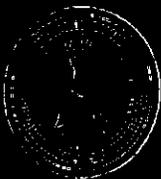
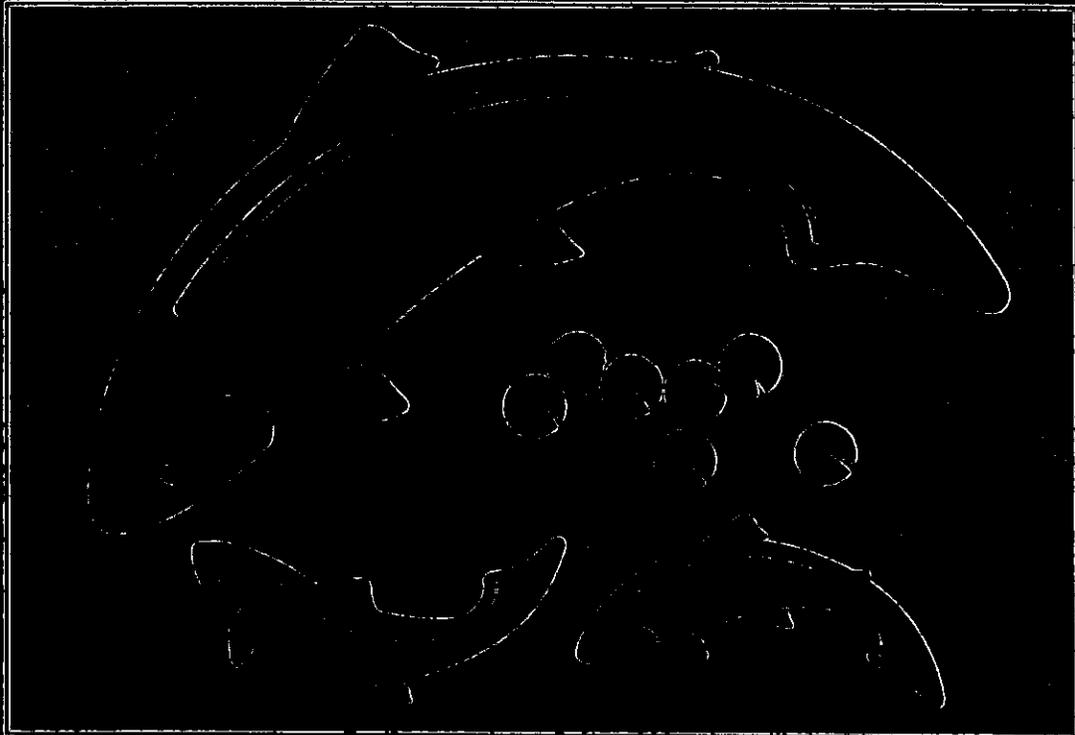


W DEPARTMENT OF WILDLIFE Washington

Fiscal Year 1991



LYONS FERRY AND TUCANNON
HATCHERIES ANNUAL REPORT Report# 92-9
FISHERIES MANAGEMENT DIVISION
BY: HAROLD R. HARTY AND WILLIAM N. HUBBARD

UNITED STATES DEPARTMENT OF INTERIOR - FISH AND WILDLIFE SERVICE

LOWER SNAKE RIVER COMPENSATION PLAN OFFICE

4696 OVERLAND ROAD, ROOM 560

ANNUAL REPORT - LYONS FERRY AND TUCANNON HATCHERIES

OCTOBER 1, 1990 TO SEPTEMBER 30, 1991

CONTRACT NUMBER: 14-16-0001-86503 & 91503

HAROLD R HARTY - FISH HATCHERY MANAGER 5

**LYONS FERRY HATCHERY
STARBUCK, WASHINGTON**

**WILLIAM N. HUBBARD
TUCANNON HATCHERY
POMEROY, WASHINGTON**

TABLE OF CONTENTS

Title	Page
Lyons Ferry Hatchery Annual Report	1
Tucannon Hatchery Annual Report	14

TABLE OF CONTENTS

ACKNOWLEDGEMENTS..... iii

LIST OF TABLES..... iv

INTRODUCTION..... v

Lyons Ferry Summer Steelhead..... 1

 1990 Brood Year..... 1

 1991 Brood Year..... 1

Wallowa Summer Steelhead..... 3

 1990 Brood Year..... 3

 1991 Brood Year..... 3

Goldendale Rainbow Trout..... 5

Spokane Rainbow Trout..... 5

 1989 Brood Year..... 5

 1990 Brood Year..... 6

Hatchery Operations and Maintenance..... 7

 Engineering Projects..... 7

 Maintenance and Construction Projects..... 8-9

Equipment Purchases..... 9

N.P.D.E.S. PERMITS..... 9

Personnel..... 10

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We would like to thank Mark Schuck, Art Viola and staff of Washington Department of Wildlife, Lyons Ferry Evaluation for their able assistance with the sorting and spawning of steelhead. A special thanks to Mark and Art for their assistance with setting up pumps, hoses and other equipment as a backup system in the event our water supply pipeline failed completely.

We would like to express a special appreciation to the managers and staffs of Eastbank, Chelan and Tucannon Hatcheries for undertaking the burden of rearing Lyons Ferry production fish during the pipeline repair.

We would like to express a special thanks to Mike Holm, Lyle Leslie, Glenn Ward and Kent Weaver for their personal efforts with setting up a backup water supply system and help with transferring the fish to other installations.

