

# IDAHO DEPARTMENT OF FISH AND GAME

Jerry M. Conley, Director

FEDERAL AID IN SPORT FISH RESTORATION

FISHERY MANAGEMENT PROGRAM  
F-71-R-18

## ANNUAL FISHERIES MANAGEMENT PERFORMANCE REPORTS\* 1993



Project I.	Surveys and Inventories
Project II.	Technical Guidance
Project III.	Habitat Management
Project IV.	Population Management
Project V.	Coordination

\*Copies of complete reports available from IDFG, P.O. Box 25, Boise, Idaho 83707

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**This document contains abstracts of reports for the five projects under the Federal Aid in Sport Fish Restoration grant F-71-R-18, Fish Management. Abstracts are provided by subproject for each of eight Administrative/Management regions within the state. No work was performed for Subproject III-B, III-C, III-D, or III-E. Project V (Coordination) has no subprojects.**

**IDAHO  
DEPARTMENT OF FISH AND GAME**

**Jerry M. Conley, Director**

**Federal Aid in Sport Fish Restoration  
1993 Annual Performance Report  
Program F-71-R-18**

**REGIONAL FISHERIES MANAGEMENT INVESTIGATIONS  
PANHANDLE REGION (Subprojects I-A, II-A, III-A, IV-A)**

<b>PROJECT I.</b>	<b>SURVEYS AND INVENTORIES</b>
Job a.	Panhandle Region Mountain Lakes Investigations
Job b <sup>1</sup> .	Panhandle Region Lowland Lakes Investigations
Job b <sup>2</sup> .	Panhandle Region Lowland Lakes Investigations Coeur d'Alene Lake Chinook/Kokanee Evaluations
Job c.	Panhandle Region Rivers and Streams Investigations
<b>PROJECT II.</b>	<b>TECHNICAL GUIDANCE</b>
<b>PROJECT III.</b>	<b>HABITAT MANAGEMENT</b>
<b>PROJECT IV.</b>	<b>POPULATION MANAGEMENT</b>

**BY**

**Lance Nelson, Regional Fishery Biologist  
James A. Davis, Regional Fishery Biologist  
Ned Horner, Regional Fishery Manager**

## 1993 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-18

Project I: Surveys and Inventories

Subproject I-A: Panhandle Region

Job: a

Title: Mountain Lakes Investigations

Contract Period: July 1, 1993 to June 30, 1994

### ABSTRACT

No mountain lakes in the Panhandle Region were surveyed during 1993.

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## 1993 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-18

Project I: Surveys and Inventors

Subproject I-A: Panhandle Region

Job: b<sup>1</sup> Lowland Lake Surveys

Title: Lowland Lakes Investigations

Contract Period: July 1, 1993 to June 30, 1994

### ABSTRACT

Standard lowland lake surveys were conducted on Fernan, Hayden, and Muskrat lakes.

Mid-water trawling in Lake Pend Oreille estimated total kokanee Oncorhynchus nerka kenerlyi abundance at 397 fish/hectare.

Mid-water trawling in Spirit Lake in 1993 estimated kokanee at 737 fish/hectare, a decrease of 46.5% from the last trawl in 1991. Trawl results also indicated a shift in age at maturity from 3 + to 2 +.

The estimated number of northern pike Esox lucius in Cougar Bay, Coeur d'Alene Lake, in March 1993 was 1,791 (95% CI 1,309 < N < 3,003).

A total of 46,160 westslope cutthroat trout O. clarki lewisi were reared in six net pens on Lake Pend Oreille and released in May 1993. A limited census of north shore bank anglers indicated two adipose fin-clipped net pen cutthroat trout were caught in 57 hours of effort.

Mirror Lake, renovated in 1991, was evaluated in 1993 and found to be producing robust cutthroat trout and brook trout Salvelinus fontinalis after restocking in 1992.

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## 1993 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-18

Project I: Surveys and Inventories

Subproject I-A: Panhandle Region

Job: b<sup>2</sup> Chinook/Kokanee Evaluation

Title: Coeur d'Alene Lake Investigations

Contract Period: July 1, 1993 to June 30, 1994

### ABSTRACT

The estimated number of kokanee Oncorhynchus nerka kennerlyi in Coeur d'Alene Lake in 1993 was the highest since 1987. The increase in kokanee abundance was due to the high number of age 0 and age 1 kokanee. The low number of age 3 kokanee, 480,000, appeared to be strongly influenced by lost egg production in March 1990, during construction of Interstate 90 along the north shore of the lake. Mean length of kokanee spawners increased to 271 mm and 253 mm for male and female kokanee, respectively.

The number of natural Chinook salmon O. tshawytscha continued to increase. The percentage of natural Chinook salmon anglers caught during the derbies held in 1993 ranged from 66% to 84%. The number of Chinook salmon redds counted in the Coeur d'Alene and St. Joe rivers in 1993 totaled 121. No Chinook salmon were stocked in 1993 because of the weak year class of age 3 + kokanee and the potential to depress the second generation of kokanee resulting from this weak year class.

Authors:

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## 1993 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-18

Project I: Surveys and Inventories

Subproject I-A: Panhandle Region

Job: c

Title: Rivers and Streams Investigations

Contract Period: July 1, 1993 to June 30, 1994

### ABSTRACT

Westslope cutthroat trout Oncorhynchus clarki lewisi densities estimated from snorkeling transects in the catch-and-release sections of the North Fork Coeur d'Alene, Little North Fork Coeur d'Alene, and St. Joe rivers were 29, 3, and 203 fish/hectare, respectively. In the catch-and-keep sections of the same streams, densities were 36, 18, and 22 fish/hectare, respectively.

The population of westslope cutthroat trout estimated by electrofishing 2 km of the catch-and-release section of the North Fork Coeur d'Alene River was  $217 \pm 93$ , or 42 fish/hectare.

A total of 529 bull trout Salvelinus confluentus redds were counted in the six index streams in the Lake Pend Oreille drainage. This was an 8.4% increase over the 10-year average of 486 redds.

In 1993, a total of 18 bull trout redds were counted in the upper Priest Lake drainage, and a total of 71 bull trout redds were counted in the upper St. Joe River drainage.

The number of kokanee O. nerka kennerlyi spawners counted in Smith, Boundary, Long Canyon, and Parker creeks in 1993 was 15, 10, 0, and 4, respectively.

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## 1993 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-18

Project II: Technical Guidance

Subproject II-A: Panhandle Region

Contract Period: July 1, 1993 to June 30, 1994

### ABSTRACT

Panhandle Region fisheries management personnel provided private individuals, organizations, and state and federal agencies with technical review and advice on various projects and activities that affect the fishery resources in northern Idaho. Technical guidance also included numerous angler informational meetings, presentations, letters, development of the Panhandle Region portion of the 1-800-ASK-FISH program, and fishing clinics. We produced and printed an informational brochure on fishing the Spokane River Basin.

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## 1993 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-18

Project III: Habitat Management

Subproject III-A: Panhandle Region

Contract Period: July 1, 1993 to June 30, 1994

### ABSTRACT

Landowners adjacent to Hoodoo Creek were contacted and provided with technical information on how to improve stream and riparian habitat to enhance fish populations. Willow cuttings were also provided to landowners on Hoodoo Creek to plant adjacent to the stream course on their property.

In 1993, biologists designed and installed a fishway at the outlet of McArthur Reservoir to allow fish passage over the outlet dam.

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## 1993 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-18

Project IV: Population Management

Subproject IV-A: Panhandle Region

Contract Period: July 1, 1993 to June 30, 1994

### ABSTRACT

No lakes in the Panhandle Region were renovated with rotenone during 1993.

Bull trout were stocked in Upper Glidden, Revett, Roman Nose #1, and Roman Nose #2 mountain lakes to control stunted brook trout Salvelinus fontinalis populations. Stocking rates ranged from 40 fish/hectare to 70 fish/hectare.

Hatchery personnel and volunteers stocked 45 mountain lakes in the Panhandle Region. Species stocked included westslope cutthroat trout Oncorhynchus clarki lewisi, domestic Kamloops and Hayspur stock rainbow trout O. mykiss, brook trout, bull trout S. confluentus, splake S. fontinalis x S. namaycush, and grayling Thymallus arcticus.

Five lowland lakes and the St. Maries River were stocked with channel catfish Ictalurus punctatus and five lowland lakes received tiger muskie Esox lucius x E. masquinongy in 1993 as a continuation of the Panhandle Region's new species introduction program.

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DEPARTMENT OF FISH AND GAME**

**Jerry M. Conley, Director**

**Federal Aid in Sport Fish Restoration  
1993 Annual Performance Report  
Program F-71-R-18**

**REGIONAL FISHERIES MANAGEMENT INVESTIGATIONS  
CLEARWATER REGION (Subprojects I-B, II-B, IV-B)**

<b>PROJECT I.</b>	<b>SURVEYS AND INVENTORIES</b>
<b>Job a.</b>	<b>Clearwater Region Mountain Lakes Investigations</b>
<b>Job b.</b>	<b>Clearwater Region Lowland Lakes Investigations</b>
<b>Job c.</b>	<b>Clearwater Region Rivers and Streams Investigations</b>
<b>PROJECT II.</b>	<b>TECHNICAL GUIDANCE</b>
<b>PROJECT IV.</b>	<b>POPULATION MANAGEMENT</b>

**By**

**Ed Schriever, Regional Fishery Biologist  
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Jody Brostrom, Regional Fishery Biologist  
Larry Barrett, Senior Fishery Technician  
Monte Reid, Fishery Biological Aide**

## 1993 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-18

Project I: Surveys and Inventories

Subproject I-B: Clearwater Region

Job: a

Title: Mountain Lakes Investigations

Contract Period: July 1, 1993 to June 30, 1994

### ABSTRACT

Forest Service personnel and volunteers surveyed 36 lakes in the Clearwater Region in 1992 and 1993. Survey results indicate the regional stocking program is suitable in the lakes that were surveyed and the stocking program is providing fishable populations of trout.

Author:

Ed Schriever  
Regional Fishery Biologist

## 1993 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-18

Project I: Surveys and Inventories

Subproject I-B: Clearwater Region

Job: b

Title: Lowland Lakes Investigations

Contract Period: July 1, 1993 to June 30, 1994

### ABSTRACT

Standard lake survey in Mann Lake indicated a healthy population of largemouth bass Micropterus salmoides and effective control on forage species. Game fish dominate the fish community with 94% of the fish and 86.4% of fish biomass. Annual water level fluctuations reducing littoral habitat and cover play an important role in predator/prey interactions.

Standard lake survey in Spring Valley Reservoir indicate bluegill Lepomis macrochirus introduced as prey for largemouth bass are having a positive effect on growth rates and size structure. The survey sample was comprised totally of game fish.

Anglers spent an estimated 155,162 hours fishing to catch 176,570 fish from six lowland lakes in the Clearwater Region in 1993. Lowland lakes supported an average of 378 hours of angling effort per acre in 1993.

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## 1993 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-18

Project I: Surveys and Inventories

Subproject I-B: Clearwater Region

Job: c

Title: Rivers and Streams Investigations

Contract Period: July 1, 1993 to June 30, 1994

### ABSTRACT

Clearwater Region personnel snorkeled 73 stream transects within the Clearwater, Snake, and Salmon river drainages. We checked 111 anglers who fished 195.7 hours to catch 73 game fish from Clearwater Region rivers and streams.

We captured and tagged 51 white sturgeon Acipenser transmontanus in the Snake River below Hells Canyon Dam. Tagged sturgeon ranged from 63.5 cm to 259.1 cm total length.

We collected 50 smallmouth bass Micropterus dolomieu and 2 rainbow trout Oncorhynchus mykiss from the Salmon River. We collected 205 smallmouth bass and 44 rainbow trout from the Snake River. Stomach analysis of the 46 hatchery origin trout revealed one fish (sculpin Cottus sp.) in their diet.

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## 1993 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-18

Project II: Technical Guidance

Subproject II-B: Clearwater Region

Contract Period: July 1, 1993 to June 30, 1994

### ABSTRACT

Clearwater Region fish management personnel offered technical guidance to 18 other agencies and 41 private parties during this report period.

We sponsored or co-sponsored 12 children's fishing clinics throughout the region on Free Fishing Day. We also sponsored educational clinics on fly fishing and steelhead fishing.

We produced and printed informational brochures on fishing the Selway River and the Lochsa River.

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## 1993 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-18

Project IV: Population Management

Subproject IV-B: Clearwater Region

Contract Period: July 1, 1993 to June 30, 1994

### ABSTRACT

Idaho Fish and Game personnel stocked 231,363 catchable trout in lowland lakes and ponds in the Clearwater Region in 1993.

