
MCCALL HATCHERY

**A COMPILATION AND SUMMARY OF
IHOT AUDITS FOR SUMMER CHINOOK**

JULY 1998

**HATCHERY EVALUATION REPORT
SUMMARY FOR**

**McCall Hatchery
- Summer Chinook**

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

SUMMARY REPORT PREPARED BY:
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Executive Summary

This report compiles a summary of the findings of the Hatchery Evaluation Report for Summer Chinook at McCall Hatchery. The original Hatchery Evaluation Report, 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 within the city limits of McCall, Idaho on the North Fork Payette River, approximately 0.25 miles downstream from Payette Lake and is operated by the Idaho Department of Fish and Wildlife. The hatchery is used for adult collection, incubation, and rearing of summer chinook.

Background

The hatchery audit was 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) was contracted along with Montgomery Watson to complete the hatchery 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.

McCall Hatchery - Summer Chinook Results

The McCall facility includes two ponds for rearing, 14 indoor rearing tanks, and incubation facilities. The South Fork Salmon Satellite includes two adult holding ponds and a covered spawning area. McCall Hatchery was constructed in 1979 by the U.S. Army Corps of Engineers as part of the Lower Snake River Compensation Plan (LSRCP) - a program to mitigate anadromous fishery losses caused by the construction of the four hydroelectric dams on the lower Snake River.

The McCall Hatchery was in compliance with most of the performance measures. In the area of program objectives, the hatchery was not meeting its adult return goal, and needed to reduce its pre-spawning mortality. The audit found that the hatchery was not in compliance with the screen approach criteria, turbidity criteria, water chemistry and contaminant monitoring requirements, alkalinity and hardness criteria, early rearing facilities, and pathology-free water for early rearing criteria, which are all facilities requirements. The hatchery did not have a smoltification goal or monitoring program, annual training schedule. In the compliance area for fish health policy, the hatchery did not have foot baths in the incubation facilities. The hatchery did not have an approved Genetics Monitoring and Evaluation Program in place.

The specific areas in which the McCall Hatchery - Summer Chinook 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:

- Consider pre-filtration of incubation water to reduce sediment problem
- Develop annual training schedule for staff
- Develop pathogen-free water supply for early rearing
- Develop smoltification goal and monitoring program
- Develop specific incubation and rearing standards for IHOT Operations Plan
- Document adult contribution
- Increase alkalinity and hardness
- Install additional early rearing vats on southside of hatchery building
- install foot baths in incubation facilities
- Modify intake to meet current approach criteria
- Monitor DO during hauling
- Obtain approval of genetics monitoring and evaluation plan
- Perform IHOT QA/QC feed tests
- Reduce pre-spawning mortality
- Review IHOT transport water temperature criteria
- Review IHOT broodstock collection and spawning protocols as they relate to IDFG policy and practices.
- Run analysis for contaminants
- Run analysis for missing water chemistry parameters
- Run analysis for turbidity
- Use second set of screens

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

Facility Description

Name:	McCall Hatchery
Stock/Species:	Summer Chinook
Operating Agency:	Idaho Department of Fish and Game
Funding Agency:	Lower Snake River Compensation Program (LSRCP)
Location:	Located within the city limits of McCall, Idaho on the North Fork Payette River, approximately 0.25 miles downstream from Payette Lake.
Address:	McCall Hatchery Idaho Department of Fish and Game P.O. Box 1021 McCall, ID 83638
Hatchery Manager:	Mr. Gene McPherson
Phone:	(208) 634-2690
Fax:	(208) 634-3492
Purpose:	McCall Hatchery was constructed in 1979 by the U.S. Army Corps of Engineers as part of the Lower Snake River Compensation Plan (LSRCP) - a program to mitigate anadromous fishery losses caused by the construction of the four hydroelectric dams on the lower Snake River. The LSRCP mitigation goal is to return 8,000 summer chinook above Lower Granite Dam.
Production Goal:	Summer Chinook Produce 1.0 million smolts (50,000 lb) for release in the South Fork Salmon River. Provide surplus summer chinook eggs/ or fish to other hatcheries in the state.
Water Supply:	Water is supplied to the hatchery from Payette Lake through two inlets, one at the lake surface and the other at a depth of 50 feet. This permits some control over water temperature throughout the year. Water flow to the hatchery is 8,977 gpm. The satellite facilities use 8,977 gpm of gravity flow water from the South Fork of the Salmon River.

