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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-12-R-3 Name Western Montana Fishery Study

Job. No. I Title Inventory of the Waters of the Project Area

Period Covered May 1, 1956 to April 30, 1957


Abstract:

Eighteen lakes in the Blackfoot drainage were mapped from aerial photos. The maps are to be used in sounding operations on these lakes the next field season.

Survey information was taken on two lakes, one reservoir, two rivers and eighteen smaller streams in the project area. The numbers and kinds of fish collected, along with some other survey data, are included in this report.

Recommendations for management practices and further surveys are given.


Objectives:

The object of this project is to determine thephysical, chemical, and biological characteristics of the waters of highest importance to the total recreational fisheries picture of the project area, and where practicable, to obtain estimates of existing or potential fisherman use.

Techniques Used:

Aerial photographs were taken of 18 lakes in the Blackfoot drainage and large scale maps have been prepared from these photos. Three of these lakes were checked by ground survey and their fish populations were sampled by the use of gill nets.

The fish population of the Big Blackfoot River was sampled by the percussion method at seven stations. These stations were located between the proposed damsite and the general vicinity of the town of Lincoln. This is a distance of approximately 65 river miles.

Eighteen tributaries of the above mentioned section of the Big Blackfoot River were checked by ground survey. The fish populations in 12 of these streams were sampled by electro-fishing. The other six streams were either dry, or of insufficient size to sample. On Monture Creek, four-300 foot sections were chosen for ease of access and apparent productivity. These sections were measured, divided into 150 foot sub-sections and blocked off with nets. The catch was recorded separately by sub-section. Only one section was chosen on each of the other 11 streams. Block nets were not used and the estimated length of the sections varied from 100 to 300 feet.

Twelve-300 foot sections of the Little Blackfoot River were sampled by electro-fishing. These sections were located roughly every two miles between the River's mouth and the general vicinity of the town of Elliston. Productive looking parts of the river were picked for sample sections in an effort to obtain as large a fish sample as possible. Each 300 foot section was blocked off with nets and was treated as two-150 foot sub-sections.

Except as noted under Findings, all fish captured during each of the above surveys were weighed, measured and recorded. Scale samples were taken from species for which age and growth data was desired. In general, the standard lake or stream survey cards were filled out for all waters which were checked by ground surveys.

Findings:

Eight overnight sets with 125 foot experimental gill nets and two overnight sets with a 30 foot by 5/16 inch mesh gill net were made in Marshall Lake from July 11 through July 13, 1956. Two cutthroat trout, 11 dolly varden trout, 147 mountain whitefish, 50 suckers and three long-nosed dace were captured. The maximum depth of the lake was found to be 55 feet and the secchi disc reading was 25 feet.

Four overnight sets with 125 foot experimental gill nets were made in Summitt Lake from July 20 to July 22, 1956. Twenty-five cutthroat trout, one dolly varden trout, one mountain whitefish, 1 Columbia River chub, 14 squawfish, 111 suckers and 338 yellow perch were captured. The maximum depth of the lake was 11 feet, and the entire lake bottom was covered with dense beds of Ceratophyllum and Myriophyllum. The surface temperature was 74° at the time of the survey.

On August 25-26, 1956, four overnight sets with 125 foot experimental gill nets were made in Nevada Creek Reservoir. The following fish were captured: 18 rainbow trout, 1 cutthroat trout, 4 cutthroat-rainbow hybrids, 1 brown trout, 1 mountain whitefish, 21 red-sided shiners and 950 suckers. Only game fish were weighted and measured from this catch -- other species were counted and tallied.

From August 9 through August 17, 1956, seven stations on the Big Blackfoot River were sampled by the percussion method. These seven stations extended over a distance of about 65 river miles above the proposed Ninemile Prairie damsite. The following fish were taken: one cutthroat trout, one dolly varden trout, 10 rainbow trout, 14 brown trout, 324 mountain whitefish, 11 squawfish and 60 suckers.