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DEPARTMENT OF FISH AND GAME**

**Jerry M. Conley, Director**

**Federal Aid in Sport Fish Restoration  
1993 Annual Performance Report  
Program F-71-R-18**

**REGIONAL FISHERIES MANAGEMENT INVESTIGATIONS  
MCCALL SUBREGION (Subprojects I-C, II-C, IV-C)**

<b>PROJECT I.</b>	<b>SURVEYS AND INVENTORIES</b>
<b>Job a.</b>	<b>McCall Subregion Mountain Lakes Investigations</b>
<b>Job b.</b>	<b>McCall Subregion Lowland Lakes Investigations</b>
<b>Job c.</b>	<b>McCall Subregion Rivers and Streams Investigations</b>
<b>Job d.</b>	<b>McCall Subregion Salmon and Steelhead Investigations</b>
<b>PROJECT II.</b>	<b>TECHNICAL GUIDANCE</b>
<b>PROJECT IV.</b>	<b>POPULATION MANAGEMENT</b>

**BY**

**Paul J. Janssen, Regional Fishery Biologist  
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## 1993 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-18

Project I: Surveys and Inventories

Subproject I-C: McCall Subregion

Job: a

Title: Mountain Lakes Investigations

Contract Period: July 1, 1993 to June 30, 1994

### ABSTRACT

Since 1988, several high mountain lakes in the Payette National Forest have been monitored by Idaho Department of Fish and Game and Payette National Forest Service personnel. The cumulative data from sampling the fish populations within these lakes from 1988 through 1993 has been computed and a synopsis presented in this report.

Of the 18 lakes sampled in 1993, Disappointment Lake and Upper Hazard Lake were specifically monitored to determine the results of bull trout Salvelinus confluentus introductions. Bull trout were found only in Disappointment Lake. These fish grew approximately 120 mm in length and 119 g in weight in the 13 months since stocked on June 23, 1992.

Fish population status in each lake was determined by collecting fish with gill nets and/or hook-and-line. Two different methods were used to evaluate fish condition. In the case of rainbow trout Oncorhynchus mykiss and brook trout S. fontinalis, the relative weight ( $W_r$ ) index was used. The other method used for determining fish condition in all other fish sampled was the standard metric Fulton type condition factor  $K_d = (W / L^3) * X$ .

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## 1993 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-18

Project I: Surveys and Inventories

Subproject I-C: McCall Subregion

Job: b

Title: Lowland Lakes Investigations

Contract Period: July 1, 1993 to June 30, 1994

### ABSTRACT

We trawled Payette Lake on two nights in August 1993 to obtain population estimates of kokanee Oncorhynchus nerka kennerlyi. The total population size of age 1 + and 2+ kokanee was estimated to be 301,744 and 117,215 fish, respectively. Survival of hatchery stocked kokanee, planted in May 1993, was estimated to be 8.8%. We estimated total kokanee biomass of age 0+, 1+, and 2+ fish in Payette Lake to be 2.5 kg/hectare, which was a 48% increase over the 1992 estimate.

We monitored the return of \$5.00 reward tags placed on lake trout Salvelinus namaycush since 1988. A total of 132 tagged lake trout were assumed to exist in Payette Lake at the beginning of 1993. A total of two reward tags were returned in 1993. The harvest exploitation rate was estimated to be 0.8%. Two tags were placed on lake trout in 1993.

To determine return rates of put-and-take rainbow trout O. mykiss in Brundage and Horsethief reservoirs, 300 fish from each of their 1992 stocking quotas were tagged with \$5.00 reward tags. After two years, 13.7% and 44% of those tags were returned from Brundage and Horsethief reservoirs, respectively.

A standard lowland lake survey was completed on C. Ben Ross Reservoir on May 18, 1993 to examine the fish community and determine if a special regulation for largemouth bass Micropterus salmoides was warranted. We collected largemouth bass, black crappie Pomoxis nigromaculatus, bluegill Lepomis macrochirus, largescale sucker Catostomus macrocheilus, and mountain whitefish Prosopium williamsoni. We used information from the survey to recommend implementation of a two bass limit, none between 12 and 16 inches and no harvest of bass until July 1.

Smallmouth Bass M. dolomieu have become well established in Cascade Reservoir in the last three years. Therefore, we collected smallmouth bass in 1993 with electrofishing gear to get baseline information on age and growth rates of these fish. We collected a total of 193 smallmouth bass in 57 minutes of actual electrofishing time. Fish ranged in size from 150 mm and 57 g to 360 mm and 705 g. Ages of fish ranged from 2+ to 5+, with the majority of fish being 3+. Age 3+ and 4+ smallmouth bass averaged 215 mm and 335 mm, respectively, in total length. Relative weights of Cascade Reservoir smallmouth bass were excellent, averaging 101.

To examine the current status of the fishery in Little Payette Lake and to help answer the question of what effects a catch-and-release fishery would have, we electrofished and gillnetted the lake. We collected a total of 178 rainbow trout which ranged in total length from 150 mm to 510 mm. We also collected kokanee, smallmouth bass, largescale suckers, reaside shiners Richardsonius balteatus and squawfish Ptychocheilus oregonensis. We found that largescale suckers and squawfish made up 88% of the biomass of the fish community. Growth rates for Kamloops strain rainbow trout O. mykiss sp. have dropped significantly from 12.8 mm/month in 1989 to 6.2 mm/month in 1993. At this time there is no reason to consider a catch-and-release regulation for Little Payette Lake. Unwanted fish species in the lake are a major threat to the fishery.

Lost Valley Reservoir was gillnetted in 1993 to examine changes in the fish community since the rotenone treatment in 1991. We collected a total of 72 fish: 45 rainbow trout, 5 brook trout, 16 yellow perch Perca flavescens, and 6 brown bullheads Ameiurus nebulosus. Rainbow trout ranged in total length and weight from 160 mm and 40 g up to 454 mm and 740 g. Condition factors of rainbow trout averaged 0.99. Yellow perch were not as abundant as expected.

Upper Payette Lake and Granite Lake were stocked on September 30, 1992 with 13,409 and 4,000, 6.5-inch splake S. fontinalis x S. namaycush, respectively. Splake in Upper Payette Lake had grown approximately 43 mm in 9 months and had total length, weight, and condition factor averages of 298 mm, 71 g, and 0.80. Splake in Granite Lake had grown approximately 61 mm in the same 9-month period and had total length, weight, and condition factor averages of 226 mm, 92 g, and 0.81.

Brundage Reservoir was sampled for Eagle Lake strain rainbow trout. We collected 13 adipose-clipped rainbow trout on July 28, 1993. These fish averaged 292 mm and 211 g with an average condition factor of 0.84. They had grown only 178 mm in 36 months. Stocking rates of rainbow trout in Brundage Reservoir were drastically reduced to improve growth rates.

Oxbow and Hells Canyon reservoirs were sampled for smallmouth bass with electrofishing gear. We collected a total of 287 and 203 smallmouth bass in Oxbow and Hells Canyon reservoirs, respectively. No significant changes were found in length frequencies of bass > 300 mm in either reservoir.

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## 1993 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71 -R-1 8

Project I: Surveys and Inventories

Subproject I-C: McCall Subregion

Job: c

Title: Rivers and Streams Investigations

Contract Period: July 1, 1993 to June 30, 1994

### ABSTRACT

The cutthroat trout Oncorhynchus clarki regulation on the South Fork Salmon River (SFSR) was changed to catch-and-release fishing only in 1986. The lower section of the SFSR (below the Secesh River) had not been sampled since 1986. This study was used to repeat the snorkel transects on this section of the SFSR to determine if the cutthroat trout population had responded to the regulation change. We sampled a total of four traditional transacts using two snorkelers who floated downstream through the transacts. Snorkelers recorded species and an estimate of total length for each fish observed. We observed cutthroat trout, wild rainbow/steelhead trout O. mykiss juveniles, Chinook salmon O. tshawytscha juveniles, bull trout Salvelinus confluentus, and mountain whitefish Prosopium williamsoni. We found cutthroat trout in three of the four transacts sampled. Densities were low, ranging from 0.29 to .87 fish/100 m<sup>2</sup>. However, this was a significant increase over that found in 1984 and 1985 when cutthroat trout were found in only one of the four transacts.

Big Creek, a tributary to the Middle Fork Salmon River, contains a substantial cutthroat trout fishery and was made a catch-and-release fishery in 1982. Standard stream survey techniques were used to sample the middle reach (Cabin Creek upstream to 1/2 mile above Monumental Creek) in August. In addition to the standard surveys, we sampled the creek with hook-and-line gear to record total lengths of fish. We divided the middle reach into two sections: 1. Monumental Creek downstream to Coxey Hole, and 2. Coxey Hole downstream to Cabin Creek. Overall, length frequencies of cutthroat trout were very similar to that reported previously. However, length frequencies and species composition were different for the two sections. The upper section had cutthroat trout > 12 inches and Chinook salmon juveniles. In the lower section we found cutthroat trout < 12 inches and steelhead juveniles. Species and length statistics were similar between hook-and-line obtained lengths and lengths estimated from fish observed during snorkel transacts. Chinook salmon juveniles were found only in the most upstream snorkel transact. One bull trout was also captured with hook-and-line gear in the lower section.

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## 1993 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-18

Project I: Surveys and Inventories

Subproject I-C: McCall Subregion

Job: d

Title: Salmon and Steelhead Investigations

Contract Period: July 1, 1993 to June 30, 1994

### ABSTRACT

McCall Subregion salmon and steelhead investigations data are incorporated in a separate, statewide "Salmon and Steelhead Investigations" report.

Author:

Don Anderson  
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## 1993 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-18

Project II: Technical Guidance

Subproject II-C: McCall Subregion

Contract Period: July 1, 1993 to June 30, 1994

### ABSTRACT

McCall Subregion fishery management personnel responded to 265 requests and opportunities for technical input. Comments were provided to state and federal agencies on proposed activities for which they have regulatory authority. Advice and technical assistance were provided for private businesses and the public on activities associated with fish, or having impacts on fish populations or fish habitat. The major topics of involvement included stream channel alterations, mining, and land management planning.

We also gave presentations to schools, sportsperson groups, and civic organizations. We answered many questions from the angling public on fishing opportunities, regulations, techniques, and specific waters.

Author:

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## 1993 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-18

Project IV: Population Management

Subproject IV-C: McCall Subregion

Contract Period: July 1, 1993 to June 30, 1994

### ABSTRACT

We enhanced fish populations and fishing in the McCall Subregion waters by stocking approximately 1.4 million hatchery salmonids and 5,000 channel catfish Ictalurus punctatus.

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DEPARTMENT OF FISH AND GAME**

**Jerry M. Conley, Director**

**Federal Aid in Sport Fish Restoration  
1993 Annual Performance Report  
Program F-71-R-18**

**REGIONAL FISHERIES MANAGEMENT INVESTIGATIONS  
SOUTHWEST REGION (Subprojects I-D, II-D, IV-D)**

<b>PROJECT I.</b>	<b>SURVEYS AND INVENTORIES</b>
Job a.	Southwest Region Mountain Lakes Investigations
Job b.	Southwest Region Lowland Lakes Investigations
Job c.	Southwest Region Rivers and Streams Investigations
Job d.	Southwest Region Salmon and Steelhead Investigations
<b>PROJECT II.</b>	<b>TECHNICAL GUIDANCE</b>
<b>PROJECT IV.</b>	<b>POPULATION MANAGEMENT</b>

**BY**

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## 1993 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-18

Project I: Surveys and Inventories

Subproject I-D: Southwest Region

Job: a

Title: Mountain Lakes Investigations

Contract Period: July 1, 1993 to June 30, 1994

### ABSTRACT

Eight lakes within the Baron Creek drainage (tributary to South Fork Payette River) within the Sawtooth Wilderness Area were surveyed between August 30 and September 4, 1993 to document fish populations present. Of the lakes surveyed, two appeared to be barren of fish, four contained only westslope cutthroat trout Oncorhynchus clarki lewisi, and two contained westslope cutthroat trout and brook trout Salvelinus fontinalis. No other species of fish were sampled.

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## 1993 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-18

Project I: Surveys and Inventories

Subproject I-D: Southwest Region

Job: b

Title: Lowland Lakes Investigations

Contract Period: July 1, 1993 to June 30, 1994

### ABSTRACT

A study was conducted on Deadwood Reservoir, partially funded by the Bureau of Reclamation, to assess the impacts of water released below the minimum pool on removal of fish from the reservoir. No impacts to numbers of fish in the reservoir could be documented. No increase in numbers of fish or fish species could be documented in the Deadwood River below the dam or 20 km downstream.

A standard lowland lake survey was conducted on Brownlee Reservoir in May 1993. Length frequencies and length-at-age of all game species were produced based on a unit of effort basis. Species composition and relative biomass of all species captured were also produced. Relative weights of game fish species by length were developed.

A standard lowland lake survey was conducted on C.J. Strike Reservoir in late May 1993. Length frequencies and length-at-age of all game species were produced based on a unit of effort basis. Species composition and relative biomass of all species captured were also produced. Relative weights of game fish species by length were developed.

Experimental gill nets and trap nets were used on Blue Creek, Little Blue Creek, and Shoofly reservoirs in late May 1993. Lahontan cutthroat trout Oncorhynchus clarki henshawi were collected in Little Blue Creek and Shoofly reservoirs. Blue Creek Reservoir only contained nongame species.

#### Authors:

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Steven P. Yundt  
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## 1993 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-18

Project I: Surveys and Inventories

Subproject I-D: Southwest Region

Job: c

Title: Rivers and Streams Investigations

Contract Period: July 1, 1993 to June 30, 1994

### ABSTRACT

Sixteen stream segments were sampled for redband trout Oncorhynchus mykiss ssp. populations in Owyhee County in 1993. Stream segments in the Jordan Creek, Red Canyon Creek, and Deep Creek drainages were sampled. Ten of the 16 stream segments contained redband trout, with densities ranging from 0.3 to 102 redband trout/100 m<sup>2</sup>.