We would like to express a special appreciation to Barb Branscom and the Purchasing staff for their personal efforts in guiding us through purchasing procedures to procure supplies and materials employed in the maintenance and operation of this station.

A special thanks to John Kerwin, Program Manager - Department of Wildlife, for his assistance and firm support at the time of the pipeline failure and during the pipeline repair.

We also would like to express a special appreciation to the U.S. Army Corps of Engineers/Walla Walla District for their support and expedient response in repairing the pipeline, and to the staff of the LSRCP office in Boise for their firm support.

LIST OF TABLES

Table 1: Adult Returns to Lyons Ferry & Adults Shipped.....	2
Table 2: Spawning Records for 1991 Lyons Ferry Summer Steelhead.....	2
Table 3: Marking Breakdown of Steelhead for 1991 Release.....	4
Table 4: Food Fed and Weight Gain for all Species reared at Lyons Ferry Hatchery.....	11
Table 5: Stocking Data Summer Steelhead Smolts.....	12
Table 6: Stocking Data Rainbow Trout.....	13

INTRODUCTION

Lyons Ferry Trout Hatchery is part of the Lower Snake River Compensation Plan and has been in operation since 1983. Mitigation goals are: 875,000 summer steelhead with a weight of 116,400 pounds 100,000 legal/catchable and 200,000 sub-legal rainbow with a weight of 40,000 pounds. Two satellite facilities, Dayton and Cottonwood Ponds located on the Touchet and Grande Ronde Rivers respectively, are used to acclimate steelhead smolts for a period of two months prior to release. The Tucannon Trout Hatchery and Curl Lake Pond are also satellites of Lyons Ferry Trout Hatchery with mitigation goals of 153,000 rainbow weighing 46,000 pounds and 120,000 summer steelhead with a weight of 8,000 pounds which are included in mitigation goals of Lyons Ferry Trout Hatchery.

EXECUTIVE SUMMARY

Fiscal Year 1990/91 production of steelhead was 940,934 weighing 227,740 pounds. Rainbow Trout production included 111,899 legal size and 329,303 sub-legal size fish with weights of 42,591 pounds and 10,237 pounds respectively.

Steelhead adult returns were similar to previous years. A total of 2,434 adults were trapped in the months of July, August, September, October and November. On November 30, 1990, we sorted through adults and returned 523 females and 489 males to the Snake River to spawn naturally (Table 1).

A total of 1,296,249 green eggs were taken with 1,166,624 eggs reaching the eyed stage.

LYONS FERRY SUMMER-RUN STEELHEAD

1990 BROOD YEAR

At the beginning of the fiscal year, 689,425 fingerling (32.9/lb) equalling 31,503 pounds were on hand. On January 7 through 18, hatchery staff initiated the transfer of steelhead fingerlings from rearing lakes to raceways for marking (coded wire tags, freeze brands and ventral fin clip). These marked fish were divided into four groups (Table 2). A total of 80,301 fish were graded, dividing them by size, into two distinct groups of 40,148 fish (7.1/lb) and 40,173 fish (5.0/lb). The two groups of fish were transferred to Dayton Acclimation Pond for a smolt release size/adult return study requested by Mark Schuck. At time of release, the two groups were 5.3/lb and 3.8/lb respectively. By March 7, 120,552 marked fish (5.8/lb average) equalling 20,665 pounds and 28,200 unmarked fish (4.7/lb) equalling 6,000 pounds were transferred to Dayton Acclimation Pond. By March 8, 40,560 marked fish (6.3/lb) equalling 6,438 pounds and 80,000 unmarked fish (4.7/lb) equalling 17,000 pounds were transferred to Curl Lake Acclimation Pond. By May 2, 635,635 smolts (3.3/lb - 4.0/lb) equalling 164,746 pounds were released into the following waters; Mill Creek, Snake, Tucannon, Touchet and Walla Walla Rivers (Table 5).

1991 BROOD YEAR

Initiated operation of the fish ladder and adult steelhead trap on July 30, 1990, and terminated trapping on November 16, 1990. A total of 2,434 adult steelhead (Table 1) were captured at the trap. Peak returns occurred between September 13 and October 13 (Table 1).

Spawning of adult summer steelhead transpired over a period of five weeks commencing on February 2, 1991, and ending on March 5, 1991, resulting in 1,296,249 green eggs (Table 2). Retained 1,165,315 eyed eggs for rearing. Hatching of the eggs was completed on April 2, 1991, resulting in 1,115,368 fry with 4.29 percent egg loss from eyed stage to swim-up. By May 24, 1991, 944,725 fry (528/lb - 919/lb) were transferred to intermediate tanks and raceways. On May 28, 1991, a leak was detected in the hatchery main water supply pipeline. Consequently, we transferred 353,109 fingerling (143/lb - 203/lb) equalling 2,101 pounds to Chelan Hatchery and 587,208 fingerling (244/lb - 404/lb) equalling 1,846 pounds to Eastbank Hatchery. Total fish transferred was 940,317 fingerling equalling 3,947 pounds. On August 12, through 23, 1991, fingerlings from Eastbank and Chelan Hatcheries, 855,595 fingerling (58/lb - 152/lb) equalling 8,405 pounds were transferred back to Lyons Ferry. Mortalities suffered throughout the transfer process were 258,625 (25%). Marking (adipose fin clip) commenced on September 3, and was completed September 11, 1991, with 351,800 fingerling (80.3/lb) equalling 4,381 pounds transferred to production lake one and 350,090 fingerling (79/lb) equalling 4,432 pounds transferred to production lake two. By the end of September, 1991, 790,006 fingerling (32.3/lb average) equalling 24,458 pounds were on hand.

