
LEABURG HATCHERY

A COMPILATION AND SUMMARY OF
IHOT AUDIT FOR SUMMER STEELHEAD

JULY 1998

**HATCHERY EVALUATION REPORT
SUMMARY FOR**

**Leaburg Fish Hatchery
- Summer Steelhead**

**A Summarized Compilation of Independent Audits Based on
Integrated Hatchery Operations Team (IHOT) Performance
Measures**

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Executive Summary

This report compiles a summary of the findings of the Hatchery Evaluation Reports for Summer Steelhead at Leaburg Hatchery. The original Hatchery Evaluation Reports, prepared by Montgomery Watson, presented each species and program separately and include the complete findings. Details on the audit compliance status for each species and program are included in the original reports. The Hatchery Evaluation Reports were based upon audits conducted in 1996-1997 as part of a 2-year effort that will include 67 hatcheries and satellite facilities located on the Columbia and Snake River system in Idaho, Oregon, and Washington. The hatchery operating agencies include the U.S Fish and Wildlife Service, Idaho Department of Fish and Game, Oregon Department of Fish and Wildlife, and Washington Department of Fish and Wildlife.

The hatchery is located along the McKenzie River (Willamette Basin) approximately 23 mile east of Springfield Oregon. The hatchery is operated by the Oregon Department of Fish and Wildlife and used for adult collection, incubation and rearing of summer steelhead.

Background

The audit is being conducted as a requirement of the Northwest Power Planning Council (NPPC) “Strategy for Salmon” and the Columbia River Basin Fish and Wildlife Program. Under the audit, the hatcheries are evaluated against policies and related performance measures developed by the Integrated Hatchery Operations Team (IHOT) in January 1995. IHOT is a multi-agency group established by the NPPC to direct the development of new basinwide standards for managing and operating fish hatcheries. The Bonneville Power Administration (BPA) contracted with Montgomery Watson to act as an independent contractor for the audit.

IHOT has established five basic policies that cover: (1) hatchery coordination, (2) hatchery performance standards, (3) fish health, (4) ecological interaction, and (5) genetics. The audit focuses on all these policies, with the exception of hatchery coordination. These policies are set forth in *Policies and Procedures for Columbia Basin Anadromous Salmonid Hatcheries (IHOT 1995)*, which is the source for the performance measures that are the basis of this audit.

The Audit Process

The audit was based on the facility management's response to a 109-page questionnaire. This audit form was completed through a five-step process in which:

- Information was obtained from headquarters.
- The hatchery manager was asked to fill out and return the audit form.
- A 1-2 day site audit visit was conducted to inspect facilities, review hatchery records, discuss audit form responses, and develop remedial action plans.
- A compliance report was developed to document the compliance status of each performance measure. This report was then shared with the hatchery manager and IHOT representative.
- This hatchery evaluation report was written to document compliance with IHOT performance measures and develop cost estimates for remedial actions when needed.

Leaburg Fish Hatchery - Summer Steelhead Results

The Leaburg facility includes 2 raceways for adult holding, 42 concrete raceways, 6 circular rearing ponds, 17 fiberglass Canadian troughs, and incubation facilities. The hatchery was constructed in 1953 by the U.S. Army Corps of Engineers to mitigate for lost trout habitat caused by construction of Blue River and Cougar Dams and other Willamette Valley projects.

The Leaburg Fish Hatchery - Summer Steelhead program was in general compliance with most of the performance measures. In the area of program objectives, the hatchery did not have a Monitoring and Evaluation Plan and needed to conduct a fisheries contribution study. The audit found that the hatchery was not in compliance with the water quality monitoring, alarm, food storage, and release facilities requirements, which are all facilities requirements. The hatchery was not meeting all the transportation protocols, and needed to develop a smoltification goal and monitoring program. The hatchery did not have a Genetics Monitoring and Evaluation Program.

