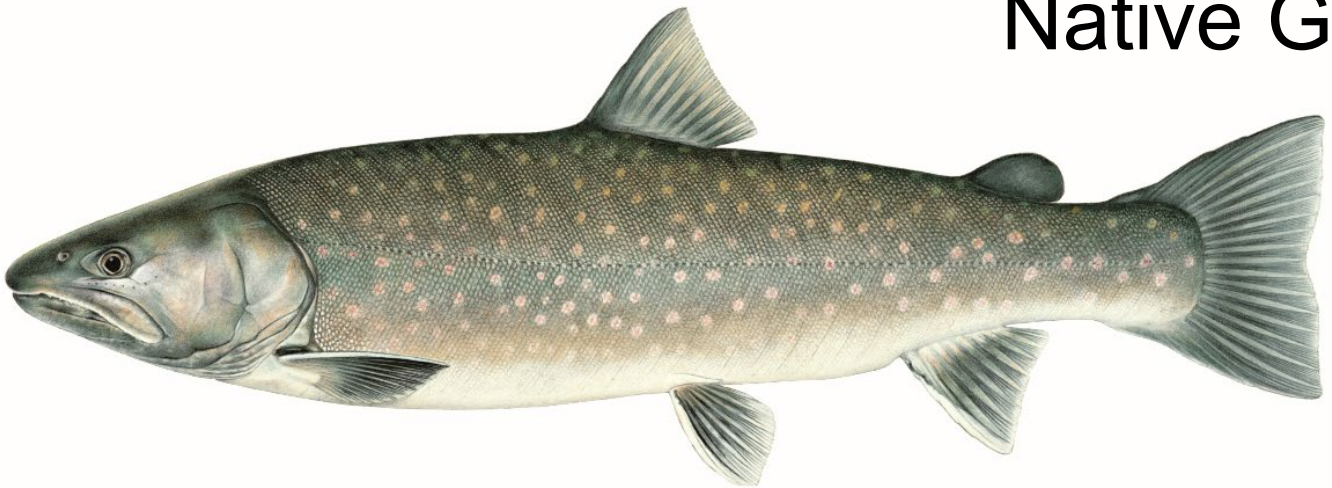
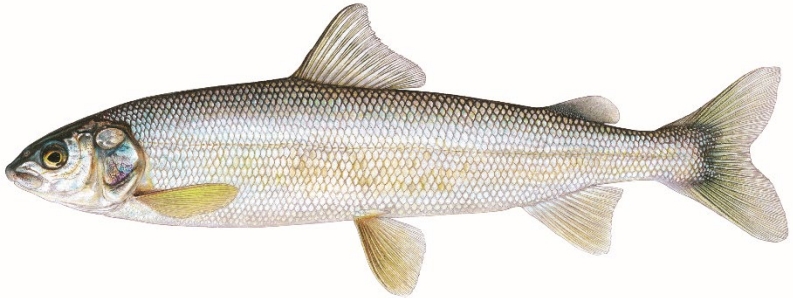
Fish Community
of the
Priest River Basin

