raceways until the fall when they were marked and transferred to Rearing Lake 2. They were released directly from Rearing Lake #2. See Table 17 for additional planting information.

2001 Brood Year

The first take of 2001 brood Snake River fall chinook started feeding on Jan 23, 2002. Nez Perce Tribal Acclimation facilities received 2,408,580 sub-yearlings. The National Marine Fisheries Service received 113,213 sub-yearlings for research and 194,582 sub-yearlings were released from LFH. The yearling program fish were reared in raceways through the summer. The Nez Perce Tribal Acclimation fish were marked during the period September 30 thru October 30, 2002 and will be kept in raceways until they are transferred to NPT facilities in 2003. The yearlings to be released at LFH in the Spring of 2003 were marked in October and November 2002 and transferred directly into rearing lake 2. They will be released directly from rearing lake 2.

Bacterial Gill Disease was a problem with this brood of fall chinook in the spring of 2002 as it had been for the past four years. Excessive raceway loadings during the early rearing period required a significant feed reduction that resulted in the sub-yearling fish being transferred to NPT facilities smaller than programmed. See Plants and Transfers Table 18.

2002 Brood Year

Snake River fall chinook trapping started at Lower Granite Dam on August 18, 2002 and at LFH on September 3, 2002. See Adult Collection and Spawning Tables 31 & 32 for adult numbers during this reporting period. Spawning of this brood started on Oct 22, 2002 and will be documented in next year's report.

SUMMER STEELHEAD

Lyons Ferry Complex 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 fish are trapped on-station at LFH from volunteers that swim into the fish ladder. The LFH trap has typically been operated between July and November. The

trapping protocol has been modified in 2002 to delay trapping until September. The Trapping of Wallowa stock fish occurs on Cottonwood Creek (small tributary to the Grande Ronde River). Cottonwood Creek supplies water to the Cottonwood Acclimation Pond, and large numbers of hatchery adults return every year to the creek. A small trapping structure was installed in the 1992 to capture returning adults for brood stock. 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 disable the trap. Brood stock collections take place over the entire trapping period. Trapping of Touchet River Endemic stock begins in February at the Dayton adult trap. The Dayton adult trap was constructed with minor modifications to the water intake structure for the Dayton Acclimation Pond. Brood stock trapping typically ends in May. Brood stock are generally collected in March and April, which represents the main return at the trap.

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 bloodstocks 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 bloodstocks 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 brood stock, 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 the hatchery production, or increasing the production of endemic stocks. Each endemic brood stock program began with the 2000 BY, with the original goal to collect 16 pairs for spawning. Adjustments have been made to the brood stock collections because fecundity estimates, and in-hatchery survival were greater than expected. Adult returns from the first endemic release year will be in 2002/2003. Adult traps on the Tucannon and Touchet Rivers will be used to evaluate the returns and determine success of the program. Any production increases for the endemic programs will not occur before the 2005 BY.

In addition to those initial actions, WDFW undertook the task to compile and analyze all the available smolt-to-adult survival data accumulated over the years. Smolt-to-adult survivals from the various release/study groups have been estimated using a combination of Coded-Wire Tag recoveries (fisheries, hatcheries, and traps) or freeze brand recoveries at Lower Granite Dam. Based on those data, WDFW is proposing further decreases in summer steelhead production at LFH (LFH and Wallowa stocks). Proposed decreases of 2003 BY summer steelhead represent a 18% reduction in the LFH stock, and a 20% reduction in the Wallowa stock.

LFH stock: During August and September, fish are adipose fin clipped and transferred to rearing lake 1 at LFH. Each of the three rearing lakes is ~ 2.1 surface acres. A release goal of 420,000 smolts is the program for the 2001 & 2002 brood year smolts. Following is the release goal for each release location in 2002 and 2003: 100,000 from

the Dayton Acclimation Pond into the Touchet River, 135,000 direct release into the Tucannon River, 125,000 direct release into the Walla Walla River and 60,000 on-site release at LFH. A reduction of 18% is proposed for the 2003 brood year smolts. During December each year, about 85,000 are transferred from the rearing lake 1 to four raceways for additional marking. In January, ~20,000 fish programmed for transfer to the Dayton Acclimation Pond received a coded wire tag (CWT), a left ventral fin clip (LV) and a unique freeze brand (FB) applied. The Tucannon mark group, ~20,000 receive CWT+LV+FB marks. The Lyons Ferry Hatchery release marked group ~20,000 fish receive CWT+LV+FB marks. The Walla Walla River mark group, ~20,000 fish receive a CWT+LV and no freeze brand.

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 volitionally released through April 20th. After that date, feeding is discontinued and the pond level slowly lowered until the pond is completely drained on April 30th.

2001 Brood

There were 422,788 yearling 2001 brood Lyons Ferry summer steelhead released in the spring of 2002. See Plants and Transfers Table 21 for numbers and locations of release.

2002 Brood

There were 941,223 brood year 2002 Lyons Ferry summer steelhead eggs taken. Please see Adult Collection and Spawning Table 38 for 2002 brood adult collection and spawned numbers. Excess fry, 105,502 at 225 fpp, were released into Sprague Lake on May 23, 2002. See Table 22. These fish were reared into August in the raceways and were then adipose fin clipped and transferred to rearing lake 1.

2003 Brood

Brood collection of 2003 brood Lyons Ferry summer steelhead started on September 4, 2002. See Table 41 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 + VI elastomer (red/left) tag. During February Wallowa stock fish are transferred to Cottonwood AP. Transfer dates can vary due to 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 the pond is completely drained on April 30th.

2001 Brood

There were 182,722 yearling 2002 brood Wallowa summer steelhead released into the Grande Ronde River in April of 2002. See Table 23.

2002 Brood

There were 455,502 eggs taken in April from brood year 2002 Wallowa summer steelhead adults. See Table 43 for more egg take information. These eggs were obtained from 82 females. The eggs from 8 of these females were destroyed due to high

Infectious Hematopoietic Necrosis Virus (IHNV) titer results. This brood of fish was reared in raceways until it they were adipose fin clipped in August and September and moved into rearing lake 3.

Tucannon Stock:

All Tucannon River endemic stock are reared in standard raceways at LFH. All fish are CWT + VI tagged in January. In mid-February fish are transferred to TFH and placed into the large acclimation raceway (formerly used for spring chinook holding/acclimation). They are then released into remote areas above the hatchery (river mile 38.4 to 45.8) during early April by planting truck. 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.

Brood 2001

On Oct 5, 2001 there were 24,948 sub-yearlings at 28.48 fpp planted into the Tucannon into the area above the Curl Lake intake. See Tables 5 & 24 for additional release information

Brood 2002

There where 64,941 eggs obtained for this brood using 13 wild females and 16 wild males. The 2002 brood Tucannon Wild steelhead adults were captured at the Ducharme Trap (river mile 11.0) in the lower Tucannon River spawning use. See Table 40 for more adult collection and spawning information and Table 43 for additional egg information. See Tables 11 & 12 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. These fish 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

Brood 2001

On May 2, 2002 a direct stream release of 45,501 yearlings at 6.36 fpp were released into the Touchet River at river mile 57.2. See Table 25 for more information on this release.

Brood 2002

There were 76,769 eggs obtained for this brood using 14 wild females and 17 wild males. These fish started feeding in shallow troughs, were transferred to intermediate troughs where they were reared into September when they were transferred to a raceway. They will be reared until release in a raceway and will be planted in May of 2003 into the Touchet River. This group of eggs experienced an extremely poor eye-up, only 48.87%. Evaluation of spawning and fertilization techniques will be conducted with the 2003 brood steelhead stocks to help solve this problem.

RESIDENT FISH

Rainbow trout are reared to fulfill the resident fishing opportunity mitigation under LSRCP. Eggs are obtained from WDFW's Spokane Hatchery and from Idaho's Hayspur Hatchery (Kamloops stock). The production goal is 237,500 yearling and 150,000 sub-yearling Spokane Stock rainbow, and 50,000 fingerling Kamloops (triploid) rainbow. This requires 500,000 eyed Spokane stock rainbow trout eggs and 70,000 triploid eyed Kamloops stock eggs which are provided by IDFG to meet part of the LSRCP mitigation requirement within Idaho. They 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 Tucannon Hatchery utilizes Spokane stock rainbow reared to 1½ lbs each to provide a unique fishing opportunity in local lakes.

Resident brood year 2000 Spokane rainbows plants are listed on Table 1 for Tucannon Hatchery and Table 26 for Lyons Ferry Hatchery. The 2001 brood Spokane rainbow plants and transfers are listed on Table 2 for Tucannon Hatchery and Table 27 for Lyons Ferry Hatchery. The 2001 Kamloop rainbow transfer to Idaho is shown on Table 28.

Fish Feed

Tucannon Hatchery fed 58,332 lbs. of feed during this budget year. See Table 16. Lyons Ferry Hatchery fed 268,021 lbs of feed during this budget year. See Table 46.

Fish Health

Treatment with formalin of adult fall and spring chinook is done every -other day during holding in the spawning ponds at Lyons Ferry Hatchery. The dosage level for this treatment is a one hour treatment at 167 ppm of formalin as supplied (37% formalin solution). Steelhead adults were not treated with formalin during this reporting period. Captive brood spring chinook that are not mature at sorting are treated for one week everyday after handling and then every-Other day for three weeks.

Eggs are treated with formalin with a dosage of 1000 ppm formalin as supplied starting 48 hours after fertilization. Steelhead eggs are treated daily until they are shocked & picked, then formalin treatment is discontinued. Chinook eggs are treated daily one week beyond picking and then treatment is discontinued. Rainbow trout eggs are received as eyed eggs and no treatment is administered.