Table 1. Adult Returns to Lyons Ferry Hatchery and Adults Shipped.

LYONS FERRY SUMMER STEELHEAD

Date of first return.....	7-30-90
Date of last return.....	11-16-90
Number of females returning.....	1,436
Number of males returning.....	998
Dates of peak returns.....	9-13-90 to 10-13-90
Number of females and males released to spawn naturally.....	1,407
Mortality of all adult returns.....	96
Number of adults shipped.....	1

Table 2. Spawning Records for 1991 Lyons Ferry Stock Summer Steelhead.

DATES SPAWNED	NUMBER EGGS TAKEN	NUMBER FEMALES	NUMBER MALES
2-05-91	230,499	48	96
2-12-91	264,670	54	110
2-19-91	286,449	56	112
2-26-91	269,699	55	114
3-05-91	244,932	48	100

Total number of females spawned.....	261
Total number of males spawned.....	532
Total number of green eggs.....	1,296,249
Total number of eyed eggs.....	1,166,624
Number of eggs retained for rearing.....	1,165,315
Number of eggs shipped.....	12,129

WALLOWA STOCK

1990 BROOD YEAR

On October 1, 1990, 338,178 fingerling (60.1/lb) equalling 5,627 pounds were being held in production lake three. On March 5, 1991, 252,880 fingerling (7.7/lb) equalling 32,900 pounds were transferred to Cottonwood Acclimation Pond. By April 30, 1991, 305,299 smolts (4.9/lb - 5.6/lb) equalling 57,698 pounds were released into the Grande Ronde River (Table 5). Mortality from fingerling to legal size/stocking was 32,879 fish (9.72%).

1991 BROOD YEAR

At the request of the Oregon Department of Fish and Wildlife (ODF), we trapped 508 adults (360 females, 148 males) at the Cottonwood Acclimation Pond from March 11, 1991, through May 6, 1991. All adults were transferred to ODFW Enterprise Hatchery for maturation and spawning.

On April 5, 1991, through May 1, 1991, Lyons Ferry Hatchery received 421,025 eggs from Enterprise Hatchery. Egg loss was 4,555 (1.08%) with a total of 416,470 sack-fry (2,510/lb) equalling 170 pounds remaining. On May 30, 1991, we transferred 416,470 fry to Tucannon Hatchery due to the immediate threat of the hatchery water supply pipeline failures. Because the fry were quite small (900/lb - 2,000/lb), we experienced rather high mortalities (80,560 - 19%) in the transfer process. On August 12, 1991, 336,538 fingerling (98.3/lb average) equalling 3,423 pounds were shipped from Tucannon Hatchery to Lyons Ferry and released into four raceways. Marking (adipose fin clip) commenced on September 13, 1991, and was completed September 17, 1991, with 335,910 fingerling (69/lb) equalling 4,868 pounds transferred to production lake three. By the end of September, 1991, 334,910 fingerling (40/lb) equalling 8,373 pounds were on hand.

Table 3. Marking Breakdown of Steelhead For 1991 Release.

<u>NUMBER OF FISH</u>	<u>BRAND</u>	<u>TAG CODE</u>	<u>FIN CLIP</u>
<u>Curl Lake</u>			
20,390	RA-7-4	63-14/55	AD/LV
20,170	RA-7-3	63-14/52	AD/LV
<u>Dayton Acclimation Pond</u>			
20,042	RA-IT-1	63-40/61	AD/LV
20,106	LA-IT-1	63-40/60	AD/LV
20,127	RA-IT-1	63-40/62	AD/LV
20,042	LA-IJ-3	63-40/59	AD/LV
20,131	LA-IJ-1	63-40/58	AD/LV
20,104	RA-IJ-1	63-14/56	AD/LV
<u>Tucannon River at Curl Lake</u>			
20,192	LA-H-1	63-14/50	AD/LV
20,040	RA-H-2	63-14/49	AD/LV
<u>Tucannon River at Marengo</u>			
20,005	LA-H-1	63-14/47	AD/LV
19,990	RA-H-1	63-14/44	AD/LV

GOLDENDALE STOCK RAINBOW TROUT

1990 BROOD YEAR

On September 24, 1991, 20,000 fingerling (10.0/lb and 10.5/lb) equalling 1,910 pounds were received from the Department of Wildlife's Yakima Trout Hatchery. On September, 30, 1991, 19,996 fingerling (80/lb) equalling 2,500 pounds were on hand. Mortality for the month was four fish (0.02%).

SPOKANE STOCK RAINBOW TROUT

1989 BROOD YEAR

On October 1, 175,272 fingerling (9.0/lb) equalling 19,482 pounds were on hand. On October 7, 1990, Ed Schreiber and a volunteer group marked (RV fin clip) 35,000 fingerling. An overrun of 7,791 fingerling was realized at this time. Transferred 71,523 fingerling (17.6/lb) equalling 4,075 pounds to Idaho Fish and Game on October 11, 1990 (Table 6). In the month of February 1991, 64,225 legal size fish (2.6/lb - 2.8/lb) equalling 23,412 pounds were released into local lowland lakes (Table 6). In March 1991, 13,502 legal size fish (2.7/lb - 3.0/lb) equalling 4,512 pounds were released into area lakes (Table 6). In April 1991, 29,548 legal size fish (2.6/lb) equalling 11,515 pounds were released into area lakes (Table 6). In May 1991, 4,624 legal size fish (1.0/lb - 1.6/lb) equalling 3,152 pounds were released into area lakes (Table 6). Mortality from October 1, 1991, to stocking was 315 fish (0.18%).