Native Gamefish



Bull Trout

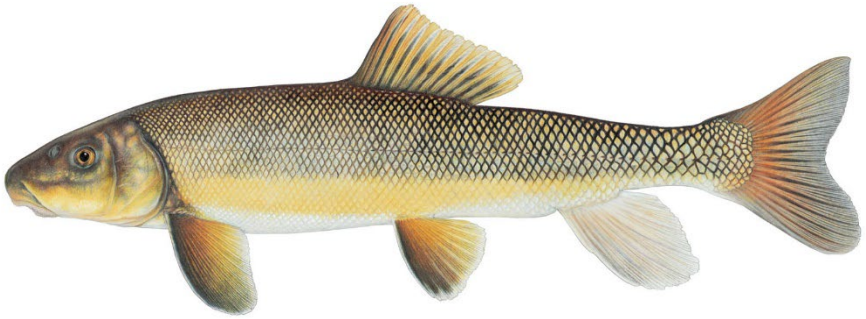
Westslope Cutthroat Trout



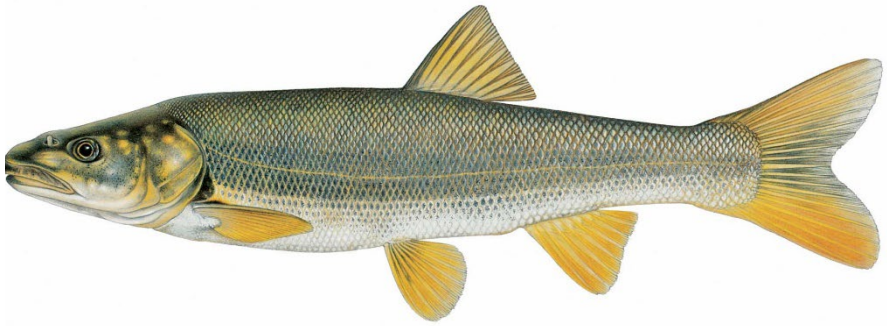
Mountain Whitefish

Illustrations by J. Tomelleri

Native Non-Gamefish



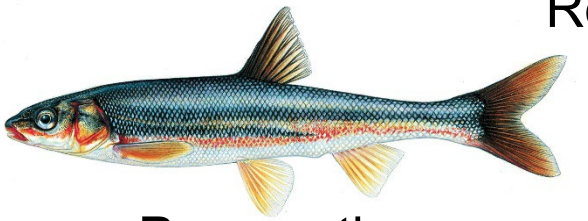
Largescale and Longnose Sucker



Northern Pikeminnow

Longnose Dace

Redside Shiner



Peamouth

Slimy Sculpin

Lake Chub

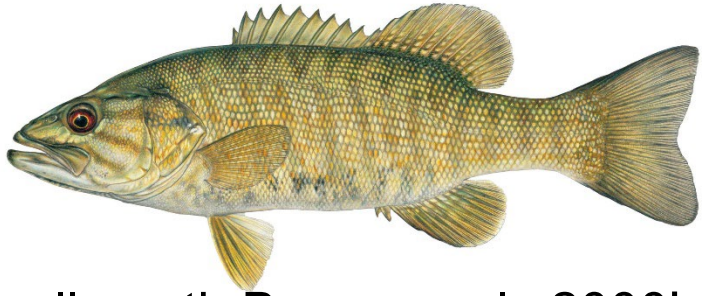
Illustrations by J. Tomelleri

Non-native Gamefish

Rainbow Trout: early to late 1900's

Brook Trout: pre-1970's

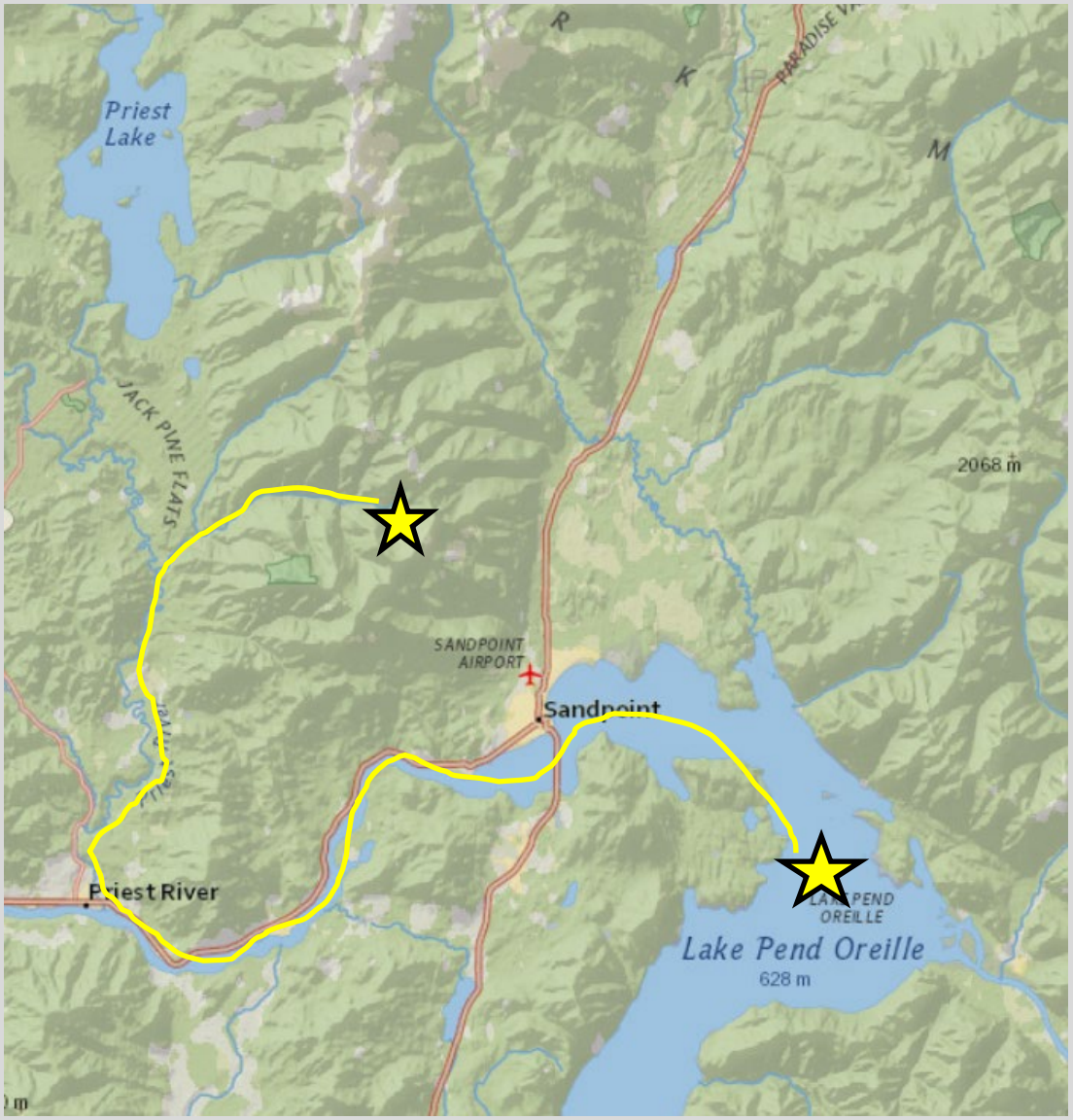
Brown Trout: 1970's and 1980's

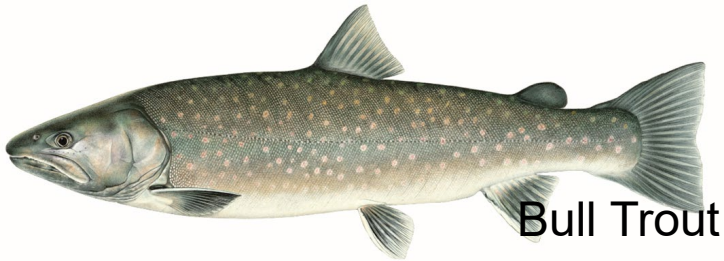


Smallmouth Bass – early 2000's

Illustrations by J. Tomelleri


JASPER MOUNTAIN
QUARTZ MOUNTAIN





North American Journal of Fisheries Management 27:1268–1275, 2007

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[Management Brief]

Unique Allacustrine Migration Patterns of a Bull Trout Population in the Pend Oreille River Drainage, Idaho

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RICHARD S. BROWN AND DAVID R. GEIST
Pacific Northwest National Laboratory, Post Office Box 999, Richland, Washington 99354, USA

Abstract.—We captured and radio-tagged six adult bull trout *Salvelinus confluentus* in a spawning tributary of the East River basin, Idaho. These fish were tracked for a year to determine the type of migration they endured to reach their overwintering and spawning locations. Our tracking efforts revealed that the fish made complex postspawning migrations downstream and then upstream either towards or into Lake Pend Oreille. To reach the lake, bull trout migrated at least 12 km out of the East River basin into the Priest River, traveled 34 km down the Priest River into the Pend Oreille River, and then turned upstream and migrated 36 km to Lake Pend Oreille. Three of the six bull trout returned to the East River basin during the subsequent spring. These movement patterns are uniquely complex and extensive for outlet-spawning or allacustrine bull trout. This work illustrates the type of allacustrine migrations bull trout can have and suggests the need for new approaches for accomplishing bull trout population expansion into historically occupied habitats. Eliminating barriers downstream of lakes could potentially contribute to and increase bull trout populations considerably.