From September 17 through October 5, 1956, twelve streams tributary to the above mentioned section of the Big Blackfoot River were sampled by electro-fishing. Following is a list of the names of the streams which were sampled, and numbers and kinds of fish captured from each: Monture Creek - 33 eastern brook trout, 50 rainbow trout, six dolly varden trout, nine mountain whitefish and cottus too numerous to count; North Fork of the Blackfoot River - two rainbow-cutthroat hybrids, three mountain whitefish and one dolly varden trout; Nevada Creek - five rainbow trout, one cutthroat trout, four rainbow-cutthroat hybrids, three brown trout, two mountain whitefish, 74 red-sided shiners, 32 long-nosed dace and 66 suckers; Cottonwood Creek (near Helmville) - three cutthroat; Wales Creek-25 cutthroat trout, one rainbow trout and one rainbow-cutthroat hybrid; Douglas Creek - 29 cutthroat trout, 20 mountain whitefish, 12 suckers and 14 long-nosed dace; Yourname Creek - 19 cutthroat trout; Pearson Creek - 20 cutthroat trout; Chamberlain Creek - 45 Cutthroat trout; Cottonwood Creek (near Ovando) - six rainbow-cutthroat hybrids, four mountain whitefish and one sucker; Elk Creek - eight cutthroat trout, four rainbow trout, three rainbow-cutthroat hybrids and three eastern brook trout; Blanchard Creek - 147 rainbow trout, 49 rainbow-cutthroat hybrids, three cutthroat trout and three eastern brook trout.

The primary purpose of all the above listed surveys was to determine the extent of the squawfish, Columbia River chub and yellow perch ranges in the Big Blackfoot drainage. However, regular survey information was recorded on Montana's standard forms and this will be added to the general lake and stream survey file. Because the Job III completion report concerned only the phases of these surveys which were concerned with squawfish and Columbia River chub ranges, the other aspects have been reported here.

From August 20 through August 24, 1956, twelve sections of the Little Blackfoot River were sampled by electro-fishing. The following numbers of fish were taken: 924 brown trout, 965 mountain whitefish, 50 cutthroat trout, 22 eastern brook trout, two rainbow trout, 48 suckers and 77 long-nosed dace. At the time of the survey, the river was found to be extremely low due to irrigation de-watering throughout the entire length of the section. Survey information recorded on electro-fishing forms is being transferred to standard stream survey file cards.

Recommendations:

Marshall Lake need not be considered in a rehabilitation project designed to remove squawfish, Columbia River chub and yellow perch from the Blackfoot drainage.

Due to low numbers of trout and an absence of other predacious fish in the catch, Marshall Lake should afford one of the best natural habitats in the Clearwater drainage for the survival of cutthroat fingerling plants. It is recommended that an annual plant of 9-10,000 cutthroat fingerlings be made in this lake for the next four years. At the end of that time the lake should be surveyed again to determine if there has been any increase in the cutthroat catch rate.

Because Summit Lake was found to contain squawfish, chub and yellow perch, it must be included in the Blackfoot drainage rehabilitation plans.

Although Nevada Creek Reservoir was found to contain no squawfish, chub or perch, the catch rate of suckers was found to be extremely high. The drainage above the dam is small and the dam itself forms an effective block to upstream fish movement. The ranges of the suckers and red-sided shiners above the reservoir should be checked in 1957 to determine the feasibility of rehabilitating this small drainage.

Percussion sampling should be continued in the upper portion of the main Big Blackfoot drainage in order to more accurately define the upper limits of the squawfish range.

Only 13 of the 89 trout taken from the four sections of Monture Creek were over seven inches long. As the area sampled consisted of 1200 feet of some of the most productive looking sections of the river, this indicates that the trout population present could contribute very little to angler success. Therefore, it is recommended that Monture Creek receive a yearly plant of catchable sized rainbow trout.

In most areas in Montana, the range of the native, west slope variety of cutthroat trout appears to be steadily decreasing. Efforts to maintain fishable populations of this species have been largely unsuccessful, except in very limited areas. The reduction in numbers of this fish is believed to be due to an increase in fishing pressure and to competition from exotic species, which have been introduced. According to early reports, this native cutthroat comprised the bulk of the early trout catches from the Blackfoot drainage. Now, after repeated plantings of many exotic species, the bulk of the trout catch is rainbow. Eastern brook and brown trout are known to occur in the area. In spite of this, the only trout collected from Douglas, Cottonwood (near Helmville), Yourname, Pearson and Chamberlain Creeks were of the native west slope cutthroat variety. These fish showed no apparent sign of hybridization with rainbow.

