

IDAHO DEPARTMENT OF FISH AND GAME

Stephen P. Mealey, Director

FEDERAL AID IN SPORT FISH RESTORATION
FISHERY MANAGEMENT PROGRAM
F-71-R-21

ANNUAL FISHERIES MANAGEMENT PERFORMANCE REPORTS* 1996



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-21, Fish Management. Abstracts are provided by subproject for each of eight Administrative/Management regions within the state.

**IDAHO
DEPARTMENT OF FISH AND GAME**

Stephen P. Mealey, Director

**Federal Aid in Sport Fish Restoration
1996 Annual Performance Report
Program F-71-R-21**

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

- PROJECT I. SURVEYS AND INVENTORIES**
 - Job a. Panhandle Region Mountain Lakes Investigations**
 - Job b. Panhandle Region Lowland Lakes Investigations**
 - Job c. Panhandle Region Rivers and Streams Investigations**
- PROJECT II. TECHNICAL GUIDANCE**
- PROJECT III. HABITAT MANAGEMENT**
- PROJECT IV. POPULATION MANAGEMENT**

By

**Jim Fredericks, Regional Fishery Biologist
James A. Davis, Regional Fishery Biologist
Ned Horner, Regional Fishery Manager**

1996 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-21

Project I: Surveys and Inventories

Subproject I-A: Panhandle Region

Job: a

Title: Mountain Lakes Investigations

Contract Period: July 1. 1996 to June 30. 1997

ABSTRACT

No mountain lakes were surveyed in the Panhandle Region during this contract period.

Author:

Ned Horner
Regional Fishery Manager

1996 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-21

Project I: Surveys and Inventories

Subproject I-A: Panhandle Region

Job: b

Title: Lowland Lakes Investigations

Contract Period: July 1, 1996 to June 30, 1997

ABSTRACT

We used a midwater trawl to estimate the kokanee salmon *Oncorhynchus nerka kennerlyi* population in Coeur d'Alene Lake in July. Age 3 kokanee density was 147 fish/ha in Coeur d'Alene Lake, and density of all age classes was 603 fish/ha. We estimated a potential egg deposition of 358 million eggs in Coeur d'Alene Lake. The mean size of spawning kokanee was 264 mm and 275 mm for males and females, respectively, which is a slight increase from recent years. We did not estimate the Spirit Lake kokanee population because we were unable to launch the midwater trawl boat due to low lake levels.

We counted 84 chinook salmon *O. tshawytscha* redds in the Coeur d'Alene River drainage and 71 in the St. Joe River for a total of 155. All accessible redds in the St. Joe River were destroyed, whereas redds in the Coeur d'Alene drainage were left undisturbed to provide natural production. Forty-five adult chinook salmon were captured in a weir at Wolf Lodge Creek, and a total of 96,188 green eggs were taken for hatchery incubation and rearing. A total of 39,700 age 0 chinook salmon were stocked in Wolf Lodge Bay on June 25, 1996.

Hydroacoustic surveys were conducted to estimate lake trout *Salvelinus namaycush* populations in Priest Lake and Upper Priest Lake. The estimate of all fish greater than 330 mm in Priest Lake was 22,595. Because lake trout are often closely associated with the bottom, hydroacoustic equipment may not detect all fish and this is likely an underestimate. We did not identify sufficient targets in Upper Priest Lake to develop a total population estimate.

We used hollow cement chimney blocks to provide spawning structure for channel catfish *Ictalurus punctatus* in Cocolalla Lake and a thermograph to determine whether temperatures were sufficiently high to allow successful spawning. We found

no evidence of use of the structures, and data from the thermograph indicated the water temperature was probably too low for successful spawning and sufficient age 0 growth.

A standard lake survey on Bonner Lake indicated of the three species collected (rainbow trout *O. mykiss*, largemouth bass *Micropterus salmoides*, and pumpkinseed *Lepomis gibbosus*) only 34% of the biomass was rainbow trout. Largemouth bass comprised the majority of the biomass at 54%. Most of the largemouth bass collected were small (<305 mm), and only 9 of 273 largemouth bass collected were of harvestable size. Largemouth bass growth was slow, and fish did not achieve 305 mm until around age 7. Suitable trout habitat (dissolved oxygen >5 mg/L, temperature <21°C) was restricted to the metalimnion (19% of total lake volume) in mid-July based on temperature and dissolved oxygen profiles.

A standard lake survey on Bloom Lake resulted in a sample biomass of 65% brook trout *S. fontinalis* and 35% pumpkinseed. The modal size increment of brook trout was 230-240 mm, and no fish collected in the sample exceeded 290 mm. The oldest fish collected in the sample were age 3. Relative weight declined with length. Based on temperature and dissolved oxygen measurements taken July 29, temperatures exceeded 20°C throughout most of the water column, and only 11,400 m³ (5.7% of the total volume) was suitable trout habitat.

Standard Lake surveys on Anderson Lake and Blue Lake indicated high Proportional Stock Density and Relative Stock Density-Preferred values in both lakes, suggesting a large proportion of preferred size fish in the population. Few largemouth bass less than 300 mm were collected in Anderson Lake and Blue Lake in comparison to Bonner Lake. Based on largemouth bass collected with gill nets, trap nets, and by electrofishing in May and June, many of the age 1 to age 5 year classes were poorly represented or entirely missing, indicating irregular recruitment. Based on scale analysis in 1996, largemouth bass reach 300 mm at around age 5. This is about one year slower than when Blue Lake and Anderson Lake were surveyed in 1989 and 1990.

Authors:

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1996 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-21

Project I: Surveys and Inventories

Subproject I-A: Panhandle Region

Job: c

Title: Rivers and Streams Investigations

Contract Period: July 1, 1996 to June 30, 1997

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 99, 88, and 252 trout/ha, respectively. In the catch-and-keep sections of the same streams, densities were 21, 9, and 19 trout/ha, respectively.

Population estimates were calculated for 17 tributaries in the Lake Pend Oreille, Coeur d'Alene Lake, and St. Joe River drainages. Trout densities ranged from 1.1 to 8.4 fish/100 m² in the Lake Pend Oreille drainage, 0.4 to 15.1 fish/100 m² in the St. Joe River drainage, and 0.32 to 21.1 fish/100 m² in the Coeur d'Alene Lake drainage.

Department personnel and volunteers counted 602 bull trout *Salvelinus confluentus* redds in the Lake Pend Oreille drainage in 1996. Forty-one bull trout redds were counted in the Upper Priest Lake drainage. In the upper St. Joe River drainage, Department personnel and volunteers counted 41 bull trout redds.

Anglers returned 365 questionnaires, 224 from the St. Joe River, 116 from the North Fork Coeur d'Alene River, 12 each from the North Fork St. Joe and Little North Fork Coeur d'Alene rivers, and 1 from the St. Manes River. The mean number of years fished on each river was 10. The majority of anglers fished with flies. However, more anglers used bait on the Coeur d'Alene River than on the St. Joe River.

Creel survey estimates for fishing effort on the St. Joe and North Fork Coeur d'Alene rivers were 28,714 and 32,994 hours, respectively. Hatchery trout harvest was estimated to be 377 and 854 in the St. Joe and North Fork Coeur d'Alene rivers, respectively. Return rates for hatchery trout were 5% and 9% in the St. Joe and North Fork Coeur d'Alene rivers, respectively.

Exploitation of westslope cutthroat trout in both the St. Joe and North Fork Coeur d'Alene rivers was a minimum of 33% based on return of reward tags. The estimated population abundance of westslope cutthroat trout in the entire reach from Pack Saddle Campground to Marble Creek was 97 fish/km. In the area from Pack Saddle Campground downstream to North Fork St. Joe River, the westslope cutthroat trout population abundance was estimated to be 161 fish/km. In the area from the North Fork St. Joe River downstream to Marble Creek, the westslope cutthroat trout population abundance was estimated to be 80 fish/km. This reach is managed to allow for a general bag limit of trout, except only one cutthroat trout that must be greater than 350 mm may be harvested.

The highest return rates for a hatchery reared domestic Kamloops rainbow trout, 38%, was from the 305 mm length group in the St. Joe River. The lowest return rate, 22%, came from the 250 mm length group stocked in the North Fork Coeur d'Alene River.

Authors:

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1996 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-21

Project II: Technical Guidance

Subproject II-A: Panhandle Region

Contract Period: July 1, 1996 to June 30, 1997

ABSTRACT

Panhandle Region fisheries management personnel provided private individuals, organizations, public schools, 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-ASKFISH program, and fishing clinics.

Author:

Ned Horner
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1996 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-21

Project III: Habitat Management

Subproject III-A: Panhandle Region

Contract Period: July 1, 1996 to June 30, 1997

ABSTRACT

Permit applications, site survey, an archeological survey, and funding were obtained in 1996 to complete the restoration of the Sullivan Springs kokanee salmon *Oncorhynchus nerka kennerlyi*/bull trout *Salvelinus confluentus* spawning channel, tributary to Granite Creek, Pend Oreille Lake. Approximately 1,100 m³ of old gravel were removed and replaced with new gravel, and nine drop log structures were reconstructed to maximize spawning riffles. Flood damaged drop log structures were also repaired in Granite Creek below the spawning channel.

A culvert inventory program was initiated to identify impassible culverts in the Pend Oreille Lake and St. Joe River drainages. Volunteers were used to collect site specific data on both the culvert and stream channel that may preclude fish passage.

Authors:

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1996 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-21

Project IV: Population Management

Subproject IV-A: Panhandle Region

Contract Period: July 1, 1996 to June 30, 1997

ABSTRACT

No lakes in the Panhandle Region were restored with rotenone during this contract period.

Panhandle Region lowland lakes and rivers were stocked with 174,970 put-and-take rainbow trout *Oncorhynchus mykiss*. Put-grow-and-take stocking included 271,626 domestic Kamloops rainbow trout and 435,821 cutthroat trout *O. clarki*. Net pen releases of age 1 westslope cutthroat trout *O. clarki lewisi* in Pend Oreille Lake in 1996 totaled 52,930 fish. Other trout species stocked included 18,015 brook trout *Salvelinus fontinalis* and 4,023 brown trout *Salmo trutta* fingerlings. Five lowland lakes were stocked with 180,300 kokanee salmon *O. nerka kennerlyi* fry and Pend Oreille Lake was stocked with over 10 million kokanee fry in 1996. Coeur d'Alene Lake received 39,700 fall chinook *O. tshawytscha* fingerlings. Channel catfish *Ictalurus punctatus* and tiger muskies *Esox lucius x E. masquinongy* were not available for stocking in 1996.