Adult injection of chinook is outline on Table 15 for Tucannon Hatchery and Table 45 for Lyons Ferry Hatchery. Juvenile treatments at Tucannon Hatchery are outlined on Table 14 and on Table 44 for Lyons Ferry Hatchery.

Fish Health Section

Steven Roberts

Introduction

The following section is a summary of fish health activities for the Lyons Ferry Hatchery Complex for October 1, 2001 to September 30, 2002. Adult sampling for viral and bacterial pathogens and fish health inspections are discussed.

The major fish health problems were at Lyons Ferry Hatchery with:

Bacterial gill disease (BGD) in fall chinook sub-yearlings.
Bacterial kidney disease (BKD) in yearling fall and spring chinook

Future efforts will focus on the prevention or control the above fish health problems. Reducing early rearing densities will be the emphasized for prevention and control of BGD. With BKD, a reduction of overall rearing density and the addition of a second erythromycin medicated feed treatment at the sub-yearling stage will be employed.

Lyons Ferry Hatchery

Lyons Ferry Fall Chinook

Adults - 2001 Spawning

At spawning, samples are collected for viral and BKD-ELISA testing. Only females fall chinook from the third, fourth and fifth spawning week were sampled for BKD-ELISA testing. No viral pathogens were detected (Table 47).

BKD prevalence was moderate with 84.8% Below-Low females (Table 48). Progeny of Below Low females were selected for the yearling programs.

2000 Broodyear

Bacterial kidney disease was diagnosed in September, 2001. The fish were treated with erythromycin medicated feed in the fall, 2001. Chronic BKD mortality continued in the 2000 broodyear fall chinook during the rearing cycle.

2001 Broodyear

Bacterial gill disease was observed in a number of raceways of sub-yearling 2001 broodyear fall chinook in April and May, 2002. The fish were successfully treated with potassium permanganate.

Tucannon Spring Chinook

Adults - 2001 Spawning

At spawning, samples are collected for viral testing and BKD-ELISA testing. Infectious Hematopoietic Necrosis (IHN) virus was detected in the viral samples (Table 47). No management action were initiated because of the positive virus finding.

BKD prevalence was low with 91.1% Below-Low females (Table 48). No segregation or culling was employed with the progeny of 2002 spawning.

2001 Broodyear

The 2001 broodyear Tucannon spring chinook were healthy until late summer. Bacterial kidney was diagnosis in August, 2001. Treatment with erythromycin was delayed until after marking and transfer to Tucannon Hatchery.

Tucannon Spring Chinook - Captive Broodstock

Adults - 2001 Spawning

At spawning, samples are collected for viral testing and BKD-ELISA testing. IHN virus was detected in the viral samples (Table 47). The IHN virus detection was due to holding the maturing captive broodstock below the anadromous adults. No management action were initiated because of the positive virus finding.

BKD prevalence was very low with 99.4% Below-Low females (Table 48). No segregation or culling was employed with the progeny of 2002 spawning.

2000 Broodyear

The 2000 broodyear were healthy throughout the rearing cycle. The fish were transferred to Tucannon Hatchery in October, 2001.

2001 Broodyear

The 2001 broodyear were healthy throughout the rearing cycle.

Lyons Ferry Summer Steelhead

Adults - 2002 Spawning

All female steelhead adults were sampled for viral pathogens at spawning. In 2002, no viral pathogens were detected (Table 47).

2001 Broodyear

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

2002 Broodyear

Bacterial coldwater disease was observed in the Lyons Ferry summer steelhead in May, 2002. The fish were successfully treated with florfenicol coated fish pills. After recovery from the BCWD outbreak, the fish were healthy throughout the reporting period.

Grande Ronde Summer Steelhead

Adults - 2002 spawning at Cottonwood Pond

All female steelhead adults were sampled for viral pathogens at spawning. IHN virus was detected in three females (Table 47). Eggs from the three virus positive fish were destroyed.

2001 Broodyear

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

2002 Broodyear

The fish were healthy throughout the reporting period.

Tucannon River Summer Steelhead

Adults - 2002 Spawning

All female steelhead adults were sampled for viral pathogens at spawning. In 2002, no viral pathogens were detected (Table 47).

2001 Broodyear

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

2002 Broodyear

Bacterial coldwater disease was observed in the Tucannon summer steelhead in June, 2002.

Mortality remained low and the fish were not treated. The fish recovered and were healthy throughout the remaining reporting period.

Touchet River Summer Steelhead

Adults - 2002 Spawning

All female steelhead adults were sampled for viral pathogens at spawning. In 2002, no viral pathogens were detected (Table 47).

2001 Broodyear

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

2002 Broodyear

The 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 is annually sampled for viral agents and is certified free of viral pathogens.

2000 Broodyear

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

2001 Broodyear

Bacterial coldwater disease was observed in the Spokane rainbow in April, 2002. The fish were successfully treated with florfenicol coated fish pills. The fish recovered and were healthy throughout the remaining reporting period.

Tucannon Hatchery

Tucannon Spring Chinook

2000 Broodyear

In general, the Tucannon spring chinook were healthy. However, low level BKD mortality continued throughout the rearing cycle. The fish were treated with erythromycin medicated feed in November, 2001.

Tucannon Spring Chinook - Captive Broodstock

2000 Broodyear

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

Spokane Rainbow Trout

2000 Broodyear

The external parasite, Trichodina sp. and BCWD caused low level losses in the Spokane rainbow in the rearing pond in March, 2002. The fish were successfully treated with potassium permanganate. The fish were healthy upon release.

Environmental gill disease was noted in one round pond of jumbo legals in May, 2002. Feeding was stopped and the fish were planted.

2001 Broodyear

Steatitis (fatty inflammation of the connective tissue on the anterior dorsal surface) was noted in Spokane rainbow in May, 2002. The condition is thought to be feed related. The fish recovery without treatment.

Bacterial gill disease was diagnosed in one round pond of Spokane rainbow in September, 2002. The fish were later successfully treated with hydrogen peroxide.

Hayspur Rainbow Trout

2001 Broodyear

Bacterial coldwater disease was observed in the Hayspur rainbow in July, 2002. The fish were successfully treated with florfenicol coated fish pills. The fish recovered and were healthy throughout the remaining reporting period.

Tucannon Summer Steelhead

2001 Broodyear

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

Fish Health Inspections

Fish health inspections are outlined on Table 49 for Lyons Ferry and Tucannon Hatcheries for the period October 1, 2001 to September 30, 2002.

Significant Maintenance / Equipment Purchased

Lyons Ferry Hatchery

Purchased one four-inch Magic Valley fish pump for use with fish marking and truck loading of sub-yearling fish, especially chinook.

Purchased sufficient 24 inch walkway grip-strut material to modify adult ponds for use in rearing sub-yearling fall chinook. Will be installed in January 2003. WDFW maintenance shop to fabricate walkway saddle brackets in December 2002 to mount walk onto. Purchased sufficient 18 inch walkway grip-strut material to cover over area when Garron feeders are removed and to eliminate gaps in North raceway walks.

Modified the water supply pump controller for the pump that provides water to the adult sorting pond. The pump controller will now restart the pump automatically when all three legs of power are sensed by the controller. This pump previously needed to be hand started each time a power flux/surge occurred. The pump not previously restarting after a power flux contributed to the adult fish loss experienced at LFH in November 2001.

Modified adult sorting gates to eliminate fish damage caused by protruding bolts in the sorting gates. In addition, added water spray to make the flume more fish friendly

Purchased two 48 inch and one 24 inch butterfly valve to allow shut-off of portions of the south side rearing and adult facilities without a complete shut-off of the South side of the hatchery.

Replaced roofs on Residences 6, 7 and 8.

Replaced flooring in Residences 1, 2, 4, 5 at LFH. Carpets replaced in the Lyons Ferry Hatchery residences were installed in 1982.

Replaced patio decking on residence 4.

Modified the 2000 gal. fish tanker that is mounted on the 1450 International truck with a 18 inch pneumatic valve assembly for use in hauling adult fish from Lower Granite Dam to Lyons Ferry Hatchery. Modification was requested by our evaluation staff in order to haul the 2002 brood fall chinook adults.

Serviced and made operational the road grader (has sat idle for nearly 4 years) for use in maintaining the Marmes Pump Station access road and plowing snow at Tucannon Hatchery.

Purchased electronic scales for weighing fish at Lyons Ferry Complex facilities.
Purchased a plasma cutter for use by hatchery plant mechanic.

Purchased 2 electronic oxygen meter. One for Lyons Ferry Hatchery and one for Tucannon Hatchery. Would like to purchase one additional meter for Lyons Ferry Hatchery so one would be available for each of the three large capacity tankers in the complex.

Tucannon Hatchery

Welded a patch over a pin hole in the 18" river water pipeline. This is the second year in a row we have had to repair the lower section of the pipeline. We will be pursuing total replacement of the pipeline in the future.

In August 2002, the upstream side of the sheet piling at the hatchery river intake had the sediment removed using a excavator by the Olympia hatchery maintenance staff. The spoils were moved from the area by dump truck to field on the Wooten Wildlife area.

Both the carpet and the vinyl were replaced in residence #1. The carpet was replaced in residence #2 .

Approximately 25 tree's were removed as a safety hazard and to prevent exposed river pipeline damage.

Installed a external fire extinguisher cabinet and extinguisher on the shop building for above ground fuel storage tank obligations. Purchased lighted exit signs for buildings. Purchased GFCI receptacles for hatchery buildings and residences. Installed inti-flashback protectors on gas welding gauges. Installed safety cap on acetylene and oxygen cylinders.