Bull trout *Salvelinus confluentus* exhibit both resident and migratory life history strategies (Rieman and McIntyre 1993). Fluvial bull trout occupy smaller streams for their entire lives (Goetz 1989; Northcote 1997; Jakober et al. 1998). Migratory bull trout travel to spawn in streams that flow into lakes (lacustrine–adfluvial; Varley and Gresswell 1988; Northcote 1997) or that flow out of lakes (allacustrine), or they move from rivers into tributaries to spawn (fluvial–adfluvial). Juvenile fish rear in their natal streams for 1–4 years before returning to lakes or rivers to mature (Fraley and Shepard 1989; Goetz 1989; Northcote 1997; Swanberg 1997; Downs et al. 2006). Migratory forms of bull trout probably evolved because migration took them to places that increased their reproductive potential through a combination of increased survival, growth, and gamete production (Gross 1991). Fluvial forms of bull trout reside in predominantly cold and unproductive headwater tributaries that would not provide these same opportunities.

Spawning migrations of fluvial–adfluvial, lacustrine–adfluvial, and allacustrine forms of bull trout occur from lakes and rivers to tributaries where survival of eggs and young is optimized. In most cases, migratory bull trout, like most salmonids, move upstream into tributaries to spawn (USFWS 2002). Environmental cues from home streams guide fish migration back to spawning areas, and olfactory imprinting is probably the most significant guiding factor (Groves et al. 1968; Hara 1970; Hasler and Scholz 1983). Chemical cues originating in home waters are carried downstream past upstream-migrating fish and presumably guide them back to the spawning areas. However, optimal spawning and rearing habitat sometimes occurs in tributaries downstream of the lakes and rivers used by adults, thus necessitating downstream spawning migrations. Downstream migrations have been documented for spawning adults of rainbow trout *Oncorhynchus mykiss* from Loon Lake, British Columbia (Lindsey et al. 1959), and cutthroat trout *O. clarki* from Yellowstone Lake, Wyoming (Cope 1957). Brown and Mackay (1995) noted that fluvial and fluvial–adfluvial cutthroat trout within the Ram River drainage of Alberta also moved downstream to spawning areas, and Schmetterling (2001) noted this behavior in cutthroat trout in the Blackfoot River drainage, Montana. Bahr and Shrimpton (2004) observed downstream spawning movement by fluvial–adfluvial bull trout in a British Columbia river drainage. Bull trout also exhibit downstream migrations out of lakes to spawning areas in outlet streams (i.e., allacustrine migrations; Thomas 1992; Herman 1997; Northcote 1997; Kelly-Ringel and DeLaVergne 2000; Hogen and Scarnecchia 2006). However, none of these populations migrate more than 10 km downstream from the lake's outlet, and all spawn directly in the outlet stream or less than 8 km up a side tributary.

Many recovery or restoration plans describe passage barriers as a significant risk to the long-term persistence of bull trout (USFWS 2002). These plans