Hatchery personnel and volunteers stocked 30 mountain lakes in the Panhandle Region in 1996. Most lakes were stocked at a density of around 620 fish/ha. Species stocked included westslope cutthroat trout, domestic Kamloops rainbow trout, golden trout *O. aguabonita*, and Arctic grayling *Thymallus arcticus*.

Authors:

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**IDAHO
DEPARTMENT OF FISH AND GAME**

Stephen P. Mealey, Director

**Federal Aid in Sport Fish Restoration
1996 Annual Performance Report
Program F-71-R-21**

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

PROJECT I. SURVEYS AND INVENTORIES
Job a. Clearwater Region Mountain Lakes Investigations
Job b. Clearwater Region Lowland Lakes Investigations
Job c. Clearwater Region Rivers and Streams Investigations

By

**Ed Schriever, Regional Fishery Biologist
Jody Brostrom, Regional Fishery Biologist
Tim Cochnauer, Regional Fishery Manager**

1996 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-21

Project I: Surveys and Inventories

Subproject I-B: Clearwater Region

Job: a

Title: Mountain Lakes Investigations

Contract Period: July 1, 1996 to June 30, 1997

ABSTRACT

Forty-three mountain lakes were surveyed in the Clearwater National Forest during July-September 1996. All but six were barren of fish. Only two of the lakes have been stocked in recent history. Both will be removed from the stocking rotation as natural reproduction is apparent in each.

Authors:

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1996 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-21

Project I: Surveys and Inventories

Subproject I-B: Clearwater Region

Job: b

Title: Lowland Lakes Investigations

Contract Period: July 1, 1996 to June 30, 1997

ABSTRACT

Clearwater Region fisheries management personnel and conservation officers checked 368 anglers who spend 565.3 hours fishing lakes, ponds, and reservoirs and caught 529 game fish.

Clearwater Region fisheries management personnel sampled Winchester Lake on May 28, 1996. Composition of naturally produced species was 75% yellow perch *Perca flavescens* (N = 111), 11.5% brown bullhead *Ameiurus nebulosus* (N = 17), 10.1% largemouth bass *Micropterus salmoides* (N = 15), and 3.4% black crappie *Pomoxis nigromaculatus* (N = 5). Yellow perch were illegally introduced in Winchester Lake in the early 1990s.

We sampled smallmouth bass *M. dolomieu* in Dworshak Reservoir using standard electrofishing and hook-and-line techniques. From May 1 to June 5, 1996 we collected 468 smallmouth bass. We tagged 128 bass larger than 250 mm total length with five dollar reward tags. Anglers returned 14 tags, representing a minimum exploitation rate of 10.9%. We sampled annual trend monitoring areas on May 14, 15, and 22. Proportional Stock Density (PSD) of smallmouth bass collected from the trend areas was 30. This represents the highest PSD since annual monitoring began in 1993. PSD of the entire sample was 25.

Author:

Ed Schriever
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1996 ANNUAL PERFORMANCE REPORT

State of: Idaho,

Program: Fisheries Management F-71-R-21

Project I: Surveys and Inventories

Subproject I-B: Clearwater Region

Job:

Title: Rivers and Streams Investigations

Contract Period: July 1, 1996 to June 30, 1997

ABSTRACT

Clearwater Region fishery management personnel snorkeled 118 stream transects within the Clearwater, Salmon, and Snake River drainages to obtain data for the long-term database. Chinook salmon *Oncorhynchus tshawytscha* juvenile numbers continued to be at low levels throughout the drainages sampled. Fifty-two adult chinook salmon redds were counted in traditional aerial spawning ground counts in the Lochsa and Selway rivers, and 44 were counted in the South Fork Clearwater drainage. Management personnel captured and PIT-tagged 25 white sturgeon *Acipenser transmontanus* from the Snake River and 7 from the Salmon River. We collected 284 residualized steelhead *O. mykiss* smolts and 3 unspecified hatchery rainbow trout from the lower Clearwater River and found no trout originating from fingerling plants. Rainbow trout stocked in the Clearwater River most likely suffered from high emigration losses as a result of a 100-year flood even in February 1996. We collected 53 rainbow trout in an estimated 146 hours of effort on the Salmon River. Residualized hatchery steelhead smolts represented 49.0% (26/53) of the sample. Stocked fingerling trout accounted for 35.8% (19/53) of the sample. Domestic Kamloops strain rainbow trout outnumbered Spokane strain rainbow trout in the sample 3:1. No fish or fish parts were identified in the contents of 46 hatchery origin trout stomachs. We collected 390 westslope cutthroat trout *O. clarki lewisi* in the mainstem North Fork Clearwater River from Aquarius (rkm 104.4) up to Kelly Forks (rkm 184.5) using traditional hook-and-line techniques. We tagged 325 of these cutthroat trout jaw tags. Seven cutthroat trout were reported recaptured; five by anglers and two by sampling personnel. Two of the recaptured fish had moved into different tributaries and were recaptured approximately 18 km from where they were tagged. The other five cutthroat trout were recaptured within 2.5 km of the location they were tagged. We counted 2,569 kokanee salmon *O. nerka kennerlyi* spawners

in three index tributaries of the North Fork Clearwater River. This represents the second lowest count since trend counts began in 1981 and approximately 12% of the average count from the previous nine years. Clearwater Region fisheries personnel and conservation officers checked 247 anglers that spent 290 hours to catch 565 game fish from regional rivers and streams. This represents an average catch rate of 2 fish per hour.

Authors:

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Tim Cochnauer
Regional Fishery Manager

1996 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-21

Project II: Technical Guidance

Subproject II-B: Clearwater Region

Contract Period: July 1, 1996 to June 30, 1997

ABSTRACT

During the 1996 project year, comments and technical input were provided on proposals, issues, and developments that might affect fish and wildlife resources in the Clearwater Region. . The primary issues were U.S. Forest Service and Idaho Department of Lands project proposals and timber sales, input and site visits to stream alteration proposals and projects in the lower Clearwater River system, developing habitat maps and protection in Latah County, working on the outfitter allocation team, internal coordination and information gathering, working on Idaho Department of Transportation road improvement projects, commenting on community development projects, updating the wildlife surveys protocol manual, and continuing work on USFS-IDFG draft elk guidelines.

Authors:

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1996 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-21

Project III: Habitat Management

Subproject III-B: Clearwater Region

Contract Period: July 1, 1996 to June 30, 1997,

ABSTRACT

No Habitat Management activities were performed during this time period.

Author:

Tim Cochnauer
Regional Fishery Manager

1996 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-21

Project IV: Population Management

Subproject IV-B: Clearwater Region

Contract Period: July 1. 1996 to June 30. 1997

ABSTRACT

Resident fish populations and sport fishing in the Clearwater Region were enhanced by stocking approximately 17,000 fry, 236,270 fingerling, and 273,932 catchable size fish into lakes, reservoirs, rivers, and streams.

Clearwater Region personnel distributed 235 bluegill sunfish *Lepomis macrochirus* and 157 largemouth bass *Micropterus salmoides* (<200 mm) to local farm pond owners for private pond stocking. These fish were collected from Spring Valley Reservoir.

Clearwater Region personnel collected and moved 200 white crappie *Pomoxis annularis* and 32 black crappie *P. nigromaculatus* from Crane Creek Reservoir and 159 bluegill sunfish and 181 largemouth bass from Spring Valley Reservoir to Tolo Lake to establish populations and develop a warmwater fishery.

Author:

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**IDAHO
DEPARTMENT OF FISH AND GAME**

Stephen P. Mealey, Director

**Federal Aid in Sport Fish Restoration
1996 Annual Performance Report
Program F-71-R-21**

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

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

By

**Paul Janssen, Regional Fishery Biologist
Kim Apperson, Regional Fishery Biologist
Don Anderson, Regional Fishery Manager**

1996 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-21

Project I: Surveys and Inventories

Subproject I-C: McCall Subregion

Job:

Title: Mountain Lakes Investigations

Contract Period: July 1, 1996 to June 30, 1997

ABSTRACT

Fish population status, past stocking strategies, and/or physical habitat variables were assessed in 17 mountain lakes in 1996 in a cooperative project with the U.S. Forest Service. This report presents the status of fish populations in these lakes. We collected no fish in two lakes. We collected no rainbow trout *Oncorhynchus mykiss* in one lake and no cutthroat trout *O. clarki* in another lake that were previously stocked with these species. Four lakes contained large numbers of small brook trout *Salvelinus fontinalis* with low relative weights (<80). Condition factors for stocked cutthroat trout, rainbow trout, or rainbow x cutthroat trout hybrids were generally greater than 0.80 for fish greater than 7 inches in the eight lakes without brook trout. One lake contained brown trout *Salmo trutta* and another contained only previously stocked Arctic grayling *Thymallus arcticus*.

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1996 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-21

Project I: Surveys and Inventories,

Subproject I-C: McCall Subregion

Job: b

Title: Lowland Lakes Investigations

Contract Period: July 1, 1996 to June 30, 1997

ABSTRACT

Payette Lake was sampled by midwater trawling and hydroacoustic techniques to estimate the population of age 1 + kokanee salmon *Oncorhynchus nerka kennerlyi*. The respective population estimates were $132,234 \pm 62.6\%$ and $166,590 \pm 22\%$. A total angler use and harvest survey during winter and spring 1995-96 was also completed. This completed a year-long creel survey that ran from May 1995 through June 1996. Total angling pressure from January 19, 1996 through March 22, 1996 was estimated at 12,668 hours with 724 fish being harvested, 86% of which were kokanee. Total angling pressure and harvest for the entire 1995-96 creel survey were 42,785 hours and 5,799 fish.

By weight and number, 83% of the fish sampled in Little Payette Lake with gill nets were largescale suckers *Catostomus macrocheilus* and squawfish *Ptychocheilus oregonensis*. Of the trout sampled, 27% were greater than 16 inches.

Largemouth bass *Micropterus salmoides* greater than 12 inches made up 27% of all bass electrofished in C. Ben Ross Reservoir in 1996. This compares with only 6.5% of the bass greater than 12 inches in 1993. We collected seven age classes of bass in 1996 compared with five in 1993.

Splake *Salvelinus fontinalis* x *S. naylori* sampled in 1996 in Granite Lake and Upper Payette Lake averaged 339 mm and 430 mm, respectively.

We compared angler counts on Cascade Reservoir on Memorial Day, Independence Day, and Labor Day in 1996 to angler counts done on the same holidays during intensive creel surveys in 1982, 1991, and 1992. We found that the average of the holiday counts, calculated separately on the number of boats and shore anglers, was a good indicator of total angling pressure.

