

# IDAHO

## DEPARTMENT OF FISH AND GAME

Jerry M. Conley, Director

FEDERAL AID IN FISH AND WILDLIFE RESTORATION

Job Performance Report

Project F-71-R-8



REGIONAL FISHERY MANAGEMENT INVESTIGATIONS

Job VI -A. Region 6 Mountain Lake Investigations  
Job VI -E. Region 6 Salmon and Steelhead Investigations

by

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TABLE OF CONTENTS

Page

Job VA-A. Region 6 Mountain Lake Investigations

ABSTRACT ..... 1  
    Williams Lake ..... 1  
RECOMMENDATIONS ..... 2  
OBJECTIVES ..... 2  
TECHNIQUES USED ..... 2  
FINDINGS ..... 2  
    Williams Lake ..... 4

Job No. VI-E. Region 6 Salmon and Steelhead Investigations

ABSTRACT ..... 7  
RECOMMENDATIONS ..... 8  
OBJECTIVES ..... 8  
TECHNIQUES ..... 8  
  
FINDINGS ..... 8

LIST OF TABLES

Table 1. Catch statistics for opening weekends at Williams  
    Lake, 1973-83 ..... 6  
Table 2. Upper Salmon River drainage chinook salmon redd  
    counts, 1978-1983 ..... 9

JOB PERFORMANCE REPORT

State of: Idaho \_ Name: Regional Fishery Management  
Investigations  
Project No.: F-71-R-8 Title: Region 6 Mountain Lake ---  
Job No.: VI-A Investigations  
Period Covered: January 1, 1983 – December 31, 1983

**ABSTRACT**

We surveyed seven mountain lakes in 1983. Of this number, one was found to be barren and was subsequently stocked with fry; another found to be barren will be stocked in the future. One lake stocked with grayling in 1982 showed good survival and growth. One lake had a stunted population of eastern brook trout and three lakes had healthy populations of naturally reproducing cutthroat trout.

Williams Lake

Spring spawning rainbow in Williams Lake ranged up to 43 cm (17 in.) on opening fishing season in 1983 (May 28). Large numbers of rainbow (3-5,000) were seen on the inlet stream to the lake. The opening day catch rate of .64 fish per hour was nearly double that of 1982.

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## RECOMMENDATIONS

Continue to monitor fish populations and collect morphological and water quality data in mountain lakes of Region 6 as time allows.

Continue to monitor the fishery in Williams Lake, Lemhi County.

Conduct field observations to determine spawning use of Lake Creek.

Discontinue fry plants as long as natural spawning success remains high.

## OBJECTIVES

To ascertain the status of trout populations in selected mountain lakes as time allows.

To determine the suitability of barren lakes to support a trout population.

To monitor angler use and harvest and evaluate the success of naturally produced fry recruitment to sustain the fishery in Williams Lake.

## TECHNIQUES USED

Mountain lakes were visually surveyed by one or more persons walking the perimeter of each lake and inspecting any inlet or outlet stream for spawning access and suitability. Test angling was conducted on each lake and species present, year classes and length frequencies noted. Observations for the presence of spawning redds and/or fry in tributary streams were made.

We checked angler creels during the winter ice fishing season and on the opening weekend of general fishing season to evaluate the growth and catch rate of spring spawning rainbow. Visual surveys were conducted on Lake Creek to assess the presence of spawning adult rainbow.

## FINDINGS

Lake name: Deer Lake  
Survey date: July 20, 1983  
Location: T21N, R17E, S13

Surface area: 6 h (14.5 ac)  
Est. max. depth: 9 m (30 ft)

Salmon National Forest

Deer Lake was found to contain a number of year classes of cutthroat trout when surveyed in 1983. Spawning opportunity exists in

two outlet streams and one inlet stream, and natural reproduction appears adequate to maintain the fish population in the lake. Cutthroat to 42 cm (16.5 in.) were caught. Body condition of fish caught and observed was good. No artificial stocking is recommended.

Lake name: Golway Lake  
Survey date: August 11, 1983  
Location: T6N, R17W, S22  
Salmon National Forest

Surface area: 3 h (7.5 ac)  
Est. max. depth: 12 m (42 ft)

Golway Lake was found to be barren of fish when surveyed in 1983. The lake is located in a barren, rocky cirque with no over-surface inlet or outlet. Water inflow appears to be from annual snow melt. Shoreline borders indicated periodic depth fluctuation of approximately 3 meters. Depth when surveyed in 1983 appeared adequate to support fish.

The lake was aerially stocked with 250 cutthroat fry in September, 1983. Follow-up investigation of survival should be conducted. If survival appears good, a triennial fry stocking program should be initiated.