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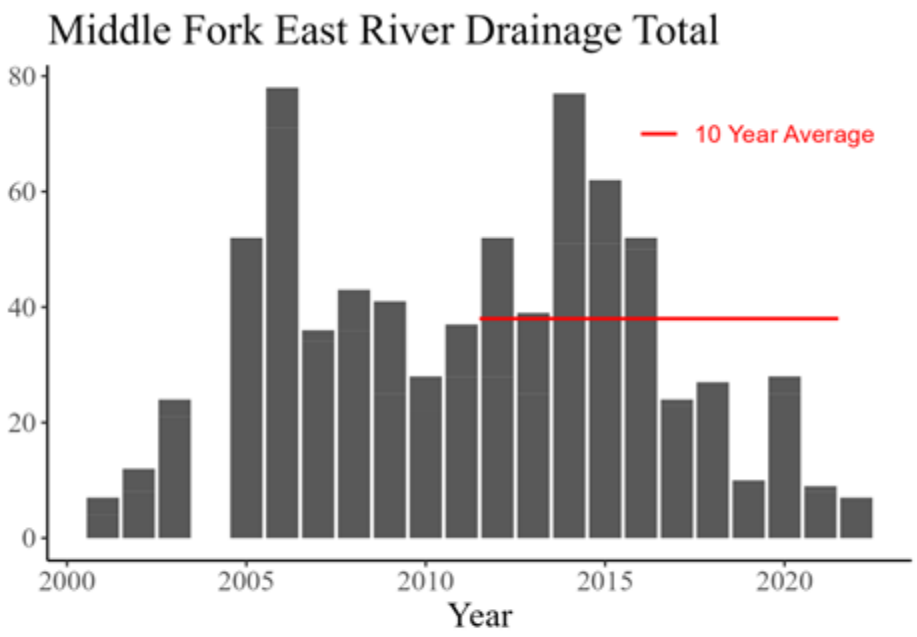
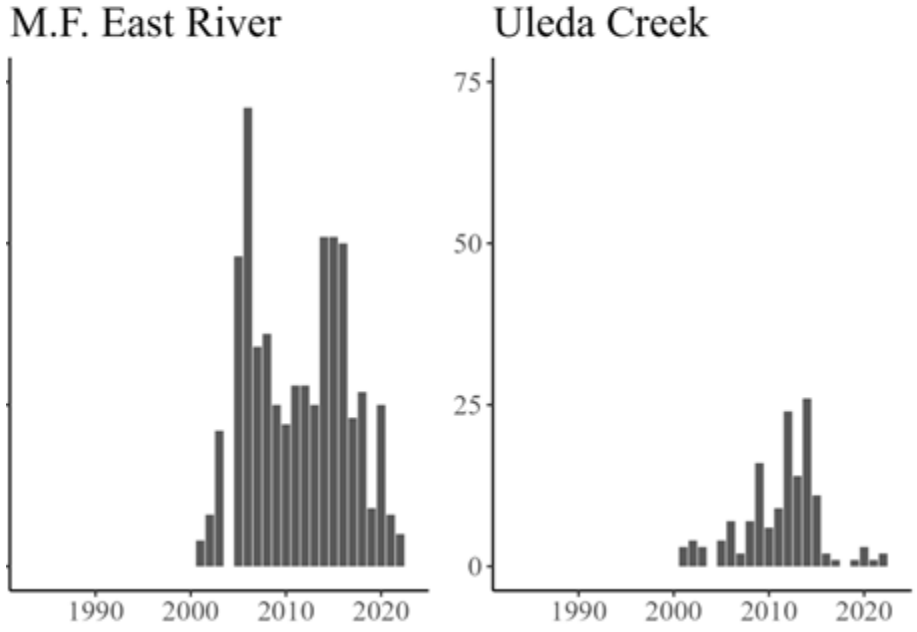