The drive plank decking for the hatchery entrance bridge was purchased. Installation will occur within the next budget year.

Department of Ecology has identified the eight Tucannon manmade lakes to have dam integrity issues. This item is being addressed through the Olympia engineering office. They are establishing priority lakes to be first on the list for repair. Both Rainbow and Curl lakes (responsibility of LF complex) have been listed as needing repairs.

Section One Tables

Tucannon Hatchery

Table 1. Brood Year 2000 Spokane rainbow trout plants and transfers.

PLANTS AND TRANSFERS TUCANNON HATCHERY Page 1 of 6

DATE	TRANSFERRED IN		TRANSFERRED OUT		PLANTED		SIZE FISH / POUND	WATER LOCATION	RIVER MILE	MARKS
	NUMBER	POUNDS	NUMBER	POUNDS	NUMBER	POUNDS				
Oct. 4, 2001					449	145	3.1	Rainbow Lake		
Oct. 4, 2001					452	146	3.1	Blue Lake		
Oct. 4, 2001					142	46	3.1	Quarry Pond		
Feb 21, 2002					3,060	1,020	3	Rainbow Lake		
Feb. 21, 2002					3,010	1,075	2.8	Spring Lake		
Feb.22, 2002					728	260	2.8	Lyons Park Pond		
Feb.22, 2002					3,010	1,075	2.8	Watson Lake		
Feb.22, 2002					1,008	360	2.8	Deer Lake		
Feb. 26, 2002					493	176	2.8	Beaver Lake		
Mar. 11, 2002					1,560	780	2	Spring Lake		
Mar. 11, 2002					2,040	1,020	2	Blue Lake		
Mar. 11, 2002					910	455	2	Watson Lake		
Mar. 13, 2002					2,000	1,000	2	Gilcrest Pond		
Mar. 13, 2002					1,502	715	2.1	Bennington Lake		
Mar. 18, 2002					2,002	910	2.2	Garfield Pond		
Mar. 21, 2002					1,001	455	2.2	Jefferson Park Pond		
Mar. 21, 2002					429	195	2.2	Watson Lake		
Mar. 25, 2002					2,002	910	2.2	Rainbow		
Mar. 27, 2002					400	182	2.2	Donnie Lake		
Mar. 27, 2002					499	227	2.2	Dayton JV Pond		
Mar. 28, 2002					2,002	715	2.8	Big Four Lake		
Mar. 31, 2002					182	65	2.8	Blue Lake		
Apr. 5, 2002					2,002	445	4.5	Blue Lake		
Page 1 Total					30,883	12,376				
Sub Total					30,883	12,376				

Table 1. Continued - Brood Year 2000 Spokane rainbow trout plants and transfers.

PLANTS AND TRANSFERS TUCANNON HATCHERY

DATE	TRANSFERRED IN		TRANSFERRED OUT		PLANTED		SIZE FISH / POUND	WATER LOCATION	RIVER MILE	MARKS
	NUMBER	POUNDS	NUMBER	POUNDS	NUMBER	POUNDS				
Page 1 Subtotal					30,883	12,376				
Apr. 5, 2002					2,497	555	4.5	Watson Lake		
Apr. 5, 2002					2,497	555	4.50	Rainbow Lake		
Apr. 8, 2002					1,001	233	4.30	Jefferson Park Pond		
Apr. 8, 2002					1,001	233	4.30	Lions Park Pond		
Apr. 8, 2002					1,075	250	4.30	Deer Park		
Apr. 9, 2002					2,515	585	4.30	Fishhook Park Pond		
Apr. 9, 2002					2,515	585	4.30	Spring Lake		
Apr. 15, 2002					2,500	625	4.00	Pampa Pond		
Apr. 18, 2002					1,040	260	4.00	Lyons Park Pond		
Apr. 18, 2002					2,520	630	4.00	Blue Lake		
Apr. 18, 2002					1,952	488	4.00	Watson Lake		
Apr. 18, 2002					2,515	585	4.30	Rainbow Lake		
Apr. 19, 2002					3,354	780	4.30	Rainbow Lake		
Apr. 22, 2002					4,003	1,082	3.70	Dalton Lake		
Apr. 23, 2002					3,552	960	3.7	Bennington Lake		
Apr. 24, 2002					2,046	553	3.7	Headgate Pond		
Apr. 24, 2002					5,050	1,365	3.7	Curl Lake		
Apr. 26, 2002					503	136	3.7	Casey Lake		
Apr. 26, 2002					503	136	3.7	Dayton JV Pond		
Apr. 29, 2002					4,070	1,100	3.7	West Evans Pond		
Page 2 Total					46,709	11,695				
Sub Total					77,592	24,071				

Table 1. Continued - Brood Year 2000 Spokane rainbow trout plants and transfers.

TUCANNON HATCHERY

PLANTS AND TRANSFERS

DATE	TRANSFERRED IN		TRANSFERRED OUT		PLANTED		SIZE FISH / POUND	WATER LOCATION	RIVER MILE	MARKS
	NUMBER	POUNDS	NUMBER	POUNDS	NUMBER	POUNDS				
Page 2 Subtotal					77,592	24,071				
Apr. 30, 2002					6,001	1,765	3.4	Quarry Pond		
Apr. 30, 2002					4,001	1,177	3.4	Dalton Lake		
May 1, 2002					4,001	1,177	3.4	Golf Course Pond		
May 1, 2002					2,000	588	3.4	Silcot Pond		
May 7, 2002					510	150	3.4	Dayton JV Pond		
May 7, 2002					2,511	810	3.1	Curl Lake		
May 7, 2002					505	163	3.1	Beaver Lake		
May 8, 2002					3,000	1,000	3	Bennington Lake		
May 9, 2002					2,558	825	3.1	Blue Lake		
May 9, 2002					3,162	1,020	3.1	Watson Lake		
May 13, 2002					1,013	327	3.1	Lyons Park Pond		
May 13, 2002					1,013	327	3.1	Deer Lake		
May 15, 2002					3,330	1,110	3	Golf Course Pond		
May 16, 2002					2,040	680	3	West Evans		
May 20, 2002					2,502	834	3	Golf Course Pond		
May 21, 2002					2,001	667	3	West Evans		
May 22, 2002					1,002	334	3	Spring Lake		
May 22, 2002					2,502	834	3	Blue Lake		
May 22, 2002					2,520	840	3	Curl Lake		
May 23, 2002					750	250	3	Bakers Pond		
May 24, 2002					2,002	770	2.6	Rainbow Lake		
Page 3 Total					48,924	15,648				
Sub Total					126,516	39,719				

Table 1. Continued - Brood Year 2000 Spokane rainbow trout plants and transfers.

PLANTS AND TRANSFERS

TUCANNON HATCHERY

DATE	TRANSFERRED IN		TRANSFERRED OUT		PLANTED		SIZE FISH / POUND	WATER LOCATION	RIVER MILE	MARKS
	NUMBER	POUNDS	NUMBER	POUNDS	NUMBER	POUNDS				
Page 3 Subtotal					126,516	39,719				
May 24, 2002					502	193	2.6	Beaver Lake		
May 29, 2002					1,508	580	2.6	Union Flat Creek		
Jun. 5, 2002					1,196	460	2.6	Rainbow Lake		
Jun. 7, 2002					900	409	2.2	Bennington Lake		
Jun. 7, 2002					900	409	2.2	West Evans		
June 8, 2002					1,008	458	2.2	Blue Lake		
Jun. 21, 2002					458	208	2.2	Bakers Pond		
Jul. 5, 2002					300	200	1.5	Lyons Park Pond		
Page 4 Total					6,772	2,917				
Sub Total					133,288	42,636				

Table 1. Continued - Brood Year 2000 Spokane rainbow trout (Jumbo) plants and transfers.

PLANTS AND TRANSFERS TUCANNON HATCHERY Page 5 of 6

DATE	TRANSFERRED IN		TRANSFERRED OUT		PLANTED		SIZE FISH / POUND	WATER LOCATION	RIVER MILE	MARKS
	NUMBER	POUNDS	NUMBER	POUNDS	NUMBER	POUNDS				
Page 4 Subtotal					133,288	42,636				
Feb. 22, 2002					101	162	0.62	Lyons Park Pond		
Feb. 25, 2002					150	242	0.62	Golf Course Park		
Feb. 25, 2002					200	322	0.62	West Evans Road		
Feb. 25, 2002					100	161	0.62	Spring Creek		
Feb. 25, 2002					100	192	0.52	Blue Lake		
Feb. 25, 2002					100	192	0.52	Rainbow Lake		
Feb. 25, 2002					101	194	0.52	Watson Lake		
Mar. 13, 2002					200	328	0.61	Bennington Lake		
Mar. 20, 2002					300	516	0.58	Quarry Pond		
Mar. 20, 2002					300	516	0.58	Dalton Pond		
Mar. 21, 2002					100	172	0.58	Jefferson Park Pond		
Mar. 25, 2002					100	172	0.58	Rainbow		
Mar. 25, 2002					150	258	0.58	Golf Course Pond		
Mar. 25, 2002					200	344	0.58	West Evans Pond		
Mar. 27, 2002					100	172	0.58	Blue Lake		
Mar. 27, 2002					100	182	0.55	Spring Lake		
Mar. 27, 2002					100	182	0.55	Watson Lake		
Mar. 27, 2002					30	55	0.55	Dayton JV Pond		
Mar. 28, 2002					300	546	0.55	Big Four Lake		
Apr. 9, 2002					100	312	0.32	Fishhook Park Pond		
Page 5 Total					2,932	5,221				
Sub Total					136,220	47,857				

Fish food purchased with state funds for the Jumbo trout program.