Stream riparian habitat data were collected at all survey sites. Habitat variables measured included stream transect lengths, widths, depths, gradient, bank stability, instream fish cover, greenline, and percent shading. Several water quality variables were also collected at each site. Water temperature ranged from 6.5°C to 22.0°C, dissolved oxygen ranged from 7.7 to 11.4 mg/l, and water conductivity ranged from 34.1 to > 1,000 μmhos/cm.

Ten of the stream segments sampled had been previously sampled in 1976, 1977, or 1991. In three transects, populations had increased over previous samples, one had remained the same, and six had decreased. It is recommended that the redband trout stream and habitat surveys be continued until stream segments in all drainages are sampled.

The rainbow trout O. mykiss population in a 9.6-km section of the South Fork Boise River below Anderson Ranch Dam was estimated to be 4,540 trout greater than 249 mm. Estimates were made using Peterson mark-recapture methods. Trout were collected using electrofishing equipment. Mean length, weight, and condition of rainbow trout collected was 341 mm, 468 g, and 1.03, respectively. Back-calculated length-at-age estimates based on scale analysis estimated rainbow age 1 to age 6 years old averaged 104, 192, 289, 351, 381, and 408 mm when respective annuli were formed.

In addition to rainbow trout, nine bull trout Salvelinus confluentus between 230 mm and 480 mm total length were collected.

Fourteen transects, that were originally established in 1988 on the Middle Fork Boise River, were snorkeled this year. Average wild rainbow trout densities were slightly increased from 0.92/100 m<sup>2</sup> in 1988 to 0.98/100 m<sup>2</sup> in 1993. Larger wild rainbow trout ( > 300 mm) increased over ten-fold in average density from 0.004/100 m<sup>2</sup> in 1988 to 0.05/100 m<sup>2</sup> in 1993.

Sixteen snorkeling transacts were repeated in Sulphur Creek during August 1993.

Authors:

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## 1993 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-18

Project I: Surveys and Inventories

Subproject I-D: Southwest Region

Job: d

Title: Salmon and Steelhead Investigations

Contract Period: July 1, 1993 to June 30, 1994

### ABSTRACT

Salmon spawning ground surveys were conducted in Bear Valley, Elk Creek, and Sulphur Creek trend areas in 1993. Redds numbered 148, 242, and 25 in Bear Valley, Elk Creek, and Sulphur Creek trend areas, respectively. Redd count trend areas in 1993 were 361%, 425%, and 500% of trend data area counts in 1992.

#### Authors:

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## 1993 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-18

Project II: Technical Guidance

Subproject II-D: Southwest Region

Contract Period: July 1, 1993 to June 30, 1994

### ABSTRACT

Regional staff reviewed the Environmental Impact Statement for the Idaho Training Range and provided comments on fish and habitat concerns. Fisheries staff continue to provide a large amount of general information to the public about local and statewide fisheries. Approximately ten landowners were assisted with construction of private ponds by regional fishery staff with on-site visits or information provided.

A database was developed to store and process random creel checks collected by fishery staff and conservation officers. This database will be able to provide information on average catch rates on regional bodies of water in the future.

#### Authors:

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## 1993 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-18

Project IV: Population Management

Subproject IV-D: Southwest Region

Contract Period: July 1, 1993 to June 30, 1994

### ABSTRACT

Warmwater fish species were captured and transferred to eight small drought-affected lakes or reservoirs to rebuild fish populations. A total of 1,388 largemouth bass Micropterus salmoides, 4,235 bluegill Lepomis macrochirus, 3,000 channel catfish Ictalurus punctatus, 2,812 crappie Pomoxis sp., and 5,000 yellow perch Perca flavescens were stocked.

Author:

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**IDAHO  
DEPARTMENT OF FISH AND GAME**

**Jerry M. Conley, Director**

**Federal Aid in Sport Fish Restoration  
1993 Annual Performance Report  
Program F-71-R-18**

**REGIONAL FISHERIES MANAGEMENT INVESTIGATIONS  
MAGIC VALLEY REGION (Subprojects I-E, II-E, IV-E)**

<b>PROJECT I.</b>	<b>SURVEYS AND INVENTORIES</b>
Job a.	Magic Valley Region Mountain Lakes Investigations
Job b.	Magic Valley Region Lowland Lakes Investigations
Job c.	Magic Valley Region Rivers and Streams Investigations
<b>PROJECT II.</b>	<b>TECHNICAL GUIDANCE</b>
<b>PROJECT IV.</b>	<b>POPULATION MANAGEMENT</b>

**BY**

**Charles D. Warren, Regional Fishery Biologist  
Fred E. Partridge, Regional Fishery Manager**

## 1993 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-18

Project I: Surveys and Inventories

Subproject I-E: Magic Valley Region

Job: a

Title: High Mountain Lakes Investigations

Contract Period: July 1, 1993 to June 30, 1994

### ABSTRACT

Baker Lake was opened to harvest of all fish species except golden trout Oncorhynchus aguabonita for two weekends in July 1993. The lake was then gillnetted, removing a total of 15 brown trout Salmo trutta, and 74 rainbow trout x cutthroat trout hybrids O. mykiss x O. clarki to reduce competition with the golden trout. Titus Lake was surveyed in August 1993 with no fish sampled in one experimental gill net set overnight. In an effort to reduce the stunted brook trout Salvelinus fontinalis in Upper Box Canyon Lake, 102 bull trout S. confluentus averaging 299 mm in total length were stocked in September 1993.

Author:

Charles D. Warren  
Regional Fishery Biologist

## 1993 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-18

Project I: Surveys and Inventories

Subproject I-E: Magic Valley Region

Job: b

Title: Lowland Lakes Investigations

Contract Period: July 1, 1993 to June 30, 1994

### ABSTRACT

Intensive creel surveys were performed on Magic and Lower Salmon Falls reservoirs. Magic Reservoir estimated total angler effort was 54,179 hours between late May 1993 and early January 1994, and a 28% return-to-the-creel of rainbow trout Oncorhynchus mykiss stocked at 200 mm to 250 mm in the spring of 1993 and less than a 1% return-to-the-creel of rainbow trout stocked at 165 mm the previous fall at Magic Reservoir. Lower Salmon Falls Reservoir total angler effort was estimated to be 21,287 hours between December 1992 and August 1993, and a 10.5% return-to-the-creel of rainbow trout stocked at 200 mm to 250 mm in the fall preceding the survey.

Dierkes Lake electrofishing results indicated a stunted bluegill Lepomis macrochirus population and a largemouth bass Micropterus salmoides proportional stock density (PSD) of 33. A minimum length limit of 508 mm (20 inches) and possession limit of 2 was imposed for Dierkes Lake largemouth bass in 1994.

Eight lakes and reservoirs were sampled by either gillnetting, seining, trapnetting, or electrofishing. Sampling results for Salmon Falls Creek Reservoir indicate little or no walleye Stizostedion vitreum spawning success in 1993. Nighttime mid-water trawling results at Salmon Falls Creek Reservoir estimate a young-of-the-year kokanee O. nerka density of 62 fish/hectare. Nighttime mid-water trawling results at Anderson Ranch Reservoir estimate young-of-the-year kokanee density to be 212 fish/hectare for fish of wild origin and 26 fish/hectare for fish of hatchery origin.

Author:

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## 1993 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-18

Project I: Surveys and Inventories

Subproject I-E: Magic Valley Region

Job: c

Title: Rivers and Streams Investigations

Contract Period: July 1, 1993 to June 30, 1994

### ABSTRACT

Population density estimate of wild rainbow trout Oncorhynchus mykiss  $\geq 200$  mm was 0.92 fish/100 m<sup>2</sup> within the slot regulation (no harvest between 305 and 405 mm) reach at Starweather and 3.26 fish/100 m<sup>2</sup> within the catch-and-release regulation reach at Gimlet. Also within the catch-and-release reach at the Lake Creek site., the density estimate of wild rainbow trout  $\geq 200$  mm was 1.18 fish/100 m<sup>2</sup> and at the new highway channel site, 1.74 fish/100 m<sup>2</sup>. Angler survey results estimated 11,950 hours of total angler effort on three sections of the Big Wood River between June 28 and September 5. This is a significant increase from estimates made in 1986-1988.

A population density estimate of brown trout Salmo trutta  $> 100$  mm at the Bear Track Williams site of the Little Wood River was 3.36 fish/100 m<sup>2</sup>. This estimate more than doubles the 1991 estimate within the same reach, although mean total length decreased from previous years' samples.

Salmon Falls Creek above the reservoir was electrofished for six hours and resulted in sampling 6 rainbow trout and 31 mountain whitefish Prosopium williamsoni. Nongame fish, particularly largescale suckers Catostomus macrocheilus, were found to be extremely abundant. Spawning walleye Stizostedion vetreum were not observed.

Shoshone Creek was electrofished at four sites in the Bureau of Land Management reach. The only game fish sampled were 13 young-of-the-year smallmouth bass Micropterus dolomieu out of a total of 563 m of stream electrofished, although rainbow and brown trout were sampled at some of the sites in 1982 and 1988.

The Snake River was sampled below the Bliss landslide before and after the event on July 24, 1993. Electrofishing results did not detect significant changes in the existing fish community after the slide despite increased turbidity.

Additional streams sampled in the region in 1993 included Cedar Draw and Willow creeks.

Authors:

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Charles D. Warren  
Regional Fishery Biologist

## 1993 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-18

Project II: Technical Guidance

Subproject II-E: Magic Valley Region

Contract Period: July 1, 1993 to June 30, 1994

### ABSTRACT

Magic Valley region fishery management personnel furnished verbal and written comments of technical guidance to other agencies, consultants, and private individuals and organizations. A considerable amount of time was spent reviewing projects and providing verbal comments and memos to the Regional Environmental Coordinator to assist him in providing written comments.

Many miscellaneous activities were commented on, participated in, or otherwise addressed, and numerous meetings regarding fisheries were attended.

Author:

Fred E. Partridge  
Regional Fishery Manager

## 1993 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-18

Project IV: Population Management

Subproject IV-E: Magic Valley Region

Contract Period: July 1, 1993 to June 30, 1994

### ABSTRACT

Fish populations and fishing in the Magic Valley Region was enhanced by stocking approximately 2.3 million hatchery salmonids.

Author:

Fred E. Partridge  
Regional Fishery Manager

**IDAHO  
DEPARTMENT OF FISH AND GAME**

**Jerry M. Conley, Director**

**Federal Aid in Sport Fish Restoration  
1993 Annual Performance Report  
Program F-71-R-18**

**REGIONAL FISHERIES MANAGEMENT INVESTIGATIONS  
SOUTHEAST REGION (Subprojects I-F, II-F, IV-F)**

<b>PROJECT I.</b>	<b>SURVEYS AND INVENTORIES</b>
<b>Job b.</b>	<b>Southeast Region Lowland Lakes Investigations</b>
<b>Job c.</b>	<b>Southeast Region Rivers and Streams Investigations</b>
<b>PROJECT II.</b>	<b>TECHNICAL GUIDANCE</b>
<b>PROJECT IV.</b>	<b>POPULATION MANAGEMENT</b>

**By**

**Richard J. Scully, Regional Fishery Manager  
James Mende, Regional Fishery Biologist  
Marc Arms, Fishery Technician  
Scott Wright, Biological Aide  
Carmen Garlie, Fishery Technician  
Stephen Riede, Biological Aide**

## 1993 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-18

Project I: Surveys and Inventories

Subproject I-F: Southeast Region

Job: b

Title: Lowland Lakes and Reservoirs Investigations

Contract Period: July 1, 1993 to June 30, 1994

### ABSTRACT

Spring-stocked catchable trout and fall-stocked fingerling trout were evaluated in seven Southeast Region reservoirs. We are in the second of a three-year evaluation of the relative benefits of stocking these reservoirs. Evaluations are in the form of creel and electrofishing surveys. This report contains information on the creel surveys.

Authors:

Richard J. Scully  
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James Mende  
Regional Fishery Biologist

## 1993 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-18

Project I: Surveys and Inventories

Subproject I-F: Southeast Region

Job: c

Title: Rivers and Streams Investigations

Contract Period: July 1, 1993 to June 30, 1994

### ABSTRACT

In 1992, we began an annual opening weekend survey at the Inkom Port of Entry to follow trends in catch rate, fish size distribution in the harvest, and relative use of a large number of Southeast Region rivers and streams. This was the sixth year of drought cycle. Although fish numbers were depressed in 1992 because of the long drought, water was low and clear, and what fish remained were concentrated and easy to catch. Weather during the spring of 1992 was generally dry and warmer than normal. In contrast, rivers and streams were high and turbid in late May 1993. Natural fish numbers were still low as a result of several preceding years of drought and fish were spread out in abundant water flows.

During opening weekend 1993, 269 anglers came through the Inkom check station and reported fishing 1,119 hours, or 4.2 h/trip. Of interviewed angler, 23% said they had fished rivers and streams and 20% of hours fished were at these waters. Average catch rates decreased from 1992 (0.53/h) to 1993 (0.43/h). Number of anglers interviewed decreased by 16% to 269. Number of rivers and streams fished by anglers we interviewed decreased from 19 to 18. The best catch rates occurred at Garden Creek, upper Portneuf River, Soda Creek, and Bear River. The two most popular fisheries were Pebble Creek (182 h checked) and the upper Portneuf River (148 h checked).

