

## LOOKINGGLASS FISH HATCHERY

### INTRODUCTION

#### Location

Lookingglass Fish Hatchery is located on the left bank of Lookingglass Creek at river mile 2.2, approximately 85 miles upstream from the mouth of the Grande Ronde River and 324 miles upstream from the mouth of the Columbia River.

Imnaha Satellite Facility is located at river mile 46 on the Imnaha River. This facility is used for adult collection, holding and acclimation. During the summer months, Imnaha Weir is installed across the Imnaha River at this site.

### OBJECTIVES

#### Mitigation

Lookingglass Fish Hatchery is part of the Lower Snake River Compensation Program (LSRCP) and has been in operation since 1982. A satellite station on the Imnaha River is used for smolt acclimation, and collection and holding of adults. Mitigation goals are variable according to adult returns and interagency agreements. The anticipated 1998 release of Imnaha stock (2996) smolts from Imnaha Satellite Facility was 92,500 fish. The actual release was 93,108 Imnaha (2996) smolts at an average weight of 21.06 fish per pound. The 1998 Lookingglass Fish Hatchery allocation of Rapid River (8596) stock smolts was 290,000. A total of 295,559 Rapid River (8596) smolts was released at an average weight of 24.05 fish per pound.

### CHINOOK

#### Adult Returns

Imnaha Weir was installed on July 6, 1998, and chinook collection continued through September 8, 1998. High river conditions prevented placement of the weir until July, contributing to the low number of chinook collected. A total of 383 Imnaha (2998) chinook, 137 males, 163 females and 83 jacks, returned to Imnaha Satellite Facility. Of these, 61 males, 68 females and 44 jacks were collected for broodstock and returned to Lookingglass Fish Hatchery. A total of 171 Imnaha (2998) chinook, consisting of 54 males, 78 females and 39 jacks, were opercle punched and released back into the Imnaha River to spawn naturally. In addition, 39 hatchery-produced chinook (22 males and 17 females) were outplanted to Lick or Big Sheep creeks. All surviving broodstock were spawned.

The 1998 adult return season marked the beginning of a new protocol. All 1998 brood Rapid River (8598) chinook collected at Lower Granite Dam or Lookingglass Fish Hatchery were trucked to South Fork Walla Walla Facility, where they were held until ripe and spawned. A total of 59 Rapid River (8598) chinook returned to Lookingglass Fish Hatchery in 1998. The 28 unmarked males and 31 unmarked females were subsequently held and spawned at South Fork Walla Walla Facility. Marked and unmarked fish were spawned separately.

### Eyed Egg Production

During the report period a total of 62 Imnaha stock (2998) females were spawned for a yield of 309,572 green eggs. These green eggs produced 185,095 eyed eggs.

Eggs taken during the first four spawn days were transferred to either Irrigon Fish Hatchery (8/05) or Umatilla Fish Hatchery (8/11, 8/14 and 8/19) due to a lack of chilled water at Lookingglass Fish Hatchery. Eggs transferred on these dates experienced high losses, some in excess of 80%, contributing to the low number of embryos which survived to eye-up.

Rapid River (8598) green eggs taken from 17 unmarked females numbered 71,712. Embryos from unmarked parents were incubated and reared at Irrigon Fish Hatchery. Of these, 61,155 survived to eye-up. In 1998, all eggs from marked parents were taken directly to Idaho for incubation and rearing by the Nez Perce Tribe.

### Endemic Brood Program

The endemic brood program began with the installation of weirs on the upper Grande Ronde River, Catherine Creek, and the Lostine River in June 1998. A total of 33 chinook were collected at the upper Grande Ronde weir; 23 were released to spawn naturally and 10 (six females and four males) were held at Lookingglass Fish Hatchery as potential broodstock. There were four mortalities. A total of 28 chinook were collected at Catherine Creek weir; of these, 20 were released to spawn naturally and eight (four females and four males) were held at Lookingglass Fish Hatchery. At the Lostine River weir, 21 fish were collected; 18 were released to spawn naturally, and three fish (two females and one male) were held at Lookingglass Fish Hatchery. There was one mortality. During the collection period it was determined that numbers were insufficient to sustain an endemic brood program using any of these stocks in 1998. All surviving fish held at Lookingglass Fish Hatchery were released into their originating streams on 7/23/98 (upper Grande Ronde and Catherine Creek) or 7/30/98 (Lostine River).