SPOKANE STOCK RAINBOW TROUT

1990 BROOD YEAR

On December 14, 1990, we received 402,000 eyed eggs from the Spokane Trout Hatchery. Egg loss was 13,875 (3.45%) leaving 388,125 fry (2583/lb) with a weight of 150 pounds for rearing. Fry mortality was 22,564 (5.8%). In February, 1991, while transferring fingerlings to raceways a 23,818 overrun was realized. On April 1, 1991, a total of 55,286 fry (144.7/lb) equalling 382 pounds (Table 6) were stocked on May 29, and 30, 1991, marked (RV fin clip) 174,510 fingerlings for Idaho Fish and Game. On May 30 1991, stocked 21,000 fingerling (35/lb) equalling 600 pounds into Deer Lake in Stevens County (Table 6). On May 31, 1991, transferred 174,510 fingerling (35/lb) equalling 4,986 pounds to Idaho Fish and Game for stocking in Idaho waters (Table 6). We also transferred to the Nez Perce Tribal Hatchery, via Idaho Fish and Game, 6,984 fingerling (36/lb) equalling 194 pounds on May 31, 1991, (Table 6). Due to the pipeline failure, we were forced to transfer 120,428 fingerling (35/lb) equalling 3,441 pounds to Dayton Acclimation Pond on May 31, 1991. As we do not have water rights to operate the pond at this time of year, we shipped 108,330 fingerling (35/lb) with a weight of 3,095 pounds to Eastbank Hatchery shortly thereafter. A loss of 12,098 fingerling (10.1%) was experienced with this transfer. Muddy water conditions, distance fish had to be pumped to tanker and the design of the pond restricted our ability to capture all the fingerlings.

On August 16, 1991, 47,961 fingerlings (6.9/lb) equalling 6,951 pounds were returned to Lyons Ferry from Eastbank Hatchery. The loss of 60,539 fingerling (56%) was due to avian predation, primarily seagulls, during rearing at Eastbank Hatchery. On September 11, 1991, we received from Tucannon Hatchery 50,880 fingerlings (40/lb) with a weight of 1,267 pounds. At the end of September, 96,135 fingerlings (7.9/lb average) with a weight of 12,194 pounds were on hand. Mortality to the present stage of rearing is 86,344 (19.6%).

OPERATIONS & MAINTENANCE

Engineering Projects

Hatchery operations were running along quite smoothly until May 28, 1991, when a leak was detected in the main water supply pipeline from the Marmes well site to the hatchery complex. At the time, 13,000 gallons per minute (gpm) of well water was flowing into the Palouse River through the hole in the underwater pipeline. After confirmation, we immediately notified U.S. Army Corps of Engineers (COE), U.S. Fish and Wildlife Service (FWS) and Washington Department of Fisheries (WDF) on May 29, 1991. The COE was quick to respond and inspected the pipeline that afternoon. Damage assessment confirmed a crack in the pipeline, a broken harness lug and deflection of the pipeline. Permanent repair required replacement of one 60-foot section of pipe and the 51-degree elbow. By June 5, 1991, all fish were moved to other locations for rearing during pipeline repair. On June 6, 1991, we shut down all pumps so that the COE and a diving team could inspect the pipeline thoroughly. Additional damage was discovered at this time and a conference with the COE and Ameron Pipe was held to determine the best course of action to take for repairs. On July 23, 1991, the contractor mobilized on-site and repair work was initiated. Additionally, twelve new buoys were installed along the length of the underwater pipeline. Responsibility for the removal and installation of the buoys was passed from the COE to Lyons Ferry Hatchery (WDW), as the buoys have to be removed each fall and replaced each spring due to the freezing of the Palouse River. Repairs to the underwater pipeline were completed by August 1, 1991, and a 24 hour static test of the pipeline was performed. The "flow through" test was performed on August 2, 1991, through August 5, 1991, with excellent results. After disinfecting the distribution building and stacked columns on August 6, the pumps were started and we were ready to resume normal hatchery operations.

The COE had a contract to repair "sink" holes and damaged asphalt areas with work being completed in August, 1991. This ongoing problem will be addressed as a maintenance task in the future.

The pump shafts and spider bearings were replaced on pumps three and nine, and both pump bowls were refurbished. The electrical motors were repaired (Baked moisture from stator windings, replaced lower guide bearings, upper thrust bearings and painted). Total cost for the repairs was \$40,403.50, which is substantially less than purchasing new pumps (approximate cost - \$120,000.00).

Maintenance and Construction Projects

The hatchery crew was involved in a variety of projects during the year to enhance hatchery operations and to repair or replace damaged or faulty equipment.

The floors in the freezer, cooler, dry feed storage room and the utility building were sanded and two coats of epoxy paint applied. Additionally, the trough room walkway floor was re-painted with epoxy. Silicone was applied to the ceiling and walls of the freezer and cool room to stop leaks. Repairs were made to the "Fire and Maintenance" boxes throughout the complex to ensure proper operation in the event of a fire. The adult trap hoist motor malfunctioned and had to be repaired so that the crowder would operate properly. The window of the adult sorting building was replaced in July, 1991, after extremely hot weather caused the original window to fall out and break. A few minor problems were encountered with the feeders on the raceways. Installed new heaters in the control boxes of all feeders and rebuilt malfunctioning air cylinders that operate the feeder tubes. New cylinders will have to be purchased next year as a number of cylinders were badly worn and cannot be re-built again.