Authors:

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1996 ANNUAL PERFORMANCE REPORT

State of: Idaho,

Program: Fisheries Management F-71-R-21

Project I: Surveys and Inventories

Subproject 1-C: McCall Subregion

Job: c

Title: Rivers and Streams Investigations

Contract Period: July 1, 1996 to June 30, 1997

ABSTRACT

We estimated the 1995 kokanee salmon *Oncorhynchus nerka kennerlyi* spawning run in the North Fork Payette River above Payette Lake to be 60,707 fish with a total biomass of 9,834 kg.

We surveyed fish and habitat in three transects on the North Fork Payette River between Payette Lake and Cascade Reservoir. The fish community was dominated by largescale suckers *Catostomus macrocheilus* and northern squawfish *Ptychocheilus oregonensis* in both numbers and biomass. The potential for a quality trout fishery in the North Fork Payette River was limited by three main habitat attributes: the lack of fish cover, low productivity, and stream bank erosion.

We also completed an Idaho Department of Fish and Game standard stream survey on Bear Creek on Marshall Mountain. This stream has a very high gradient and a small population of rainbow trout *Oncorhynchus mykiss*.

Anglers were guided by Wapiti Meadows Ranch Outfitters in a three-mile section of the South Fork Salmon River below the confluence with the East Fork South Fork Salmon River, throughout the East Fork South Fork Salmon River, and in lower Johnson Creek. All fishing was catch-and-release. Steelhead/redband trout *O. mykiss gairdneri*, cutthroat trout *O. clarki*, mountain whitefish *Prosopium williamsoni*, and bull trout *Salvelinus confluentus* were reported in the catch. Average catch rates ranged from 1.1 to 1.3 fish/hour.

Three temperature recorders monitored the upper Little Salmon River throughout the summer. Mean daily river temperature peaked at 22°C in late July and again in mid-August. The highest maximum daily temperature recorded was 25.8°C at Station 3. The highest minimum daily temperature was 19.8°C. Overall, river temperatures were similar to those recorded in 1995.

A single temperature recorded in Mud Creek, just below the confluence with Little Mud Creek under the Highway 95 bridge, recorded temperatures throughout the summer. Average daily temperature remained below 21 °C. The highest minimum daily temperature recorded was 17.2°C.

Crews canoed and fished the Little Salmon River on July 2 from Meadow Creek Bridge to Round Valley Creek. Catch rate for rainbow trout was 0.6 fish/hour. Two squawfish were the only other species caught.

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1996 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-21

Project I: Surveys and Inventories

Subproject I-C: McCall Subregion

Job: d

Title: Salmon and Steelhead Investigations

Contract Period: July 1. 1996 to June 30. 1997

ABSTRACT

McCall Subregion salmon and steelhead investigations are incorporated in separate statewide reports. These reports include: "Salmon and Steelhead Investigations," "Salmon Spawning Ground Surveys," "Idaho Supplementation Studies," and "Idaho Habitat/Natural Production Monitoring."

Author:

Don Anderson
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1996 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-21

Project II: Technical Guidance

Subproject II-C: McCall Subregion

Contract Period: July 1. 1996 to June 30. 1997

ABSTRACT

McCall Subregion fishery management personnel responded to 368 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 to 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 provided data and technical advice to an increased number of fisheries consultants.

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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1996 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-21

Project III: Habitat Management

Subproject III-C: McCall Subregion

Contract Period: July 1, 1996 to June 30, 1997

ABSTRACT

The attraction channel for the Rapid River Hatchery adult trap was modified to allow uninterrupted passage of bull trout *Salvelinus confluentus* and resident rainbow trout *Oncorhynchus mykiss*. This modification was funded by Idaho Power Company.

The Regional Fishery Manager participated on a technical advisory committee for the Big Payette Lake Water Quality Council. The group conducted studies and developed a comprehensive technical report identifying nutrient and bacterial contamination sources and recommended remedial action. The technical report leads to a lake management plan and an implementation program which is expected to halt, or possibly reverse, eutrophication of Payette Lake.

Fishery personnel participated on a technical advisory committee for the Cascade Restoration Project to improve water quality and fish habitat in Cascade Reservoir. Cascade Reservoir is listed as a water quality limited water by the Idaho Division of Environmental Quality, not fully supporting beneficial uses, including cold water biota. The technical advisory committee was directed to identify phosphorus sources and develop reduction measures. A Total Maximum Daily Load (TMDL) will be established that will result in a 37% reduction in phosphorus loading. Draft source plans were prepared and will be implemented as funding allows.

The opportunity for a conservation easement on private property in Burgdorf Meadows was evaluated and pursued. This is a critical spawning area for wild summer chinook salmon *Oncorhynchus tshawytscha* and was imminently at risk of recreation home development. We prepared a proposal and sought funding to allow the Idaho Department of Fish and Game to acquire the easement.

Data were collected and analyzed to allow recommendation of a stream resource maintenance flow for the North Fork Payette River between Payette Lake and Upper Payette Lake. This flow will protect kokanee salmon *Oncorhynchus nerka kennerlyi* spawning habitat from future stream diversion.

Author:

Don Anderson
Regional Fishery Manager

1996 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-21

Project IV: Population Management

Subproject IV-C: McCall Subregion

Contract Period: July 1, 1996 to June 30, 1997

ABSTRACT

No waters in the McCall Subregion were renovated during this contract period. A total of 1,002,363 salmonids were stocked in area waters to enhance fish populations.

Authors:

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Don Anderson
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**IDAHO
DEPARTMENT OF FISH AND GAME**

Stephen P. Mealey, Director

**Federal Aid in Sport Fish Restoration
1996 Annual Performance Report
Program F-71-R-21**

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

- | | |
|---------------------|--|
| PROJECT I. | SURVEYS AND INVENTORIES |
| 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 |
| PROJECT II. | TECHNICAL GUIDANCE |
| PROJECT III. | HABITAT MANAGEMENT |
| PROJECT IV. | POPULATION MANAGEMENT |

By

**Dale B. Allen, Regional Fishery Biologist
Steven P. Yundt, Regional Fishery Manager
Brian J. Flatter, Fishery Technician**

1996 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-21

Project I: Surveys and Inventories

Subproject I-D: Southwest Region

Job:

Title: Mountain Lakes Investigations

Contract Period: July 1, 1996 to June 30, 1997

ABSTRACT

Forty-eight mountain lakes or ponds were visited in 1996. Lakes visited were located in the Middle Fork Boise River, Queens River, North Fork Boise River, and South Fork Payette River. Gill nets were set overnight and angling occurred in six waters, overnight gill net sets without angling occurred in four waters, angling without gill net sets in two waters, and visual observation only occurred in 36 waters. Twelve waters contained fish populations.

Twenty-eight of 48 waters were surveyed for the presence of amphibians. Adult spotted frogs *Rana pretiosa* were found in three, juvenile spotted frogs were found in ten waters, and long-toed salamanders *Ambystoma macrodactylum* were found in one water. No amphibians were found in waters containing fish.

Data on amount of human use and presence and condition of trails to lakes was collected and recorded.

All data collected was entered into an ACCESS database.

Authors:

Steven P. Yundt
Regional Fishery Manager

Dale B. Allen
Regional Fishery Biologist

1996 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-21

Project I: Surveys and Inventories

Subproject I-D: Southwest Region

Job: b

Title: Lowland Lakes Investigations

Contract Period: July 1, 1996 to June 30, 1997

ABSTRACT

A lowland lake survey was done on Lake Lowell on May 20, 1996 with gill nets, trap nets, and electrofishing efforts, and three additional nights of electrofishing were also done on July 10, August 8, and September 18, 1996. A standard unit length frequency report was produced for each sample event. Lake Lowell is responding to higher overwinter water levels as evidenced by the presence of age 1 + and 2+ largemouth bass *Micropterus salmoides* and smallmouth bass *M. dolomieu*. The absence of panfishes; bluegill *Lepomis macrochirus*, white crappie *Pomoxis annularis*, black crappie *P. nigromaculatus*, and yellow perch *Perca flavescens*; is quite dramatic.

A lowland lake survey of C.J. Strike Reservoir was done on May 15-16, 1996. Catch-per-unit-effort by species and by a combined unit of effort were calculated. Catch of white crappie was higher than previous years, and for the second year in a row, rainbow trout *Oncorhynchus mykiss* numbers were much reduced. We suggest an annual May lowland lake survey be conducted and followed up by information releases about the fishery.

Electrofishing was done on May 28 and 29, 1996 on lower Brownlee Reservoir. Catch-per-unit-effort by species was calculated. The hourly electrofishing catch for 1996 was high for smallmouth bass at 774/hour, but the fish were smaller than in 1995. The percentage of bluegill sampled per unit effort increased to 36% from 4.7% in the 1995 samples. White crappie numbers and mean size continue to decrease in the reservoir.

A total of 1,560 reward tags were placed on catfish in Brownlee Reservoir and the border waters of the Snake River in 1996. The cooperative catfish study with Idaho Department of Fish and Game (IDFG), Oregon Department of Fish and Wildlife, and Idaho Power Company entered its second year. Reported number of recaptures

of tagged catfish was 117. The reward amount was increased on some tags to either \$5.00, \$10.00, or \$20.00 in 1996. The \$20.00 tags were returned at approximately twice the rate of the \$5.00 tags. Catfish movements varied from zero to over 120 river miles. Since 1995, five tagged catfish have been harvested below the Brownlee Dam in the Oxbow pool.

A lowland lake survey was done on Swan Falls Reservoir on June 6, 1996. Catch-per-unit-effort by species and by a combined unit of effort were calculated. Age analysis was completed on 62 smallmouth bass scale samples. We suggest that Swan Falls Reservoir sampling be conducted at late summer low flows on any subsequent sampling.

A lowland lake survey was completed on Horseshoe Bend Mill Pond on June 26, 1996. Catch-per-unit-effort by species and by a combined unit of effort were calculated. Biomass per unit of effort was 79.4 kg and 920 individual fish. A good population of largemouth bass was documented.

A lowland lake survey was done on September 4 and 19, 1996 on Black Canyon Reservoir. Catch-per-unit-effort by species and by a combined unit of effort were calculated. A total of 878 fish weighing 135.9 kg were captured per standard unit of effort. Non-game species comprised 61 % by number and 81.3% by weight of the standard unit of effort catch.

A lowland lake survey was done on Indian Creek Reservoir on June 14, 1996. Catch-per-unit-effort by species and by a combined unit of effort were calculated. A total of 322 fish were captured. Largemouth bass comprised 91.6% of the standard unit catch, and the majority of the largemouth bass were age 1 + and 2 + fish. Bluegill numbers were low at 25 fish per unit of effort.

Boat electrofishing was conducted on Paddock Reservoir during daylight hours on May 23, 1996. An estimated 277 largemouth bass per hour were captured. Mean length of largemouth bass was 264 mm and mean weight was 299 g.