The specific areas in which the Leaburg Fish Hatchery - Summer Steelhead program requires remedial actions based on the IHOT performance measures are listed below. These remedial actions are listed in alphabetical order without intent of ranking or otherwise assigning priority:

- Conduct fish contribution study
- Conduct IHOT QA/QC tests for feed preparation
- Construct a new 4'W x 6'H x 100' L outlet channel
- Develop alarm log
- Develop approved genetics M&E plan
- Develop hatchery M&E plan to track Leaburg fish
- Develop smoltification goal and monitor
- Follow IHOT protocols for disinfection of transport vehicle interior and exterior
- Follow IHOT protocols for disinfection of transportation equipment and personnel before and after use
- Follow IHOT protocols for removing moist pellets just prior to feeding
- Follow IHOT protocols for tempering of liberation water prior to release
- Follow IHOT requirements for checking of the other alarms weekly
- Install security alarms
- Lower density by splitting fish to other ponds prior to release
- Monitor DO and TGP and record
- Run analysis for water chemistry parameters, turbidity, alkalinity, hardness, nitrite, and contaminants

Non-compliance issues resulting from items beyond human control or Performance Measures not relevant to this hatchery were not listed above.

Facility Description

Name:	Leaburg Fish Hatchery
Stock/Species:	Summer Steelhead
Operating Agency:	Oregon Department of Fish & Wildlife
Funding Agency:	Corps of Engineers
Location:	The hatchery is located along the McKenzie River (Willamette Basin) approximately 23 miles east of Springfield Oregon.
Address:	90700 Fish Hatchery Road Leaburg, OR 97489
Hatchery Manager:	Mr. Stephen Wells
Phone:	(541) 896-3294
Fax:	(541) 896-0447
Purpose:	The hatchery was constructed in 1953 by the U.S. Army Corps of Engineers to mitigate for lost trout habitat caused by construction of Blue River and Cougar Dams and other Willamette Valley projects. The goal of the hatchery is to help achieve an average sport catch of 1,200 adult summer steelhead in the McKenzie River.
Production Goal:	Summer Steelhead Produce 108,000 smolts (24,000 lb) for release into the McKenzie River Produce 115,500 smolts (11,550 lb) for transfer to Dexter Pond
Water Supply:	Water rights total 56,100 gpm from the McKenzie River. All rearing facilities use single-pass water.
Facilities:	
Adult Holding:	1 concrete raceway for adult capture - 7,320 cf
Incubation:	6 half stack vertical incubators (48 trays) 5 aluminum troughs - 11 cf each

Early Rearing: 13 Canadian troughs - 64 cf each
4 Canadian troughs - 84 cf each

Raceways: 3 concrete raceways - 3,660 cf
39 concrete raceways - 7,320 cf
(The number of raceways includes those used for adult capture)

Rearing Ponds: 6 circular concrete ponds - 690 cf each

Satellite Facilities: None

Section 3
Remedial Actions

Based on the compliance status for each performance measure, remedial actions were developed. The required remedial actions are organized into five categories. The types of categories range across a spectrum from those actions that are beyond human control, to those that require a change in agency policy or procedures, to those that involve a significant capital cost to put in place. The following are the five types of remedial actions identified under phase 1 of the audit:

The Five Types of Remedial Actions

Type	Description
1	Non-compliance issues resulting from items beyond human control or Performance Measures not relevant for this hatchery
2	Remedial actions requiring changes in agency policies or procedures
3	Remedial actions requiring changes in monitoring coverage or interval
4	Remedial actions requiring significant capital expenditures
5	Remedial actions that may require significant capital expenditures but are not clearly definable at this time

Remedial Actions at Leaburg Fish Hatchery - Summer Steelhead

This section presents the corrective actions required to bring the Leaburg Fish Hatchery - Summer Steelhead program into compliance with IHOT performance measures. The remedial actions described here are suggestions developed by the Montgomery Watson Audit Team. The remedial actions and associated cost estimates have not been analyzed or prioritized by the respective operating agencies, fishery managers, or IHOT. There may be additional remedial actions, not included in this report, proposed by the respective operating agencies.

For some non-compliance areas, other remedial actions could be proposed. The required remedial actions are cross-referenced to each IHOT performance measure that was not in compliance. Where appropriate, the costs associated with the remedial actions are also presented (Table 3).

