

# Priest Rapids Hatchery Operations and Maintenance Annual Report

Reporting Period July 1, 2009 to June 30, 2010



by Mike Lewis and Glen Pearson



Washington Department of  
**FISH AND WILDLIFE**  
Fish Program  
Hatcheries Division



Washington Department of Fish & Wildlife  
**PRIEST RAPIDS HATCHERY**  
Funded by Grant County Public Utility District

# **OPERATIONS AND MAINTENANCE ANNUAL REPORT**

Reporting Period July 1, 2009 to June 30, 2010



Mike Lewis, Project Leader  
Glen Pearson, Hatchery Supervisor



# Table of Contents

---

Introduction .....	1
2009 Brood Fall Chinook .....	2
Adult Holding And Egg Take.....	2
Prophylactic Treatment of Eggs and Adults.....	2
Rearing and Release .....	3
Summary of Adult Returns.....	4
Summary of Adults Surplused.....	4
Spawning Summary.....	5
Eyed Egg Shipment Summary.....	5
2009 Priest Rapids Fall Chinook .....	6
(Grant County Pud and John Day Mitigation Combined).....	6
Egg Handling Record .....	6
Breakdown of Therapeutants Used .....	6
Spawn to Fry Stage .....	6
Rearing to Fingerling Stage.....	6
Food Fed and Weight Gain .....	7
Length Frequency Data (Average).....	7
Stream Planting - All 2009 Fall Chinook .....	7



# Introduction

---

Priest Rapids Hatchery was designed as a mitigation facility for Fall Chinook after Priest Rapids and Wanapum Dams were constructed, and is funded by the Grant County Public Utility District and by Army Corp of Engineers for the John Day portion of the fish. It has been in continuous operation since September 1963, and is operated by the Washington Department of Fish and Wildlife. It is part of the WDFW's Priest Rapids Hatchery Complex, which also includes the Ringold, Meseberg, Naches and Columbia Basin hatcheries.

Annual release goal for Grant County PUD is 5 million smolts at 50 fish per pound. All trapping, spawning and rearing take place at Priest Rapids Hatchery. Up to 15 million eggs are taken annually to meet hatchery goals and for other programs in the Columbia River drainage. Beginning in 1992, 1.7 million Fall Chinook have also been reared and released at Priest Rapids Hatchery at 50 fish per pound, as part of John Day Mitigation. The Army Corp of Engineers funds this portion, and eggs are taken at Priest Rapids.

Four full time employees staff Priest Rapids Hatchery. In addition, up to five temporary employees are utilized during trapping, spawning, and rearing to handle heavy workloads. These temporary employees are required to live in the bunkroom on-site during egg and sac-fry incubation. This allows them to provide an immediate response to alarms, as housing for full time employees on standby is located twenty minutes from the hatchery. Temporary security positions are also filled annually during the time the Fall Chinook come up into the trap.

Trapping of returning Fall Chinook salmon takes place approximately one mile south of the main facility, and fish are transported by truck to two of five channel ponds for holding. Spawning occurs adjacent to the holding ponds, and eggs are transferred by truck to be incubated in the main building. After hatch, fish are transferred by truck to vinyl raceways, where they are introduced to feed. Ten to fourteen days later they are transferred to the five channel ponds for final rearing and release.

In addition to the incubation room, the main building is comprised of two offices, a bathroom and kitchen, boot room, storage room, and bunkroom. Other buildings on station include a walk-in freezer and utility room for feed storage, a large shop with two semi-open covered bays for storage and enclosed shop area, six wells providing 6,650 gallons per minute of pathogen-free well water, a river-water intake, three degassing towers, and a multitude of other plumbing and electrical buildings. Eight raceways and two holding areas used by the PUD for rearing of study fish in the base of the old adult holding pond may possibly be utilized by WDFW in the future.

# 2009 Brood Fall Chinook

---

## Adult Holding And Egg Take

The 2009 Priest Rapids Fall Chinook adult collection consisted of 9,660 adults and 3,118 jacks. 1,480 males, 3,000 females, and 51 jacks were utilized for the seasons egg take. A total of 2,802 males, 1,443 females, and 3,047 jacks were surplused. The total number of marked fish recoveries (coded wire tag) was 81 males, 95 females, and 88 jacks. Trapping of adults occurred at the lower trap (Jackson Creek). Fish were held in channel ponds two and three. The season's adult pond mortality totaled 244 males, 691 females, and 20 jacks.