Two trap nets and two pair of gill nets were fished overnight in Succor Creek Reservoir on June 14, 1996. Catch-per-unit-effort by species and gear were calculated. Redband trout *O. mykiss gairdneri*, bridgelip sucker *Catostomus columbianus*, and redband shiner *Richardsonius balteatus* were captured. This was the first time this irrigation reservoir had been sampled. The redband trout scale samples were aged.

Four sinking experimental gill nets and five vertical gill nets were fished overnight on July 15, 1996 in Lucky Peak Reservoir. Catch-per-unit-effort by species and by gear unit of effort were calculated. The vertical gill nets captured only four chiselmouth chub *Acrocheilus alutaceus*.

Mountain Home Reservoir was boat electrofished on May 22, July 30, and September 24, 1996 by a fisheries researcher. Catch-per-unit-effort by species and by gear unit of effort were calculated. Average length for captured hatchery rainbow trout was 254, 316, and 310 mm, respectively, for the three samplings.

Two pair of gill nets were set overnight in Deadwood Reservoir on September 26, 1996. Catch-per-unit-effort by species and by gear unit of effort were calculated. The standard unit catch per pair of gill nets was lower in 1996 than the previous year. Kokanee salmon *O. nerka kennerlyi* numbers increased over 1995. Average size of kokanee spawners was higher at 332 mm for females and 344 mm for males. The 1996 kokanee spawning run was very low; 70,000 eggs were taken at the Deadwood River Weir.

Arrowrock Reservoir was gillnetted extensively for bull trout *Salvelinus confluentus* in the spring of 1996. The U.S. Bureau of Reclamation contracted the IDFG Southwest Region to study the bull trout on the reservoir. Twelve radio tags were surgically implanted in larger bull trout. Staff and volunteers radio-tracked the bull trout by vehicle and airplane during 1996. Further gillnetting was done in the late fall and winter of 1996 and 1997 to capture and mark bull trout to estimate population numbers.

Authors:

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Regional Fishery Biologist

Steven P. Yundt
Regional Fishery Manager

1996 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-21

Project I: Surveys and Inventories

Subproject I-D: Southwest Region

Job: c

Title: Rivers and Streams Investigations

Contract Period: July 1, 1996 to June 30, 1997

ABSTRACT

Redband trout *Oncorhynchus mykiss gairdneri* were captured in 12 of the 14 stream segments sampled in 1996. Stream segments were sampled on Jordan, McBride, Cow, Pickett, North Fork Castle, Rock, Josephine, Big Boulder, Juniper, Cabin, South Mountain, and South Fork Boulder creeks and the North Fork Owyhee River. Six of those sites had been previously sampled by the U.S. Bureau of Land Management. Five of the resampled sites contained more redband trout than were captured in previous sampling. Densities of trout greater than 100 mm in length at all sites ranged from 0 to 41.5 trout/100 m². Habitat data were also collected on the sampled stream segments. Data collected included mean depth and width, percent of stream gradient, and percent composition of substrate. Measurements of bank stability, percent of stream shading, and available trout habitat were collected. Water quality measurements of temperature, pH, conductivity, hardness, and alkalinity were all within acceptable ranges for trout survival. Recording thermographs were placed in seven Owyhee County streams; two thermographs recorded water temperatures consistently greater than 25°C.

Twelve transects were snorkeled on the North Fork Boise River in August 1996 to document fish species and lengths. Snorkel results were compared against a 1988 data set of the same sites. In areas below the September 1995 landslide events, the wild trout numbers were reduced. Fish numbers upstream of the impact were the same or greater than 1988 numbers of fish observed.

Thirty sites on the South Fork Payette and four sites on the Payette River were snorkeled during August 1996. Divers identified fish to species and length and data were entered into Southwest Region Streams Database.

Eight sections of the Boise River within the town of Boise were floated and sampled with an electrofishing raft during December 1996. The upper section began at Barber Park and the last section ended below the Broadway Bridge. Length

frequencies and species composition for each of the eight sections were developed. This method will be used in the future because of less intensive manpower needs versus a walking electrofish gang probe used in the past.

Eleven sites were snorkeled on the Middle Fork Payette River during July 1996. All sites contained fish. Ten of the 11 sites contained redband trout and 2 contained bull trout *Salvelinus confluentus*. Densities were within ranges observed in the drainage.

Electrofishing efforts in several sections of Long Tom and West Fork Long Tom Creek produced two redband trout from Long Tom and one from West Fork Long Tom Creek. Forty redband trout (100-225 mm total length) from below Long Tom Reservoir and 90 redband trout (75-150 mm) from Syrup Creek were electrofished and transplanted to into the West Fork Long Tom Creek. Permanent transects were established inside and outside the grazing exclosure. Transect width, wetted channel width, depth, habitat type (pool, riffle, run, pocket water), and substrate composition were measured at each transect after the grazing season. Photo points were established, and photos were taken documenting the condition of the riparian area at each point.

On October 7, 1996, 64 bull trout were electrofished from Ballantyne Creek and transplanted into upper Bear River. Size range of bull trout collected was 75-150 mm, total length. Fifty redband trout were collected from Big Silver Creek and transplanted into upper Bear River. Size range of redband trout was 100-150 mm.

Authors:

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Steven P. Yundt
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1996 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-21

Project I: Surveys and Inventories

Subproject I-D: Southwest Region

Job: d

Title: Salmon and Steelhead Investigations

Contract Period: July 1, 1996 to June 30, 1997

ABSTRACT

Regional fisheries staff conducted snorkel surveys for chinook salmon *Oncorhynchus tshawytscha* parr monitoring in Bearskin, Elk, and Sulphur creeks in 1996. A total of one chinook salmon parr was observed in the parr monitoring sites in Sulphur Creek. No chinook salmon parr were observed in Bearskin and Elk creeks. No redds were counted in Elk Creek, and only one redd was counted in Sulphur Creek in 1995 so low numbers of chinook salmon parr were expected.

Salmon spawning ground surveys were conducted in Bear Valley, Elk, and Sulphur creek trend areas on August 26-29. Redds numbered 15, 17, and 13 in Bear Valley, Elk, and Sulphur creek trend areas, respectively.

Authors:

Dale B. Allen
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Steven P. Yundt
Regional Fishery Manager

1996 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-21

Project II: Technical Guidance

Subproject II-D: Southwest Region

Contract Period: July 1, 1996 to June 30, 1997

ABSTRACT

Regional fisheries staff continue to provide a large amount of information about regional and statewide fisheries to the general public. Staff coordinated with the Natural Resource Policy Bureau Staff Biologist on comment letters on various topics. One paper was published.

Allen, D.B., K. Fite, J. Nelson, and B.J. Flatter. 1997. Redband Trout *Oncorhynchus mykiss gairdneri* Population and Stream Habitat Surveys in Western Owyhee County, Idaho. Idaho Bureau of Land Management, January, 1997.

Authors:

Dale B. Allen
Regional Fishery Biologist

Steven P. Yundt
Regional Fishery Manager

1996 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-21

Project III: Habitat Management

Subproject III-D: Southwest Region

Contract Period: July 1, 1996 to June 30, 1997

ABSTRACT

Habitat type and substrate measurements, part of standard stream surveys, were made on 14 stream sections from streams in Owyhee County, 10 stream sections on the North Fork Boise River and tributaries, and 10 stream sections on the Middle Fork Payette River and tributaries. Results are reported in Project 1, Job c of this report.

Three and one-half miles of fence was constructed to divide one large pasture into four smaller pastures along West Fork Long Tom Creek and main Long Tom Creek. Also, a small riparian enclosure was constructed on West Fork Long Tom Creek. Four small pastures were created to better utilize existing forage and minimize grazing impacts in riparian areas. Permanent transects were established to monitor stream response to grazing and enclosure construction. Habitat measurements were made both within the enclosure and outside the enclosure. This was a cooperative project between Idaho Department of Fish and Game, Boise Valley Fly Fishermen, Idaho Soil Conservation Service, Elmore County Soil Conservation District, Natural Resource Conservation Service, and private landowners Steve and Jim Percy of Mountain Home.

Authors:

Dale B. Allen
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Steven P. Yundt
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Brian J. Flatter
Fishery Technician

1996 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-21

Project IV: Population Management

Subproject IV-D: Southwest Region

Contract Period: July 1, 1996 to June 30, 1997

ABSTRACT

Warmwater fish species were captured and transferred to Lake Lowell, Paddock Valley Reservoir, and C.J. Strike rearing ponds in 1996. Lake Lowell received 541 bluegill *Lepomis macrochirus* (mean length = 128 mm, mean weight = 69 g) from Brownlee Reservoir on May 29, 1996 and 70 largemouth bass *Micropterus salmoides* from Paddock Valley Reservoir on May 23, 1996. Paddock Valley Reservoir received 270 black crappie *Pomoxis nigromaculatus* (mean length = 163 mm, mean weight = 96 g) from Brownlee Reservoir on May 29, 1996.

C.J. Strike Reservoir rearing ponds received 57 adult white crappie *P. annularis* from Brownlee Reservoir on May 29, 1996 and 20 adult largemouth bass from Paddock Valley Reservoir on May 23, 1996. White crappie and largemouth bass were placed in separate rearing ponds and allowed to spawn. Following rearing during the summer, juvenile white crappie and largemouth bass were released directly into C.J. Strike Reservoir in October.

Sixty-four bull trout *Salvelinus confluentus* (size range 75-150 mm) were collected from Ballentyne Creek and 50 redband trout *Oncorhynchus mykiss gairdneri* were collected from Big Silver Creek (tributaries to North Fork Boise River) and released in Bear River on October 7, 1996.

Forty redband trout (size range 100-225 mm) were collected from below Long Tom Reservoir and 90 redband trout (size range 75-150 mm) were collected from Syrup Creek and released in West Fork Long Tom Creek.

Author:

Steven P. Yundt
Regional Fishery Manager

**IDAHO
DEPARTMENT OF FISH AND GAME**

Stephen P. Mealey, Director

**Federal Aid in Sport Fish Restoration
1996 Annual Performance Report
Program F-71-R-21**

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

- PROJECT I. SURVEYS AND INVENTORIES**
 - 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**
- PROJECT II. TECHNICAL GUIDANCE**
- PROJECT III. HABITAT MANAGEMENT**
- PROJECT IV. POPULATION MANAGEMENT**

By

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

1996 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-21

Project I: Surveys and Inventories

Subproject I-E: Magic Valley Region

Job: a

Title: Mountain Lakes Investigations

Contract Period: July 1. 1996 to June 30. 1997

ABSTRACT

Nine high mountain lakes were stocked by regional personnel in 1996. Species stocked include Henry's Lake cutthroat trout *Oncorhynchus clarki*, golden trout *O. aguabonita*, and Arctic grayling *Thymallus arcticus*.