Table 1. Continued - Brood Year 2000 Spokane rainbow trout (Jumbo) plants and transfers.

TUCANNON HATCHERY

PLANTS AND TRANSFERS

DATE	TRANSFERRED IN		TRANSFERRED OUT		PLANTED		SIZE FISH / POUND	WATER LOCATION	RIVER MILE	MARKS
	NUMBER	POUNDS	NUMBER	POUNDS	NUMBER	POUNDS				
Page 5 Subtotal					136,220	47,857				
Apr. 9, 2002					100	312	0.32	Spring Lake		
Apr. 15, 2002					200	624	0.32	Pampa Pond		
Apr. 15, 2002					100	312	0.32	Watson Lake		
Apr. 15, 2002					100	312	0.32	Rainbow Lake		
Apr. 18, 2002					100	227	0.44	Lyons Park Pond		
Apr. 18, 2002					100	227	0.44	Blue Lake		
Apr. 24, 2002					150	340	0.44	Curl Lake		
Apr. 26, 2002					50	113	0.44	Dayton JV Pond		
May 7, 2002					20	45	0.44	Dayton JV Pond		
May 7, 2002					150	340	0.44	Curl Lake		
May 9, 2002					50	114	0.44	Blue Lake		
May 9, 2002					60	136	0.44	Watson Lake		
May 9, 2002					100	227	0.44	Rainbow Lake		
May 9, 2002					84	191	0.44	Spring Lake		
Page 6 Total					1,364	3,521				
Total					137,584	51,378				

Fish food purchased with state funds for the Jumbo trout program.

Table 2. Brood Year 2001 Spokane rainbow trout plants and transfers.

PLANTS AND TRANSFERS

TUCANNON HATCHERY

DATE	TRANSFERRED IN		TRANSFERRED OUT		PLANTED		SIZE FISH / POUND	WATER LOCATION	RIVER MILE	MARKS
	NUMBER	POUNDS	NUMBER	POUNDS	NUMBER	POUNDS				
May 3, 2002					67,710	370	183	Fishtrap Lake		
May 3, 2002					1,381	8	173	Fishtrap Lake		
Sep. 12, 2002					400	80	5	Donnie Lake		
					69,491	458				

Table 3. Brood Year 2000 Tucannon spring chinook - Mixed Hatchery and Captive Brood - plants and transfers.

PLANTS AND TRANSFERS

TUCANNON HATCHERY

DATE	TRANSFERRED IN		TRANSFERRED OUT		PLANTED		SIZE FISH / POUND	WATER LOCATION	RIVER MILE	MARKS
	NUMBER	POUNDS	NUMBER	POUNDS	NUMBER	POUNDS				
Oct. 25, 2001	111,156	3,368					33			VI-Right Red Elast.
Mar 1 - Apr 23, 2002					102,099	6,587	15.5	Tucannon River	40	VI-Right Red Elast.
	111,156	3,368			102,099	6,587				

Table 4. Brood Year 2000 Tucannon spring chinook - Captive Brood - plants and transfers.

PLANTS AND TRANSFERS

TUCANNON HATCHERY

DATE	TRANSFERRED IN		TRANSFERRED OUT		PLANTED		SIZE FISH / POUND	WATER LOCATION	RIVER MILE	MARKS
	NUMBER	POUNDS	NUMBER	POUNDS	NUMBER	POUNDS				
Nov. 5, 2001	3,074	228			3,055	343	13.5	Tucannon River	40	Agency Wire
Mar 1 - Apr 23, 2002	3,074	228			3,055	343	8.9	Tucannon River	40	Agency Wire

Table 5. Brood Year 2001 Tucannon summer steelhead - Wild - plants and transfers.

PLANTS AND TRANSFERS
TUCANNON HATCHERY

DATE	TRANSFERRED IN		TRANSFERRED OUT		PLANTED		SIZE FISH / POUND	WATER LOCATION	RIVER MILE	MARKS
	NUMBER	POUNDS	NUMBER	POUNDS	NUMBER	POUNDS				
Feb. 25, 2002	58,738	10,305	0	0	13,858	2,520	5.7	Tucannon River	40	CWTMI Red Right
Apr. 2, 2002					44,758	8,138	5.5	Tucannon River	40	CWTMI Red Right
Apr. 3-5, 2002							5.5	Tucannon River		CWTMI Red Right
	58,738	10,305	0	0	58,616	10,657				

Table 6. Brood Year 2001 Kamloop rainbow trout plants and transfers.

PLANTS AND TRANSFERS

TUCANNON HATCHERY

DATE	TRANSFERRED IN		TRANSFERRED OUT		PLANTED		SIZE FISH / POUND	WATER LOCATION	RIVER MILE	MARKS
	NUMBER	POUNDS	NUMBER	POUNDS	NUMBER	POUNDS				
Aug. 20, 2002			51,451	104				Lyons Ferry Hatchery		None
			51,451	104						

Note: 9,699 died during transport from Tucannon Hatchery to Lyons Ferry Hatchery due to equipment failure on Aug. 20, 2002.

Table 7. Plants and Transfers summary for the period Oct 1, 2001 - Sep 30, 2002.

Oct 1, 2001 - Sep 30, 2002

TUCANNON HATCHERY

PLANTS AND TRANSFERS SUMMARY

STOCK CODE	TRANSFERRED IN		TRANSFERRED OUT		PLANTED		AVERAGE SIZE FISH / POUND
	NUMBER	POUNDS	NUMBER	POUNDS	NUMBER	POUNDS	
CK:SP:TUCA:00:M CK:SP:TUCA:00:M	111,156	3,368			102,099	6,587	33.000 15.500
CK:SP:TUCA:00:CB CK:SP:TUCA:00:CB	3,074	228			3,055	343	13.500 8.900
SH:SU:TUCA:01:W SH:SU:TUCA:01:W	58,738	10,305			58,616	10,657	5.700 5.500
RB:NA:SPOK:00:H RB:NA:SPOK:00:H					133,288 4,296	42,636 8,742	3.126 0.491
RB:NA:SPOK:01:H RB:NA:SPOK:01:H					69,091 400	378 80	182.780 5.000
RB:NA:KAML:01:H			41,752	401			104.000
	172,968	13,901	41,752	401	370,845	69,424	

Table 8. Brood Year 2002 Tucannon River spring chinook - Hatchery - collection and spawning.

ADULT COLLECTION AND SPAWNING

TUCANNON HATCHERY

Adult Collection Site: Rainbow Lake Trap

MONTH ENDING	EST. TRAPPED / RECEIVED			RETURNED TO RIVER		SHIPPED TO LFH		MORTALITY		SPAWNED			DISPOSAL		REMARKS
	ADULTS	JACKS	MINI	Male	Female	Male	Female	Male	Female	Jk	Female	Male	Female	Jk	
May-02	306			119	155	12	20								
Jun-02	243	15		104	128	4	7								
Jul-02	7	2		1	2	2	4								
Aug-02	7	1		4	3	1									
Sep-02	17	1		9	4	1	4								
Adjustments	9	1				8	1	1							
SEASON TOTAL	589	21	0	236	291	18	26	3	0	0	0	0	0	0	0

Note: Adjustments are fish that were identified at trapping as wild but were found to be hatchery by scale analysis.

Table 9. Brood Year 2002 Tucannon River spring chinook - Wild - collection and spawning.

ADULT COLLECTION AND SPAWNING

TUCANNON HATCHERY

Adult Collection Site: Rainbow Lake Trap

MONTH ENDING	EST. TRAPPED / RECEIVED			RETURNED TO RIVER		SHIPPED TO LFH		MORTALITY		SPAWNED			DISPOSAL		REMARKS
	ADULTS	JACKS	MINI	Male	Female	Male	Female	Male	Female	Jk	Female	Male	Female	Jk	
May-02	70			26	24	12	8								
Jun-02	80	2		25	27	1	14								
Jul-02	5	1		2	1	1									
Aug-02	14			6	6										
Sep-02	6			4	2										
Adjustments	-9	-1				-1	1								
SEASON TOTAL	166	2	0	65	60	1	19	22	1	0	0	0	0	0	0

Note: One male, one female and one jack that were originally counted as wild were identified as hatchery fish and reflected as adjustments. In addition, one fish was originally listed as a male under the shipped column was actually a jack. This is also noted under adjustments.

Table 10. Brood Year 2002 Tucannon River bull trout handling at Rainbow Lake Trap.
ADULT COLLECTION AND SPAWNING

TUCANNON HATCHERY
Adult Collection Site: Rainbow Lake Trap

MONTH ENDING	EST. ADULTS	TRAPPED / RECEIVED			RETURNED TO RIVER				MORTALITY			SPAWNED			DISPOSAL		REMARKS
		JACKS	MAXI	MINI	Above Barrier	Below Barrier	Male	Female	Jx	Male	Female	NVF	Jx	Male	Female	Jx	
Mar-02	3																
Apr-02	0																
May-02	32																
Jun-02	124																
Jul-02	42																
Aug-02																	
Sep-02																	
SEASON TOTAL	201	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 11. Brood Year 2002 Tucannon summer steelhead - Wild - collection and spawning.
ADULT COLLECTION AND SPAWNING

TUCANNON HATCHERY

Adult Collection Site: Rainbow Lake Trap

MONTH ENDING	EST. TRAPPED/RECEIVED		RETURNED TO RIVER				MORTALITY				SPAWNED				DISPOSAL		REMARKS
	ADULTS	JACKS	BELOW RACK		ABOVE RACK		Male	Female	Jk	Male	Female	NVF	Jk	Male	Female	Jk	
			Male	Female	Male	Female											
Feb-02	3				2	1											
Mar-02	39				25	14											
Apr-02	128				47	82											
May-02	6				1	5											
SEASON TOTAL	177	0	0	0	75	102	0	0	0	0	0	0	0	0	0	0	0

Table 12. Brood Year 2002 Tucannon summer steelhead - Hatchery - collection and spawning.
ADULT COLLECTION AND SPAWNING

TUCANNON HATCHERY

Adult Collection Site: Rainbow Lake Trap

MONTH ENDING	EST. TRAPPED/RECEIVED		RETURNED TO RIVER				MORTALITY				SPAWNED				DISPOSAL		REMARKS
	ADULTS	JACKS	BELOW RACK		ABOVE RACK		Male	Female	Jk	Male	Female	NVF	Jk	Male	Female	Jk	
			Male	Female	Male	Female											
Mar-02	5		5														
Apr-02	22		19	3													
May-02	1			1													
SEASON TOTAL	28	0	24	4	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 13. Eggs received from other facilities during the period Oct 1, 2001 - Sep 20, 2002.