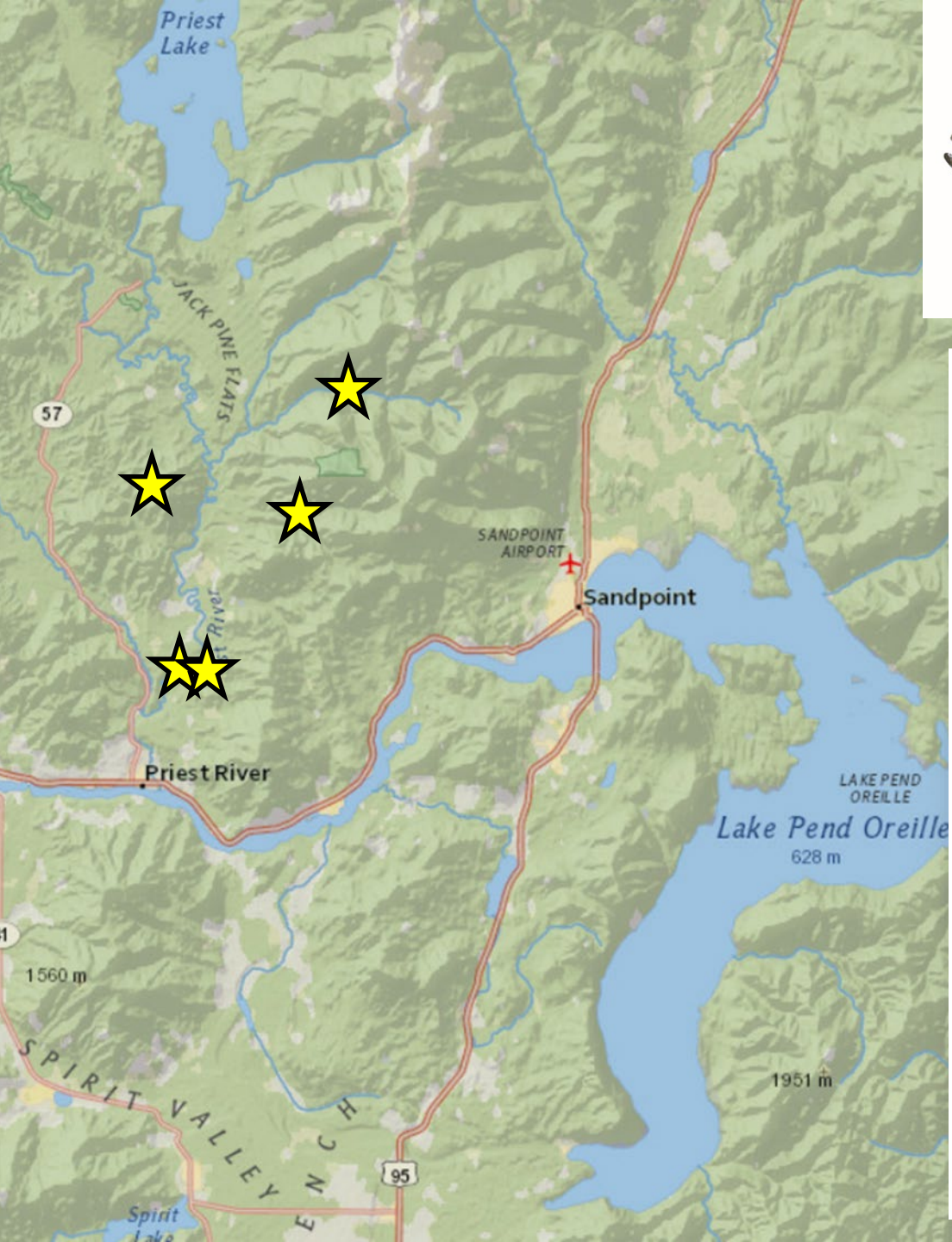
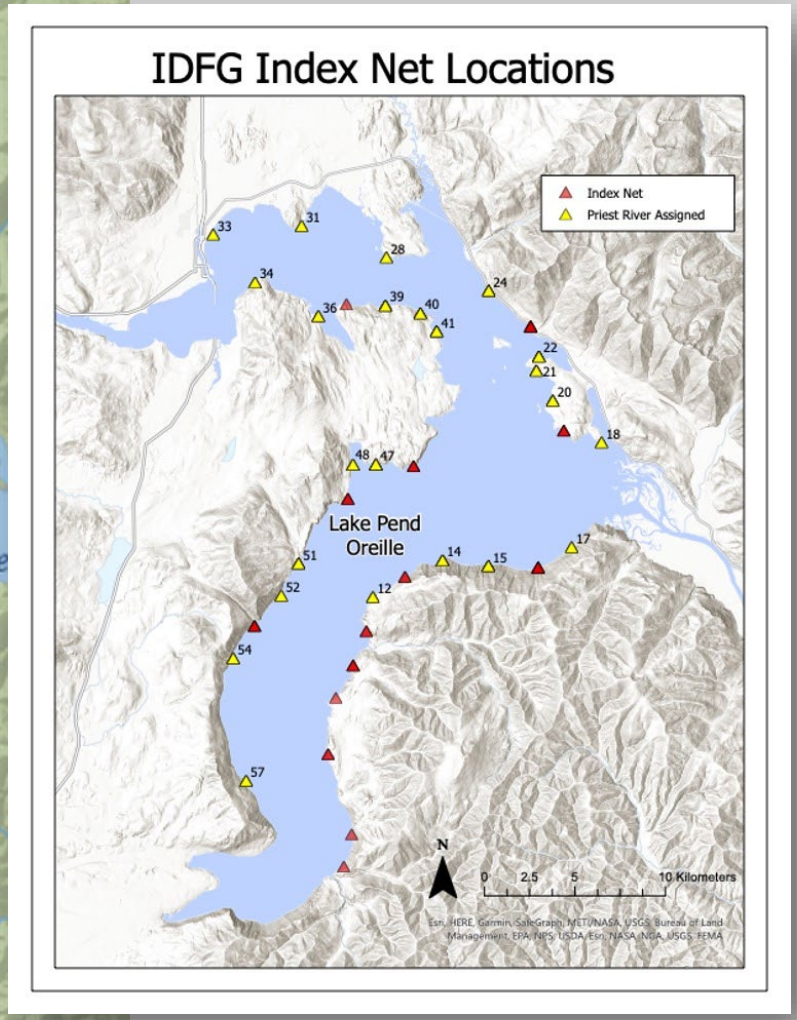
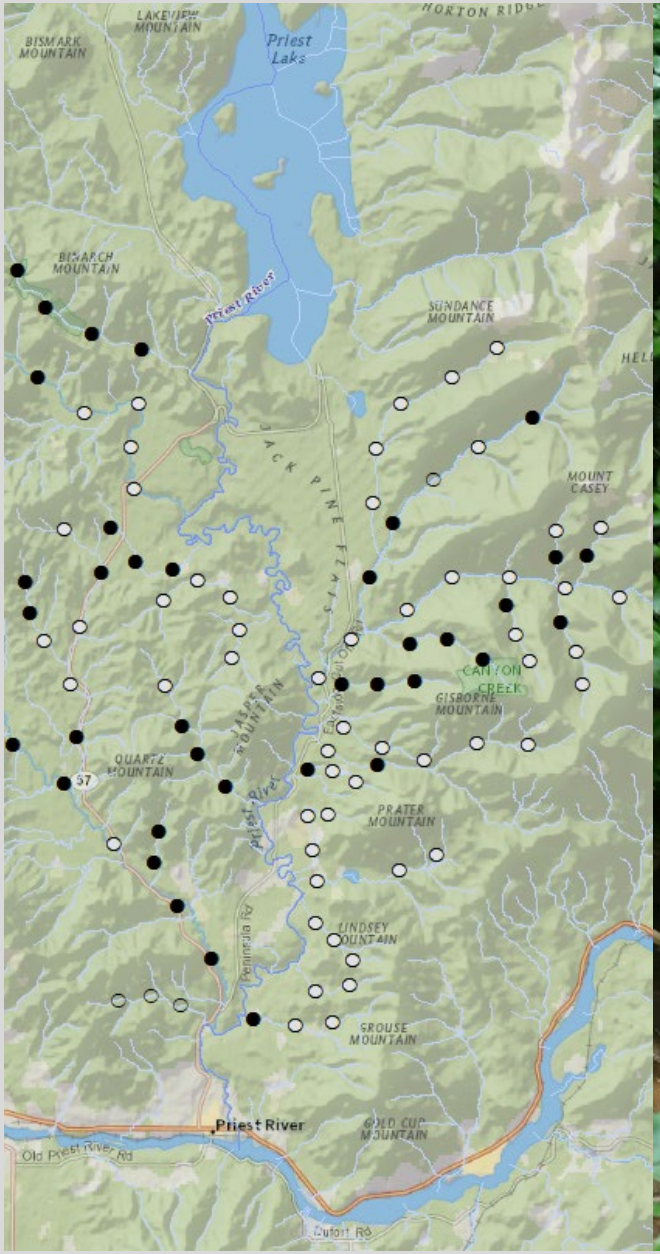