There were 25 regional high mountain lakes investigated in 1996. Twenty-one were in the upper Big Wood River drainage and four were the Independence Lakes complex in the South Hills south of Burley. Some of the lakes were small shallow ponds which did not appear to be capable of supporting trout year-round but were investigated for amphibians. Gillnetting at several of the larger lakes indicated that some of the lakes still had hatchery fish present which had been stocked as fry in 1994, and some had good spawning habitat with wild trout present. Amphibians found at some of the lakes included long-toed salamanders *Ambystoma macrodactylum* and spotted frogs *Rana pretiosa*.

Authors:

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Karen A. Frank
Fishery Technician

1996 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-21

Project I: Surveys and Inventories

Subproject I-E: Magic Valley Region

Job: b

Title: Lowland Lakes Investigations

Contract Period: July 1, 1996 to June 30, 1997

ABSTRACT

Anderson Ranch Reservoir kokanee salmon *Oncorhynchus nerka kennerlyi* populations were estimated with a midwater trawl indicating a moderate year class of age 0 + kokanee present. Kokanee spawner abundance monitored with a weekly survey on the South Fork Boise River upstream from Anderson Ranch Reservoir indicates the second highest adult spawner escapement since surveys began in 1989.

Dog Creek Reservoir fish were sampled with one hour of nighttime electrofishing and with three trap nets. Species sampled include largemouth bass *Micropterus salmoides*, bluegill *Lepomis macrochirus*, yellow perch *Perca flavescens*, brown bullhead *Ameiurus nebulosus*, channel catfish *Ictalurus punctatus*, tiger muskie *Esox lucius* x *E. masquinongy*, hatchery rainbow trout *O. mykiss*, redbreast shiner *Richardsonius balteatus*, largescale sucker *Catostomus macrocheilus*, and common carp *Cyprinus carpio*.

A private pond downstream of Little Camas Reservoir was sampled with two trap nets and electrofishing to determine if crappie were present. Black crappie *Pomoxis nigromaculatus* were found to be present indicating that they may already be present downstream in Anderson Ranch Reservoir, or may enter the reservoir in the future when water flows from the pond to the reservoir.

Forage presence and abundance was monitored by seining at Oakley and Salmon Falls Creek reservoirs. A 60-mm-long walleye *Stizostedion vitreum* caught incidental to the sampling at Oakley Reservoir indicates successful spawning and recruitment of that species there.

Stone Reservoir fish were sampled by gillnetting, trapnetting, and electrofishing in July. Fish species sampled include hatchery rainbow trout, largemouth bass, white crappie *P. annularis*, yellow perch, and common carp.

Thorn Creek Reservoir fish were sampled by electrofishing in May and November to determine survival of stocked rainbow trout through the summer and winter. Results indicate good winter but poor summer survival.

Author:

Charles D. Warren
Regional Fishery Biologist

1996 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-21

Project I: Surveys and Inventories

Subproject I-E: Magic Valley Region

Job:

Title: Rivers and Streams Investigations

Contract Period: July 1, 1996 to June 30, 1997

ABSTRACT

Results of a late summer fishery survey on six reaches of the Big Wood River indicate that the presence of the whirling disease pathogen *Myxosoma cerebralis* within the drainage has not affected the wild fish population. Population trends in all reaches surveyed also indicate that more restrictive fishing rules implemented on some reaches in 1990 have increased the numbers and densities of wild rainbow trout *Oncorhynchus mykiss*. Other streams surveyed in the Big Wood River drainage include the East Fork of the Big Wood River and Warm Springs Creek. Both streams were found to have wild rainbow trout, hatchery rainbow trout, brook trout *Salvelinus fontinalis*, and Wood River sculpin *Cottus leiopomus*.

Marsh Creek and several tributaries of Marsh Creek near Albion were extensively surveyed and found to have brook trout, hatchery rainbow trout, mottled sculpin *Cottus bairdi*, redbreast shiners *Richardsonius balteatus*, and longnose dace *Rhinichthys cataractae*. The highest trout densities were found in reaches of higher gradients where there was a mix of habitat types.

Two reaches of Shoshone Creek within the Sawtooth National Forest were sampled by electrofishing. Fish species found included wild rainbow trout, bridgelip suckers *Catostomus columbianus*, mottled sculpin, redbreast shiners, and speckled dace *Rhinichthys osculus*.

Other streams in the region sampled include Eightmile Creek and Sixmile Creek, both tributaries to Raft River and both found to have Yellowstone cutthroat trout *O. Clarki bouvieri*.

Author:

Charles D. Warren Regional
Fishery Biologist

1996 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-21

Project II: Technical Guidance

Subproject II-E: Magic Valley Region

Contract Period: July 1. 1996 to June 30. 1997

ABSTRACT

Magic Valley Region fishery management personnel furnished verbal and written comments of technical guidance to other agencies, consultants, and private individuals and organizations. Fishing information was provided to anglers through telephone and in-person inquiries and in the forms of brochures, angler guides, public meetings, and news releases.

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

1996 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-21,

Project III: Habitat Management

Subproject III-E: Magic Valley Region

Contract Period: July 1, 1996 to June 30, 1997

ABSTRACT

No Habitat Management activities were performed during this time period.

Author:

Fred E. Partridge
Regional Fishery Manager

1996 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-21

Project IV: Population Management

Subproject IV-E: Magic Valley Region

Contract Period: July 1. 1996 to June 30. 1997

ABSTRACT

Fish populations and fishing in the Magic Valley Region was enhanced by stocking approximately 4.3 million put-and-grow and 0.79 million put-and-take size fish into lakes, reservoirs, rivers, and streams accessible by vehicle. High mountain lakes were stocked with Henry's Lake cutthroat trout *Oncorhynchus clarki* and Arctic grayling *Thymallus arcticus* fingerlings.

In September 1996, an 11 ha pond at Bruneau Dunes State Park was successfully treated with rotenone to eradicate a large population of common carp *Cyprinus carpio*.

Author:

Fred E. Partridge
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**IDAHO
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Stephen P. Mealey, Director

**Federal Aid in Sport Fish Restoration
1996 Annual Performance Report
Program F-71-R-21**

**REGIONAL FISHERIES MANAGEMENT INVESTIGATIONS
SOUTHEAST REGION (Subprojects I-F, II-F, 111-F, IV-F)**

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

By

**James Mende, Regional Fishery Biologist
Richard J. Scully, Regional Fishery Manager**

1996 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-21

Project I: Surveys and Inventories

Subproject I-F: Southeast Region

Job: k

Title: Lowland Lakes Investigations

Contract Period: July 1, 1996 to June 30, 1997,

ABSTRACT

We conducted creel surveys at major southeast Idaho fisheries during the Memorial Day weekend. At Blackfoot Reservoir, we interviewed 30 boat anglers who fished 66 hours and caught 17 trout (0.26 trout/hour). The catch was composed of 76% rainbow trout *Oncorhynchus mykiss*, 12% Bear Lake cutthroat trout *O. clarki sp.*, and 12% wild Yellowstone cutthroat trout *O. clarki bouvieri*. Trout harvested ranged from 30 cm to 48 cm long.

At American Falls Reservoir, we interviewed 61 anglers from 23 boats who fished 295 hours and caught 97 trout (0.33 trout/hour). Completed trips averaged 4.8 hours and anglers caught an average of 1.6 fish each. The catch was composed of 78% rainbow trout, 13% cutthroat trout, and 9% rainbow x cutthroat hybrids. Harvested trout ranged from 33 cm to 61 cm and averaged 46 cm. The largest trout weighed 3.4 kg.

Opening day surveys were also conducted at Chesterfield, Condie, Deep Creek, Devils Creek, Glendale, Johnson, Lamont, Montpelier, Springfield, Treasureton, Weston, and Winder reservoirs and McTucker, Montpelier, and Rose ponds.

We surveyed anglers at the Interstate Highway 15 Port of Entry check station during one day each of the Memorial Day, Independence Day, and Labor Day holiday weekends. This contrasts to check station surveys from 1992 through 1995, in which we conducted a three consecutive day survey at the Highway 15 Port of Entry through the Memorial Day weekend, but conducted no surveys during the other summer holidays. Surveys for short duration that include all the major holidays of summer should provide a good estimation of fishing quality during the main fishing season in 1996.

Nash Reservoir was sampled with one gill net and one trap net set for 22 hours. The nets captured 206 carp *Cyprinus carpio* ranging from 12 to 42 cm and 16 cm yellow perch *Perca flavescens*. We are unsure if water quality will be sufficient to support fish through most winters due to the excessive eutrophication caused by an adjacent dairy and other agricultural sources.

To determine the status of Oxford Reservoir's fish populations, we sampled it with one gill net for 23 hours and 1 hour of electrofishing on June 26, 1996. No fish were observed or caught. The water was teeming with invertebrates, including leaches, dragonfly nymphs, and plankton. We collected largemouth bass *Micropterus salmoides* and bluegill *Lepomis macrochirus* from Lamont Reservoir and restocked Oxford Reservoir.

We sampled Dike Lake in November 1996 with gill nets to determine if fish had survived through the summer and fall. We collected three rainbow trout from 47 to 49 cm long, ranging in weight from 1.35 to 1.75 kg. We believe these fish were stocked at 22 to 23 cm and 0.15 kg in April 1996. Dissolved oxygen in Dike Lake is too low in winter for fish to survive.

We electrofished 71 largemouth bass at Lamont Reservoir on July 19, 1996. Most (62) were stock size, and the Proportional Stock Density (PSD) was 48%, an indication of good community balance. A small number of bass of at least three young age classes were in the sample, indicating recruitment. We captured 14 bluegill of which 11 were stock size. PSD was 82% indicating heavy predation on juvenile bluegill or low harvest. Bass and bluegill were transported to Twin Lakes as part of the repopulation effort after the 1994 renovation to remove carp.

We electrofished 87 largemouth bass at Johnson Reservoir on July 9, 1996. Most (50) were stock size and the proportional stock density was 34%. This PSD is slightly less than desirable for community balance, but probably is not an overharvest problem. We captured 68 bluegill, 41 of which were stock size. PSD was 27%. Since this reservoir partially winter-killed in 1992-93, this size structure may represent rebuilding, with few fish reaching quality size yet.

Authors:

Richard Scully
Regional Fishery Manager

James Mende
Regional Fishery Biologist

1996 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-21

Project I: Surveys and Inventories

Subproject I-F: Southeast Region

Job: g

Title: Rivers and Streams Investigations

Contract Period: July 1, 1996 to June 30, 1997.