EGGS RECEIVED

TUCANNON HATCHERY

DATE	SHIPPED FROM	STOCK CODE	EGGS STAGE	EGG NUMBER
Jan. 7, 2002	Spokane Hatchery	RB:NA:SPOK:01:H	Eyed	220,150
Feb. 20, 2002	Hayspur Hatchery	RB:NA:KAML:01:H	Eyed	52,000
Mar. 7, 2002	Hayspur Hatchery	RB:NA:KAML:01:H	Eyed	27,000

Table 16. Feed Fed during the period Oct 1, 2001 - Sep 30, 2002..

TUCANNON HATCHERY

Oct 1, 2001 through Sep 30, 2002

FEED TYPE / SIZE	CY 2001			CY 2002									Total	
	Oct-01	Nov-01	Dec-01	Jan-02	Feb-02	Mar-02	Apr-02	May-02	Jun-02	Jul-02	Aug-02	Sep-02		
BioProducts														
BDS #1														0
BDS #2														0
BDS #3														0
BDG 1.0 mm														0
BDG 1.3 mm														0
BDG 1.5 mm														0
BDG 4.0 mm														0
BMF 2.0 mm														0
BMF 2.5 mm	50	250	575	1,100	600		50	25						2,650
BROOD 8.0 mm														0
BMF2.5MM + Aqua @ 4.5%	200	1,000												1,200
Fish Pills #2														0
Totals	250	1,250	575	1,100	600	0	50	25	0	0	0	0	0	3,850
MooreClark														
Nutra #0														0
Nutra 0.75 mm														0
Nutra 1.0 mm														0
Nutra 1.2 mm														0
Nutra 2.5 mm														0
Fry 1.5 mm														0
Fry 2.0 mm														0
Fry 2.5 mm														0
Fry 3.5 mm					88	660	440							1,188
Pedi Sal 5.0 mm														0
Pedi Sal 6.5 mm														0
Pedi Sal 11.0 mm														0
Clarks Nutra #1														0
Clarks Nutra #2														0
Clarks Nutra #3														0
Totals	0	0	0	0	88	660	440	0	0	0	0	0	0	1,188
Nelson & Sons Inc.														
Mash														0
Starter														0
SC Sal #1														0
SC Sal #2														0
SC Sal #3														0
SC Brood 1/4"				1,500	2,050	1,500	750							5,800
Ext Sal 3.0 mm		700	3,150	5,750	6,000	4,400	4,150	2,800	50	50	50			27,100
SC Trt 3/32"														0
Totals	0	700	3,150	7,250	8,050	5,900	4,900	2,800	50	50	50	0	0	32,900
Rangens														
Starter #0				47	131	40	26							244
Starter #1					2	248	200	350	100					900
Starter #2						25	25	50	350	350				800
Grower #3								100	100	550				750
Grower #4	3,200	100							50		1,200			4,550
Trout 3/32"	3,050	4,950								200	300			8,500
Trout 1/8"											500			500
Trout 5/32"	600	950	450											2,000
Trout 3/16"			1,600	400										2,000
Trout 1/4"										150				150
Totals	6,850	6,000	2,050	400	47	133	313	251	500	600	1,250	2,000	0	20,394
Total	7,100	7,950	5,775	8,750	8,765	6,893	5,703	3,076	650	650	1,300	2,000	0	58,332

Section Two Tables

Lyons Ferry Hatchery

Table 17. Brood Year 2000 Snake River fall chinook - Hatchery - plants and transfers.

PLANTS AND TRANSFERS

LYONS FERRY HATCHERY

DATE	TRANSFERRED IN		TRANSFERRED OUT		PLANTED		SIZE FISH / POUND	WATER LOCATION	RIVER MILE	MARKS
	NUMBER	POUNDS	NUMBER	POUNDS	NUMBER	POUNDS				
Feb. 6, 2002			162,969	9,800			16.63	Capt. John's Rapids AP - NPT		ADM/JCWT 63-01/83
Mar. 6, 2002			162,193	12,149			13.35	Pittsburg Landing AP - NPT		ADM/JCWT 63-06/78
Mar. 7, 2002			166,516	12,908			12.9	Big Canyon AP - NPT		ADM/JCWT 63-06/77
Apr. 1-11, 2002					432,511	46,507	9.3	On-site Release	58	ADM/JCWT 63-12/73
			491,678	34,857	432,511	46,507				

Table 18. Brood Year 2001 Snake River fall chinook - Hatchery - plants and transfers.

PLANTS AND TRANSFERS

LYONS FERRY HATCHERY

DATE	TRANSFERRED IN		TRANSFERRED OUT		PLANTED		SIZE FISH / POUND	WATER LOCATION	RIVER MILE	MARKS
	NUMBER	POUNDS	NUMBER	POUNDS	NUMBER	POUNDS				
Mar. 29, 2002			600	3			183	NWFSC		None
May 6, 2002			200,240	982			204	Pittsburg Landing AP - NPT		None
May 6-7, 2002			201,049	1,058			190	Pittsburg Landing AP - NPT		CWT Only 61-25/01
May 7-8, 2002			299,879	1,310			229	Big Canyon AP - NPT		None
May 7, 2002			200,645	1,278			157	Big Canyon AP - NPT		CWT Only 61-26/39
May 7-8, 2002			309,489	1,357			228	Capt. John's Rapids AP - NPT		None
May 6, 2002			190,387	1,007			189	Capt. John's Rapids AP - NPT		CWT Only 61-01/08
May 30-31, 202			506,865	2,853			178	Big Canyon AP - NPT		None
Jun. 3-5, 2002			317,295	1,775			179	Capt. John's Rapids AP - NPT		None
May 31-Jun. 4, 2002			182,731	1,512			121	Capt. John's Rapids AP - NPT		CWT Only 61-01/09
Jun. 28, 2002			113,213	765			148	NWFSC		PIT TAG
June 24, 2002					194,582	3,741	52	On-Site Release	58	AD/CWT
Oct. 16, 2002					29,059	1,181	24.6	Snake R. @ C. Timothy Park	130.7	None
Dec. 2, 2002					24,573	945	26	Snake R. @ Roosters Ramp		None
			2,522,393	13,900	248,214	5,867				

Note: 200,064 eyed eggs @1,651 EPP (129 lbs) were transferred to Oxbow Hatchery on December 10, 2001

Table 19. Brood Year 2001 Tucannon spring chinook - Mixed / wild & hatchery plants and transfers.

PLANTS AND TRANSFERS

LYONS FERRY HATCHERY

DATE	TRANSFERRED IN		TRANSFERRED OUT		PLANTED		SIZE FISH / POUND	WATER LOCATION	RIVER MILE	MARKS
	NUMBER	POUNDS	NUMBER	POUNDS	NUMBER	POUNDS				
May 6, 2002			140,937	4,503	21,043	171	123.41	Tucannon River	26.9	AD/CWT
Oct. 10, 2002							31.3	Tucannon Hatchery		CWT/M
			140,937	4,503	21,043	171				

Table 20. Brood Year 2001 Tucannon spring chinook - Captive Brood - plants and transfers.

PLANTS AND TRANSFERS

LYONS FERRY HATCHERY

DATE	TRANSFERRED IN		TRANSFERRED OUT		PLANTED		SIZE FISH / POUND	WATER LOCATION	RIVER MILE	MARKS
	NUMBER	POUNDS	NUMBER	POUNDS	NUMBER	POUNDS				
May 6, 2002			146,535	4,290	20,592	125	165	Tucannon River	26.9	AD/CWT
Oct. 11, 2002						0	34.16	Tucannon Hatchery		BWT Only
			146,535	4,290	20,592	125				

Table 21. Brood Year 2001 Lyons Ferry summer steelhead - Hatchery - plants and transfers.

PLANTS AND TRANSFERS

LYONS FERRY HATCHERY

DATE	TRANSFERRED IN		TRANSFERRED OUT		PLANTED		SIZE FISH / POUND	WATER LOCATION	RIVER MILE	MARKS
	NUMBER	POUNDS	NUMBER	POUNDS	NUMBER	POUNDS				
Feb. 2002	20,677	3,346			20,592	5,022	6.18	Dayton AP		AD/LV/CWT/FB
Feb. 2002	105,232	17,028					6.18	Dayton AP		AD Only
Apr. 1-30, 2002					104,522	25,493	4.1	From Dayton AP	54	AD/LV/CWT/FB
Apr. 1-30, 2002					20,211	4,668	4.1	From Dayton AP	54	AD Only
Apr. 16-17, 2002					42,401	10,508	4.33	On-Site Release	58	AD/LV/CWT/FB
Apr. 15-25, 2002					20,209	5,052	4.04	On-Site Release	58	AD Only
Apr. 16-18, 2002					79,650	19,962	4	Walla-Walla	35	AD/LV/CWT
Apr. 16-18, 2002					21,141	4,805	3.99	Walla-Walla	35	Ad Only
Apr. 16, 2002					43,968	10,532	4.4	Tucannon River	24.8	AD/LV/CWT/FB
Apr. 16-24, 2002					70,094	16,132	4.17	Tucannon River	24.8	AD Only
Apr. 17-25, 2002			600	120			4.35	Tucannon River	24.8	AD Only
Mar. 29, 2002							5	NWFSC		
	125,909	20,374	600	120	422,788	102,175				

Table 22. Brood Year 2002 Lyons Ferry summer steelhead - Hatchery - plants and transfers.