A new roof was installed on residence one in the month of July. Cost associated with this project was \$3,358.30. Additional work on the residences included replacement of kitchen sinks (all five residences) and installation of new countertops in four residences.

Historically, we have experience problems with fish swimming through our outlet rack and finding their way to the fish ladder pump where they are chopped into multiple pieces. The pieces of fish are then deposited into the up-welling section of the fish ladder, from the pump. This not only creates a foul smelling mess, but also presents a risk of spreading fish pathogens. To alleviate the problem, a new outlet rack was designed and installed on August 8, 1991.

In July and August, 1991, a gasoline storage building was constructed near the west end of the hatchery complex. This 12'x 12' building meets all federal and state specifications for storage of combustible waste materials, residues and gasoline. We are now in compliance with OSHA and Washington State Department of Labor & Industries rules and regulations pertaining to storage of these materials.

Numerous problems were encountered with the 14,000 volt underground electrical system throughout the year. The elbow connectors or three point junction boxes would burn creating a "power outage". S&S Electric and Inland Power & Light were called in to make repairs as we have neither the expertise nor equipment to attempt such repairs. A new breaker was installed on the incoming line to the hatchery and all transformers were turned down two taps in an effort to solve this problem.

The Telemetry/Alarm System continued to malfunction at irregular intervals. Once again, all cards were sent to Servotone, Inc. for repairs and recalibration. The company informed us that the cards are outdated and replacement parts are becoming scarce. Apprised the U.S. Army Corps Engineers of the situation in hopes they would update the system. The Corps agreed to resolve the problem and install a computerized system sometime during fiscal year 1992.

The fish transportation tank, designed by Gary Griffen and Harold Harty, was purchased by Bonneville Power Administration for the Spokane Indian Tribe. Gary spent several days installing the control box, electrical system and "Fresh-Flow" aerators on the tank at the request of WDW Engineering Division.

EQUIPMENT PURCHASES

Equipment purchases for the fiscal year include an Omnifax G-59 fax machine, Sears band saw, Honda push-type mower, four 6" gate valves and a Hach water test kit. The Hach kit will enable us to perform tests required for the N.P.D.E.S. permit. The gate valves replace worn and cracked valves on raceways.

N.P.D.E.S. PERMITS

Expenditures for the National Pollutant Discharge Elimination System (N.P.D.E.S.) Permits for Lyons Ferry Hatchery, Dayton and Cottonwood Acclimation Ponds amounted to \$4,270.68 in the fiscal year. Permit fees are scheduled to increase again next year.

PERSONNEL

Floyd Schriner was employed, as an Assistant Manager, to operate the Cottonwood Acclimation Pond. Harold von Fischer-Benzon was employed, in a equivalent position, to operate the Dayton Acclimation Pond. They both did an outstanding job and we are looking forward to having them return next year.

In June and July, 1991, our Fish Culturist I's were sent to Chelan and Eastbank Hatcheries to provide for propagation of Lyons Ferry Rainbow and Steelhead Trout held at those stations. Ruth Gates, Steve Jones and Jeff Wendt gained valuable experience in the performance of these duties.

Orville Bramer assisted with the transfer of fish from rearing ponds to raceways and to acclimation ponds. He returned in the spring to stock fish in lakes and streams.

We continued with the Youth Conservation Corps Program again this year. Brandon Barton, Jeromie Leroue and Danny Stromberger were hired to fill our allotted positions.

Table 4. Food Fed and Weight Gain for all Species at Lyons Ferry Hatchery.

SUMMER STEELHEAD

<u>SPECIES</u>	<u>BROOD YEAR</u>	<u>LBS FOOD FED</u>	<u>GAIN</u>	<u>CONVERSION</u>
Lyons Ferry	1990	153,005	133,243	1.15
Lyons Ferry	1991	25,060	24,458	1.02
Wallowa	1990	63,098	52,071	1.20
Wallowa	1991	6,939	8,373	0.83
TOTAL (All Steelhead 90-91)		248,102	218,145	1.14

RAINBOW TROUT

Spokane	1989	30,480	23,109	1.30
Spokane	1990	18,100	19,985	0.91
Goldendale	1990	121	590	0.20
TOTAL (All Rainbow 89-90)		48,701	43,684	1.11
TOTAL ALL SPECIES		296,803	261,829	1.13

1990/91 STOCKING DATA FOR LYONS FERRY TROUT HATCHERY

Table 5.

SUMMER-RUN STEELHEAD SMOLTS

<u>LOCATION</u>	<u>BROOD YEAR</u>	<u>NUMBER of TRIPS</u>	<u>NUMBER of FISH</u>	<u>WEIGHT of FISH</u>
LYONS FERRY				
Mill Creek	1990	3	29,950	8,500
Snake R.	1990	2	57,655	16,600
Tucannon R.	1990	4	80,201	21,976
Tucannon R. (Curl Lk.)	1990	4	120,560	23,410
Touchet R. (Dayton P.)	1990	6	148,520	37,130
Walla Walla R.	1990	12	198,749	57,130
SUB TOTAL		31	635,635	164,746
<u>WALLOWA'S</u>				
Cottonwood P.	1990	8	252,799	47,698
Wildcat Cr.	1990	2	52,500	10,000
SUB TOTAL		10	305,299	57,698
TOTAL (Steelhead 1990-91)		41	940,934	222,444

Table 6.