ABSTRACT

We surveyed anglers on the Snake River below American Falls Reservoir on Saturday of the Memorial Day weekend. We interviewed 138 (mostly boat) anglers who fished 514 hours and caught 151 trout (0.29 trout/hour). The catch was composed of 77% rainbow trout *Oncorhynchus mykiss*, 16% rainbow x cutthroat hybrids, 4% cutthroat trout *O. clarki*, and 3% brown trout *Salmo trutta*. Harvested trout ranged from 11 inches to 24 inches and averaged 17 inches.

We interviewed 69 anglers from the upper Blackfoot River after completing their fishing trips on the July 1 opening day. They fished 340 hours and caught 557 trout (1.6 trout/hour and 8.1 trout/angler). The minimum harvestable size for Yellowstone cutthroat trout *O. clarki bouvieri* was 46 cm. Anglers released 98% of their catch. The average length of 8 harvested Yellowstone cutthroat trout was 52 cm. Interviewed anglers also harvested two hatchery rainbow trout which averaged 44 cm. About 30% of the effort and 50% of the catch occurred on the six miles of the upper Blackfoot River which- lies on the Idaho Department of Fish and Game (IDFG) management area.

Regional fisheries personnel conducted a creel survey on McCoy Creek from May 25 to July 1, 1996. We assessed angler use, catch, catch rate, and interviewed for angler attitudes and preferences. We also conducted a standard stream survey measuring instream and overhanging habitat, habitat type, substrate size, and width/depth ratios in four sections of McCoy Creek.

From April 4 to August -22, 1996, we collected bi-weekly water samples at four locations on Marsh Creek and one on the Portneuf River below the confluence with Marsh Creek to assess sediment loading and compare the information with a 1977 study. During most of the survey, the upper Marsh Creek sites maintained suspended sediment levels in the range of 20 to 60 mg/l. In lower Marsh Creek, the values

ranged to 200 mg/l. The Portneuf River carried a very high sediment load, ranging from 50 to 250 mg/l. Although these values are relatively high, they are noticeably lower than values measured in the previous study. Comparative information is reported.

IDFG and Division of Environmental Quality personnel surveyed fish populations and habitat in two sections each of the upper Blackfoot River tributaries of Diamond, Candle, Sheep, and Timothy creeks. Brook trout *Salvelinus fontinalis* were present in all sampled tributaries. They dominated the samples in Diamond Creek and Candle Creek. Cutthroat trout were the dominant salmonid in Timothy and Sheep creeks. Gravel and rubble dominated the substrate composition. Water temperatures in the two Diamond Creek sections were 12°C and 14°C.

We also surveyed fish populations and habitat in the lower two miles of Angus Creek, tributary of the Upper Blackfoot River on the wildlife management area. Few cutthroat and no brook trout were captured. Water temperature was relatively warm at 17°C and the fish community was dominated by sculpins, dace, suckers, and shiners.

We surveyed fish populations within the 1.1 km channelized reach of the upper Blackfoot River on Lonnie Cellan's property to estimate the fish population size. However, we were unable to collect enough recaptures to complete a Peterson mark and recapture estimate. On October 10, 1996, we electrofished the channelized reach again to capture and remove any trout stranded as water was diverted to the original stream channel. We did not observe or capture any wild cutthroat trout and only captured and relocated 16 rainbow trout.

We electrofished the Snake River near Shelley to collect fish for whirling disease sampling. The sample contained 19 mountain whitefish *Prosopium williamsoni* ranging from 10 to 31 cm, 21 Utah suckers *Catostomus ardens* ranging from 25 to 58 cm, 2 rainbow trout of 6 and 23 cm, 1 cutthroat trout of 36 cm, 50 unmeasured redbreast shiners *Richardsonius balteatus*, and 7 brown trout ranging from 19 to 51 cm. Fish were sent to the IDFG Fish Health Laboratory in Eagle for examination. The laboratory found no whirling disease in the sample.

We measured temperatures in the upper Blackfoot River, Angus Creek, Marsh Creek, Portneuf River, and Giraffe Creek from spring to fall of 1996.

Authors:

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James Mende
Regional Fishery Biologist

1996 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-21

Project II: Technical Guidance

Subproject II-F: Southeast Region

Contract Period: July 1, 1996 to June 30, 1997

ABSTRACT

Technical assistance was provided to federal, state, and local agencies upon request. Technical assistance was also provided to sportsmen's clubs on projects and to private individuals with questions on private fish ponds.

We collected fishery information from Southeast Region waters bi-weekly throughout 1996 and reported the information to the telephone information service "1-800-ASK-FISH." We contacted fishing equipment vendors in each county of the region, obtained angler check information from conservation officers, and received creel survey information from volunteer and reservist creel survey clerks. The information was also input to the State of Idaho's internet home page for internet users.

Blackfoot Reservoir and the upper Blackfoot River are important habitats for one of Idaho's most valuable wild Yellowstone cutthroat trout fisheries *O. clarki bouvieri*. Past overfishing followed by poor fish survival during the 1987-92 drought created a demand for smallmouth bass *M. do/omieu* as an alternative sport fishery in these waters. We determined that high elevation (1,865 m) would limit smallmouth bass fishery potential at Blackfoot Reservoir. Although smallmouth bass would probably persist once introduced, annual recruitment would be irregular and growth would be slow. Additionally, smallmouth bass could have a significant negative effect on recovery of the Yellowstone cutthroat trout fishery. Thus potential benefits were small and potential risks to the trout fishery exist. We held a public meeting in Soda Springs in September 1996 in which smallmouth bass expert biologist, Vaughn Paragamian, presented the pros and cons of introducing smallmouth bass into Blackfoot Reservoir. The Department recommended against the proposed introduction, and the public generally accepted our information and supported our decision.

Author:

Richard Scully
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1996 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-21

Project III: Habitat Management

Subproject III-F: Southeast Region

Contract Period: July 1, 1996 to June 30, 1997

ABSTRACT

We worked with the Natural Resources Conservation Service and Department volunteers to install juniper and hawthorne revetments at one location on the upper Portneuf River and four locations on the Arimo Ranch reach of Marsh Creek.

We signed riparian fencing agreements with one landowner on Marsh Creek and two on the Portneuf River. One of the landowners on the Portneuf River completed his project on one-half mile of the Portneuf River. Department personnel and high school students from the Blackfoot Alternative School cut and planted willows along a 200 foot long section of eroded bank of the Portneuf River.

We constructed one aspen revetment along an eroded section of the upper Blackfoot River and one willow waddle along an eroded bank of Angus Creek. We also planted sedges along bare banks of Angus Creek.

We contacted major Christmas tree distributors in the Pocatello area and asked them to donate their unsold trees. Department personnel with the aid of 20 volunteers loaded and transported 400 trees to the Fish and Game compound for storage. These trees will be used during the spring of 1997 as revetment material along eroding stream banks.

IDFG Engineering personnel opened an unused 1.9 mile natural section of the upper Portneuf River and installed a temporary berm to shunt flow away from a 0.7 mile channelized reach into the natural section. We met with landowners to be sure we have their support for construction of a permanent dam in the channelized reach to be completed in 1997. Engineering also opened up a naturally meandering reach of Angus Creek on the upper Blackfoot River management area which previously had been shunted into a badly eroded channelized reach.

Authors:

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1996 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-21

Project IV: Population Management

Subproject IV-F: Southeast Region

Contract Period: July 1, 1996 to June 30, 1997

ABSTRACT

We adipose fin-clipped 300, 22-cm to 23-cm rainbow trout *Oncorhynchus mykiss* at Grace Hatchery in November 1996 and stocked them into Dike Lake. We installed two 3-HP aerators on Dike Lake prior to ice formation intending to operate them through the winter.

On June 10, 1996, we captured 28 spawning size cutthroat trout *O. clarki* and 5 possible spawners from the upper Blackfoot River and transported them to a holding pen on a spring-fed tributary to the Bear River near Soda Springs. They were later examined and determined to have already spawned. These fish were then returned to the upper Blackfoot River. The goal of this project was to spawn up to 20 pair of wild Yellowstone cutthroat trout *O. clarki bouvieri* from the upper Blackfoot River and plant eyed eggs into spring-fed tributaries of the upper Blackfoot River to enhance the recovery of the wild cutthroat trout fishery.

We purchased 20 ice chests and the Shelley High School biology class fitted them with incubation boxes. This project will be continued in 1997 when we will attempt to collect adult spawners throughout the migration in April and May.

In late March 1996, Treasureton Reservoir filled, and excess flow and spawning size rainbow trout went over the spillway into Battle Creek. This small and ephemeral stream would not support these trout for long and anglers asked the Department to salvage the trout and return them to Treasureton Reservoir.

We electrofished six hours on March 31 and four hours on April 1 and captured and transported a total of 665 trout. Several local residents assisted Department personnel in this effort. The trout ranged from 38 to 46 cm and averaged 42 cm and 882 grams.

Relative weights of trout between 38 and 40 cm were generally greater than 100%. Fish between 40 and 43 cm had a wide range of relative weights from 90 to 120%, and those over 44 cm mostly had relative weights less than 95%. Most of the larger fish may have spawned recently.

Authors:

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**IDAHO
DEPARTMENT OF FISH AND GAME**

Stephen P. Mealey, Director

**Federal Aid in Sport Fish Restoration
1996 Annual Performance Report
Program F-71-R-21**

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

PROJECT I. SURVEYS AND INVENTORIES

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-
South Fork Snake River**

**Job c². Upper Snake Region Rivers and Streams Investigations-
Henry's Fork Snake River, Buffalo River**

PROJECT II. TECHNICAL GUIDANCE

PROJECT III. HABITAT MANAGEMENT

PROJECT IV. POPULATION MANAGEMENT

By

William C. Schrader, Senior Fishery Research Biologist

Mark Gamblin, Regional Fishery Manager

Jeff Dillon, Regional Fishery Biologist

1996 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-21

Project I: Surveys and Inventories

Subproject I-G: Upper Snake Region

Job: a

Title: Mountain Lakes Investigations

Contract Period: July 1. 1996 to June 30. 1997

ABSTRACT

No mountain lakes were surveyed by Idaho Department of Fish and Game personnel in the Upper Snake Region in 1996.

Authors:

William C. Schrader
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Mark Gamblin
Regional Fishery Manager

1996 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-21

Project I: Surveys and Inventories

Subproject I-G: Upper Snake Region

Job: b

Title: Lowland Lakes Investigations

Contract Period: July 1, 1996 to June 30, 1997

ABSTRACT

Gill net catch composition on Island Park Reservoir was 63% Utah chubs *Gila atraria*, 21% Utah Suckers *Catostomus ardens*, 10% hatchery rainbow trout *Oncorhynchus mykiss*, 5% wild rainbow trout, and 1% rainbow x cutthroat hybrid trout, with the remaining catch comprised of splake *Salvelinus fontinalis* x *S. namaycush*, Lahontan cutthroat trout *O. clarki henshawi*, and kokanee salmon *O. nerka kennerlyi*. Non-game fish were 84% of the total gill net catch, compared to 11% in 1994 and 38% in 1995. Spot creel checks indicated an average catch of 0.25 fish/hour. Hatchery rainbow trout comprised 95% of the harvest. Zooplankton samples indicate that fish populations in Island Park Reservoir were not overexploiting forage resources.

