

MONTANA STATE DEPARTMENT OF FISH AND GAME  
FEDERAL AID IN FISH RESTORATION SECTION  
HELENA, MONTANA

JOB COMPLETION REPORT  
INVESTIGATIONS PROJECTS

State of Montana

Project No. F-7-R--4

Job No. II-A

Title of Job: Inventory of the Project Area's Waters from the Standpoint of Physical and Chemical Characteristics

Abstract:

The main emphasis was again placed on the Kootenai River drainage above the mouth of Pipe Creek. Forty-five stations on 41 streams were surveyed and information is recorded on permanent file cards, one set is with the project leader and a duplicate copy is filed in the Helena office. Thirteen streams and five lakes were surveyed outside the Kootenai River drainage but still within the project area.

Objective:

The purpose of the project is to determine the physical and chemical characteristics of the various waters in the project area and to catalog these waters.

Techniques Used:

Survey of the project waters was confined chiefly to the Kootenai River drainage above Pipe Creek. A small number of streams and lakes outside the Kootenai River drainage were also surveyed. Stream lengths were measured from the largest maps available, usually the one-half inch to the mile U. S. Forest Service maps. Volumes of streams were actually rough measurements made in the field at the station designated. Gross chemical analysis were made in the field. These include dissolved oxygen, free carbon dioxide, phenolphthalein alkalinity, methyl orange alkalinity and hydrogen ion concentration (pH).

Characteristics of the drainage, shoreline and bottom types were noted by direct observations. The suitability of the stream for natural reproduction was made by walking a portion of the stream and noting bottom conditions.

Findings:

A brief description of the Kootenai River drainage was given in Job Completion Report F-7-R-2 and 3, Job No. II-A. No work has been done on the U. S. Corps of Engineers contemplated dam near Libby except for dam site survey work.

Forty-one streams were surveyed in the Kootenai River drainage over the past year. All of the streams except Pleasant Valley Fisher River were alkaline. Range of pH was from 6.8 to 8.5. Phenolphthalein alkalinity was zero in all streams. Methyl orange alkalinity ranged from 5 to 284 p.p.m. (parts per million). Temperature ranged from 32 to 48 degrees F. and dissolved oxygen from 7.0 p.p.m. in the East Fisher River just below Miller Lake to 10.0 p.p.m. in the Fisher River.

Four lakes and 13 streams were surveyed outside the Kootenai River drainage and are so scattered that no generalized information can be given on them.

#### Analysis and Recommendations:

All of the information gathered has been placed on two sets of lake and stream survey cards. One set is filed in the Helena office and the other set is on file with the Fisheries Biologist in Kalispell.

In order to formulate future fishery management plans and improvements, a complete file of information regarding all of Montana's water is being made.

It is recommended that the study be continued on the Kootenai River drainage and that survey work be done on the more important waters (from a fisheries standpoint) of the district.

#### Summary:

Forty-five stations on 41 streams were surveyed and information is recorded on permanent cards for the Kootenai River drainage. Thirteen streams and five lakes were surveyed outside the Kootenai River drainage, within the project area. All information collected was entered on survey cards, one set filed with the Fisheries Biologist and the other set in the Helena office.

#### Data and Reports:

The original data are filed on special card forms with the project leader at Kalispell and a duplicate set filed in the Helena office.

Prepared by Frank A. Stefanich Approved by \_\_\_\_\_

Date March 29, 1955