Total egg take was 13,074,798. A total of 6,935,205 eggs were retained for Priest Rapids Hatchery. Egg mortality from green to eyed eggs totaled 1,155,665 (8.84%).

For the season, 3,785,600 eggs were shipped to other facilities:

- 3,700,000 eyed eggs shipped to Bonneville Hatchery (ODFW) for ACOE John Day mitigation (later shipped back to Ringold Hatchery for acclimation and release).
- 56,400 eyed eggs shipped to Pacific Northwest National Laboratory.
- 16,200 eyed eggs shipped to Grant County Public Utility District.
- 11,000 eyed eggs shipped to Yakima Basin Environmental Education.
- 1,500 eyed eggs shipped to Franklin County conservation district.
- 250 eyed eggs shipped to Hiawatha Elementary.
- 250 eyed eggs shipped to Quincy High School.

In 2009, Priest Rapids Hatchery supplied 75 males and 75 females to the Yakima Basin Environmental Education Program. The Benton County Conservation District received 80 males and 80 females for use with the Salmon in the Classroom Program. Additionally, the Wanapum tribe received 103 males and 98 females for ceremonial and subsistence purposes.

## Prophylactic Treatment of Eggs and Adults

Approximately 1,500 early arriving adults selected for spawning were injected with Liquamycin (LA-200), prior to transfer to holding ponds. The injection dose was 0.5 cc per 10 lbs. of fish. Total use of Liquamycin was 900 milliliters for the season. This treatment was for the prevention of Columnaris and Furunculosis.

Formalin treatments on adults were at a rate of 1:6000 every day, starting the first day of ponding. Total use of Formalin on adults was 4,110 gallons. Formalin on adults was used to prevent fungus.

Eggs were treated using a drip treatment at 1:600 for 15 minutes on a daily basis. Total use of Formalin on eggs was 675 gallons, to prevent fungus and “soft shell”.

## **Rearing and Release**

Hatchery production of Zero-Age 2009 brood Priest Rapids Fall Chinook for Grant County PUD mitigation was 102,999 pounds. A total of 5,064,043 fish were released from Channel Ponds 3-6 with an average size of 49.2 fish per pound (refer to chart on page 8).

Release into the Columbia River occurred between June 9 and June 17, 2010. Prior to the time of release, 640,247 of the Priest Rapids Fall Chinook were adipose clipped and coded wire tagged, 1,060,825 were coded wire tagged only. In addition, 999 fish from C-6 and 998 fish from C-4 were pit tagged by United States Fish and Wildlife Service (USFWS) for fish migration studies. A total of 4,423,796 fish were released with no external marks.

In addition to Grant PUD hatchery production, 1,712,608 fish were reared and released from Channel Pond 2 on June 17 under John Day Mitigation, as part of the 1994 Management Agreement of Upper Columbia Fall Chinook. They averaged 49.8 fish per pound, for a total of 34,390 pounds planted. These fish were adipose clipped and 999 fish were PIT tagged by USFWS prior to release. Funding for the John Day Mitigation fish was paid for federally by the Army Corp of Engineers.

The fish released at Priest Rapids are also 100 percent otolith marked in the hatchery prior to ponding. This is done by warming and cooling the water in the incubators. Only the fish that are to be released at Priest Rapids are otolith marked.

Predation from birds was average this year, with hazing efforts doing little to deter aggressive feeding behavior. Fish loss due to bird predation was estimated at 25,000.

## Summary of Adult Returns

Date of first trapping	09/8/09
Date of last trapping	11/25/09
Number of males trapped	4,526
Number of females trapped	5,134
Number of jacks trapped	3,118
Peak date of return	10/29/09
Total adult mortality	935