### Captive Brood Program

A separate annual report covers the operation of this program.

### Miscellaneous

Imnaha stock (2997) and Endemic/Lostine stock (2997) fry were ponded on the 24th and 25th of February. The NMFS radio tagging van arrived on March 27 and began radio- and PIT-tagging 600 fish. Of the 600 tags issued in this experiment, 300 were dummy radio- and PIT-tags. Hatchery personnel Don Falk, Gary Huser and Chris Lauman attended cryopreservation training during the report period.

## **CONSTRUCTION AND MAINTENANCE**

### Maintenance projects accomplished by the hatchery crew

- Because of high risk of disease and the fact that we raise endangered species, stringent disinfection procedures were initiated this year at facility entrances and exits.
- Moved excavated material by contractors to fill in and level residential backyards.
- Assisted contractor with broken water line repairs.
- Serviced the dump truck and prepared for snow plowing. Completed additional repairs on the hydraulic unit, installed new hoses and new snowplow skid shoes on the plow.
- Maintained and repaired the Lookingglass Creek Daishin/Mitsubishi weir.
- Byrnes Oil Inc. pumped out contaminated fuel in the storage tanks, cleaned the tanks and nozzles, and replaced the fuel at no charge.
- Repaired the toilets in the visitor center restrooms.
- Replaced flooring in the Imnaha van.
- Replaced the screens in the incubation head tanks.

#### Maintenance projects accomplished by contractors

- MCGOWAN CONSTRUCTION, RICHLAND, WA. Began excavation on hatchery site for endemic broodstock circular tanks. Installed endemic broodstock circular tanks. This is part of the \$41,000.00 bid for installation of the endemic brood adult holding system for Lostine, Catherine and Grande Ronde River. Performed annual chiller inspection.
- STEELE'S SEPTIC TANK SERVICE, LA GRANDE. Successfully completed \$15,500.00 bid for removal and replacement of failed septic tank systems in the three residences including the gray water lift pumps, alarm systems and repouring removed patios for all residences.
- VALLEY IRON WORKS, IMBLER. Repaired and reinforced stress points on the batwing snowplow for the upcoming season. Designed and fabricated crowders for endemic brood circulars. Repaired and upgraded equipment trailer.
- LINTEC MACHINE & HYDRAULICS, LA GRANDE. Completed the new pneumatic gate on the Ford flat-bed liberation truck. Repaired and upgraded fish pump.
- CARPET ONE, LA GRANDE. The carpets were cleaned in the hatchery house # 1. Replaced water damaged carpet in hatchery house # 2.
- RUSS BAKKER, LA GRANDE. Painted the inside of house # 1. Repainted buildings at Imnaha Satellite Facility.
- BARNES DIESEL, LA GRANDE. Replaced thermostat on the Cat generator engine.

- A.C. ELECTRIC, LA GRANDE. Replaced heater/air conditioner and system control in hatchery rearing building.
- ELKHORN ELECTRIC, BAKER CITY. Repaired roll-up garage doors and replaced defective safety control switches. Performed trouble shooting, repairs, and replaced float switches for chiller system.
- LIQUID GAS CO., ENTERPRISE. Repaired and replaced living room and bedroom heaters at Imnaha Satellite Facility.
- OSPREY INDUSTRIES, EUGENE. Designed and fabricated 36 replacement covers for raceway creek water outlets.
- DOVETAIL DESIGN & CONSTRUCTION, COVE. Installed joists and a 12-foot wide run of plywood the whole length of the endemic brood building for lightening support. Poured a 24' x 36' x 4" concrete slab in endemic brood building.
- LA GRANDE DRYWALL, LA GRANDE. Replaced damaged/water soaked sheetrock in hatchery house basements.
- J.B. BANE & COMPANY, ENTERPRISE. Repaired Imnaha Satellite Facility backup generator.
- PETERSON ELECTRIC, HERMISTON. Installed wiring for heaters and water pumps in hatchery intake annex building.
- VANLEUVEN CONSTRUCTION INC, IMBLER. Installed windows, ceiling, and insulation in hatchery intake annex building.
- P.G.G., LA GRANDE. Installed pumps and piping in hatchery intake annex building.
- OVERTON ELECTRIC, COVE. Installed high & low flow alarms, overhead lighting, personnel lighting, 110-volt plug-ins, transformers, breakers and switches in endemic brood building.
- ROGERS ASPHALT, LA GRANDE. Poured asphalt and tied in with existing asphalt around endemic brood building perimeter.
- MORRIS INC. Replaced insulation and vapor barriers adjacent to the hatch house under contract with the USACE for repair of design deficiencies.
- METAL BENDERS, YAKIMA. Intake bypass for screen debris, and planter box/step replacement. Modified cooling system on hatchery generator.
- ELCON. Began work on the Motor Control System at the intake, completion date is unknown.
- TRIAD MECHANICAL, INC., PORTLAND. Began work on captive brood chiller upgrade and water supply; completion date is unknown.