Middle Fork East River Drainage Total
80
60
40
20
0
10 Year Average
2000
2005
2010
2015
2020
Year


M.F. East River
Uleda Creek
75
50
25
0
1990
2000
2010
2020

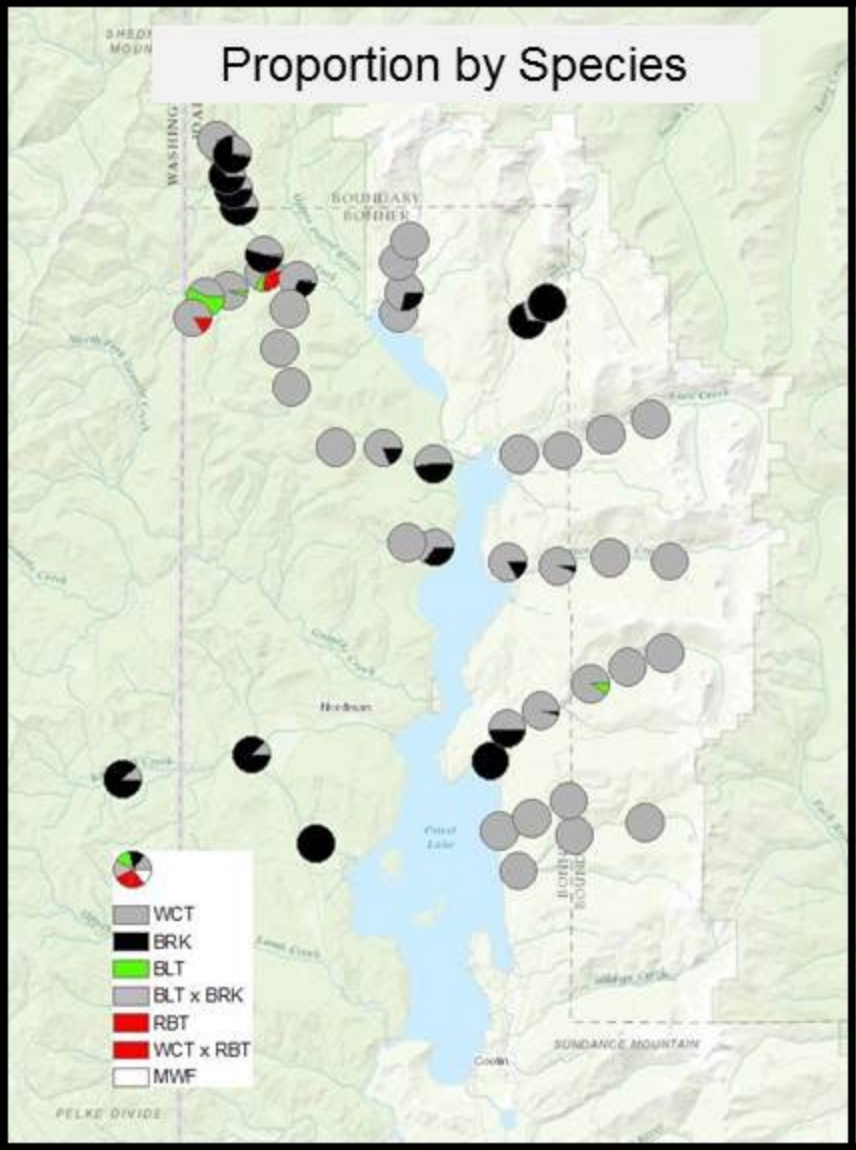


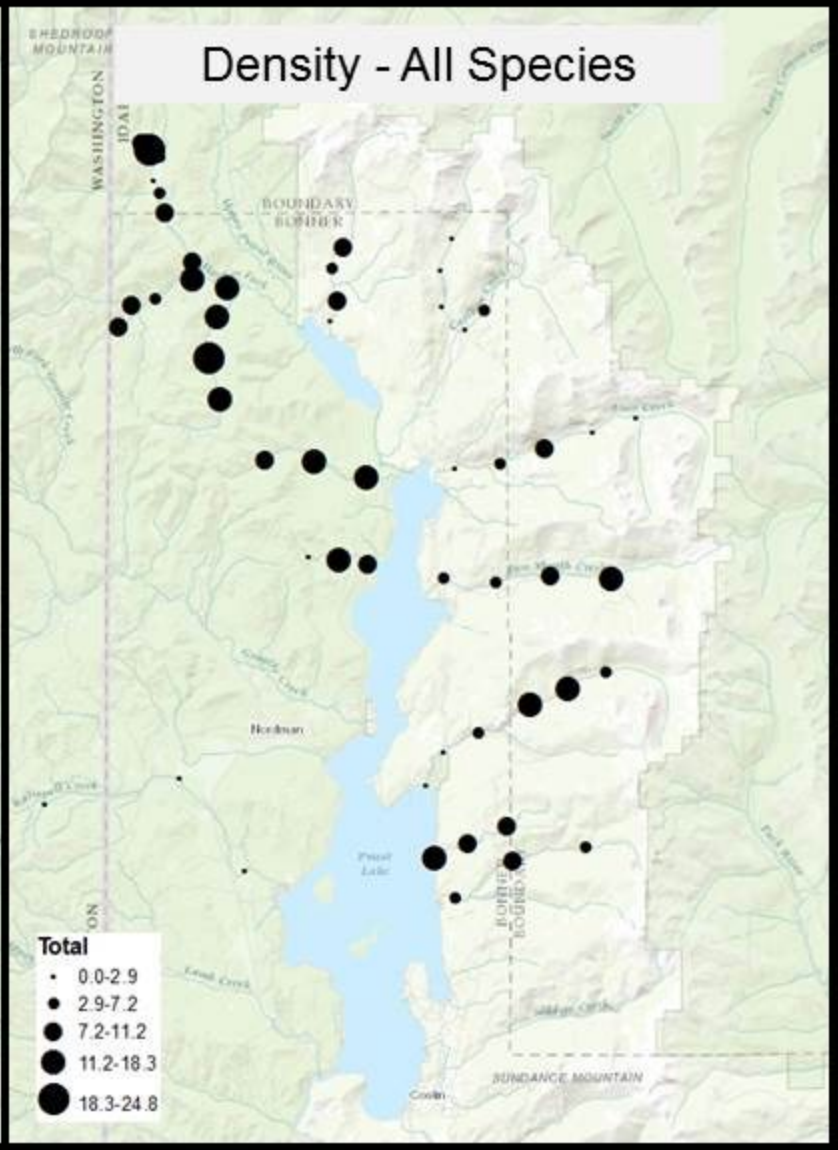
Westslope Cutthroat Trout

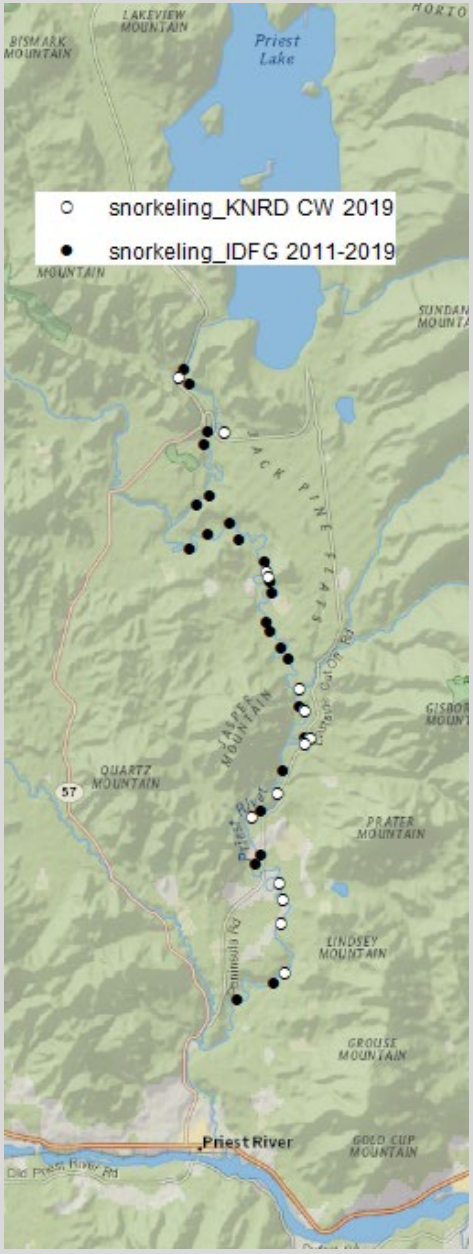


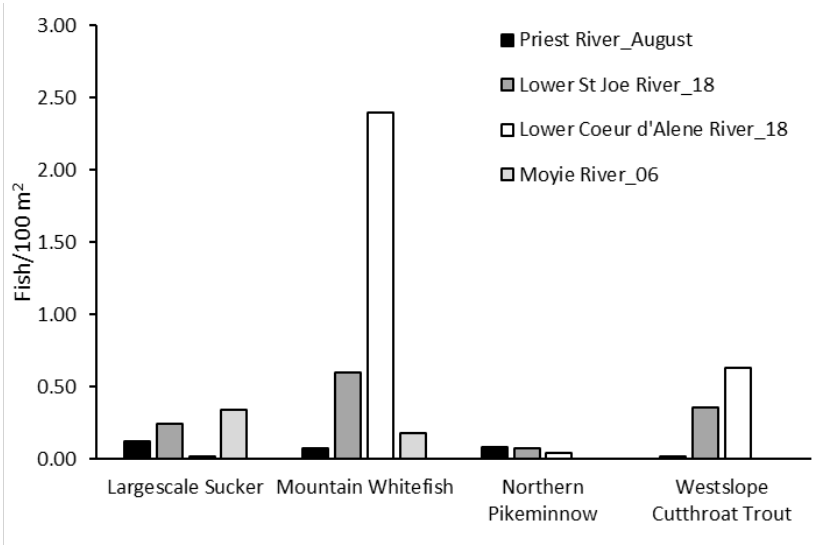

BISMARK MOUNTAIN
LAKEVIEW MOUNTAIN
Priest Lake
NORTON RIDGE
BISMARCH MOUNTAIN
Priest River
SUNDANCE MOUNTAIN
MOUNT CASEY
CANYON CREEK
GISBORNE MOUNTAIN
JASPER MOUNTAIN
QUARTZ MOUNTAIN
57
PRATER MOUNTAIN
LINDSEY MOUNTAIN
Peninsula Rd
GROUSE MOUNTAIN
Priest River
GOLD CUP MOUNTAIN
Old Priest River Rd
Cutoff Rd