Mean trout size was generally between 250 and 300 mm, with some carryover trout in the 350 to 400 mm size range. Most trout observed at the check station were hatchery rainbow trout Oncorhynchus mykiss. Brown trout Salmo trutta were harvested from the lower Portneuf and Bear rivers and from Montpelier Creek. Brook trout Salvelinus fontinalis were harvested from Eight Mile, Twenty-Four Mile, and Garden creeks.

Authors:

Richard J. Scully  
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## 1993 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-18

Project II: Technical Guidance

Subproject II-F: Southeast Region

Contract Period: July 1, 1993 to June 30, 1994

### ABSTRACT

We reviewed proposals and provided written and verbal comments on activities affecting fish and anglers. We coordinated with personnel of various agencies on hydropower, mining, roading, stream alteration, grazing allotments, National Pollution Discharge and Elimination Systems (NPDES) permits, fill/excavation, and other projects. The Southeast Region fisheries personnel worked with anglers to improve rapport and open more channels of communication with agencies and the public. These technical assistance activities occupied approximately 25 days of regional fishery personnel time.

We met with the Marsh Center Irrigation Company to discuss the feasibility of increasing the height of the dam at Hawkins Reservoir to increase storage and obtain a minimum conservation pool for fish. We communicated with the Department of Water Resources, Soil Conservation Service, and Bureau of Reclamation on this project, as well as with the Idaho Department of Fish and Game (IDFG) Engineering Bureau. The IDFG Chief of Fisheries, Southeast Regional Supervisor, and officials of the other agencies met with the Irrigation Company. Negotiations for this project continued into 1994.

In 1993, we held a series of public meetings throughout the Southeast Region to provide biological information to the angling public and solicit their suggestions for fishing regulation changes for the 1994-95 cycle. Information was summarized and reviewed with the Fisheries Bureau and the public. Final recommendations were submitted to the Fisheries Bureau for proposal to the Fish and Game Commission.

Authors:

Richard J. Scully  
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James Mende  
Regional Fishery Biologist

## 1993 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-18

Project IV: Population Management

Subproject IV-F: Southeast Region

Contract Period: July 1, 1993 to June 30, 1994

### ABSTRACT

Fish populations and fishing in the Southeast Region was enhanced by stocking approximately 1.2 million hatchery salmonids.

Author:

Richard J. Scully  
Regional Fishery Manger

**IDAHO  
DEPARTMENT OF FISH AND GAME**

**Jerry M. Conley, Director**

**Federal Aid in Sport Fish Restoration  
1993 Annual Performance Report  
Program F-71-R-18**

**REGIONAL FISHERIES MANAGEMENT INVESTIGATIONS  
UPPER SNAKE REGION (Subprojects I-G, II-G, III-G, IV-G)**

<b>PROJECT I.</b>	<b>SURVEYS AND INVENTORIES</b>
Job a.	Upper Snake Region Mountain Lakes Investigations
Job b.	Upper Snake Region Lowland Lakes Investigations
Job c.	Upper Snake Region Rivers and Streams Investigations
<b>PROJECT II.</b>	<b>TECHNICAL GUIDANCE</b>
<b>PROJECT III.</b>	<b>HABITAT MANAGEMENT</b>
<b>PROJECT IV.</b>	<b>POPULATION MANAGEMENT</b>

**By**

**Mark Gamblin, Regional Fishery Manager  
Bruce Rich, Regional Fishery Biologist  
Tom Herron, Regional Fishery Biologist  
William Schrader, Senior Fishery Research Biologist**

## 1993 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-18

Project 1: Surveys and Inventories

Subproject I-G: Upper Snake Region

Job: a

Title: Mountain Lakes Investigations

Contract Period: July 1, 1993 to June 30, 1994

### ABSTRACT

We did not conduct mountain lakes investigations in the Upper Snake Region during 1993.

Author:

Mark Gamblin  
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## 1993 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-18

Project I: Surveys and Inventories

Subproject I-G: Upper Snake Region

Job: b

Title: Lowland Lakes and Reservoirs Investigations

Contract Period: July 1, 1993 to June 30, 1994

### ABSTRACT

Annual experimental gillnetting on Henrys Lake documented for the first time the presence of Utah chubs Gila atraria in the lake. Although several year classes appear to be present in the lake, we do not know how long or to what extent Utah chubs have been established there. Henrys Lake supported approximately 144,000 hours of effort in 1983, with a season catch rate of 0.64 trout/hour. Approximately 26,710 trout (rainbow x cutthroat hybrids and cutthroat trout Oncorhynchus clarki) were harvested from Henrys Lake in 1993. A bathymetric map was constructed for the lake.

Spring gill net samples from Island Park Reservoir were comprised of 52% non-game fish (suckers Catostomus sp. 33%, and Utah chub Gila atraria 19%) and 48% game fish (rainbow trout O. mykiss 32%, mountain whitefish Prosopium williamsoni 8%, kokanee salmon O. nerka kennerlyi 6%, and brook trout Salvelinus fontinalis 2%). Non-game fish gillnetting catch per unit effort (CPUE) declined by 87% between 1992 (pre-renovation) and 1993 (post-renovation).

Evaluation of stocking strategies for Jackson National Fish Hatchery fine-spotted cutthroat trout O. clarki ssp. again showed poor seasonal catch rates from October 1992 to October 1993. We recommend consideration be given to alternate species for Palisades Reservoir.

Hatchery catchable rainbow trout, hatchery fingerling rainbow trout, yellow perch Perca flavescens, and kokanee salmon provided 32%, 24%, 23%, and 16% of the 1993 Ririe Reservoir catch, respectively. Evaluation of extra large hatchery catchable rainbow trout (12 to 14 inches) documented excellent return-to-the-creel, cost efficiency, and angler satisfaction. Bass tournament CPUE data suggests smallmouth bass Micropterus dolomieu are providing modest but stable angling opportunities. Catch rates were highest in the fall at 1.4 bass/hour. Gill net and trap net surveys were dominated by Utah chubs (83%) and Utah suckers (16%).

Spring gillnetting, following the 1992-1993 Mud Lake winter kill, yielded no game or nongame fish. The winter kill apparently resulted in a nearly complete eradication of lake-dwelling fish. However, fall gillnetting yielded small numbers of Utah Chubs, Utah suckers C. ardens, yellow perch, and bullheads Ameiurus sp. to document that a complete winter kill had not occurred.

Authors:

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Tom Herron  
Regional Fishery Biologist

## 1993 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-18

Project I: Surveys and Inventories

Subproject I-G: Upper Snake Region

Job: c

Title: Rivers and Streams Investigations

Contract Period: July 1, 1993 to June 30, 1994

### ABSTRACT

Population estimates and species composition for the Conant Valley and Lorenzo reaches of the South Fork Snake River in 1993 were comparable to previous years. Survival and recruitment of young (age 2+) cutthroat trout Oncorhynchus clarki appears to be increasing in the Conant Valley reach and may indicate population benefits from improved winter flows over the last two to three winters. Total cutthroat trout densities in the Lorenzo reach were lower in 1993 than 1991.

Aerial brown trout Salmo trutta redd counts were down 48% from counts done in 1991.

The trout population in the Henrys (North) Fork Snake River above the Mack's Inn Bridge is dominated by brook trout Salvelinus fontinalis. Wild rainbow trout O. mykiss comprise the remainder of the trout population. Most trout in this river reach were less than 200 mm in length. Age and growth analysis indicates moderate rainbow trout growth, but good growth for brook trout.

A Box Canyon population estimate documented a substantial increase in numbers of trout since our previous 1991 population estimate. This sudden improvement in population size is best explained by emigration of Island Park Reservoir hatchery rainbow trout during the 1992 Island Park Reservoir drawdown.

Trout and char numbers have declined in selected survey sections since 1987. Drought and/or increased angler harvest are suggested as likely causes.

#### Authors:

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## 1993 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-18

Project II: Technical Guidance

Subproject II-G: Upper Snake Region

Contract Period: July 1, 1993 to June 30, 1994

### ABSTRACT

Technical assistance was provided to federal, state, and local agencies upon request. Technical assistance was also provided to sporting clubs for habitat enhancement and related conservation projects, conservation organizations for educational programs and grant application reviews, and to private citizens for private fish pond stocking and development.

Author:

Mark Gamblin  
Regional Fishery Manager

## 1993 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-18

Project III: Habitat Management

Subproject III-G: Upper Snake Region

Contract Period: July 1, 1993 to June 30, 1994

### ABSTRACT

Upper Snake Region fisheries personnel facilitated and carried out habitat improvement projects on Henrys Lake, Snake River, and Palisades Creek.

Approximately 4.5 miles of riparian fence were constructed or rebuilt on Henrys Lake tributaries. A wetland enhancement project was initiated via water control structures adjacent to Targhee Creek. Additional riparian fence was installed on the southeast shore of Henrys Lake to exclude cattle grazing.

A shore-based "helixor" aeration system was placed near the Henrys Lake hatchery to boost winter dissolved oxygen concentrations and protect the Henrys Lake cutthroat trout Oncorhynchus clarki hatchery spawning run.

An experimental sediment removal project, post-1992 Island Park Reservoir drawdown, for the Last Chance reach of the Henrys Fork Snake River was facilitated through the auspices of the Henrys Fork Watershed Council. Available equipment and techniques proved unsuited to the requirements of sediment removal within regulatory agency environmental permitting constraints.

Placement and construction of a large scale permanent fish screen for Palisades Creek, tributary to the South Fork Snake River was completed in 1993 by the Bureau of Reclamation with the assistance of Upper Snake Region personnel.

Authors:

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## 1993 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-18

Project IV: Population Management

Subproject IV-G: Upper Snake Region

Contract Period: July 1, 1993 to June 30, 1994

### ABSTRACT

Supplemental stocking of rainbow trout Oncorhynchus mykiss and cutthroat trout O. clarki was conducted for the Upper Snake Region mountain lakes in accordance with the three-year rotation schedule. Helicopter scheduling problems caused us to miss four lakes which will be added to the 1994 stocking schedule.

Splake Salvelinus fontinalis x S. namaycush and lake trout S. namaycush were introduced on a trial basis to be evaluated for sport fishing and potential chub management benefits.

Mud Lake was restocked in 1993 with 15,900 largemouth bass M. salmoides, 3,250 yellow perch, 5,000 channel catfish Ictalurus punctatus, 360 bluegill Lepomis macrochirus, 24,000 Lahontan cutthroat trout O. clarki henshawi, and 1,400 tiger muskies Esox lucius x E. masquinongy.

Authors:

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**IDAHO  
DEPARTMENT OF FISH AND GAME**

**Jerry M. Conley, Director**

**Federal Aid in Sport Fish Restoration  
1993 Annual Performance Report  
Program F-71-R-18**

**REGIONAL FISHERIES MANAGEMENT INVESTIGATIONS  
SALMON REGION (Subprojects I-H, II-H, IV-H)**

<b>PROJECT I.</b>	<b>SURVEYS AND INVENTORIES</b>
Job a.	Salmon Region Mountain Lakes Investigations
Job b.	Salmon Region Lowland Lakes Investigations
Job c <sup>1</sup> .	Salmon Region Rivers and Streams Investigations Salmon and Middle Fork Salmon Rivers Snorkeling Transects
Job c <sup>2</sup> .	Salmon Region Rivers and Streams Investigations Salmon River and North Fork Salmon River Drainage Fishery Surveys
Job d.	Salmon Region Salmon and Steelhead Investigations
<b>PROJECT II.</b>	<b>TECHNICAL GUIDANCE</b>
<b>PROJECT IV.</b>	<b>POPULATION MANAGEMENT</b>

**By**

**Mark Liter, Regional Fishery Biologist  
James R. Lukens, Regional Fishery Biologist**

## 1993 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-18

Project I: Surveys and Inventories

Subproject I-H: Salmon Region

Job: a

Title: Mountain Lakes Investigations

Contract Period: July 1, 1993 to June 30, 1994

### ABSTRACT

Volunteers conducted surveys on two alpine lakes in the White Cloud Peaks. Survey information included fish species and size composition, spawning habitat, access, fish condition and angler use.

Authors:

Mark Liter  
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## 1993 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-18

Project I: Surveys and Inventories

Subproject I-H: Salmon Region

Job: b

Title: Lakes and Reservoirs Investigations

Contract Period: July 1, 1993 to June 30, 1994

### ABSTRACT

Gill nets were used to obtain scale samples for age and growth analyses of the fish community of Williams Lake in June 1993. Rainbow trout Oncorhynchus mykiss was the only species captured in Williams Lake, although an intensive survey conducted by Department personnel in 1992 showed rainbow trout and bull trout Salvelinus confluentus were found in the lake, with rainbow trout comprising > 90% of the fish population.

Authors:

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James R. Lukens  
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## 1993 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-18

Project I: Surveys and Inventories

Subproject I-H: Salmon Region

Job: c<sup>1</sup> Salmon and Middle Fork Salmon  
Rivers Snorkeling Transects

Title: Rivers and Streams Investigations

Contract Period: July 1, 1993 to June 30, 1994

### ABSTRACT

Mean densities of age 1 and older cutthroat trout Oncorhynchus clarki, juvenile rainbow/steelhead trout O. mykiss, and juvenile Chinook salmon O. tshawytscha counted in Middle Fork Salmon River transects in 1993 were 0.5, 0.07, and 0.006 fish/100 m<sup>2</sup>, respectively. In Middle Fork Salmon River tributary transects, cutthroat trout densities averaged 0.8/100 m<sup>2</sup>, rainbow/steelhead averaged 0.82/100 m<sup>2</sup>, and Chinook averaged 0.007/100 m<sup>2</sup>.