**MAJOR EXPENSES**

Replace septic tanks at residences	\$ 15,540.00
Maintenance to Lookingglass weir	9,937.52
Replace Imnaha weir	9,829.40
Repair fish pump	9,707.41
Pour asphalt around endemic building	9,494.00
Intake annex building modifications	7,829.00
Electrical work to endemic brood building	7,495.00
Concrete slab & ceiling modifications to endemic building	5,155.00
Annual chiller system inspection	3,182.47
Repair water damaged sheet rock in hatchery houses	2,820.00
<u>Total</u>	<u>\$80,989.80</u>

### Adult Returns to Hatchery

#### Chinook Rapid River Stock BY98

Lookingglass Fish Hatchery	
Date of first return:	May 24, 1998
Date of last return:	September 11, 1998
Number of males returning:	289
Date of peak returns:	June 26, 1998
Number of females released to spawn naturally:	0
Number of males released to spawn naturally:	0
Mortality of all adult returns:	5 females; 14 males

*Nine jacks were dispatched and given away to members of the Nez Perce and Umatilla tribes for ceremonial and subsistence purposes.*

### Adults Trapped Off Hatchery and Transported to Hatchery

#### Chinook Imnaha Stock BY98

Lookingglass Fish Hatchery	
Where trapped:	Imnaha Satellite Facility
Date weir installed:	July 6, 1998
Dates trapped:	July 13 -September 8, 1998
Number of females returning:	163
Number of males returning:	220
Date of peak returns:	July 28, 1998
Number of females released to spawn naturally:	78
Number of males released to spawn naturally:	93
Number of females outplanted to Lick or Big Sheep Cr:	17
Number of males outplanted to Lick or Big Sheep Cr:	22
Mortality of all adult returns:	23

## Adults Trapped Off Hatchery and Transported to Hatchery

### Chinook

#### Grande Ronde River Stock BY98

Lookingglass Fish Hatchery	
Where trapped:	Upper Grande Ronde Weir
Dates trapped:	June 9 - July 24, 1998
Number of adults trapped:	19 females; 14 males
Number of adults released to spawn naturally:	13 females; 10 males
Number of adults transported to hatchery:	6 females; 4 males
Mortality of all adults trapped:	3 females; 1 male
Number of adults released back to river from hatchery:	3 females; 3 males*

*\*All surviving fish were taken from the hatchery and released in the upper Grande Ronde River on 7/23/98.*

#### Catherine Creek Stock BY98

Lookingglass Fish Hatchery	
Where trapped:	Catherine Creek Weir
Dates trapped:	June 10 - July 24, 1998
Number of adults trapped:	13 females; 15 males
Number of adults released to spawn naturally:	9 females; 11 males
Number of adults transported to hatchery:	4 females; 4 males
Mortality of all adults trapped:	0 females; 0 males
Number of adults released back to creek from hatchery:	4 females; 4 males*

*\*All surviving fish were taken from the hatchery and released in Catherine Creek on 7/23/98.*

#### Lostine River Stock BY98

Lookingglass Fish Hatchery	
Where trapped:	Lostine River Weir
Dates trapped:	June 17 - End of FY98
Number of adults trapped:	11 females; 10 males
Number of adults released to spawn naturally:	9 females; 9 males
Number of adults transported to hatchery:	2 females; 1 male
Mortality of all adults trapped:	1 female; 0 males
Number of adults released back to river from hatchery:	1 female; 1 male*

*\*All surviving fish were taken from the hatchery and released in the Lostine River on 7/30/98.*

***Numbers were insufficient to allow an endemic brood program in 1998.***

## Spawning Record

### Chinook Imnaha Stock BY98

Lookingglass Fish Hatchery

Date Spawned	Number of Eggs Taken	Females Spawned	Males Spawned
8/05/98	10,136	2	1
8/11/98	11,377	2	2
8/14/98	29,597	6	6
8/19/98	15,463	3	4
8/26/98	101,069	20	30
9/02/98	104,302	20	29
9/07/98	5,000	1	1
9/09/98	30,208	7	15
9/14/98	2,420	1	2