Priest Lake/Upper Priest Lake Tributaries

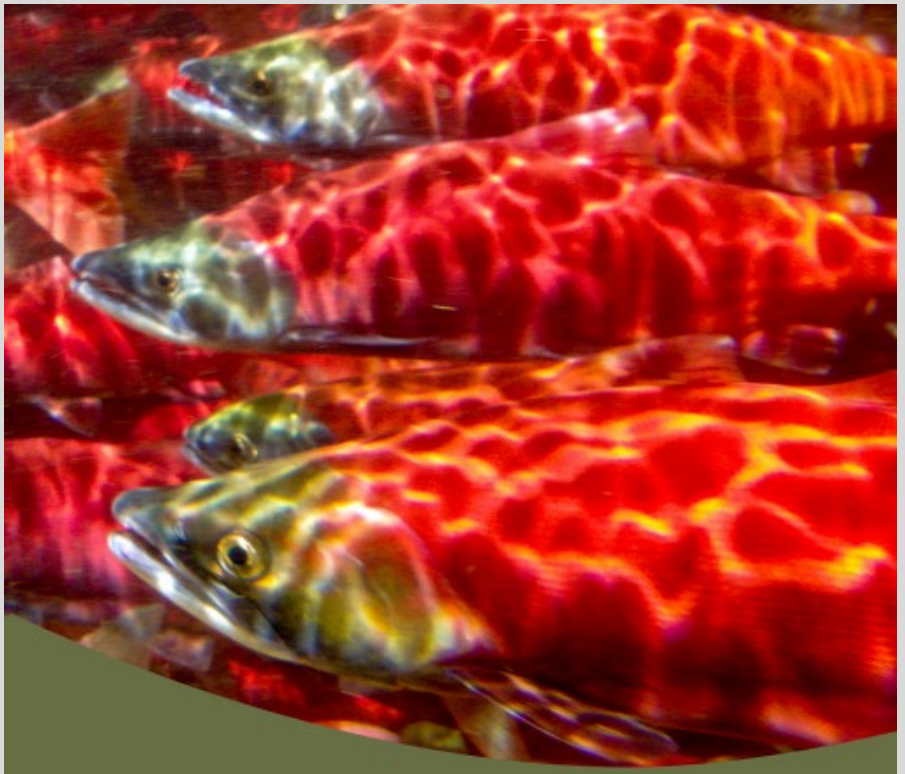





snorkeling_KNRD CW 2019
snorkeling_IDFG 2011-2019
LAKEVIEW MOUNTAIN
BISMARK MOUNTAIN
Priest Lake
BLACK PINE FLATS
JASPER MOUNTAIN
QUARTZ MOUNTAIN
57
PRATER MOUNTAIN
LINDSEY MOUNTAIN
GROUSE MOUNTAIN
GOLD CUP MOUNTAIN
Priest River
Old Priest River Rd


3.00
2.50
2.00
1.50
1.00
0.50
0.00
Fish/100 m2
Priest River_August
Lower St Joe River_18
Lower Coeur d'Alene River_18
Moyie River_06
Largescale Sucker
Mountain Whitefish
Northern Pikeminnow
Westslope Cutthroat Trout


Illustrations by J. Tomelleri

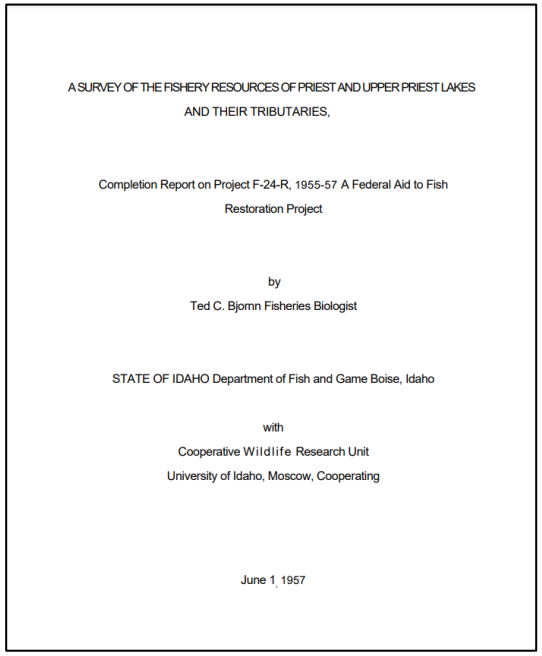


Fisheries Management Plan

2019-2024

A Comprehensive Guide to
Managing Idaho's Fisheries Resources

This document was adopted by the
IDAHO DEPARTMENT OF FISH AND GAME COMMISSION
June 2019



A SURVEY OF THE FISHERY RESOURCES OF PRIEST AND UPPER PRIEST LAKES AND THEIR TRIBUTARIES,

Completion Report on Project F-24-R, 1955-57 A Federal Aid to Fish Restoration Project

by

Ted C. Bjornn Fisheries Biologist

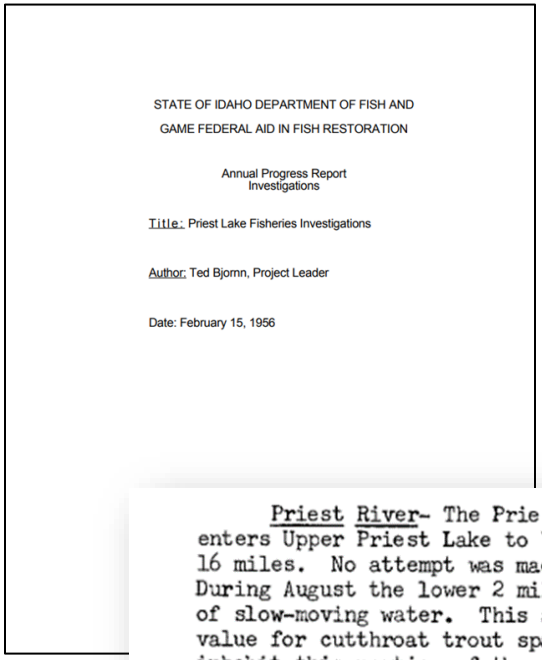
STATE OF IDAHO Department of Fish and Game Boise, Idaho