In Salmon River canyon tributaries (Horse, Bargamin, and Chamberlain creeks), fish densities were 5.4 rainbow/steelhead/100 m<sup>2</sup>, 0.2 cutthroat/100 m<sup>2</sup>, and 0.07 Chinook salmon/100 m<sup>2</sup>.

Authors:

Mark Liter  
Regional Fishery Biologist

James R. Lukens  
Regional Fishery Biologist

## 1993 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-18

Project I: Surveys and Inventories

Subproject I-H: Salmon Region

Job: c<sup>2</sup> Salmon River and North Fork  
Salmon River Drainage Fishery Surveys

Title: Rivers and Streams Investigations

Contract Period: July 1, 1993 to June 30, 1994

### ABSTRACT

We surveyed four North Fork Salmon River tributaries, Thompson Creek, and upper Yankee Fork during the summer 1993 to assess fish populations.

Rainbow/steelhead trout Oncorhynchus mykiss and/or brook trout Salvelinus fontinalis were collected in three of four North Fork Salmon River tributaries. Bull trout S. confluentus and cutthroat trout O. clarki were collected in upper Yankee Fork, while only cutthroat trout were found in Thompson Creek. Few trout > 200 mm total length were captured. Estimated trout densities (by species) ranged from 1.2 to 10.1 fish/100 m<sup>2</sup>. Only trout > 70 mm were used in the density calculation. Physical habitat parameters were also measured for each stream.

Authors:

Mark Liter  
Regional Fishery Biologist

James R. Lukens  
Regional Fishery Manager

## 1993 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-18

Project I: Surveys and Inventories

Subproject I-H: Salmon Region

Job: d

Title: Salmon and Steelhead Investigations

Contract Period: July 1, 1993 to June 30, 1994

### ABSTRACT

Juvenile anadromous fish density counts were conducted in the Middle Fork Salmon River and mainstem Salmon River in July and August 1993. This information is reported in a previous section of this report (see Job 7-c<sup>1</sup>).

Department personnel conducted annual Chinook salmon Oncorhynchus tshawytscha redd counts in the Marsh Creek drainage, Salmon River, Lemhi River, East Fork Salmon River, and the Yankee Fork Salmon River. This data is included in the annual salmon spawning ground surveys report.

Authors:

Mark Liter  
Regional Fishery Biologist

James R. Lukens  
Regional Fishery Manager

## 1993 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-18

Project II: Technical Guidance

Subproject II-H: Salmon Region

Contract Period: July 1, 1993 to June 30, 1994

### ABSTRACT

Technical assistance was provided to all state and federal agencies upon request. Comments were submitted to various agencies and private entities concerning stream alterations, bank stabilizations, mining operations and reclamation plans, fish rearing proposals, private ponds, water right applications, gravel removal projects, grazing allotments, timber sales, highway reconstruction, habitat improvements, bridge construction, and hydropower projects. On-site inspections of proposed, on-going, and completed projects were conducted.

We also responded to the general public in person, by telephone, and by mail to inquiries about fishing opportunities, techniques, regulations, and area specifics.

Authors:

Mark Liter  
Regional Fishery Biologist

James R. Lukens  
Regional Fishery Manager

## 1993 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-18

Project IV: Population Management

Subproject IV-H: Salmon Region

Contract Period: July 1, 1993 to June 30, 1994

### ABSTRACT

In 1993, we stocked 26 alpine lakes in the Challis National Forest (north) and 46 lakes in the White Cloud Peaks. A Hughes 500D helicopter was used to stock the lakes for a cost of \$44.22 per lake (\$3,184.00 total). A total of 15,110 fry were stocked in Challis National Forest (north) lakes: 10,910 cutthroat trout Oncorhynchus clarki 250 rainbow trout O. mykiss 3,950 Arctic grayling Thymallus arcticus . In the White Cloud Peaks; 25,250 fry were stocked: 23,000 cutthroat trout, 500 rainbow trout, and 1,750 grayling. No golden trout O. aquabonita fry were available this year.

Regional personnel stocked six lakes with bull trout Salvelinus confluentus or Kamloop strain rainbow trout in an attempt to control stunted brook trout S. fontinalis and create diversity in mountain lake fishing opportunity. Lakes stocked with bull trout included Upper Champion, Toxaway, and Mosquito Flats Reservoir, while Kamloop rainbow trout were introduced in Carlson Lake and Mable Lakes 1 and 2.

Authors:

James R. Lukens  
Regional Fishery Manager

Mark Liter  
Regional Fishery Biologist

**IDAHO  
DEPARTMENT OF FISH AND GAME**

**Jerry M. Conley, Director**

**Federal Aid in Sport Fish Restoration  
1993 Annual Performance Report  
Program F-71-R-18**

**REGIONAL FISHERIES MANAGEMENT INVESTIGATIONS**

**PROJECT V.      COORDINATION**

**BY**

**Al Van Vooren, State Fishery Manager  
William D. Horton, Resident Fishery Coordinator  
Clark Shackelford, Fishery Technician**

## 1993 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-18

Project V: Coordination

Title: Regional Coordination and Assistance

Contract Period: July 1, 1993 to June 30, 1994

### ABSTRACT

The State Fishery Manager, Resident Fishery Coordinator, and Fishery Technician provided program guidance, coordination, and assistance to fisheries management personnel in eight regions. Mid-water trawling to estimate kokanee salmon Oncorhynchus nerka kennerlyi abundance was conducted in eight waters (Payette Lake, Deadwood Reservoir, Anderson Ranch Reservoir, Salmon Falls Creek Reservoir, Redfish Lake, Alturas Lake, Pettit Lake, and Stanley Lake). This work is coordinated through the Bureau of Fisheries where all equipment is stored and maintained; however, regional personnel assist in sampling, and findings are reported in regional reports.

Coordination and assistance was also provided through annual work plan meetings, a three-day Fisheries Manager Coordination meeting, Region-Fisheries Bureau Coordination meetings, and numerous smaller meetings. Interstate management coordination included meetings with bordering states of Nevada, Oregon, and Montana (and the Province of British Columbia). Interagency coordination meetings were held with federal land management agencies, other state agencies, the U.S. Fish and Wildlife Service, and the Columbia Basin Fish and Wildlife Authority-Resident Fish Committee.

White sturgeon Acipenser transmontanus catch information from 921 permits returned by anglers from the 1992 season and 649 permits from the 1993 season was compiled and summarized (Appendices 1-11). Return rate of these mandatory permits has been less than 20% since the programs inception in 1989. The Bureau of Fisheries also coordinated the issuance of 133 permits for fishing tournaments. Mandatory report forms for these tournaments have been filed for future trend analysis. Scientific collecting permits were issued to 169 individuals for the study of aquatic species. Most investigators (92) receiving collecting permits are resource agency biologists; however, university students and professors, utility companies, timber companies, Indian tribes, and consultants also received permits.

As Sport Fish Restoration Coordinator, the State Fishery Manager attended one-on-one and group coordination meetings with Federal Aid staff in Portland and the Regional Coordinators meeting.

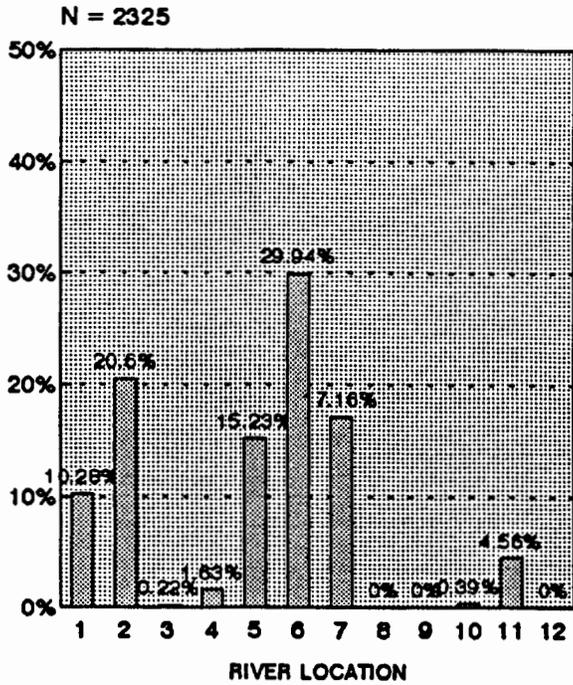
Authors:

Al Van Vooren  
State Fishery Manager

William D. Horton  
Resident Fishery Coordinator

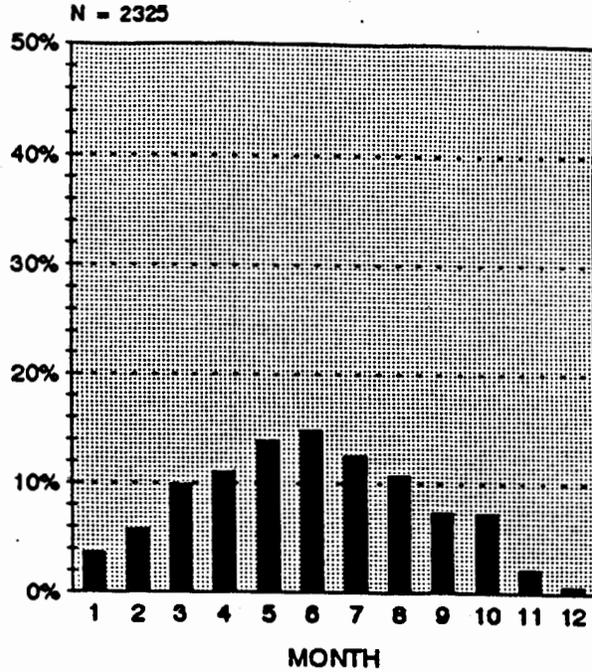
Clark Shackelford  
Fishery Technician

### PERCENT OF FISH CAUGHT - 1992 By Location



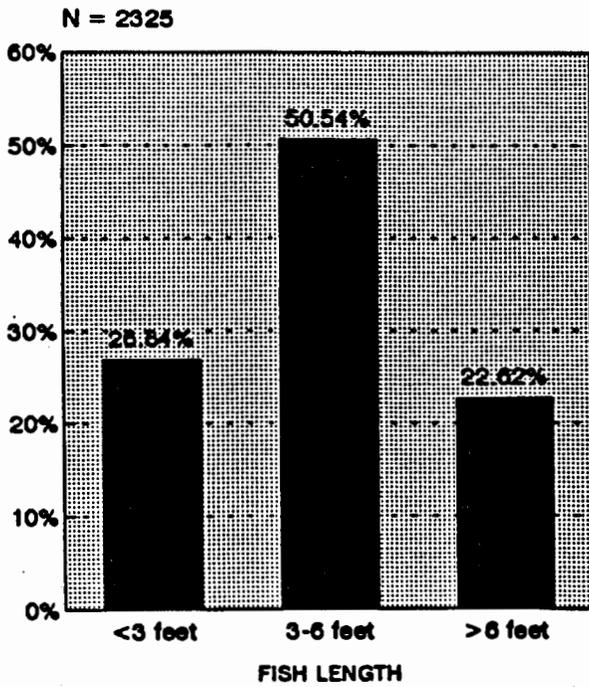
LOCATION

### PERCENT OF FISH CAUGHT - 1992 By Month for All Locations



MONLOCAT

### PERCENT OF CATCH - 1992 By Length

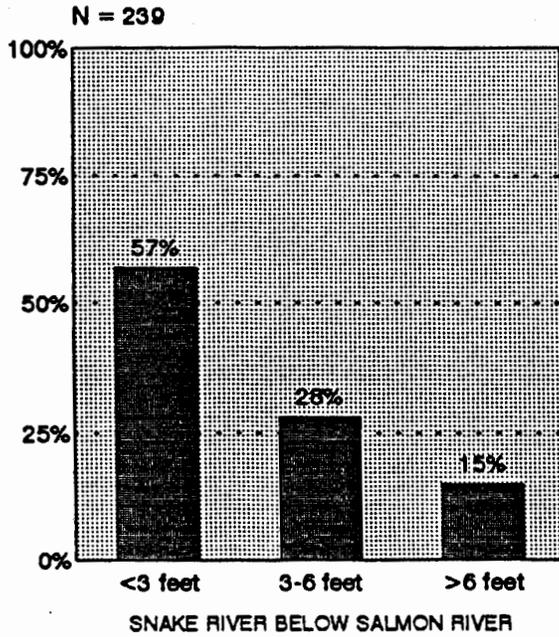


LENGTH

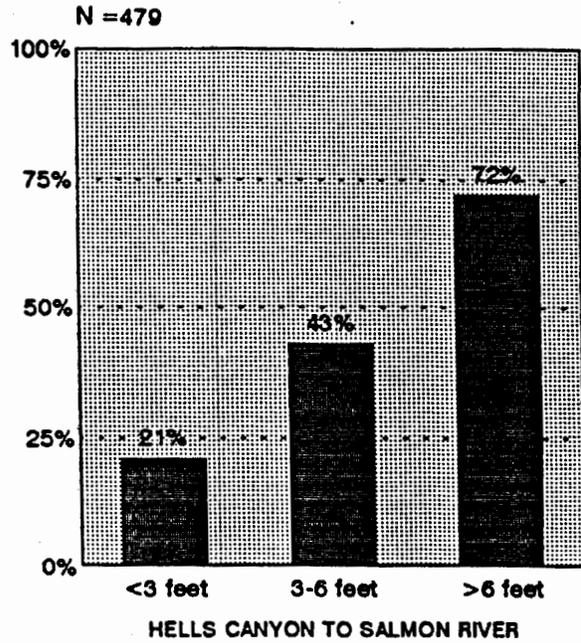
92strcht/multcht

APPENDIX 1. 1992 sturgeon catch information for all locations combined, from mandatory sturgeon permits.