PLANTS AND TRANSFERS

LYONS FERRY HATCHERY

DATE	TRANSFERRED IN		TRANSFERRED OUT		PLANTED		SIZE FISH / POUND	WATER LOCATION	RIVER MILE	MARKS
	NUMBER	POUNDS	NUMBER	POUNDS	NUMBER	POUNDS				
May 23, 2002					105,502	469	225	Sprague Lake		
					105,502	469				

Table 23. Brood Year 2001 Wallowa summer steelhead - Hatchery - plants and transfers.

PLANTS AND TRANSFERS LYONS FERRY HATCHERY - Cottonwood Acclimation Pond

DATE	TRANSFERRED IN		TRANSFERRED OUT		PLANTED		SIZE FISH / POUND	WATER LOCATION	RIVER MILE	MARKS
	NUMBER	POUNDS	NUMBER	POUNDS	NUMBER	POUNDS				
Feb. 2002	41438	5630					7.36	Cottonwood AP		AD/LV/CWT/FB
Feb. 2002	141822	19243					7.37	Cottonwood AP		AD ONLY
Apr. 1-30, 2002					41,237	7,855	5.25	Grande Rhonde	28.7	AD/LV/CWT/FB
Apr. 1-30, 2002					141,485	26,950	5.25	Grande Rhonde	28.7	AD ONLY
	183260	24873			182,722	34,804				

Table 24. Brood Year 2001 Tucannon summer steelhead - Wild - plants and transfers.

PLANTS AND TRANSFERS

LYONS FERRY HATCHERY

DATE	TRANSFERRED IN		TRANSFERRED OUT		PLANTED		SIZE FISH / POUND	WATER LOCATION	RIVER MILE	MARKS
	NUMBER	POUNDS	NUMBER	POUNDS	NUMBER	POUNDS				
Oct. 5, 2001					6,237	219	28.48	Tucannon River	42.3	Agency CWT + Caudal Peduncle Red/Left
Oct. 5, 2001					6,237	219	28.48	Tucannon River	44	Agency CWT + Caudal Peduncle Red/Left
Oct. 5, 2001					6,237	219	28.48	Tucannon River	46.3	Agency CWT + Caudal Peduncle Red/Left
Oct. 5, 2001					6,237	219	28.48	Tucannon River	47	Agency CWT + Caudal Peduncle Red/Left
Feb. 25, 2002			58,738	10,305			5.7	Tucannon Hatchery	41	VI Eye Tag - Red Right
			58,738	10,305	24,948	876				

Table 25. Brood Year 2001 Touchet summer steelhead - Wild - plants and transfers.

LYONS FERRY HATCHERY

PLANTS AND TRANSFERS

DATE	TRANSFERRED IN		TRANSFERRED OUT		PLANTED		SIZE FISH / POUND	WATER LOCATION	RIVER MILE	MARKS
	NUMBER	POUNDS	NUMBER	POUNDS	NUMBER	POUNDS				
May 2, 2002					45,501	7,153	6.36	Touchet River	57.2	CWTM
					45,501	7,153				

Table 26. Brood Year 2000 Spokane rainbow trout plants and transfers.

LYONS FERRY HATCHERY

PLANTS AND TRANSFERS

DATE	TRANSFERRED IN		TRANSFERRED OUT		PLANTED		SIZE FISH / POUND	WATER LOCATION	RIVER MILE	MARKS
	NUMBER	POUNDS	NUMBER	POUNDS	NUMBER	POUNDS				
Feb. 13, 2002					12,000	4,000	3	Quarry Pond		
Feb. 20, 2002					2,002	770	2.6	Blue Lake		
Feb. 20, 2002					5,070	1,950	2.6	Dalton Lake		
Feb. 20, 2002					1,001	345	2.9	Orchard Pond		
Feb. 20, 2002					5,040	1,800	2.8	Golf Course Pond		
Feb. 20, 2002					2,012	745	2.7	Silcott Pond		
Feb. 20, 2002					2,662	918	2.9	Sprague Lake		
Feb. 21, 2002					4,006	1,252	3.2	West Evans Pond		
Feb. 21, 2002					1,002	313	3.2	Marmes Pond		
Feb. 21, 2002					1,002	313	3.2	Dam Pond		
Feb. 21, 2002					1,504	470	3.2	Dayton JV Pond		
Feb. 28, 2002					2,010	670	3	Blue Lake		
Mar. 1, 2002					5,400	1,800	3	Bennington Lake		
Mar. 7, 2002					5,040	1,800	2.8	Dalton Lake		
Mar. 11, 2002					2,501	962	2.6	Pampa Pond		
Mar. 12, 2002					1,002	371	2.7	Dam Pond		
Mar. 12, 2002					1,002	371	2.7	Orchard Pond		
Mar. 13, 2002					2,484	920	2.7	Fishhook Park Pond		
Mar. 13, 2002					1,002	371	2.7	Marmes Pond		
Mar. 14, 2002					2,484	920	2.7	Bennington Lake		
Mar. 15, 2002					3,255	1,252	2.6	West Evans Pond		
Subtotal					63,481	22,314				

Table 26. Continued - Brood Year 2000 Spokane rainbow trout plants and transfers.

LYONS FERRY HATCHERY

PLANTS AND TRANSFERS

DATE	TRANSFERRED IN		TRANSFERRED OUT		PLANTED		SIZE FISH / POUND	WATER LOCATION	RIVER MILE	MARKS
	NUMBER	POUNDS	NUMBER	POUNDS	NUMBER	POUNDS				
Page 1 Total										
					63,481	22,314				
Mar. 20, 2002					3,037	1,168	2.60	Golf Course Pond		
Mar. 20, 2002					3,120	1,200	2.60	Bennington Lake		
Mar. 21, 2002					1,953	751	2.60	Riparia Pond		
Mar. 22, 2002					2,600	1,000	2.60	Sprague Lake		
Mar. 25, 2002					1,477	568	2.60	West Evans Pond		
Page Totals					12,187	4,667				
Total					75,668	27,001	2.80			

Table 27. Brood Year 2001 Spokane rainbow trout plants and transfers.

PLANTS AND TRANSFERS

LYONS FERRY HATCHERY

DATE	TRANSFERRED IN		TRANSFERRED OUT		PLANTED		SIZE FISH / POUND	WATER LOCATION	RIVER MILE	MARKS
	NUMBER	POUNDS	NUMBER	POUNDS	NUMBER	POUNDS				
May 22, 2002					21,808	376	58	Williams Lake		
Apr. 30, 2002			59,994	606			99	IDF&G		
Apr. 30, 2002			39,996	404			99	IDF&G		
May 1, 2002			20,000	222			90	IDF&G		
May 1, 2002			5,000	56			90	IDF&G		
May 1, 2002			35,625	375			95	IDF&G		
			160,615	1,663	21,808	376				

Table 28. Brood Year 2001 Kamloop rainbow trout plants and transfers.

LYONS FERRY HATCHERY

PLANTS AND TRANSFERS

DATE	TRANSFERRED IN		TRANSFERRED OUT		PLANTED		SIZE FISH / POUND	WATER LOCATION	RIVER MILE	MARKS
	NUMBER	POUNDS	NUMBER	POUNDS	NUMBER	POUNDS				
Aug. 20, 2002	41,752	401	41,682	941			104	Tucannon Hatchery		None
Oct. 3, 2002							44.3	IDF&G		AD/RV Clip
	41,752	401	41,682	941			43.3			

Note: 9,699 died during transport from Tucannon Hatchery to Lyons Ferry Hatchery due to equipment failure on Aug. 20, 2002.

Table 29. Plants and transfers summary for the period Oct 1, 2001 - Sep 30, 2002.

Oct 1, 2001 - Sep 30, 2002

LYONS FERRY HATCHERY

PLANTS AND TRANSFERS SUMMARY

STOCK CODE	TRANSFERRED IN		TRANSFERRED OUT		PLANTED		AVERAGE SIZE FISH / POUND
	NUMBER	POUNDS	NUMBER	POUNDS	NUMBER	POUNDS	
CK:SP:TUCA:00:M			111,156	3,368			33,000
CK:SP:TUCA:00:CB			3,074	222			13,500
CK:SP:TUCA:01:M			140,937	4,503	21,043	171	123,410
CK:SP:TUCA:01:M			146,535	4,290	20,592	125	31,300
CK:SP:TUCA:01:CB			491,678	34,857	432,511	46,507	165,000
CK:FA:SNAK:00:H							34,160
CK:FA:SNAK:00:H							14,106
CK:FA:SNAK:01:H			2,522,393	13,900	194,582	3,741	9,300
CK:FA:SNAK:01:H			58,738	10,305			52,000
SH:SU:TUCA:01:W					24,948	876	181,467
SH:SU:TUCA:01:W					45,501	7,153	5,700
SH:SU:TUC:01:W					422,768	102,175	28,480
SH:SU:LYON:01:H					105,502	469	6,360
SH:SU:LYON:02:H					182,722		4,139
SH:SU:WARI:01:H					75,668		225,000
RB:NA:SPOK:90:H					21,808		5,250
RB:NA:SPOK:01:H			160,615	1,663			2,802
RB:NA:SPOK:01:H			41,682	941			58,000
RB:NA:SPOK:01:H							96,582
RB:NA:KAML:01:H	41,752	401					104,000
RB:NA:KAML:01:H							44,300
	41,752	401	3,676,808	74,049	1,547,655	223,357	

Table 30. Brood Year 2001 Snake River fall chinook adult collection and spawning.