An unstructured creel survey was conducted on Palisades Reservoir from May 11 through October 27. Creel clerks contacted 698 anglers who fished 2,241 hours and caught 490 fish, for an average catch rate of 0.22 fish/hour. Harvest composition was 57% wild cutthroat trout *O. clarki*, 24% hatchery cutthroat trout, 14% brown trout *Salmo trutta*, and 4% lake trout *S. namaycush*. The total cutthroat trout harvest was 70.5% wild fish and 29.5% hatchery fish.

An unstructured creel survey was also conducted on Ririe Reservoir from May 25 through October 20. Objectives included evaluating relative return of differentially marked hatchery rainbow trout catchables planted from Mackay and Hagerman hatcheries. Creel clerks contacted 1,010 anglers who fished 3,375 hours, caught 2,525 fish, and harvested 1,320 fish. Total catch rate was 0.75 fish/hour. Harvest composition was primarily hatchery rainbow trout (55%), yellow perch *Perca flavescens* (23%), kokanee (9%), and wild rainbow trout (6%). Mackay catchables returned to the creel at significantly higher rates than did Hagerman catchables.

In a lowland lake survey on Ririe Reservoir, Utah chubs and Utah suckers comprised 88% of the total catch. Game fish in samples were yellow perch (7%), kokanee (5%), smallmouth bass *Micropterus dolomieu* (2%), and trout species (1 %).

Catch data for seven bass tournaments on Ririe Reservoir were summarized. Average tournament catch rate for legal smallmouth bass was 0.15 fish/hour.

The 1996 spawning operations at Henry's Lake produced 1,584,603 eyed cutthroat trout eggs, 1,252,724 eyed rainbow x cutthroat hybrid trout eggs, and 428,050 eyed brook trout *S. fontinalis* eggs. Cutthroat trout in the Hatchery Creek run averaged 443 mm, hybrid trout averaged 569 mm, and brook trout averaged 313 mm. Catch composition in six net nights of gillnetting at Henry's Lake was 49.1 % cutthroat, 41.5% hybrid, and 9.4% brook trout.

Pathology reports confirmed the presence of *Myxobolus cerebralis*, the causative agent for whirling disease, in Henry's Lake cutthroat trout. *Myxobolus* spores were detected in brook trout, but histology was unable to confirm the species.

Authors:

Jeff Dillon
Regional Fishery Biologist

Mark Gamblin
Regional Fishery Manager

1996 ANNUAL PERFORMANCE REPORT

State of: Idaho,

Program: Fisheries Management F-71-R-21

Project I: Surveys and Inventories

Subproject I-G: Upper Snake Region

Job: c¹ - South Fork Snake River

Title: Rivers and Streams Investigations

Contract Period: July 1, 1996 to June 30, 1997

ABSTRACT

A total of 1,79,1 trout were captured during four days of electrofishing at the Conant section, South Fork Snake River, in October 1996. Trout species composition and relative abundance were wild and hatchery cutthroat trout *Oncorhynchus clarki* (66%), wild rainbow *O. mykiss* and rainbow x cutthroat hybrid trout (15%), wild brown trout *Salmo trutta* (18%), lake trout *Salvelinus namaycush* (< 1 %), and kokanee salmon *O. nerka kennerlyi* (<1%). Cutthroat trout were at an all-time low. In contrast, rainbow and hybrid trout were one percentage point less than the 1995 all-time high. Brown trout have varied from 7% to 19% since 1982, the first year of electrofishing.

Length frequency distributions for each species show strong age 1 groups. Average fish length was 310 mm for wild and hatchery cutthroat trout, 262 mm for rainbow and hybrid trout, 284 mm for brown trout, and 297 mm for all species combined. Quality Stock Density (QSD) was 8.7% for wild and hatchery cutthroat trout, 6.6% for rainbow and hybrid trout, 12.7% for brown trout, and 9.2% for all species combined. QSD has declined about half from last year, but partly reflects the strong 1995 year class.

Estimated density of age 1 and older fish was 210 fish/ha for wild and hatchery cutthroat trout, 141 fish/ha for rainbow and hybrid trout, 44 fish/ha for brown trout, and 321 fish/ha for all species combined. Adult (> 356 mm) cutthroat trout density was at an all-time low.

The brown trout redd count was not conducted in 1996 and has been discontinued.

We conducted 1,750 angler interviews during the summer fishing season (May 25 to September 13) in the upper river (Palisades Dam to Heise cable) in 1996. About one-fifth (21 %) of anglers were non-resident, and 9% of all anglers were guided. The proportion of anglers fishing by gear type was 38% using bait, 10% using lures, and 52% using flies. Average time spent fishing was 3.3 hours.

Estimated angler effort in the upper river over the same time period was 169,142 hours. More than half (54%) of the effort occurred during weekdays. Proportions of effort by angler type were 15% power boat, 19% bank, and 66% float boat. Estimated catch rate was 1.12 fish/hour, and estimated catch (including harvested and released fish) was 188,989 fish. Catch composition was 71 % wild and hatchery cutthroat trout, 10% mountain whitefish *Prosopium wiliamsoni*, 12% brown trout, 7% rainbow and hybrid trout, and 1% other species.

Estimated harvest rate was 0.03 fish/hour, and estimated harvest was 4,568 fish. We estimated 98% of the fish caught were released. Harvest composition was 54% wild and hatchery cutthroat trout, 0% mountain whitefish, 25% brown trout, 20% rainbow and hybrid trout, and 3% other species. We did not account for hooking mortality.

During the creel survey, 81 fish were independently identified by the angler that harvested them and the creel clerk. In each case, the angler and the creel clerk agreed on the species of fish identified. Forty-three were cutthroat trout, 12 rainbow or hybrid trout, 23 brown trout, and 3 were nongame species. We conclude that anglers on the South Fork are able to accurately identify most trout they catch.

Comparative creel census statistics going back to 1966 suggest improved catch rates, a doubling of effort, and a tripling of catch since special regulations were implemented on the South Fork in 1984. Of concern, however, are decreasing proportions of cutthroat trout and increasing proportions of brown and rainbow and hybrid trout in the catch. Trends in angler and electrofishing catch suggest a potential threat to the genetic integrity and long-term viability of wild cutthroat trout populations in the South Fork.

Authors:

William C. Schrader
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Mark Gamblin
Regional Fishery Manager

1996 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-21

Project I: Surveys and Inventories

Subproject I-G: Upper Snake Region,

Job: c² - Henry's Fork Snake River.
Buffalo River

Title: Rivers and Streams Investigations

Contract Period: July 1. 1996 to June 30. 1997

ABSTRACT

An electrofishing survey on the Box Canyon Reach of the Henry's Fork provided a population estimate of 4,210 (1.45/100 m) wild rainbow trout *Oncorhynchus mykiss* over 6 inches (150 mm) in length. This represents a continued decline in numbers since fall of 1993.

Angler effort on Box Canyon in 1996 was 35,970 hours, with an average catch rate of 0.72 fish/hour.

Angler effort on the Buffalo River was 2,466 hours, with an average catch rate of 1.5 fish/hour.

Authors:

Jeff Dillon
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Mark Gamblin
Regional Fishery Manager

1996 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-21

Project II: Technical Guidance

Subproject II-G: Upper Snake Region

Contract Period: July 1. 1996 to June 30. 1997

ABSTRACT

Technical assistance was provided to federal, state, county, municipal and private agencies and entities upon request. Technical guidance was also provided to organized sportsmen's groups, conservation organizations and private citizens in the form of fish pond development, stocking and management advice, funding requests and project feasibility opinions, and various conservation and educational programs.

Upper Snake Region fishery management staff provided technical assistance and guidance to the following government agency and private groups:

Buffalo Hydro, Inc.	Idaho Department of Water Resources
Henry's Fork Foundation	Idaho Department of Lands
Island Park Sportsmen Association	U.S. Bureau of Reclamation
Sheridan Creek Restoration Committee	Eagle Rock Bass Masters Idaho
Trout Unlimited	Water Resource Board
Henry's Fork Watershed Council	City of Idaho Falls
Henry's Lake Foundation	The Nature Conservancy
Snake River Fly Fishers	Wyoming Game and Fish Department
South Fork Watershed Council	Idaho National Engineering and Environmental Laboratory
U.S. Fish and Wildlife Service	Bonneville County
Jackson National Fish Hatchery	Fremont County
U.S. Forest Service	City of Rexburg
U.S. Bureau of Land Management	Friends of the Big Wood River
Cornell University	
Idaho Department of Parks and Recreation	

Regional fishery management personnel contributed over 100 man-days to technical guidance requests in 1996.

Author:

Mark Gamblin
Regional Fishery Manager

1996 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-21

Project III: Habitat Management

Subproject III-G: Upper Snake Region

Contract Period: July 1. 1996 to June 30. 1997

ABSTRACT

Regional personnel conducted routine maintenance operations on Henry's Lake riparian fence and irrigation diversion fish screens and Palisades Creek and Burns Creek irrigation diversion fish screens.

Department Engineering crews constructed a new fish ladder at the Slash-E Ranch irrigation diversion on Howard Creek, tributary to Henry's Lake. Over two miles of additional spawning and rearing habitat were opened to spawning migration on Howard Creek.

We worked with Buffalo Hydro, Inc., the Henry's Fork Foundation, the U.S. Fish and Wildlife Service, and the Targhee National Forest to develop a cooperative agreement that lead to construction of a fish ladder at the Buffalo Hydro diversion dam on the Buffalo River. Fish passage for Henry's Fork rainbow trout *Oncorhynchus mykiss* to the Buffalo River is now secure for the first time in over 50 years.

Author:

Mark Gamblin
Regional Fishery Manager

1996 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-21

Project IV: Population Management

Subproject IV-G: Upper Snake Region

Contract Period: July 1, 1996 to June 30, 1997

ABSTRACT

Below Palisades Reservoir Dam, from 500 to 1,000 game fish were salvaged from the stilling basin and released into the South Fork Snake River below. Species salvaged and released on October 16, 1996 included cutthroat trout *Oncorhynchus clarki*, brown trout *Salmo trutta*, lake trout *Salvelinus namaycush*, kokanee salmon *O. nerka kennerlyi*, and mountain whitefish *Prosopium williamsoni*. Rainbow trout *O. mykiss* and rainbow x cutthroat hybrid trout were sacrificed for research. As in the past, numerous lake trout of a variety of sizes were seen, further confirming natural reproduction and survival of the species in the reservoir.