**PERCENT OF CATCH - 1992**  
By Length in Area 1



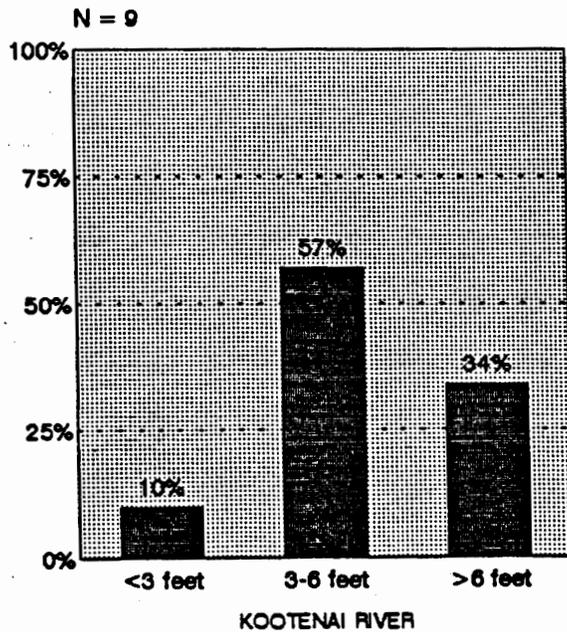
**PERCENT OF CATCH - 1992**  
By Length in Area 2



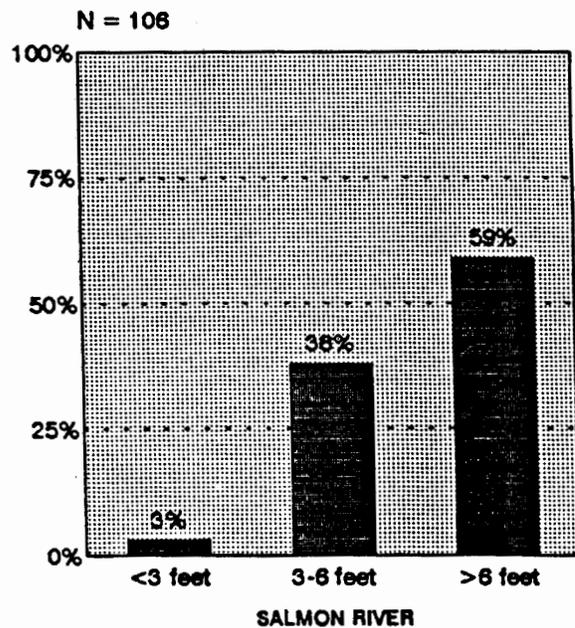
92area1

92area2

**PERCENT OF CATCH - 1992**  
By Length in Area 8



**PERCENT OF CATCH - 1992**  
By Length in Area 9

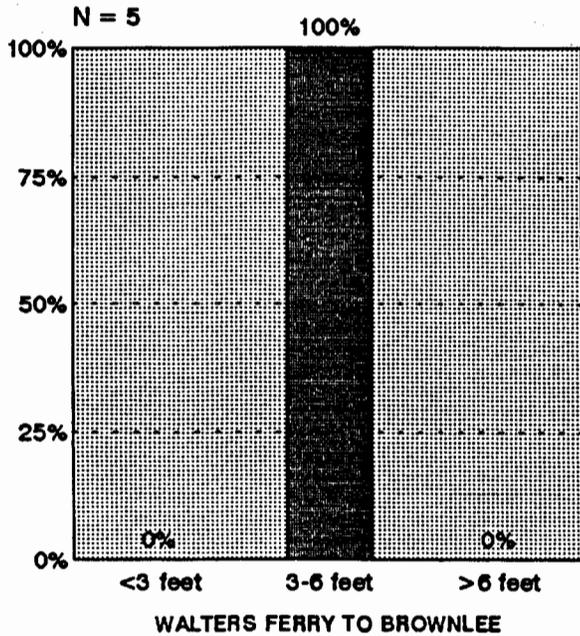


92area8

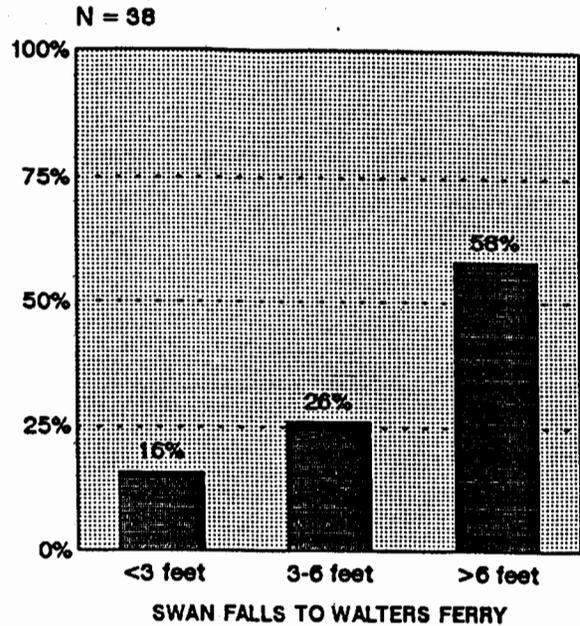
92area9

APPENDIX 2. Size distribution of sturgeon caught by sport anglers, 1992, from the Snake River below Hells Canyon (Area 1 & 2), the Kootenai River (Area 8), and the Salmon River (Area 9). Information is from sturgeon permits.

**PERCENT OF CATCH - 1992  
By Length in Area 3**



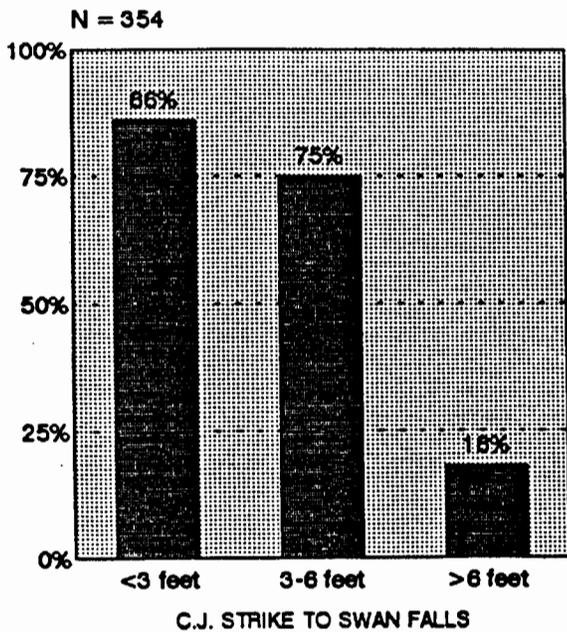
**PERCENT OF CATCH - 1992  
By Length in Area 4**



92area3

92area4

**PERCENT OF CATCH - 1992  
By Length in Area 5**

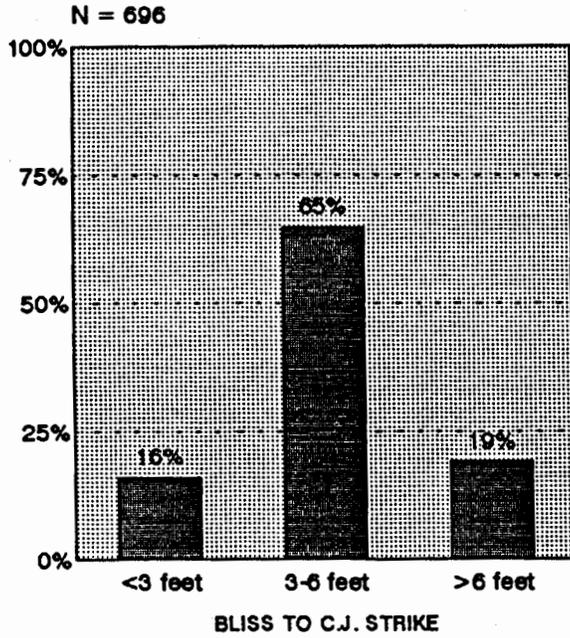


92area5

92STRCHT/MULTI345

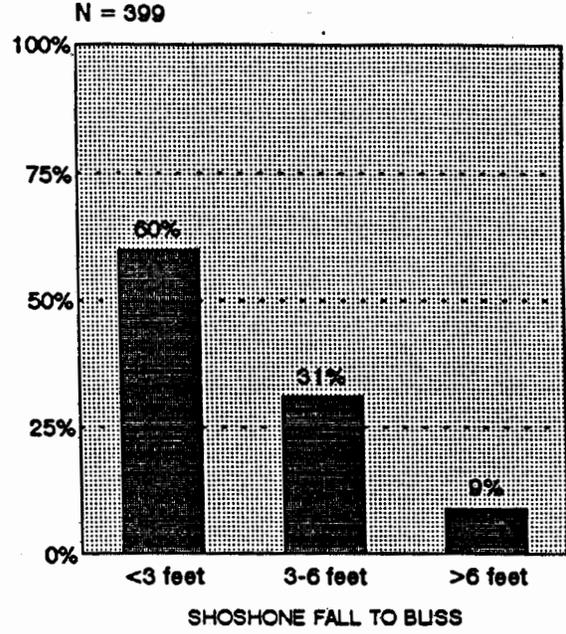
APPENDIX 3. Size distribution of sturgeon caught by sport anglers, 1992, from the Snake River between Brownlee Dam and C.J. Strike Dam (Areas 3, 4, & 5).

**PERCENT OF CATCH - 1992  
By Length in Area 6**



92area6

**PERCENT OF CATCH - 1992  
By Length in Area 7**

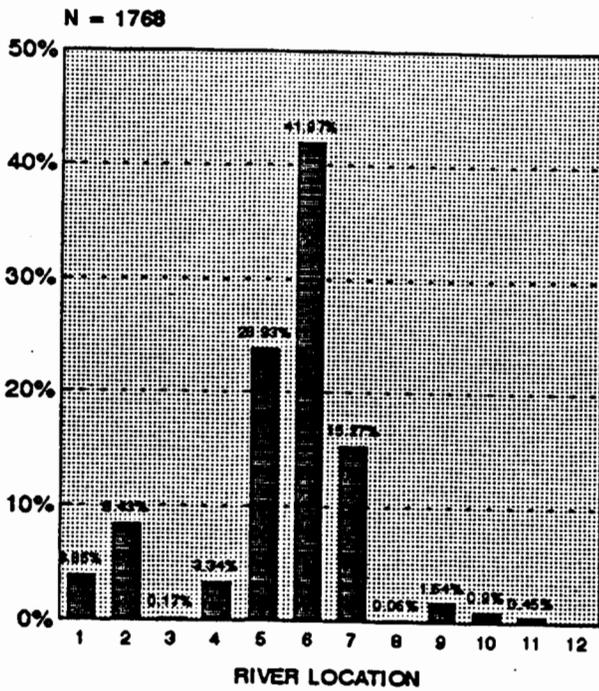


92area7

92STRCHT/MULTAR67

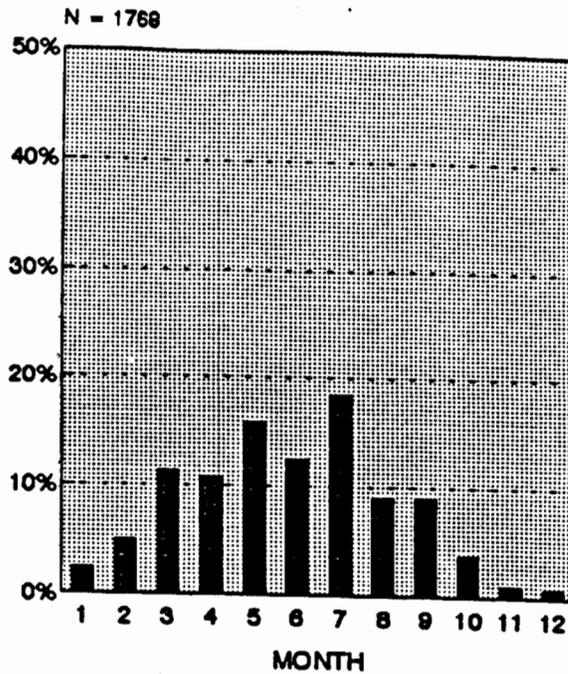
APPENDIX 4. Size distribution of sturgeon caught by sport anglers, 1992, from the Snake River between C.J. Strike Dam and Shoshone Falls (Areas 6 & 7).