ADULT COLLECTION AND SPAWNING

LYONS FERRY HATCHERY

Adult Collection Site: Lyons Ferry Hatchery Trap

MONTH ENDING	EST. TRAPPED / RECEIVED			RETURNED TO RIVER						MORTALITY			SPAWNED			DISPOSAL		REMARKS			
	ADULTS	JACKS		Male	Female	Jx	Male	Female	Jx	Male	Female	N/F	Jx	Male	Female	Jx					
		MAXI	MINI																		
Aug-01	11																	FBY 2001			
Sep-01	1,278																				
Oct-01	687																	FBY 2002			
Nov-01	104																				
Dec-01	0			45	5	1															
SEASON TOTAL	2,080	0	0	45	5	1	0	0	0	0	0	557	105	76	626	578	4	23	192	73	46

Table 31. Brood Year 2002 Snake River fall chinook adult collection and spawning.

ADULT COLLECTION AND SPAWNING

LYONS FERRY HATCHERY

Adult Collection Site: Lyons Ferry Hatchery Trap

MONTH ENDING	EST. TRAPPED / RECEIVED			RETURNED TO RIVER						MORTALITY			SPAWNED			DISPOSAL		REMARKS			
	ADULTS	JACKS		Male	Female	Jx	Male	Female	Jx	Male	Female	N/F	Jx	Male	Female	Jx					
		MAXI	MINI																		
Aug-02	0																	FBY 2002			
Sep-02	1,047																				
SEASON TOTAL	1,047	0	0	0	0	0	0	0	0	0	0	4	4	0	0	0	0	0	0	0	0

Table 34. Brood Year 2002 Tucannon River spring chinook - Hatchery - collection and spawning.

ADULT COLLECTION AND SPAWNING

LYONS FERRY HATCHERY

Adult Collection Site: Rainbow Lake Trap

MONTH ENDING	EST. TRAPPED / RECEIVED		RETURNED TO RIVER						MORTALITY			SPAWNED			DISPOSAL		REMARKS	
	ADULTS	JACKS	MAXI		MINI		Male	Jk	Female	Jk	Male	Female	NVF	Jk	Male	Female		Jk
			Male	Female	Male	Female												
May-02	32																	
Jun-02	21																	
Jul-02	8																	
Aug-02	0						1		1		4	4						8
Sep-02	4									22	23			2				
SEASON TOTAL	65	0	0	0	0	0	1	0	1	0	28	27	0	0	2	8	0	0

Note: Hatchery males are used only once.

Table 35. Brood Year 2002 Tucannon River spring chinook - Wild - collection and spawning.

ADULT COLLECTION AND SPAWNING

LYONS FERRY HATCHERY

Adult Collection Site: Rainbow Lake Trap

MONTH ENDING	EST. TRAPPED / RECEIVED		RETURNED TO RIVER						MORTALITY			SPAWNED			DISPOSAL		REMARKS	
	ADULTS	JACKS	MAXI		MINI		Male	Jk	Female	Jk	Male	Female	NVF	Jk	Male	Female		Jk
			Male	Female	Male	Female												
May-02	20																	
Jun-02	21																	
Jul-02	1																	
Aug-02	0											3						
Sep-02										20	19							
Adjustments										-1	1							
SEASON TOTAL	42	0	0	0	0	0	0	0	0	19	22	1	0	0	0	0	0	0

Note: Fish identified at trapping are pit tagged and scales are taken for analysis to determine if they are truly wild fish. Wild males are spawned with hatchery females. Wild females are spawned with hatchery males. Wild males may be used for spawning up to three times. They may also be used for spawning with captive brood females.

Table 36. Brood Year 2002 Tucannon River spring chinook - Captive Brood - collection and spawning
 ADULT COLLECTION AND SPAWNING
 LYONS FERRY HATCHERY
 Adult Collection Site: LFH Captive Brood Ponds

MONTH ENDING	EST. TRAPPED / RECEIVED			RETURNED TO RIVER				MORTALITY			SPAWNED			DISPOSAL		REMARKS		
	ADULTS	JACKS MAXI	JACKS MINI	Tucannon River - PanJab Bridge Male	Tucannon River - PanJab Bridge Female	Non-Sexed	Male	Jx	Female	Jx	Male	Female	NVF	Jx	Male		Female	Jx
Aug-02	303					197							1			1		FBY 2002
Sep-02	0						5		25		57	85			12	1		
Oct-02	0										28	25			43	12		FBY 2003
SEASON TOTAL	303					97	5		25		83	121	0	0	55	14	0	

* August 20, 2002 release at PanJab Bridge of spawning adults - 21 non-sexed adults from brood year 1998 progeny and 76 non-sexed adults from 1999 progeny.

Table 37. Brood Year 2002 Willowa summer steelhead - Hatchery - collection and spawning.
ADULT COLLECTION AND SPAWNING **LYONS FERRY HATCHERY**
Adult Collection Site: Cottonwood Creek Trap

MONTH ENDING	EST. TRAPPED / RECEIVED		MORTALITY				SPAWNED				CARCASS DISTRIBUTION		REMARKS	
	ADULTS	JACKS	Above Rack		Below Rack		Lethal		Lethal		Male	Female		
			Male	Jk	Female	Jk	Male	Female	Male	Female				
Mar-02	381													
Apr-02	1,284		482	661		6	25		87	82	140	183		
May-02	47		12	28		1	6							
Adjustment	-1													
SEASON TOTAL	1,711		494	667	0	7	31		87	82	140	183	0	

Table 38. Brood Year 2002 Lyons Ferry summer steelhead - Hatchery - collection and spawning.
ADULT COLLECTION AND SPAWNING **LYONS FERRY HATCHERY**
Adult Collection Site: LFH Trap

MONTH ENDING	EST. TRAPPED / RECEIVED		MORTALITY				SPAWNED				DISPOSAL		REMARKS	
	ADULTS	JACKS	RETURNED TO RIVER		DONATION		Lethal		Lethal		Male	Female		
			Male	Jk	Female	Jk	Male	Female	Male	Female				
Jul-01	1476													
Aug-01	1373					1	6							
Sep-01	2208					4	18							
Oct-01	1,518		2,215	2,573	1	6	15				10	13		
Nov-01	1,389		86	99		17	44				10	9		
Dec-01	-420					563	662				6	17		
Jan-02	0					45	136				1	16		
Feb-02	0					42	145		195	191	1	16		
Mar-02						66	31		36		195	150		
Apr-02														
SEASON TOTAL	7,634	0	2,311	2,672	0	744	1,057	0	231	191	222	205	0	1 Bad Male - not Spawned

Note: December (-420) adjustment was to correct previous collection estimate.

Table 42. Eggs received from other facilities during the period Oct 1, 2001 - Sep 20, 2002

EGGS RECEIVED

LYONS FERRY HATCHERY

DATE SHIPPED STOCK EGGS EGG
FROM CODE STAGE NUMBER

Dec. 13, 2001	Spokane Hatchery	RB:NA:SPOK:01:H	Eyed	325,448

Table 43. Egg take and disposition summary for the period Oct 1, 2001 - Sep 30, 2002.

EGG TAKE AND DISPOSITION

LYONS FERRY HATCHERY

SPAWNING PERIOD	STOCK CODE	FEMALES SPAWNED	EST. EGGS TAKEN	EGGS LOST	PERCENT LOSS	EGGS EYED	EGGS SHIPPED GREEN	EGGS SHIPPED EYED	EGGS DESTROYED	ADJUSTED TAKE +/-	TOTAL TAKE	FEMALES	
												SPAWNED	SPAWNED
Aug 28 - Sep 19, 2001	CK:SP:TUCA:01:M	56	186,000	2,225	1.21%	181,902	0	0	0	-11,873	184,127	56	3,288
Sep 04 - Oct 02, 2001	CK:SP:TUCA:01:CB	164	357,900	81,545	28.99%	189,758	0	0	0	-76,597	281,303	164	1,715
Oct 23 - Nov 27, 2001	CK:FA:SNAK:01:H	1,338	4,418,700	159,208	3.36%	4,575,026	0	200,064	a. 144,630	318,134	4,734,234	1,338	3,538
Aug 27 - Oct 01, 2002	CK:SP:TUCA:02:M	49	169,364	8,047	3.57%	163,317	0	0	0	0	169,364	49	3,456
Aug 27 - Sep 17, 2002	CK:SP:TUCA:02:CB	121	176,644	120,833	68.44%	55,711	0	0	0	0	176,544	121	1,459
Mar 05 - Apr 10, 2002	SH:SU:TUCA:02:W	13	74,204	12,331	18.99%	52,610	0	0	0	-9,263	64,941	13	4,995
Mar 19 - Apr 23, 2002	SH:SU:TUUC:02:W	14	70,843	39,250	51.13%	37,519	0	0	0	5,926	76,769	14	5,484
Jan 01 - Jan 22, 2002	SH:SU:LYON:02:H	192	941,223	172,391	18.32%	768,632	0	0	0	0	941,223	192	4,902
Apr 02 - Apr 16, 2002	SH:SU:WARI:02:H	82	422,441	94,691	20.79%	319,479	0	0	b. 41,332	33,091	455,502	82	5,555

a. Eggs from Females with High ELISA Values - Destroyed at Eyed Egg Stage

b. Eggs from IHNV Positive Females - Destroyed Prior to Eyed Egg Stage

c. Estimated eyed egg numbers due to loss of data.