RAINBOW TROUT (LEGAL SIZE)

<u>LOCATION</u>	<u>BROOD YEAR</u>	<u>NUMBER of TRIPS</u>	<u>NUMBER of FISH</u>	<u>WEIGHT of FISH</u>
<u>SPOKANE RAINBOW</u>				
Big Four	1989	2	4,004	1,540
Blue Lake	1989	2	4,256	1,520
Dalton Pond	1989	2	4,999	1,896
Dam Pond	1989	2	2,001	1,013
Dayton Juvenile Pond	1989	1	1,056	364
Deer Lake	1989	2	8,050	2,875
Golf Course Pond	1989	3	5,940	2,200
Marmes Pond	1989	2	1,001	811
Mill Cr Reservoir	1989	3	23,400	8,650
Orchard Pond	1989	1	1,001	385
Pampa Pond	1989	3	7,852	3,720
Quarry Pond	1989	3	25,020	9,100
Rainbow Lake	1989	2	7,319	2,614
Riparia Pond	1989	1	949	365
Silcott Pond	1989	1	2,025	750
Spring Lake	1989	2	5,100	1,918
Watson Lake	1989	2	4,956	1,770
West Evans Pond	1989	1	2,970	1,100
SUB TOTAL		36	111,899	42,591
RAINBOW TROUT (SUB-LEGAL SIZE)				
Idaho F & G (transfer)	1989	1	71,523	4,075
Deer Lk (Stevens Co.)	1990	1	21,000	600
Sprague Lake	1990	1	55,286	382
Idaho F & G (transfer)	1990	2	174,510	4,986
Nez Pearce Tribe (transfer)	1990	1	6,984	194
SUB TOTAL		6	329,303	10,237
TOTAL (Rainbow BY 1989-1990)		42	441,202	52,828

UNITED STATES DEPARTMENT OF INTERIOR - FISH AND WILDLIFE SERVICE

LOWER SNAKE RIVER COMPENSATION PLAN OFFICE

4696 OVERLAND ROAD, ROOM 560

**ANNUAL REPORT - TUCANNON HATCHERY
OCTOBER 1, 1990 TO SEPTEMBER 30, 1991
CONTRACT NUMBER: 14-16-0001-86503 & 91503**

**WILLIAM N. HUBBARD - HATCHERY MANAGER 3
TUCANNON HATCHERY
POMEROY, WASHINGTON**

FISH PRODUCTION

RAINBOW TROUT (SPOKANE STOCK) 1989

At the start of the fiscal year (1990) these fish numbered 165,335 and weighed 22,630 lbs. Beginning in March and ending in June of 1991 these fish were released in lowland lakes and streams throughout a 6 county area. Approximately 158,358 fish weighing 56,207 lbs. were planted. Winter arrived in December but only but only for a couple weeks. On one occasion it did reach -29 degrees below zero.

RAINBOW TROUT (SPOKANE STOCK) 1990

On December 14th, we recieved 216,000 eyed Rainbow eggs from the Spokane Hatchery (State). These eggs and fish have been excellent. By the end of this fiscal year they numbered 156,593 and weighted 24,246 lbs. to be used for 1992 Plants. We planted 35,420 fish weighing 115 pounds.

RAINBOW TROUT (SPOKANE STOCK) 1991 IDAHO LATE FRY PROGRAM

As a portion of the LSRCP agreement with Idaho Fish and Game, we provid them with 50,000 marked Rainbow Fry at 20 per lb. in September/October. To meet this obligation, we recieved 105,600 eggs from Spokane on February 8th. We shipped, on September 11th 50,800 at 40 per lb. and weighing 1260 lbs. to Lyon's Ferry WDW Hatchery for marking and shipping. Surplus fish were held here for Lyon's Ferry legal program in 1992.

SUMMER RUN STEELHEAD - CURL LAKE (Lyon's Ferry Stock) 1990

On March 8-13 1991, 120,560 summer run steelhead weighing 23,410 lbs from Lyon's Ferry WDW Hatchery were put in Curl Lake Acclimation Pond. These fish consumed 3,535 lbs of feed while there. On April 16, the screens were removed and fish allowed to volitionally migrate. Approximately 40% had migrated on their own

by April 27th. From the 27th to April 30th we pulled the boards in the pond and forced the remainder out of the pond. A total of 120,560 fish weighing 29,657 lbs. were released into the Tucannon River from Curl Lake. This is the stock of fish developed at Lyon's Ferry. Spring was very cold this year and the resultant water temperatures were colder than normal. There were 40,000 summer steelhead released directly in the river at Curl Lake as well as 40,000 released at Marengo in late April for a continuation of a study to see if the fish released from the acclimation pond at Curl Lake are imprinting properly.

SPRING CHINOOK SALMON (TUCANNON STOCK) 1989 Brood Year Smolts

During the period, November 15-16 1991, approximately 99,433 Spring Chinook weighing 17.0 per lb. with a total weight of 5,847 lbs. were transported into the acclimation raceway at Tucannon Hatchery. This year the acclimation pond was divided into two sections. The smaller one for raw river only, the upper larger area for spring/well & river mix. The upper one would not be allowed to get below 40 F. This being done to see if keeping the water above 40 degrees would keep the EBIS virus from affecting the fish. The winter was so mild that the water temperatures did not drop much below 40 degrees for any length of time. Neither group tested positive for EBIS. This study will be continued for 1 more year.