### PERCENT OF FISH CAUGHT - 1993 By Location



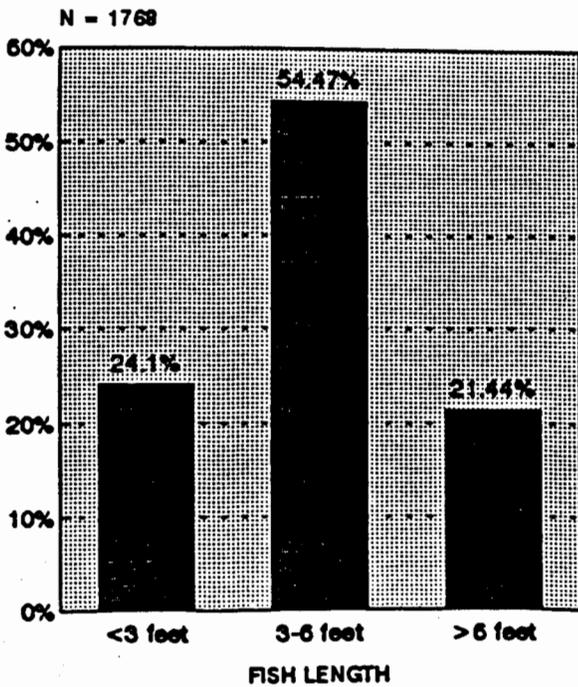
LOCATION

### PERCENT OF FISH CAUGHT - 1993 By Month for All Locations



MONLOCAT

### PERCENT OF CATCH - 1993 By Length

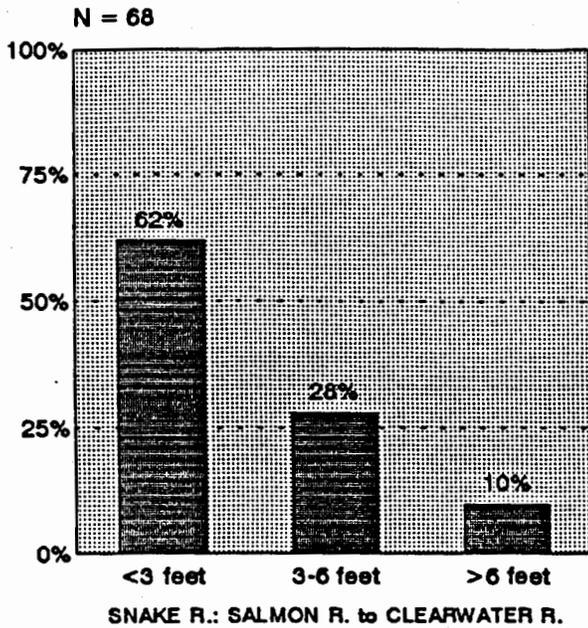


LENGTH

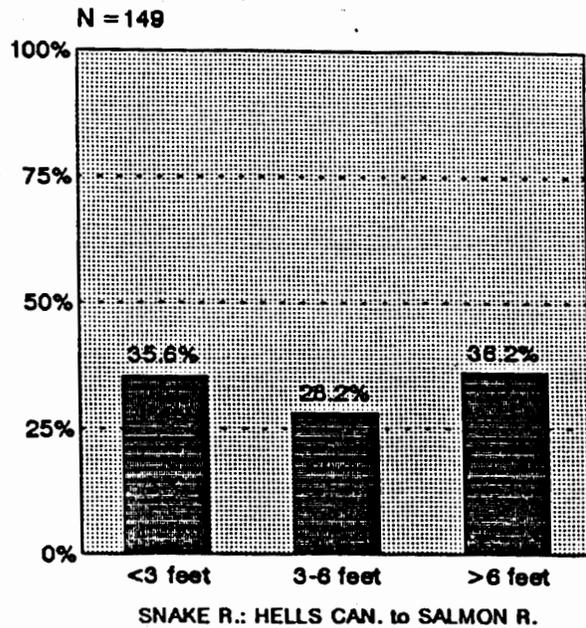
APPENDIX 5. 1993 sturgeon catch information for all locations combined, from mandatory sturgeon permits.

93strcht/multicht

PERCENT OF CATCH - 1993  
By Length in Area 1



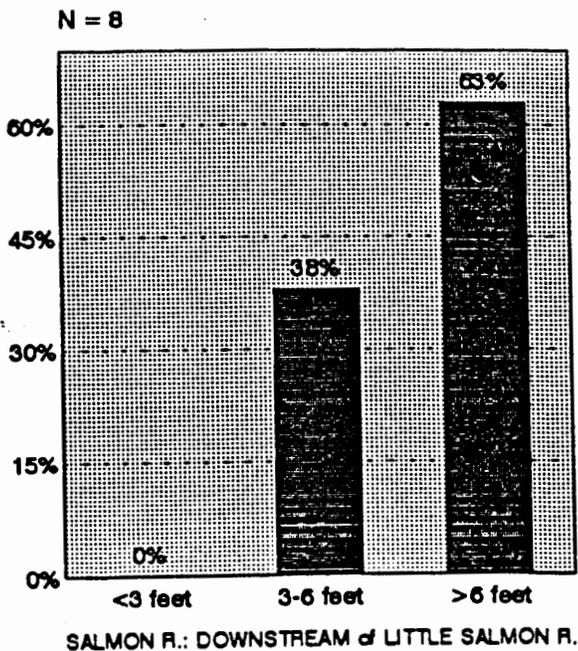
PERCENT OF CATCH - 1993  
By Length in Area 2



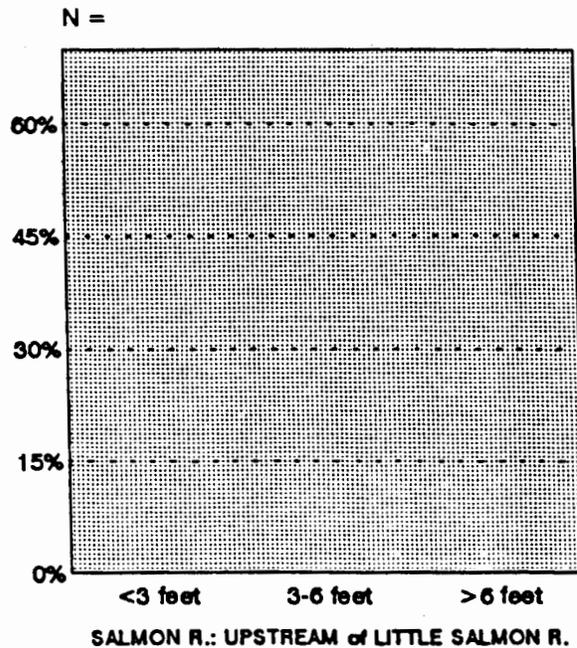
93area1

93area2

PERCENT OF CATCH - 1993  
By Length in Area 11



PERCENT OF CATCH - 1993  
By Length in Area 12



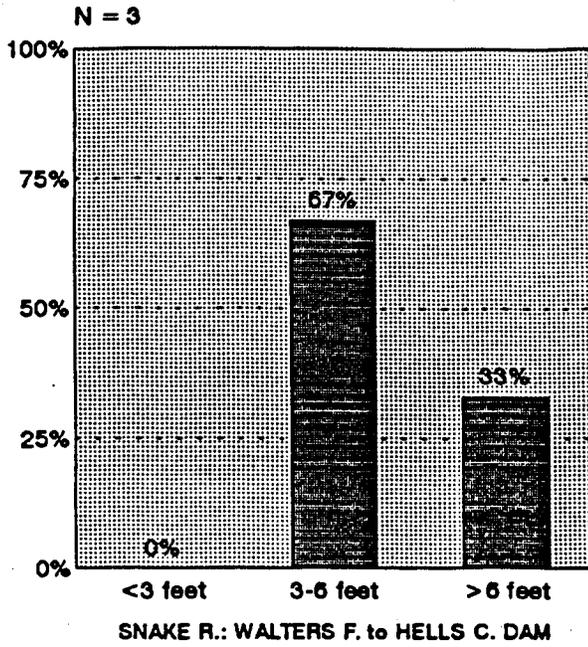
93are11

93are12

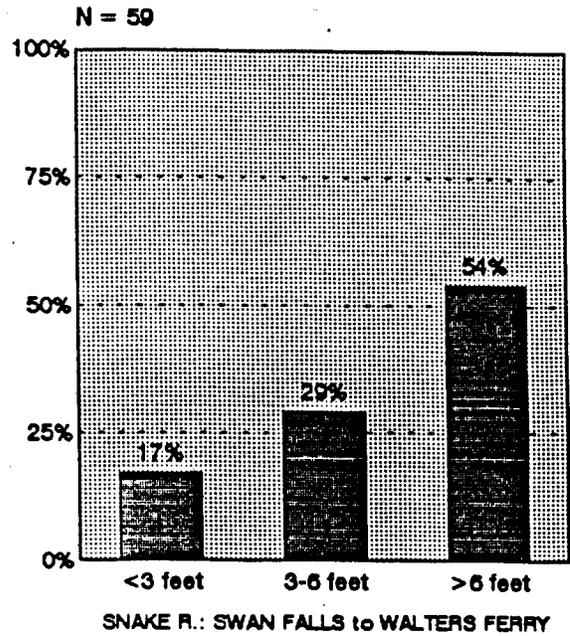
93strcht/mult1211

APPENDIX 6. Size distribution of sturgeon caught by sport anglers, 1993, from the Snake River below Hells Canyon Dam (Areas 1 & 2), and the Salmon River (Areas 11 & 12). Information is from sturgeon permits.

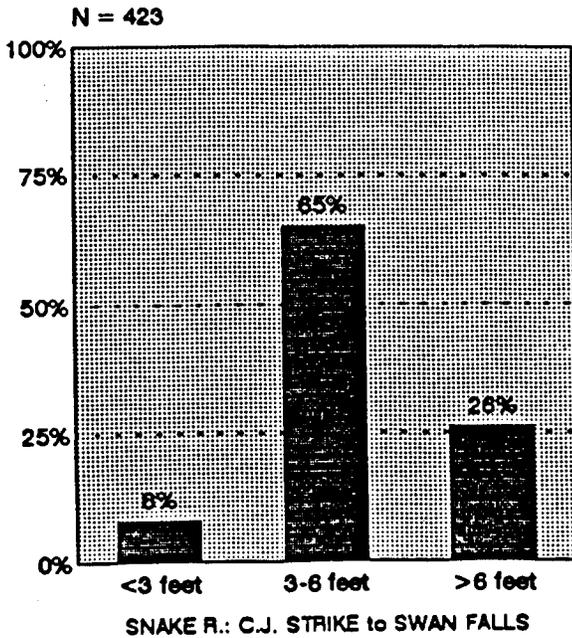
**PERCENT OF CATCH - 1993  
By Length in Area 3**



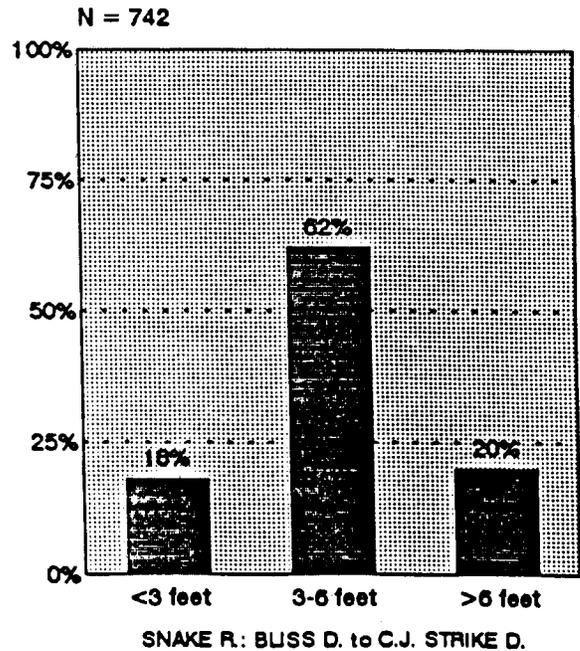
**PERCENT OF CATCH - 1993  
By Length in Area 4**



**PERCENT OF CATCH - 1993  
By Length in Area 5**



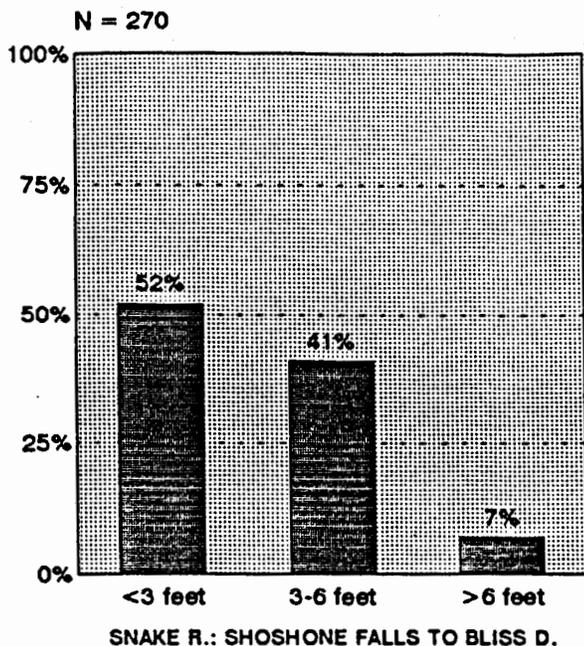
**PERCENT OF CATCH - 1993  
By Length in Area 6**



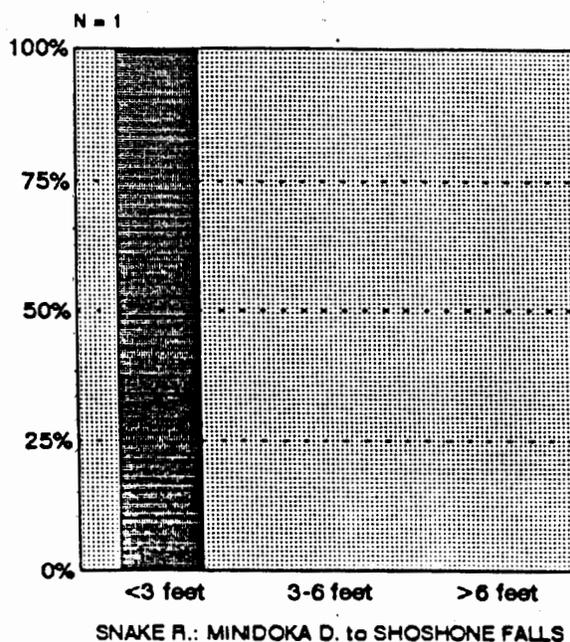
APPENDIX 7. Size distribution of sturgeon caught by sport anglers, 1993, from the Snake River between Hells Canyon Dam and Bliss Dam (Areas 3 through 6).