Lake name: Dome Lake  
Survey date: August 15-16, 1983  
Location: T22N, R24W, S6  
Salmon National Forest

Surface area: 8 h (20 ac)  
Est. max. depth: 12 m (42 ft)

When surveyed in 1983, Dome Lake was found to contain a stunted population of eastern brook trout. The fish were in very poor body condition and obviously overpopulated for the lake. Two small inlets have very limited spawning opportunity and the lake has no over-surface outlet.

Due to the extreme remoteness and difficult access to this lake, it receives very light use. We estimate that in some years the lake receives no visitors. A low-cost population reduction scheme, such as introduction of a predator species, could be used to reduce the brook trout population and increase fish quality. However, the location of this lake in the River-of-No-Return Wilderness boundary may preclude introduction of outside species, due to USFS policy constraints.

Lake name: Goat Lake  
Survey date: August 17, 1983  
Location: R24W, T21N, S24  
Salmon National Forest

Surface area: 12.5 h (31 ac)  
Est. max. depth: 10.6 m (35 ft)

Goat Lake contains a naturally reproducing population of cutthroat trout. Fish ranging in size from young-of-the-year fry to 43 cm (17 in.) were observed in 1983. Two inlet streams and one outlet stream contain suitable gradient flows and substrate for spawning. Fry were

observed in all three streams.

Goat Lake should remain a self-sustaining system with no outside stocking required.

Lake name: Nez Perce Lake  
Survey date: September 15, 1983  
Location: R25E, T14N, S29  
Salmon National Forest

Surface area: 1.1 h (2.7 ac)  
Est. max. depth: 4.5 m (15 ft)

Nez Perce Lake was investigated and described in detail in 1982 (Reingold, 1983). An experimental stocking of grayling was made in August, 1982. A cursory check on their survival conducted in mid-September of 1983 disclosed that the grayling introduced as fry in 1982 were averaging approximately 18 cm (7 in.), and over-winter survival appeared to be high.

Lake name: Lower Hat Creek Lake  
Survey date: September 16, 1983  
Location: T18N, R19E, S23  
Salmon National Forest

Surface area: .85 h (2.2 ac)  
Est. max. depth: 4.5 m (15 ft)

Lower Hat Creek Lake was found to be barren of fish when surveyed in 1983. Lake fluctuation appeared to be approximately 2 meters maximum and depth appears to be adequate to support fish. There are no inlet or outlet streams adequate to support natural reproduction. Cutthroat trout fry will be introduced into the lake to provide a recreational fishery. The lake should be stocked on a triennial basis.

Lake name: North Fork Hat Creek Lake  
Survey date: September 16, 1983  
Location: T18N, R19E, S14  
Salmon National Forest

Surface area: 1.4 h (3.5 ac)  
Est. max. depth: 4.5 m (15 ft)

This lake was surveyed in 1983 and found to be supporting a naturally reproducing population of cutthroat trout. Spawning opportunity appears to be limited to the outlet streams. Fry were observed in the outlet in 1983 and fish of various size classes were observed and caught from the lake. Maximum size measured in 1983 was 30.5 cm (12 in.). It appears this lake population can sustain itself by natural reproduction and needs no outside introduction of fry.

#### Williams Lake

We interviewed 95 anglers during the 30-day ice fishery, who spent 219.5 hours to catch 207 rainbow trout for an average catch rate of .94 fish per hour. The rainbow ranged from 20 to 38 cm (8 to 15 in.) total length and averaged 28 cm (11 in.).

During the first weekend of the general season we interviewed 202 anglers who fished 487.5 hours to catch 310 rainbow trout and 1 bull trout (.64 fish/hr). We measured 302 rainbow between May 28-30 that averaged 27.2 cm (10.7 in.) total length.

Of the 310 rainbow observed, only 16 spawners (5%) were found. Most adult rainbow spawners were still on the spawning areas of the inlet stream (Lake Creek). A brief survey of Lake Creek led to an estimate of 3-5,000 spawning adults present on May 19. It appears that the spring spawning stock of rainbow introduced into Williams since 1979 are successfully reproducing. I estimated a minimum of 4 million eggs were deposited in the gravel of Lake Creek in 1983. It appears that with the establishment of this successful spawning run, it should no longer be necessary to release hatchery-produced fry into the lake on an annual basis to support the sport fishery.

As shown in Table 1, the catch rate in 1983 is almost double that of 1982. Average length of age I fish dropped in 1983, but I believe this reflects a strong year class of young fish from natural reproduction rather than lessened growth.

Table 1. Catch statistics for opening weekends at Williams Lake, 1973-83.