The fish brought up were even smaller than previous years and the numbers were down 30% from previous rearing years. The two rearing indexes we use to program our ponds with, F.L.I. and M.D.I. were always below 70%. The screens were pulled on April 1, 1990 and the rest of the fish forced out on April 12, 1990, approximately 40% of these fish migrated voluntarily. A total of 99,038 at 8.64 per lb. and weighting 11,460 lbs. were released.

SPRING CHINOOK SALMON (TUCANNON STOCK) 1991 Adults

The Tucannon Hatchery is used to trap hatchery and wild Spring Chinook from the Tucannon River. All fish are enumerated and those not used for spawning purposes are passed upriver. Adult fish for sexual maturation prior to spawning. The Tucannon Hatchery also acclimates previous years smolts for 5 months and

direct release into the Tucannon River. Fertilization of eggs, hatching, and rearing to smolts is accomplished at the WDF Lyon's Ferry Hatchery.

The first adult trapped was on May 15, 1991, and the last adult on Sept. 23, 1991. The fish held well until the week before the first spawn. We had been treating with Paracide F (formaldehyde) at a 1:5000 drip 3-times a week to prevent fungus. This was not enough. Fungus was still a problem so we treated 10 days straight. This fixed the problem but not without losing 22 fish. The fish were injected three times for Bacterial Kidney Disease and Columnaris. This was not completely successful. All losses with the exception of one, were hatchery fish. All the jacks died but one. On August 20, 1991 the first adult was spawned. On September 24, 1991, 5 spawns later, eggs were taken from the last female.

This year, milt was frozen, when possible, for later years use, and a lot of wild/wild - wild/hatchery - hatchery/hatchery crosses were made.

With having a permanent weir and trap in operation throughout the year, we saw some fish show up at the hatchery in August and September, just prior to or at spawning time. The fish returning in 1992 will be trapped at Tucannon then transported to Lyons Ferry WDF hatchery for holding and spawning. Because of the colder water at this facility it is expected that survival will be increased.

SUMMER RUN STEELHEAD (WILD TUCANNON STOCK) 1991 BROOD YEAR

With having the weir and trap operational all year - it allowed us to start developing a wild Tucannon River Summer Run Steelhead Stock. The first steelhead here was trapped on December 31, 1990 and the last one showed up May 15, 1991. We used 3 females (1-salt, 2-salt and 3-salt) plus 4 males (1-salt, 2-salt and 3-salt). All fish spawned were sampled for viral pathogens and found to be negative. Samples were taken for later genetic studies. Fertilization was very successful.

TABLE 1:

LATE SUMMER RAINBOW FRY PROGRAM - IDAHO F&G
Spokane Stock Latest Eggs - Brood Year 1991

POUNDS GAINED.....	602
POUNDS FED.....	587
CONVERSION.....	.98
EGGS RECIEVED.....	105,600
NUMBERS TRANSFERED.....	53,112
POUNDS TRANSFERED.....	115
NUMBERS ON HAND.....	51,000
POUNDS ON HAND.....	487

TABLE 2:

RAINBOW LEGAL PRODUCTION - TOTALS

POUNDS GAINED	57,823
POUNDS FED.....	74,943
CONVERSION.....	1.30
POUNDS PLANTED.....	56,207
NUMBERS PLANTED.....	158,358
NUMBERS ON HAND.....	156,593
EGGS RECEIVED.....	216,000

TABLE 3:

SUMMER STEELHEAD PRODUCTION - CURL LAKE

POUNDS GAINED.....	6,742
POUNDS FED.....	3,535
CONVERSION.....	.52
POUNDS PLANTED.....	29,657
NUMBERS PLANTED.....	120,560

TABLE 4

SPRING CHINOOK SALMON PRODUCTION

POUNDS GAINED	5,613	
POUNDS FED.....	5,718	
CONVERSION.....	1.02	
POUNDS PLANTED.....	11,460	
NUMBERS PLANTED.....	99,038	
ADULTS PASSED UPSTREAM.....	135	+ 43 Jacks
ADULTS TRAPPED & HELD.....	87	+ 46 Jacks
FEMALES SPAWNED.....	29	
MALES SPAWNED.....	32	
ADULT LOSSES WHILE HOLDING.....	25	
JACK LOSSES WHILE HOLDING.....	33	
TOTAL EGG TAKE.....	91,275	

TABLE 5

SUMMER RUN STEELHEAD - WILD TUCANNON STOCK

POUNDS GAINED.....	148
POUNDS FED.....	262
CONVERSION.....	1.47
ADULTS PASSED UPSTREAM - WILD.....	16
ADULTS PASSED UPSTREAM - HATCHERY.....	41
FEMALES SPAWNED.....	3
MALES SPAWNED.....	4
ADULT LOSSES WHILE HOLDING.....	0
TOTAL EGG TAKE.....	14,558
FISH ON HAND.....	10,807

TABLE 6

TUCANNON HATCHERY GRAND TOTAL PRODUCTION

POUNDS PRODUCED.....	70,928
POUNDS FED.....	85,045
CONVERSION.....	1.20
POUNDS PLANTED OR TRANSFERRED.....	97,439
NUMBERS PLANTED OR TRANSFERRED.....	431,068
TOTAL EGGS TAKEN.....	105,833
NUMBERS ON HAND.....	218,400
ADULTS TRAPPED.....	368

OPERATIONS:

The Tucannon Hatchery is part of the Lower Snake River Compensation Plan (LSRCP) and has been in operation under this plan for 6 years. It was built in 1949 by the then Washington Department of Game. In 1981 it was turned over to the Army Corps of Engineers and underwent a redesign and expansion with a cost 3.1 million dollars. It is a satellite of both Lyon's Ferry Hatcheries (Wildlife and Fisheries). Trapping, holding, spawning, and acclimation of Spring Chinook Salmon are its' Department of Fisheries responsibilities. A legal size Rainbow Trout put and take program, plus acclimation of summer run steelhead are its' Department of Wildlife responsibilities. Curl Lake is a satellite of the Tucannon and is used for steelhead acclimation, as well as a put and take fishery. The hatchery reared, released or transferred 431,068 fish this fiscal year.