with

Cooperative Wildlife Research Unit

University of Idaho, Moscow, Cooperating

June 1, 1957



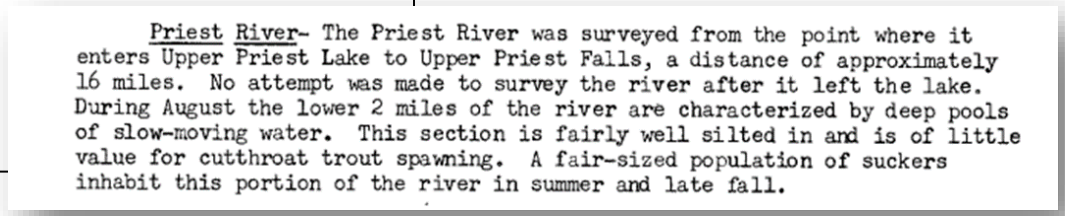
STATE OF IDAHO DEPARTMENT OF FISH AND GAME FEDERAL AID IN FISH RESTORATION

Annual Progress Report
Investigations

Title: Priest Lake Fisheries Investigations

Author: Ted Bjornn, Project Leader

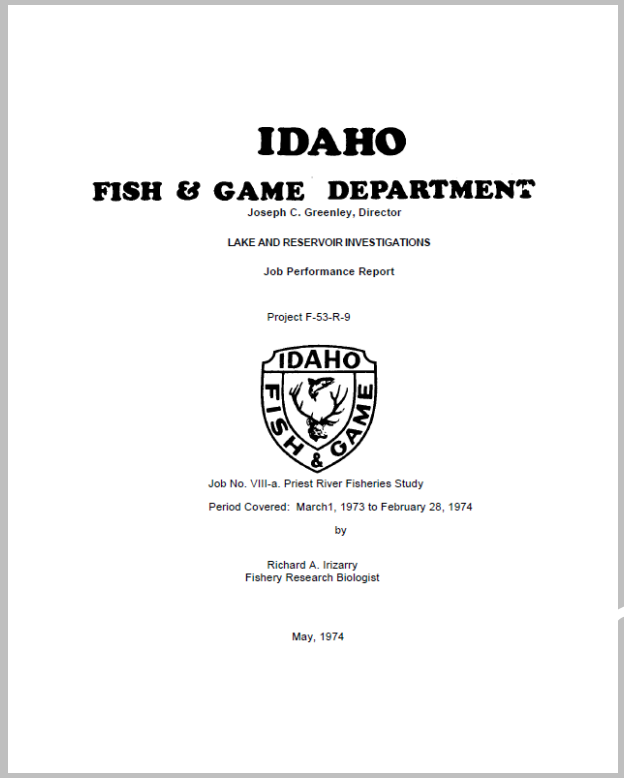
Date: February 15, 1956



Priest River- The Priest River was surveyed from the point where it enters Upper Priest Lake to Upper Priest Falls, a distance of approximately 16 miles. No attempt was made to survey the river after it left the lake. During August the lower 2 miles of the river are characterized by deep pools of slow-moving water. This section is fairly well silted in and is of little value for cutthroat trout spawning. A fair-sized population of suckers inhabit this portion of the river in summer and late fall.

"Reports by local residents indicate that at one time the Priest River was an important spawning area for cutthroat spawners from the lake. Anglers reported very good fishing in the spring of the year with a decline after the spring runoff. This period of good fishing would coincide with the time cutthroat spawners would be in the river attempting to spawn."

"The present dam located at the outlet does not restrict movement of cutthroat spawners into the river as the boards are not installed until lake in June after the spring runoff. However, fish attempting to migrate back to the lake after the boards are installed are unable to get past the dam."



IDAHO

FISH & GAME DEPARTMENT

Joseph C. Greenley, Director

LAKE AND RESERVOIR INVESTIGATIONS

Job Performance Report

Project F-53-R-9

Job No. VIII-a. Priest River Fisheries Study

Period Covered: March1, 1973 to February 28, 1974

by

Richard A. Irizarry
Fishery Research Biologist

May, 1974

"During our float trip of August 9, we caught only squawfish. No trout were hooked or observed. While snorkeling, we observed numerous suckers in deeper pools. Whitefish were seen in two pools with the largest concentration near the mouth of a small creek entering at the base of Whitetail Butte. Water temperature at the commencement of the trip was 69 F and at the conclusion, 73 F."

Volume 104
Article 01

IDAHO
DEPARTMENT OF FISH AND GAME

Jerry M. Conley, Director

FEDERAL AID IN FISH RESTORATION
Job Performance Report
Project F-71-R-16

REGIONAL FISHERIES MANAGEMENT INVESTIGATIONS

Job No. 1-a. Region 1 Mountain Lakes Investigations
Job No. 1-b[1]. Region 1 Lowland Lakes Investigations
Job No. 1-b[2]. Region 1 Lowland Lakes Investigations-
Coeur d'Alene Lake Investigations
Job No. 1-c[1]. Region 1 Rivers and Streams Investigations
Job No. 1-c[2]. Region 1 Rivers and Streams Investigations-
Hatchery Trout Evaluation
Job No. 1-c[3]. Region 1 Rivers and Streams Investigations-Habitat
Evaluation and Trout Density Estimates for
Six Tributraries to the Little North Fork Clearwater River

By

James A. Davis, Regional Fishery Biologist
Ned Horner, Regional Fishery Manager

September 1995
IDFG 95-30

Summary

- Priest River fish community – blend of native and non-native species
- Distribution of fish species is influenced by species specific traits (e.g., temperature tolerance)
- Resident and migratory life history types exist
- Bull Trout and Westslope Cutthroat Trout exhibit unique migratory behaviors
- Strong native fish populations exist in suitable habitat (i.e., tributaries)
- The Priest River is a migratory corridor – fish abundance is low
- Priest River habitat limitations (e.g., temperature) influence the focus of recreational fishery management actions