Total number of females spawned:	62
Total number of males spawned:	84 <i>(some were reused)</i>
Total number of green eggs:	309,572
Total number of eyed eggs:	185,095
Number of eggs retained for rearing:	185,095
Number of eggs shipped:	0
Date of last spawning:	9/14/98

## Spawning Record

### Chinook Rapid River Stock BY98

*\*1998 brood Rapid River Chinook were trucked from Lower Granite Dam or Lookingglass Fish Hatchery directly to South Fork Walla Walla Facility, where they were held and spawned. All eggs from marked Chinook matings were taken directly to Idaho by the Nez Perce Tribe.*

South Fork Walla Walla Facility  
Unmarked Chinook only

Date Spawned	Number of Eggs Taken	Females Spawned	Males Spawned
8/18/98	5,110	1	1
8/25/98	28,433	6	5
9/01/98	19,589	5	5
9/08/98	11,380	3	3
9/15/98	7,200	2	2

Total number of females spawned:	17	
Total number of males spawned:	12	<i>(some were reused)</i>
Total number of green eggs:		71,712
Total number of eyed eggs:	61,155	
Number of eggs retained for rearing:	61,155	
Number of eggs shipped:	0	
Date of last spawning:	9/15/98	

*Eggs were incubated and reared at Irrigon Fish Hatchery.*

**Rearing to Smolt Stage Only****Chinook  
Rapid River Stock BY96**

Number of fingerlings produced:	295,559
Weight of fingerlings produced (lbs.):	12,289.36
Percent mortality to stocking:	26%
Average number/pound of fingerlings produced:	24.05
Conversion rate:	1.56

**Chinook  
Imnaha Stock BY96**

Number of fingerlings produced:	93,108
Weight of fingerlings produced (lbs.):	4,421.08
Percent mortality to stocking:	10%
Average number/pound of fingerlings produced:	21.06
Conversion rate:	1.38

### Food Fed and Weight Gain

**Chinook  
Rapid River Stock BY96**

Lookingglass Fish Hatchery	
Total pounds of food fed	19,925
Conversion rate	1.56
Total weight gain (lbs) - all sizes produced	12,746

**Chinook  
Rapid River Stock BY97**

Lookingglass Fish Hatchery	
Total pounds of food fed	14,810
Conversion rate	1.53
Total weight gain (lbs) - all sizes produced	9,692

**Chinook  
Imnaha Stock BY96**

Lookingglass Fish Hatchery	
Total pounds of food fed	5,978
Conversion rate	1.38
Total weight gain (lbs) - all sizes produced	4,334

**Chinook  
Imnaha Stock BY97**

Lookingglass Fish Hatchery	
Total pounds of food fed	12,619
Conversion rate	1.28
Total weight gain (lbs) - all sizes produced	9,800

## Food Fed and Weight Gain

### Chinook Lostine River Stock BY97\*

Lookingglass Fish Hatchery	
Total pounds of food fed	736.2
Conversion rate	1.3
Total weight gain (lbs) - all sizes produced	562.20

*\*These chinook are the first progeny from the endemic brood program. Parents were taken from the Lostine River in 1997.*

### FY98 Stocking

Total number of distribution trips:	0
Number of fry stocked	0
Weight of fry stocked:	0 lbs
Number of fingerlings stocked:	0
Weight of fingerlings stocked:	0 lbs
Number of smolts stocked:	388,667
Weight of smolts stocked:	16,710.44 lbs
Number of legal trout stocked:	0
Weight of legal trout stocked:	0 lbs
Date, location, number and weight at each stocking:	See Attached

FY98 LOOKINGGLASS FISH HATCHERY LIBERATION RECORD  
INCLUDES IMNAHA SATELLITE FACILITY

SPECIES	STOCK NAME	BROOD YEAR	DATE	FROM/TO	NUMBER STOCKED	POUNDS STOCKED
SPRING CHINOOK	RAPID RIVER, IDAHO	96	4/7/1998	LOOKINGGLASS CR	295,559	12289.36
SPRING CHINOOK	IMNAHA R AND TRIBS.	96	4/7/1998	IMNAHA R	93,108	4421.08