EQUIPMENT PURCHASES:

We replaced 1983 Chev S-10 Flatbed I-118494, as it was wrecked in an accident. We had many small purchases to increase efficiency and help in overall operation of facility.

CONSTRUCTION & ENGINEERING PROJECTS:

We designed new floating panels for our weir, with the help of Fish-Pro, Inc. These panels are of the Mitsubishi design modified to work with our steel barrier and concret trap. It was installed early summer and has been in operation since. The secret is the patented floating fingers (it allows the water or current to go through but still remains afloat).

We permanently fixed deficiencies with boiler and water pressure vessels that were identified deficient through a Labor and Industries Inspection. We also worked with them on new EPA guidelines on underground fuel storage tanks, and now have a permit for the ones we have. We worked extensively with Washington State Department of Ecology on our NPEDES permit. We had an existing permit but with changes required modifications.

COOPERATIVE PROJECTS:

This year with the pipeline break at LYON'S FERRY (both Hatcherys) we provided emergency help and emergency facilities for temporary fish rearing. When things finally calmed down we had 400,000 Wallowa Stock summer run steelhead here for the summer.

PERSONNEL:

Hatchery Manager Bill Hubbard was hurt seriously in a head-on vehicle accident while working. He was off work 3 1/2 months with another 2 months light duty. Lyle Leslie was hired perminately to replace career seasonal position.

TABLE 7

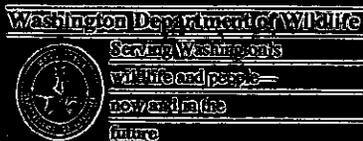
TUCANNON HATCHERY
1990 - 1991
Fish Stocked

LOCATION	Brood Year	Number of Trips	Number of # Fish	Weight of Fish
SUMMER RUN STEELHEAD (Curl Lake)				
Tucannon River	89	1	120,560	29,657
SPRING CHINOOK SALMON (Hatchery Release)				
Tucannon River	89	1	99,038	11,460
RAINBOW TROUT - STREAMS				
Alkali Creek	89	1	522	145
Asotin Creek	89	2	5,148	2,010
Blue Creek	89	1	576	160
Coppei Creek	89	1	1,442	412
Dry Creek	89	1	1,442	412
Mill Creek	89	1	3,648	1,520
Pataha Creek	89	3	3,030	955
Snake River (L.Mon. Pool)	90	1	35,420	115
Touchet River	89	1	4,531	1,970
Tucannon River	89	6	21,113	9,030
Union Flat Creek	89	1	1,566	435
RAINBOW TROUT - LAKES				
Bakers Pond	89	1	1,020	340
Blue Lake	89	4	10,736	3,750
Casey Pond	89	1	990	275
Coles Pond	89	1	990	275
College Place Pond	89	2	2,532	760
Curl Lake	89	4	12,831	4,740
Dayton Jv. Pond	89	1	1,107	410
Deer Lake	89	5	12,143	4,325
Evens Pond West	89	1	1,347	364
Fishhook Pond	89	2	7,548	2,220
Garfield Pond	89	1	1,375	491
Gilcrest Pond	89	2	3,178	985
Golf Coarse Pond	89	1	1,480	400

TABLE 7 (continued)

TUCANNON HATCHERY
 1990 - 1991
 Fish Stocked

LOCATION	Brood Year	Number of Trips	Number of # Fish	Weight of Fish
Headgate Pond	89	2	2,400	750
Jefferson Park Pond	89	2	2,532	760
Klemgaard Pond	89	2	2,099	664
Mill Creek Reservoir	89	4	15,698	6,170
Pampa Pond	89	1	2,160	600
Rainbow Lake	89	6	15,864	5,940
Silcott Pond	89	1	1,347	364
Spring Lake	89	4	9,839	3,430
Watson Lake	89	1	1,985	735
GRAND TOTAL		70	310,181	85,599



The Washington Department of Wildlife will provide equal opportunities to all potential and existing employees who are regardless of race, color, sex, religion, national origin, ancestry, age, marital status, disability, or Veteran's status. The department complies with all federal laws and executive orders. The department is subject to Title VI of the Civil Rights Act of 1964, Title IX of the Education Amendments Act of 1972, which prohibits discrimination on the basis of sex, and the Equal Employment Opportunity Act of 1973, which prohibits discrimination on the basis of sex, race, color, religion, or national origin. If you believe you have been discriminated against in any department program or activity, contact the nearest office for confirmation about Title VI or Section 504 website: www.dhs.gov/equal-opportunity, U.S. Department of Housing, Washington D.C. 20249, or Washington Department of Wildlife, 610 Capital Way N., Olympia WA 98501-1091.