

MONTANA DEPARTMENT OF FISH AND GAME

Fisheries Division

Job Progress Report

State: Montana Title: Southwestern Montana Fisheries Study
Project No.: F-9-R-21 Title: Evaluation of River Fish Populations
Job No.: III-a
Period Covered: July 1, 1972 to June 30, 1973

ABSTRACT

Trout populations estimates were made on two sections of the East Gallatin River, three sections of the Madison River, two sections of O'Dell Creek and one section of the West Fork Madison River. Wild trout were tagged in each section for future movement and angler harvest data. Results will be presented in a later job progress report.

BACKGROUND

Effective fisheries management of larger rivers and creeks depends on the quality of the fish population data available. Information on standing crops, mortality rates, age structure, production rates, and movement should be obtained. Mortality rates for individual periods of the year, such as summer and winter, are necessary for determining when mortality is occurring and what is causing it. Age structure information is necessary to determine if reproduction or recruitment is adequate to maintain the existing standing crop. Production rates are useful in determining how much of the standing crop can be harvested before endangering the resource. Movement should be evaluated to determine the importance of spawning runs, certain spawning areas, and movement as a factor in population stability. The amount of movement sometimes indicates favorable or unfavorable habitat.

OBJECTIVES

The overall objective of this job was to develop shocking gear and techniques for sampling fish populations of large rivers and to compile data that reflect the status of river trout populations.

PROCEDURES

Electro-fishing gear was used to sample fish populations in the East Gallatin River, Madison River, O'Dell Creek and West Fork Madison River. Sections set up on each stream ranged in length from 1 to 5 miles. To aid in determining movement, each of the sections was further subdivided into subsections ranging in length from 500-2500 feet. Electro-fishing was carried out while floating through a section in a flat-bottomed fiberglass boat. Population estimates were made using the Peterson-type mark-and-recapture method.

FINDINGS

Trout population estimates were made on two sections of the East Gallatin River. One section (Manley-XII) was electro-fished during the summer (August, 1972). The second section (IIIA) had estimates made during both the spring (March, 1972) and fall (September, 1972). Population estimates were made for wild rainbow trout, hatchery rainbow trout and brown trout. A total of 380 wild trout in section XII and 475 in section IIIA were tagged for movement and angler harvest information.

Trout population estimates were made on three sections of the Madison River. Spring wild trout population estimates were made on the Norris and Varney sections (March-April, 1972). Fall population estimates were made on the Varney and Burnt Tree sections (September, 1972). Wild brown and rainbow trout were tagged in all three sections.

Spring and fall trout populations estimates were made on two sections of O'Dell Creek (Upper and Lower). Estimates were made for brown trout, wild rainbow trout, hatchery rainbow trout and mountain whitefish. A total of 200 wild trout were tagged in the upper section and 300 in the lower section during the spring electro-fishing period.

One section of the West Fork Madison River was electro-fished and population estimates were made for wild rainbow trout, brown trout and mountain whitefish.

Results of the 1972 electro-fishing will be compiled and presented in a later job progress report.

Prepared by: E. Richard Vincent

Date: December 17, 1973