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

JOB COMPLETION REPORT
INVESTIGATIONS PROJECTS

State of Montana

Project No. F-7-R-3 Work Plan No. II Job No. II-A

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

Abstract:

Emphasis was again placed on survey of the Kootenai River drainage above Pipe Creek (vicinity of Libby).

Thirteen streams and two lakes 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. One stream and one lake was 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 waters of the project area was confined chiefly to the Kootenai River drainage above Pipe Creek. A small number of streams and lakes outside the Kootenai River drainage were 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 taken from U. S. Geological Survey run-off records and from actual rough measurements taken in the field. Gross chemical analysis were taken in the field. This included 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 streams for natural reproduction was made by walking a portion of the stream and noting types of bottom material.

Findings:

A brief description of the Kootenai River drainage was given in Job Completion Report F-7-R-2, Job No. II-A. No work has been done on the U. S. Corps of Army Engineers contemplated dam near Libby. The dam-site has been moved about 15 miles up river from Libby. No actual work has been done at any site except for survey work.

Thirteen streams were surveyed in this drainage over the past year, chiefly during the month of October. The pH of these streams ranged from 6.2 to 8.4. All of the streams except one were found to be alkaline. Dissolved oxygen ranged from 9.3 to 12.1 ppm. Phenolphthalein alkalinity was zero in all streams while methyl orange alkalinity ranged from 16 to 177 ppm. Temperature ranged from 37 to 44 degrees F. Free carbon dioxide averaged from 1 to 3.5 ppm.

Two lakes were surveyed in the Kootenai River drainage. Both lakes are small (12 and 15 acres) and had neither outlet or inlet. the pH was alkaline and dissolved oxygen at the surface was over 9.0 ppm in both cases.

One stream and one lake were surveyed outside the Kootenai River drainage.

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.

Summary:

Fourteen streams and three lakes were surveyed for chemical and physical characteristics. These data were placed on two sets of permanent file cards and one set is filed in the Helena office and the other is in Kalispell.

Data and Reports:

The original data are filed on special card forms with the project leader at Kalispell, Montana and duplicate copies are filed at the Helena office.

Prepared by: Frank Stefanich Approved by: _____

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