Facilities:

Adult Holding:	none at hatchery
Incubation:	23 stacks of 8 tray vertical tray incubators
Early Rearing:	14 indoor rearing tanks - 320 cf each
Raceways:	none
Rearing Ponds:	2 rearing ponds - 23,814 cf each
Satellite Facilities:	South Fork Salmon Satellite 2 adult holding ponds and spawning area

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 range 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:

Table 2. 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 McCall Hatchery - Summer Chinook

This section presents the corrective actions required to bring the McCall Hatchery - Summer Chinook 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 maybe desirable for either operational or safety considerations.

Table 3. Remedial Actions Required at McCall Hatchery - Summer Chinook

Remedial Action Required	Cost	PMs ¹
<p>Type 1 - Non-compliance issues resulting from items beyond human control or Performance Measures not relevant for this hatchery</p> <p>Improve adult returns</p> <p>Review IHOT incubation temperature criteria</p> <p>Install flow alarms at intake and security alarm</p>	<p>----</p> <p>----</p> <p>----</p>	<p>4c, 4g, 4h, 22a4,</p> <p>5a</p> <p>6</p>
<p>Type 2 - Remedial actions requiring changes in agency policies or procedures</p> <p>Document adult contribution</p> <p>Consider pre-filtration of incubation water to reduce sediment problem.</p> <p>Use second set of screens</p> <p>Perform IHOT QA/QC feed tests</p> <p>Develop specific incubation and rearing standards for IHOT Operations Plan</p> <p>Develop smoltification goal and monitoring program</p> <p>Monitor DO during hauling</p> <p>Review IHOT transport water temperature criteria</p> <p>Develop annual training schedule for staff</p> <p>install foot baths in incubation facilities</p> <p>Review IHOT broodstock collection and spawning protocols as they relate to IDFG policy and practices</p> <p>Obtain approval of genetics monitoring and evaluation plan</p>	<p>----</p> <p>----</p> <p>----</p> <p>----</p> <p>----</p> <p>----</p> <p>----</p> <p>----</p> <p>----</p> <p>----</p> <p>----</p> <p>----</p> <p>----</p> <p>----</p> <p>----</p>	<p>4a</p> <p>8</p> <p>10</p> <p>12</p> <p>18, 19</p> <p>22a1</p> <p>23</p> <p>23</p> <p>25</p> <p>28</p> <p>41,42</p> <p>43</p>
<p>Type 3 - Remedial actions requiring changes in monitoring coverage or interval</p> <p>Run analysis for missing water chemistry parameters</p> <p>Run analysis for turbidity</p> <p>Run analysis for contaminants</p>	<p>----</p> <p>----</p> <p>----</p>	<p>5c</p> <p>5d</p> <p>5g</p>

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

Remedial Action Required	Cost	PMs ¹
Type 4 - Remedial actions requiring significant capital expenditures Install additional early rearing vats on southside of hatchery building 4 vats at \$7,500 1,024 sf @ \$100/sf Modify intake to meet current approach criteria	 \$30,000 \$105,00 \$200,000	 9 10
Type 5 - Remedial actions that may require significant capital expenditures but are not clearly definable at this time Reduce pre-spawning mortality Increase alkalinity and hardness Develop pathogen-free water supply for early rearing	 ---- ---- ----	 4b 5e 28

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 McCall Hatchery - Summer Chinook 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:
McCall Hatchery - Summer Chinook**

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	---	850	1543		0.030
1989	---	237	701		0.26
1990	---	318	651		0.022
1991					
1992					

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.

³ There is no chinook fisheries in Idaho; no information received on ocean fisheries or from Oregon or Washington

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, 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. Table 5 shows the annual operating expenses for the McCall Hatchery - Summer Chinook program. . The detailed breakdown of the Summer Chinook program expenditures at this hatchery are presented in separate tables (Tables 6).

Table 5. Annual Operating Expenses - McCall Hatchery

Program	1993	1994	1995
1. Summer Chinook	\$324,121	\$473,662	\$419,467
2. West Slope Cutthroat	?	?	?
3. Catchable Rainbow Trout	?	?	?
4.			
5.			
Total Hatchery Costs	\$324,121	\$473,662	\$419,467

Table 6. Detailed Expenditures at McCall Hatchery by Program

Summer Chinook

Component	1993	1994	1995
Personnel Costs	\$122,155	\$135,900	\$129,095
Operational Costs	\$140,715	\$192,145	\$170,627
Capital Costs	\$1,092	\$86,381	\$83,500
Indirect Costs	\$60,159	\$59,236	\$36,245
Lumped Hatchery Costs ¹			
Lumped Third-Party Costs			
Total Hatchery Costs	\$324,121	\$473,662	\$419,467
Source of Funds			
LSRCP	100%	100%	100%
Program Production (lb)			
Total Production (lb)			
Program as Percent of Total	100%	100%	100%
Program Costs	\$324,121	\$473,662	\$419,467

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