The cost estimates presented in this section are based on professional experience from similar projects. In most cases, only a lump-sum figure is presented, and detailed take-off lists have not been prepared. The cost estimates are essentially order of magnitude estimates ($\pm 40\%$).

The suggested remedial activities may also present several levels of action. Optional actions have been listed for several problems. These optional actions are desirable for either operational or safety considerations.

Remedial Action Required	Cost	PMs ¹
Type 4 - Remedial actions requiring significant capital expenditures Install security alarms Construct a new 4'W x 6'H x 100' L outlet channel	\$15,000 \$150,000	6 13
Type 5 - Remedial actions that may require significant capital expenditures but are not clearly definable at this time None	----	

¹ PMs are performance measures that were extracted from the IHOT 1995 report.

Hatchery Contribution to Fisheries, Spawning Grounds, and Hatcheries

This section presents the audit findings for the Leaburg Fish Hatchery - Summer Steelhead program contribution of adult fish to fisheries, local fisheries, spawning grounds, and hatcheries (Table 4). Data is reported by broodyear. A broodyear refers to the adult contribution from the eggs produced from a single group of spawning adults. For some species, this may include fish caught as 2-, 3-, 4-, 5-, and 6-year old fish. Because of the return distribution and data processing delays, the complete adult contribution for a given broodyear may not be available until 4 to 5 years after the fish have been released from the hatchery.

**Table 4. Adult Contribution to Fisheries, Spawning Grounds, and Hatcheries:
Leaburg Fish Hatchery - Summer Steelhead**

Year	Fisheries ¹ (Broodyear)	Spawning Grounds ¹ (Broodyear)	Hatchery ¹ (Broodyear)	Total Combined Contribution ² (Broodyear)	Smolt to Adult Survival (percent)
1981					
1982					
1983					
1984					
1985					
1986					
1987					
1988					
1989					
1990	2,747	---	58	2,805	2.39
1991	1,044	---	74	1,118	1.03
1992	2,942	---	148	3,090	2.87

¹ Data obtained from Missing Production Groups Annual Report or from the Regional Mark Information System database.

² Total combined adult contribution; presented when it is not possible to subdivide the contribution into fisheries, spawning grounds, and hatchery contributions.

Annual Operating Expenditures

The level and detail of annual operating expenditures varies widely depending on hatchery, operating agency, and funding source. When provided, expenditures were presented in terms of personnel costs, operating costs (power, feed, and supplies), capital costs, indirect costs charged to the federal government, third-party costs, and other costs. These cost components were summed to determine a total hatchery annual cost. Based on discussion with the hatchery manager, the percent of total hatchery costs allocated to a given program was estimated. The total hatchery costs and the percent of hatchery costs allocated to a given program were used to compute the cost of a given program. The total expenditures for the Leaburg Fish Hatchery are presented in Table 5 by program. The detailed breakdown of program expenditures at this hatchery are presented in separate tables (Table 6).

Table 5. Annual Operating Expenses - Leaburg Fish Hatchery

Program	1993	1994	1995
1. Summer Steelhead	\$91,085	\$100,685	\$102,327
2.			
3.			
4.			
5.			
Total Hatchery Costs	\$91,085	\$100,685	\$102,327

Table 6. Detailed Expenditures at Leaburg Fish Hatchery by Program

Summer Steelhead

Component	1994	1995	1996
Personnel Costs	\$301,487	\$320,819	\$376,912
Operational Costs	\$274,591	\$286,021	\$385,180
Capital Costs	\$11,930	\$25,426	\$91,109
Indirect Costs	\$106,771	\$110,086	\$140,268
Lumped Hatchery Costs ¹			
Lumped Third-Party Costs			
Total Hatchery Costs	\$694,778	\$742,351	\$993,469
Source of Funds			
COE			
Program Production (lb)	33,812	39,675	29,443
Total Production (lb)	257,812	284,659	285,938
Program as Percent of Total	13.01%	13.9%	10.3%
Program Costs	\$91,085	\$100,685	\$102,327

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¹ When it was not possible to obtain a detailed cost breakdown from an agency or third party, the undivided costs were entered here.