Roberts Gravel Pond was chemically treated with rotenone to eradicate nuisance populations of yellow perch *Perca flavescens*, bluegill *Lepomis macrochirus*, pumpkinseed *Lepomis gibbosus*, green sunfish *Lepomis cyanellus*, and black bullhead *Ameiurus melas*. After detoxification, Roberts Gravel Pond was restocked with hatchery catchable rainbow trout in May 1996.

We stocked 18 mountain lakes with a total of 27,500 cutthroat trout, rainbow trout, golden trout *Oncorhynchus aguabonita* and Arctic grayling *Thymallus arcticus* fry in 1996. All fish were reared at and stocked from Idaho Department of Fish and Game Mackay and Ashton fish hatcheries.

Authors:

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**IDAHO
DEPARTMENT OF FISH AND GAME**

Stephen P. Mealey, Director

**Federal Aid in Sport Fish Restoration
1996 Annual Performance Report
Program F-71-R-21**

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

PROJECT I. SURVEYS AND INVENTORIES

- Job a. Salmon Region Mountain Lakes Investigations**
- Job b. Salmon Region Lowland Lakes Investigations**
- Job c¹. Salmon Region Rivers and Streams Investigations-
Wild Trout Population Surveys**
- Job c². Salmon Region Rivers and Streams Investigations-
Middle Fork Salmon River Snorkeling Transects**
- Job d. Salmon Region Salmon and Steelhead Investigations**

PROJECT II. TECHNICAL GUIDANCE

PROJECT III. HABITAT MANAGEMENT

PROJECT IV. POPULATION MANAGEMENT

By

**Mark Liter, Regional Fishery Biologist
Tom Curet, Regional Fishery Biologist
Mike Larkin, Regional Fishery Manager**

1996 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-21

Project I: Surveys and Inventories

Subproject I-H: Salmon Region

Job: a

Title: Mountain Lakes Investigations

Contract Period: July 1, 1996 to June 30, 1997

ABSTRACT

Five mountain lakes were surveyed in the Salmon Region during July and August 1996. All surveys conducted were within the Frank Church River of No Return Wilderness Area. Each lake was surveyed for use, status of fishery, fish population, and post-stocking strategies.

Gill nets were also used to survey three higher elevation lakes (Jimmy Smith, Herd, Carlson) which could be considered mountain lakes; however, they are off-road vehicle accessible.

Authors:

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1996 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-21

Project I: Surveys and Inventories

Subproject I-H: Salmon Region

Job: b

Title: Lowland Lakes Investigations

Contract Period: July 1. 1996 to June 30. 1997

ABSTRACT

Gill nets, electrofishing, and trap nets were used to survey the fish communities in Williams Lake and Mosquito Flat Reservoir during June 1996. Rainbow trout *Oncorhynchus mykiss* and bull trout *Salvelinus confluentus* were the only species captured in Williams Lake, with rainbow trout comprising 97% of the catch. Brook trout *S. fontinalis* comprised 36% of the catch in Mosquito Flat Reservoir, while stocked rainbow trout comprised the balance. As an alternative management strategy, fingerling stocking was implemented in Mosquito Flat Reservoir in 1994 and 1995, these fingerlings represented approximately 56% of the rainbow trout in Mosquito Flat Reservoir.

Authors:

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1996 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-21

Project I: Surveys and Inventories

Subproject I-H: Salmon Region

Job: c¹- Wild Trout Population
Surveys

Title: Rivers and Streams Investigations

Contract Period: July 1. 1996 to June 30. 1997

ABSTRACT

During summer 1996, Napias Creek (a tributary of Panther Creek) and Pine Creek (an East Fork Salmon River tributary) were surveyed for fish populations. The mainstem Middle Fork Salmon River and tributaries, including Indian Creek, Tomahawk Creek (tributary to Indian Creek), Marble Creek, Loon Creek, Cache Creek (tributary to Loon Creek), Wilson Creek, and Big Creek were also sampled.

In smaller streams, fish were sampled by electrofishing using multiple-pass removals to derive population estimates. Age 0 fish (< 50 mm) were not included in the population estimates due to their reduced capture probability. Fish from the mainstem Middle Fork Salmon River were sampled by angling.

Bull trout *Salvelinus confluentus* were the only species sampled in the upper Napias Creek site. Steelhead/rainbow trout *Oncorhynchus mykiss* and brook trout *S. fontinalis* were the only other species observed in Napias Creek. All species were sampled in the Middle Fork drainage. Westslope cutthroat trout *O. clarki lewisi* were the only species sampled in the Pine Creek and Tomahawk Creek electrofishing sites.

Introduced brook trout have contributed to the decline of westslope cutthroat trout in Valley Creek. Multiple-pass electrofishing was used in an effort to reduce brook trout in Valley Creek during 1996. In an effort to reestablish a fishable population of cutthroat trout, 4,804 brook trout were removed, while a total of 496 cutthroat trout from several area streams were transplanted into Valley Creek.

Water samples were collected from the Middle Fork and its tributaries. Fish health samples were also taken from fish collected in the Middle Fork drainage.

Authors:

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1996 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-21

Project I: Surveys and Inventories

Subproject I-H: Salmon Region

Job: c² - Middle Fork Salmon River
Snorkeling Transects.

Title: Rivers and Streams Investigations.

Contract Period: July 1. 1996 to June 30. 1997

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 1996 were 0.7, 0.2, and 0.05 fish/100 m², respectively. In Middle Fork Salmon River tributary transects, cutthroat trout densities averaged 1.0/100 m², rainbow/steelhead averaged 1.7/100 m², and chinook averaged 0.007/100 m².

Authors:

Tom Curet
Regional Fishery Biologist

Mark Liter
Regional Fishery Biologist

Mike Larkin
Regional Fishery Manager

1996 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-21

Project I: Surveys and Inventories,

Subproject I-H: Salmon Region

Job: d

Title: Salmon and Steelhead Investigations

Contract Period: July 1, 1996 to June 30, 1997

ABSTRACT

We conducted annual salmon redd counts in the Marsh Creek drainage, Salmon River, Lemhi River, East Fork Salmon River, Pahsimeroi River, and the Yankee Fork Salmon River. This data is included in the annual "Salmon Spawning Ground Surveys" report. Salmon Region's salmon and steelhead investigations are incorporated in a separate, statewide "Salmon and Steelhead Investigations" report.

Authors:

Mark Liter
Regional Fishery Biologist

Tom Curet
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Michael R. Larkin
Regional Fishery Manager

1996 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-21

Project II: Technical Guidance

Subproject II-H: Salmon Region

Contract Period: July 1, 1996 to June 30, 1997

ABSTRACT

During 1996, 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 stabilization, mining operations and reclamation plans, fish rearing proposals, private ponds, water right applications, 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.

Technical assistance was also provided in the form of angler informational meetings, school presentations, and development of the Salmon Region portion of the 1-800-ASK-FISH program. Also, we 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

Tom Curet
Regional Fishery Biologist

Mike Larkin
Regional Fishery Manager

1996 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-21

Project III: Habitat Management

Subproject III-H: Salmon Region

Contract Period: July 1, 1996 to June 30, 1997

ABSTRACT

We participated in the planning and construction of four riparian protection fences on the Lemhi River through the Model Watershed program. We also assisted on three stream bank stabilization projects; one at Hannah Slough and one in the Lemhi and Pahsimeroi rivers, respectively.

U.S. Forest Service and U.S. Bureau of Land Management assisted the Department in the elimination of a fish migration barrier on Pattee Creek in the Lemhi River.

Authors:

Mark Liter
Regional Fishery Biologist

Tom Curet
Regional Fishery Biologist

Michael R. Larkin
Regional Fishery Manager

1996 ANNUAL PERFORMANCE REPORT

State of: Idaho,

Program: Fisheries Management F-71-R-21

Project IV: Population Management

Subproject IV-H: Salmon Region

Contract Period: July 1. 1996 to June 30. 1997

ABSTRACT

During the summer of 1996, 132 mountain lakes were stocked in the Salmon Region. A total of 109,250 fry were stocked in Salmon and Challis National Forest lakes. Species stocked included 6,500 Arctic grayling *Thymallus arcticus*, 4,500 rainbow trout *Oncorhynchus mykiss*, 90,250 cutthroat trout *O. clarki lewisi*, and 8,000 golden trout *O. aguabonita* fry. A Cessna 185 fixed-wing aircraft was used to stock Salmon Region lakes in 1996 at a cost of \$31.55 per lake.

Authors:

Mark Liter
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Mike Larkin
Regional Fishery Manager

**IDAHO
DEPARTMENT OF FISH AND GAME**

Stephen P. Mealey, Director

**Federal Aid in Sport Fish Restoration
1996 Annual Performance Report
Program F-71-R-21**

REGIONAL FISHERIES MANAGEMENT INVESTIGATIONS

PROJECT V.

COORDINATION

By

**Bill Hutchinson, State Fishery Manager
William D. Horton, Resident Fishery Coordinator**

1996 ANNUAL PERFORMANCE REPORT

State of: Idaho

Program: Fisheries Management F-71-R-21

Project V: Coordination

Title: Regional Coordination and Assistance

Contract Period: July 1, 1996 to June 30, 1997

ABSTRACT

The State Fishery Manager and the Resident Fishery Coordinator provided program guidance, coordination, and assistance to fisheries management personnel in eight regions. Midwater trawling to estimate kokanee salmon *Oncorhynchus nerka kennerlyi* abundance was conducted in seven waters (Payette Lake, 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 and fish research personnel assisted in sampling, and findings are reported in regional reports and the sockeye investigations report.

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 Oregon, Utah, and Wyoming. 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.

The Bureau of Fisheries also coordinated the issuance of 141 permits for fishing tournaments. Mandatory report forms for these tournaments have been filed for future trend analysis. Scientific collecting permits were issued to approximately 175 individuals for the study of aquatic species. Most investigators receiving collecting permits are resource agency biologists; however, university students and professors, utility companies, timber companies, Indian tribes, and consultants also received permits.

Authors:

Bill Hutchinson
State Fishery Manager

William D. Horton
Resident Fishery Coordinator

Submitted by:

See Individual Abstracts

Approved by:

IDAHO DEPARTMENT OF FISH AND GAME

A handwritten signature in black ink, appearing to read "Virgil K. Moore", written over a horizontal line.

Virgil K. Moore, Chief
Bureau of Fisheries

A handwritten signature in black ink, appearing to read "Bill Hutchinson", written over a horizontal line.

Bill Hutchinson
State Fishery Manager