Year	Fish/hr	% rainbow	Average length (mm)	% age 1	Average length Age 1 (mm)
1973	1.5	97	278	61.3	252
1974	1.2	96.6	267	18.0	188
1975	1.7	96.7	246	90.2	241
1976	0.7	98.6	284	44.1	249
1977	1.9	99.3	264	80.3	241
1978	1.8	100	290	49.5	258
1979	0.7	99	247	87.5	237
1980	0.8	99	310	35.9	253
1981	0.8	99.7	312	68.1	293
1982	0.34	97.2	333	46.1	283
1983	0.64	99	272	51.0	219

JOB PERFORMANCE REPORT

State of: 1AsbQ Name: Rs 91QuLEisb<sup>g</sup>ra\_lansaem<sup>g</sup>nf

Project No.: all=B

Title: E g1on 6\_Ss1mQn\_sn sslr\_

Job No.: y1\_i.

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Period Covered: 1AnmArY 1.\_12\$a.,,:\_ Bgggmher 31.\_].2\$

ABSTRACT

Chinook salmon redd trend counts in 1983 increased over 1982 counts but still remained far below traditional levels.

Sockeye salmon counts were zero in Redfish Lake in 1983.

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## RECOMMENDATIONS

Continue chinook salmon, sockeye salmon, and where possible, steelhead trout spawning ground surveys.

## OBJECTIVES

To assess the escapement and spawning success of chinook salmon and sockeye salmon in the upper Salmon River by counting redds in selected areas.

To monitor fish runs and make recommendations for anadromous fishery management.

To inform the public on the status of the fish runs and problem solutions.

## TECHNIQUES

Spawning ground surveys for chinook salmon redds were conducted in the established trend areas. On walking surveys, we counted redds, measured and sexed kelts and inspected fish for marks and prespawning mortality. On aerial surveys, we counted redds only.

## FINDINGS

Chinook salmon redd counts were compiled with data from other regions in Idaho Department of Fish and Game Job Performance Report, Project F-73-R-6. Sockeye salmon redd trend counts were continued in 1983 in Redfish Lake and Fishhook Creek.

In 1981, the maximum number of sockeye salmon counted in Redfish Lake was 26 fish on October 6. In 1982, maximum numbers in the same observation area was 22 fish on October 13. In 1983, surveys of these same areas between October 1 and 15 disclosed no redds or fish present. As in 1981 and 1982, no sockeye salmon or redds were found in Fishhook Creek, the main tributary to Redfish Lake.

The numbers of chinook salmon redds counted in 1983 increased over 1982 counts in the upper Salmon River drainage. For the upper Salmon River area, the total numbers of redds were up 51% over 1982 counts. However, total numbers remain far below traditional levels and were only 12.5% of the 1978 counts (Table 2). Losses of smolts at Snake and Columbia River dams has been identified as the primary cause of the declining runs of chinook salmon in Idaho.

Table 2. Upper Salmon River drainage chinook salmon redd counts, 1978-1983.

Stream	1978	1979	1980	1981	1982	1983
<b>Upper Salmon River Drainage</b>						
Alturas Lake Creek	303	29	7	7	9	27
Upper Salmon River	1,707	205	47	363	42 <sup>a</sup>	161 <sup>a</sup>
Upper Valley Creek	141	25	6	2	1	8
Upper Yankee Fork	33	18	0	16	0	0
Upper East Fork	841	57	6	76	28	121
Herd Creek	26	2	0	9	1	7
Marsh Creek Drainage	270	47	9	63	40	33
Lemhi River	<u>796</u>	<u>134</u>	<u>41</u>	<u>126</u>	<u>113</u>	<u>32</u>
SUBTOTAL	4,117	537	122	659	284	407
<b>Lower Salmon River Drainage</b>						
Lower Salmon River	349	NC	11	75	39	111
Lower Valley Creek	219	15	4	17	8	28
Lower East Fork	NC	33	0	43	19	27
Loon Creek	<u>22</u>	<u>BC</u>	<u>2</u>	<u>34</u>	<u>23</u>	<u>1</u>
SUBTOTAL	597	48	24	165	89	173
<b>Unclassified</b>						
Camas Creek	148	15	17	65	33	38
Lower Yankee Fork	27	NC	0	4	1	0
West Fork Yankee Fork	<u>0</u>	<u>13</u>	<u>-2</u>	<u>12</u>	<u>4</u>	<u>1</u>
SUBTOTAL	273	28	19	88	34	45
TOTAL	4,987	613	165	912	407	625

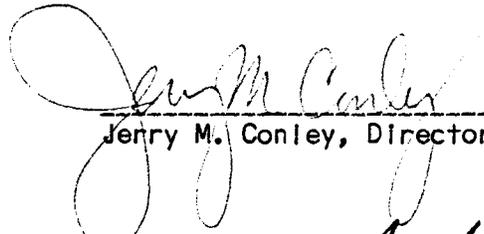
<sup>a</sup>Reduced by fish trapping at Sawtooth Hatchery site.

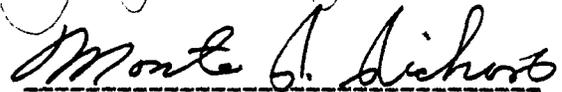
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