LYONS FERRY HATCHERY

Table 44. Diseases and treatments - Juveniles.

DISEASES AND TREATMENTS

Oct. 1, 2001 - Sep. 30, 2002

Date Exam	Stock Brood Year	Pond Number	Disease	Chemical Dosage	Treatment Method / Time	H2O Temp.	Remarks
02/26/02	2001 Snake R. Fall Chinook	N-11	Some Coagulated Yolk & BCWD	None	None	52 F	In general healthy Monitor Mortality
04/03/02	2001 Snake R. Fall Chinook	S-5, 6, 7, 8, 9, 10, 15 S-25,26,27, 28,	BGD	0.5 ppm, 1.0 ppm, 1.5 ppm	KMNO4 3 Days	52 F	Keep off feed During Treatment
04/03/02	2001 Spokane Rainbows	N-9, N-10	BCWD	15 mg / kg / day Florifinicol	Coated fish pills 10 Days	52 F	
04/10/02	2001 Snake R. Fall Chinook	S-11, S-12 S-13, S-14	BGD	0.5 ppm, 1.0 ppm, 1.5 ppm	KMNO4 3 Days	52 F	
04/10/02	2001 Spokane Rainbows	N-9	BCWD	15 mg / kg / day Florifinicol	Coated fish pills 10 Days	52 F	Verbal
04/16/02	2001 Snake R. Fall Chinook	S-5, 7, 8, 16, 21, 22 S-23	BGD	0.5 ppm, 1.0 ppm, 1.5 ppm	KMNO4 3 days	53 F	Verbal
05/13/02	2001 Snake R. Fall Chinook	S-3	BGD	0.5 ppm, 1.0 ppm, 1.5 ppm	KMNO4 3 Days	52 F	Verbal
05/13/02	2002 LFH Summer Steelhead	N-4, N-6, N-7	BCWD	15 mg / kg / day Florifinicol	Coated fish pills 10 Days	52 F	Split on 05/14/02
06/17/02	2002 Tucannon Summer Steelhead	T-6	BCWD	None	None	53 F	Monitor Mortality

Table 46. Feed Fed during the period Oct 1, 2001 - Sep 30, 2002..

LYONS FERRY HATCHERY

Oct 1, 2001 through Sep 30, 2002

FEED TYPE / SIZE	CY 2001			CY 2002									Total	
	Oct-01	Nov-01	Dec-01	Jan-02	Feb-02	Mar-02	Apr-02	May-02	Jun-02	Jul-02	Aug-02	Sep-02		
BioProducts														
BDS #1			44	320	1,000									1,364
BDS #2				50	1,328	954								2,332
BDS #3					308	5,159	1,980							7,447
BDG 1.0 mm						362	3,669	7,491	434					11,956
BDG 1.3 mm							48	908	4,233	315				5,504
BDG 1.5 mm								224	513	6,484	2,993			10,224
BDG 4.0 mm						176								176
BMF 2.0 mm											6,756	9,244		16,000
BMF 2.5 mm	2,952	1,533	4,639	4,589	2,173	160								18,761
BROOD 6.0 mm	108	64	24		211	53								458
BMF2.5MM + Aqua @ 4.5%	6,900	5,475												12,375
Fish Pills #2														0
Totals	9,958	7,072	4,707	4,959	5,020	6,854	5,897	8,623	5,180	6,809	9,749	11,959		86,587
MooreClark														
Nutra #0								10	90	231				331
Nutra 0.75 mm														
Nutra 1.0 mm											26			26
Nutra 1.2 mm	342	670												1,012
Nutra 2.5 mm		40	1,060	660										1,777
Fry 1.5 mm										17				0
Fry 2.0 mm	16	80	1,504											1,600
Fry 2.5 mm	704	2,885	4,086	3,450	4,348	4,544	72	29		21	12	10		20,161
Fry 3.5 mm	52	44	97	69	96	68	46	92	65	129	192	22		972
Pedi Sal 5.0 mm	187	184	307	44		64	460			277			15	1,538
Pedi Sal 6.5 mm						12	85	540	80	111	18			846
Pedi Sal 11.0 mm														0
Clarks Nutra #1										450	539			989
Clarks Nutra #2											409	1,385		1,804
Clarks Nutra #3	132													749
Fish Pills #2														0
Totals	1,433	3,903	7,054	4,223	4,444	4,688	943	839	696	711	1,170	2,191		32,285
Nelson & Sons Inc.														
Mash				40	5	5								50
Starter				88	222	270								580
SC Sal #1					190	1,008	600	300						2,098
SC Sal #2						108	879	805	640	289	102	164		2,987
SC Sal #3							327	576	1,034	1,166	684	75		3,862
SC Sal #4	6,732													6,732
Ext Sal 3.0 mm	7,144	15,722	7,142	18,566	15,183	22,748	13,245		992	1,506	1,475	3,776		14,480
SC Trt 3/32"	4,052	4,697		5,308	3,597	340	428			1,260	2,790	2,860		99,750
Totals	17,928	20,419	7,142	24,002	19,197	24,479	15,479	1,681	2,666	4,221	5,051	6,874		149,139
Total	29,319	31,394	18,903	33,184	28,661	38,021	22,119	11,143	8,542	11,741	15,870	21,024		268,021

Section Three Tables

Fish Health

Table 47. Broodstock viral testing at Lyons Ferry Hatchery, 2001 - 2002.

Location	Date	Species-Stock	No. OF	No. KS	Results
Lyons Ferry	11-01	CHF-Snake River	60	60	Negative
Lyons Ferry	01-02	SS-Lyons Ferry	190	60	Negative
Lyons Ferry	03-02	SS-Tucannon River	13	13	Negative
Cottonwood Pond	04-02	SS-Grande Ronde	82	60	IHNV
Lyons Ferry	05-02	SS-Touchet River	14	14	Negative
Lyons Ferry	09-01	CHS-Tucannon River	56	56	IHNV
Lyons Ferry	09-01	CHS-Tucannon Captive	60	60	IHNV

OF = ovarian fluid
 KS = kidney/spleen

Table 48. BKD-ELISA testing of female chinook broodstocks at Lyons Ferry Hatchery in 2001.

Species-Stock	No. Tested	%Below Low	%Low	%Mod.	%High
CHF-Snake R.	660	84.8	8.9	3.9	2.3
CHS-Tucannon-Anadromous	56	91.1	7.1	1.8	0
CHS-Tucannon-Captive	166	99.4	0.6	0	0

Table 49. Summary of fish health inspections - Lyons Ferry and Tucannon hatcheries, October 1, 2001 to September 30, 2002.

Hatchery	Date	Species Stock	Broodyear	Diagnosis
Lyons Ferry	10-Dec-01	SS Touchet	2001	Healthy
Lyons Ferry	06-Feb-02	CHS Tucannon	2001	Healthy
Lyons Ferry	26-Feb-02	CHF Lyons Ferry	2000	Healthy
Lyons Ferry	03-Apr-02	RB Spokane	2000	BCWD
Lyons Ferry	03-Apr-02	CHF Lyons Ferry	2000	BGD
Lyons Ferry	10-Apr-02	CHF Lyons Ferry	2000	BGD
Lyons Ferry	10-Apr-02	RB Spokane	2000	BCWD
Lyons Ferry	25 April 2002	CHF Lyons Ferry	2001	BGD
Lyons Ferry	13-May-02	CHF Lyons Ferry	2001	BGD
Lyons Ferry	13-May-02	SS Lyons Ferry	2001	BCWD
Lyons Ferry	03-Jun-02	CHF Lyons Ferry	2001	Healthy
Lyons Ferry	17-Jun-02	SS Tucannon	2002	BCWD
Lyons Ferry	24-Jul-02	CHF Lyons Ferry	2001	Healthy
Lyons Ferry	24-Jul-02	CHS Tucannon	2001	Healthy
Lyons Ferry	27-Aug-02	CHS Tucannon	2001	Healthy
Lyons Ferry	27-Aug-02	RB Kamloops	2002	Healthy
Lyons Ferry	27-Aug-02	CHF Lyons Ferry	2001	Healthy
Tucannon	19-Oct-01	RB Spokane	2000	Healthy
Tucannon	29-Nov-01	CHS Tucannon	2000	Healthy
Tucannon	29-Nov-01	RB Spokane	2000	Healthy
Tucannon	26-Dec-01	RB Spokane	2000	Healthy
Tucannon	08-Jan-02	CHS Tucannon	2000	Healthy
Tucannon	29-Jan-02	RB Spokane	2000	Healthy
Tucannon	19-Mar-02	RB Spokane	2000	BCWD & External Parasites
Tucannon	22-Mar-02	RB Spokane	2000	Trichodiniasis
Tucannon	22-Mar-02	SS Tucannon	2001	Healthy
Tucannon	03-Apr-02	RB Spokane	2000	Healthy
Tucannon	02 May 02	RB Spokane	2000	Environmental Gill Disease
Tucannon	02- May-02	RB Spokane	2001	Healthy
Tucannon	20-May-02	RB Spokane	2001	Steatitis
Tucannon	02 July-02	RB Spokane	2001	Healthy
Tucannon	06 Sep-02	RB Spokane	2001	BGD