## Summary of Adults Surplused

WEEK	MALES	FEMALES	JACKS
9/9/09 – 9/13/09	0	0	0
9/14/09 – 9/20/09	365	0	440
9/21/09 – 9/27/09	280	0	677
9/28/09 – 10/4/09	705	0	1150
10/5/09 – 10/11/09	149	0	247
10/12/09 – 10/18/09	232	0	302
10/19/08 – 10/25/09	687	419	105
10/26/09 – 11/1/09	162	550	63
11/2/09 – 11/8/09	0	42	47
11/9/09 – 11/15/09	24	57	0
11/16/09 – 11/22/09	115	127	8
11/23/09 – 11/25/08	83	248	8
<b>TOTAL</b>	<b>2,802</b>	<b>1,443</b>	<b>3,047</b>

## Spawning Summary

DATE SPAWNED	NUMBER OF EGGS TAKEN	NUMBER OF MALES	NUMBER OF FEMALES	NUMBER OF JACKS
10/26/09	1,713,200	228	383	5
11/3/09	4,315,700	486	958	17
11/9/09	4,927,500	483	1,124	11
11/10/09	69,998	12	21	2
11/16/09	2,011,700	250	504	16
11/17/09	8,200	4	3	0
11/18/09	8,000	4	2	0
11/24/09	20,500	13	5	0
<b>TOTAL</b>	<b>13,074,798</b>	<b>1,480</b>	<b>3,000</b>	<b>51</b>

NOTE: 142 non-viable females are included in this chart.

## Eyed Egg Shipment Summary

NUMBER OF EGGS	RECEIVED BY
3,700,000	Bonneville Hatchery (ODFW)
16,200	Grant County PUD
56,400	Pacific Northwest National Laboratory
250	Quincy High School
250	Hiawatha Elementary
11,000	Yakima Basin Environmental Education
1,500	Franklin Conservation District
3,785,600	<b>TOTAL</b>

## **2009 Priest Rapids Fall Chinook (Grant County Pud and John Day Mitigation Combined)**

### **Egg Handling Record**

Number of eggs retained for rearing	6,935,205
Number of eyed eggs shipped	3,785,600
Total egg mortality	1,155,665
Eggs destroyed	1,196,328
Total number of eggs (adjusted egg take)	13,074,798

### **Breakdown of Therapeutants Used**

Total Formalin used on adults	4,110 gallons
Total Liquamycin (LA-200) used on adults	900 milliliters
Total Formalin used on eggs	675 gallons
Total Formalin used on juveniles	0 gallons

### **Spawn to Fry Stage**

Percent survival from green to eyed egg	91.2
Number hatched from eyed eggs	6,935,205
Total number of fry ponded	6,935,205
Total pounds of fry ponded	6,935 lbs.

### **Rearing to Fingerling Stage**

Number of fingerlings planted	6,776,646
Total pounds of fingerlings planted	137,389
Percent survival from ponding to plant	97.7
Average size (fish/lb) of fingerlings planted	49.3
Fingerling shipped (Pacific Northwest National Lab)	1,655

## Food Fed and Weight Gain

Total pounds of food fed	82,984
Conversion rate	.63 to 1
Total pounds of gain	132,454

## Length Frequency Data (Average)

Mean (mm.)	93.84
Standard Deviation	7.09
Coefficient of Variation	7.34

## Stream Planting - All 2009 Fall Chinook

POND	DATE	LOCATION	NUMBER	WEIGHT	FISH / LB.
C6	6/9/10	Columbia R.	1,647,607	32,952	50.0
C5	6/11/10	Columbia R	1,243,665	25,909	48.0
C4	6/13/10	Columbia R.	1,276,889	26,112	48.9
C3	6/15/10	Columbia R.	895,882	18,026	49.7
C2	6/17/10	Columbia R.	1,712,608	34,390	49.8
	<b>TOTALS</b>		<b>6,776,651</b>	<b>137,389</b>	<b>49.3</b>



This program receives Federal financial assistance from the U.S. Fish and Wildlife Service Title VI of the Civil Rights Act of 1964, Section 504 of the Rehabilitation Act of 1973, Title II of the Americans with Disabilities Act of 1990, the Age Discrimination Act of 1975, and Title IX of the Education Amendments of 1972. The U.S. Department of the Interior and its bureaus prohibit discrimination on the bases of race, color, national origin, age, disability and sex (in educational programs). If you believe that you have been discriminated against in any program, activity or facility, please write to:

U.S. Fish and Wildlife Service  
Civil Rights Coordinator for Public Access  
4401 N. Fairfax Drive, Mail Stop: WSFR-4020  
Arlington, VA 22203