93strcht/mult3456

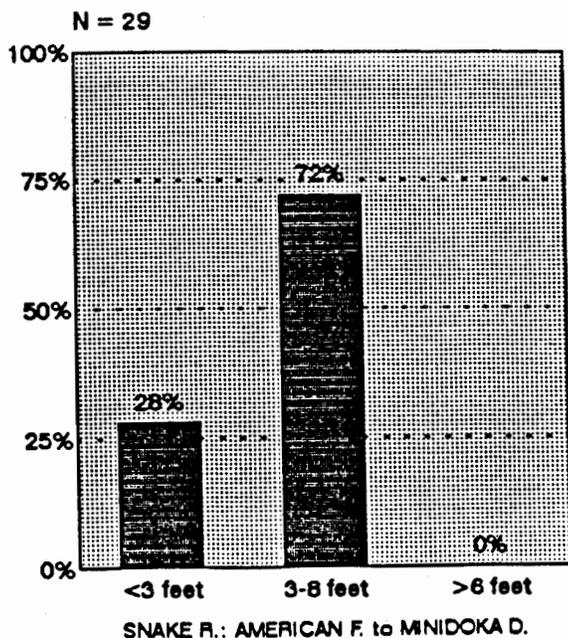
PERCENT OF CATCH - 1993  
By Length in Area 7



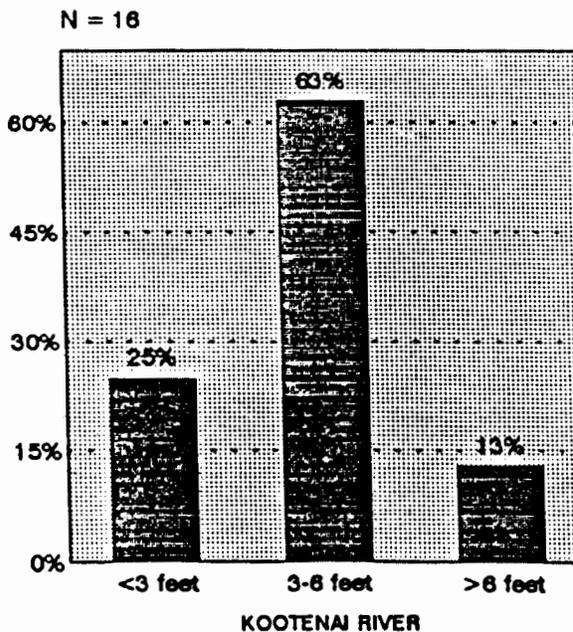
PERCENT OF CATCH - 1993  
By Length in Area 8



PERCENT OF CATCH - 1993  
By Length in Area 9



PERCENT OF CATCH - 1993  
By Length in Area 10

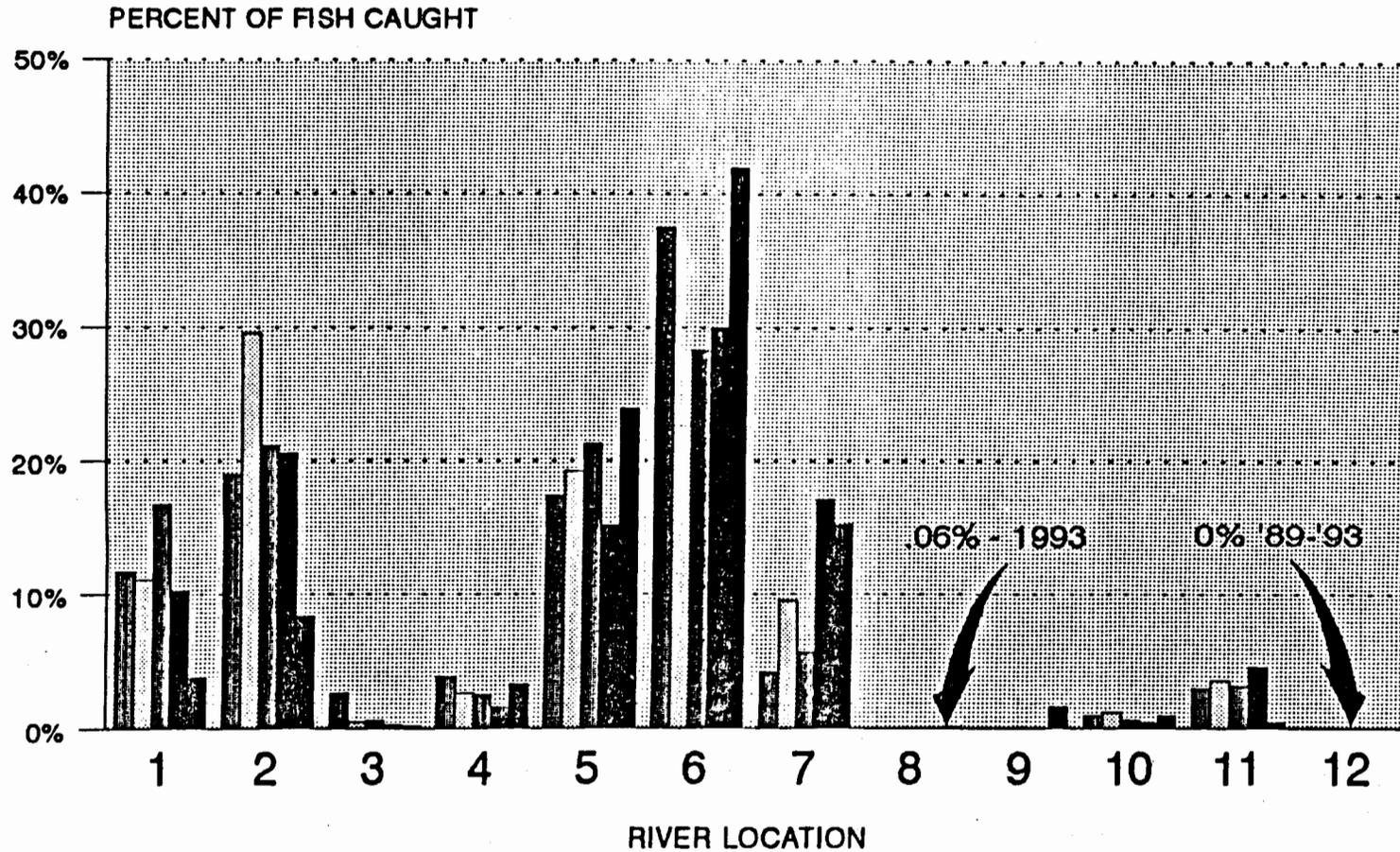


APPENDIX 8. Size distribution of sturgeon caught by sport anglers, 1993, from the Snake River between Bliss Dam and American Falls Dam (Areas 7 through 9), and the Kootenai River (Area 10).

93strcht/mu178910

# YEARS '89-'93

By River Section



NUMBER OF FISH CAUGHT PER YEAR FROM RETURNED TAGS

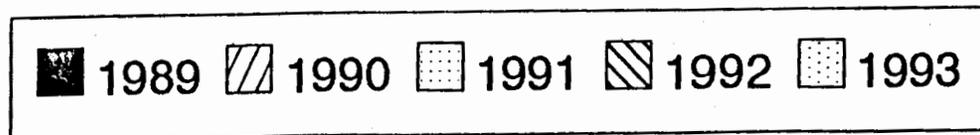
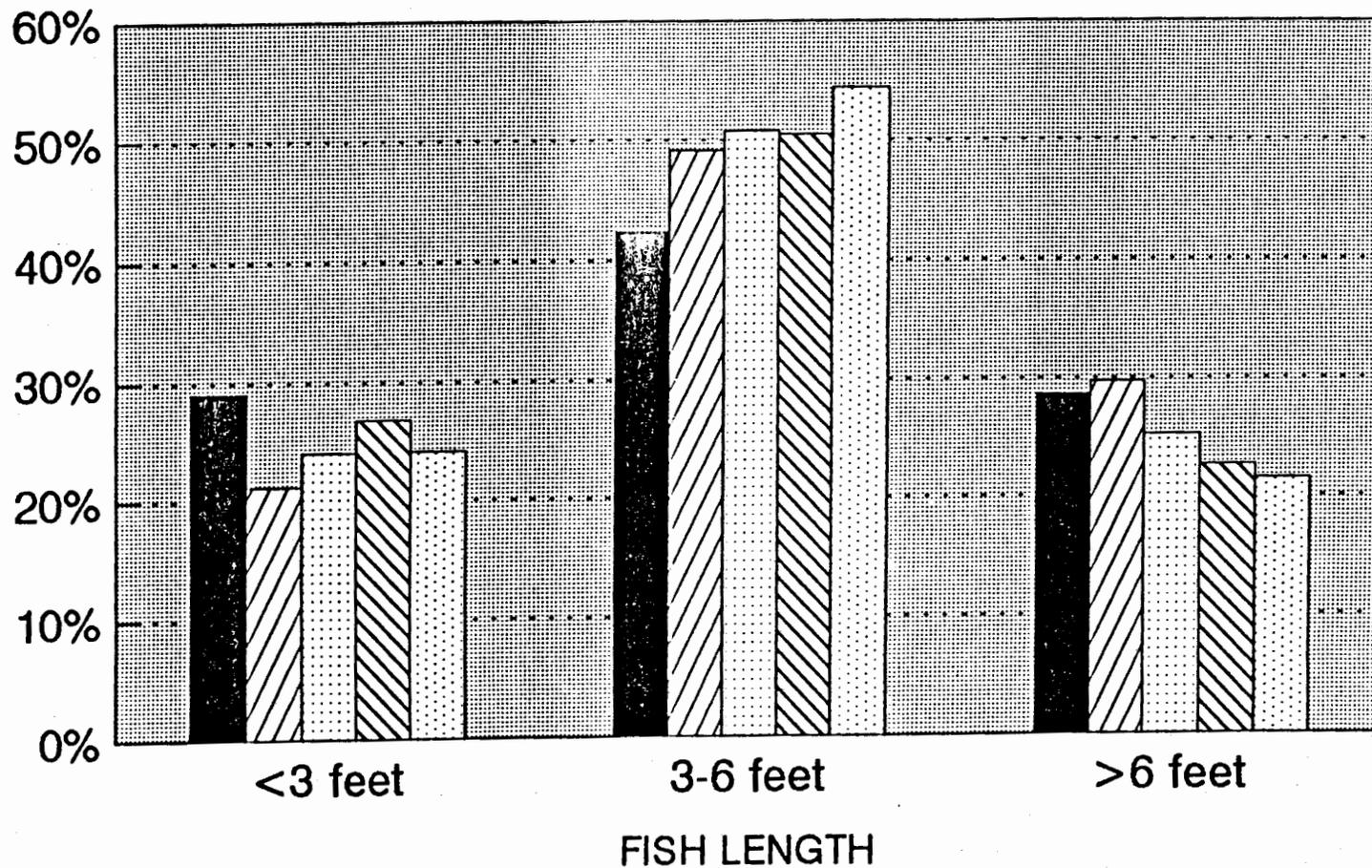
'89 n=1040
  '90 n=1097
  '91 n=1901
  '92 n=2325
  '93 n=1768

5YRLOCAT

APPENDIX 10. Catch distribution by year, for 1989 through 1993. Information from mandatory sturgeon permits returned to Idaho Department of Fish and Game.

# PERCENT OF CATCH - 1989 through 1993

STURGEON CATCH ON THE SNAKE, SALMON, & KOOTENAI RIVERS



5YRLENGT

APPENDIX 11. Catch distribution by length category for 1989 through 1993 for the Snake, Salmon, and Kootenai Rivers.

**Submitted by:**

See individual Abstracts

**Approved by:**

IDAHO DEPARTMENT OF FISH AND GAME

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Steven M. Huffaker, Chief  
Bureau of Fisheries

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Al Van Vooren  
Resident Fisheries Manager