Because the native cutthroat has survived to the present time in these five streams without apparent contamination from other trout species or strains, it is recommended that the waters be considered as refuges for this disappearing species of fish. No plantings of any other type of fish should be made in these five streams. If later samples indicate that the numbers of these fish are decreasing in this area, then more stringent seasons and/or limits should be applied.

Sample stations were dispersed roughly one every two miles throughout approximately the lower half of the Little Blackfoot River. This part of the river has long been noted for its brown trout fishing, and the statewide creel census has indicated a catch for this species of about two fish per hour. Through 1955 this river section received a large yearly plant of brown trout fry and fingerlings. (In 1953, a fairly typical year, the plant consisted of 10,000 one inch, 16,000 two inch and 8,000 four inch brown trout). Brown trout in Montana's streams have, in most cases, been found capable of maintaining their populations without the aid of stocking and, in many instances, even in the face of stocking another species. Therefore, the General Fish Stocking and Management Policy, which was adopted in 1954, prohibited the general planting of this species in Montana streams and limited their production to one or two hatcheries east of the continental divide. Because the excellent brown trout catch rate of two fish per hour is unusual for this species, it was decided that it would be well to obtain population indices for brown trout in this stream both prior to, and sometime after, the ceasing of the plants.

Plants were continued (although somewhat reduced from earlier levels) through 1955, and ceased in 1956, the year of this sample. However, the fry and fingerling which were planted in any particular year would have to have attained at least one year's growth before entering the catch. Therefore, this first sample is considered a valid "while planted" inventory, even though it was made one year after the planting was discontinued.

It is recommended that this inventory be repeated yearly in 1957, 1958 and 1959. The brown trout catch per section for each year's sample should be analyzed statistically. The value (or lack of it) of the plants in sustaining the brown trout population could then be demonstrated by the presence or absence of a significant downward trend in the average brown trout catch per section from year to year.

Summary:

1. Maps of 18 lakes in the Blackfoot drainage have been prepared from aerial photographs. These will be used for sounding operations on the lakes this next field season.

2. Marshall Lake, Summit Lake and Nevada Creek Reservoir were surveyed in 1956.

3. Squawfish, Columbia River chub and yellow perch were found in Summit Lake only. This lake must, therefore, be included in the Blackfoot rehabilitation program.

4. Marshall Lake was found to contain few trout and no other predacious species. It is recommended that it be planted with cutthroat trout fingerlings.

5. Nevada Creek Reservoir was found to contain a high population of suckers. It is recommended that the small drainage above this reservoir be surveyed to determine the feasibility of a separate rehabilitation project on it.

6. Percussion sampling in the main Blackfoot River indicated that the squawfish range extended approximately 65 river miles above the proposed Ninemile Prairie damsite. It is recommended that this sampling be continued to more accurately define the upper limits of the squawfish range.

7. Eighteen streams, tributary to the section of the Big Blackfoot River within the range of the squawfish, were checked by ground survey. No squawfish were taken in any of these streams.

8. One of these tributary streams, Monture Creek, was found to contain a very poor population of catchable sized trout. It is recommended that this stream be put on the general planting program.

9. Five of the tributary streams (Douglas, Cottonwood, Yourname, Pearson and Chamberlain Creeks) were found to contain the native west slope variety of cutthroat as the only trout. It is recommended that no fish of any other variety be planted in these streams, and that later checks be made on these native populations. If the numbers of these fish ever become seriously reduced, it is recommended that the season be shortened and/or the limit be lowered on these waters.

10. Twelve-300 foot sections on the lower half of the Little Blackfoot River were sampled in 1956. This was the first year after the ceasing of brown trout planting in this stream. It is recommended that this sampling be repeated during the next three years.

11. Survey information was recorded on field forms and is being transferred to survey cards for inclusion in the district and state lake and stream survey files.

Data and Reports:

The original data and reports are with the project leader in Missoula. Material is being transferred to Montana's standard lake and stream survey cards, duplicate copies of which will be filed in the Helena office.

Prepared by Arthur N. Whitney

Date April 19, 1957

Approved by George D. Holton
GEORGE D. HOLTON