MONTANA FISH AND GAME DEPARTMENT
FISHERIES DIVISION

JOB COMPLETION REPORT
RESEARCH PROJECT SEGMENT

State of Montana

Project No. F-34-R-2 Name: Reservoir Investigations

Job. No. 3 Title: Libby Reservoir

Period Covered: July 1, 1967 - June 30, 1968

ABSTRACT:

Thirteen tributary streams of Kootenai River above Libby damsite were surveyed and five were found to be of significant value to Libby Reservoir as salmonid spawning areas. The other eight streams were inaccessible to reservoir fish or were judged capable of sustaining only a very small spawning population. Existing stream electrofishing gear proved inadequate for sampling Fisher River, but a simple upstream fish trap collected fall spawning fish species moving into Fisher River from Kootenai River. Several meetings between Corps of Engineers, Bureau of Sport Fisheries and Wildlife, and Montana Fish and Game Department personnel concerning construction activities and mitigation measures were attended. Assistance was given the department's Water Resource Development Section in developing mitigation requests.

RECOMMENDATIONS:

Determine the needs of the fishery resource relative to Libby Dam. This will require a significantly increased investigational effort. A biological consulting unit funded by the Corps of Engineers will have to be established if projects are to be based on sound biological data. Recommendations for the continuation of Project F-34-R-3 include: (1) field inspections of railroad relocation construction within the Wolf Creek floodplain; (2) continuation of preliminary surveys of streams flowing into the Kootenai River upstream from Libby damsite; (3) continued investigation and development of gear and techniques greatly needed to sample resident and migratory fish populations in Fisher River and Wolf Creek; and (4) preliminary investigations of fish distribution within the Kootenai River. These preliminary investigations should provide some of the background information required for the more comprehensive work planned for the Libby Dam biological consulting unit.

OBJECTIVES:

The objective of this job is to collect preliminary information about the fishery resource of Libby reservoir. This general information should provide a basis for the necessarily more comprehensive work to be undertaken by the biological consulting unit now being considered for funding by the Corps.

TECHNIQUES:

Field inspections of construction activities affecting the fishery resource were made with the Corps of Engineers and River Basins personnel to acquaint the construction agency of ways and methods of reducing loss of fishery resources. Preliminary surveys were made of thirteen tributary streams to Kootenai River above the damsite to delineate potential spawning tributaries for Libby Reservoir. Each of these streams was walked from mouth to source and information was recorded on barriers, flows, channel characteristics, quality and quantity of spawning and rearing areas, and potential for improvements. Field tests of a fish trap and the stream electrofishing equipment were made in Fisher River.

FINDINGS:

Five tributaries of Kootenai River above Libby damsite apparently have potential as spawning streams. These are: Five-Mile, Pinkham, Big and Young Creeks, and Tobacco River drainage. Several other small streams (Cripple Horse, Ten-Mile, McGuire, Sutton, and Sullivan Creeks) may support small spawning populations.

All of these streams will require more detailed examination and considerable work to convert them to streams in which salmonids from the reservoir will spawn. Work to be done may include removal of barriers (mostly log-jams), eradication of resident fish and replacement with Montana westslope cutthroat trout (Salmo clarki subsp.) adfluvial migrants. An irrigation diversion dam in Grave Creek (Tobacco River system) should be investigated and possible screened. A spawning channel or spawning beds should be constructed in Big Creek to utilize this stream's full nursery and rearing capacity. Barrier dams with fish handling facilities should be installed in Young Creek and possibly the Tobacco River. The dam of the Rexford city water supply system will have to be removed after the town is evacuated so fish can enter Sullivan Creek.

Stream electrofishing equipment consists of a 110 volt a. c. generator, a variable voltage pulsator, cord, and two electrodes. This equipment has been suitable for sampling streams that can be waded. Much of Fisher River and particularly the rechanneled areas containing groins has water too deep to wade. Pulsed a.c. current put out by the pulsator did not effectively attract fish to the positive electrode. The width of the stream necessitates distances between electrodes too great for efficient operation. Boat mounted electrofishing gear and high amperage d.c. current will probably be more effective in sampling the Fisher River.

Fish traps to capture upstream migrants in Fisher River included a collection box 4'x4'x2' in size with leads 4' wide of 1" mesh poultry net. The box was positioned in quiet water near the middle of the stream and the leads extended from the box obliquely downstream to each bank. Lead length was about three times the width of the river. Bottom material was used to anchor the leads. Cost of the collection box and leads was about $90 and required one half man-day to install.

The trap was maintained in the mouth of the Fisher River for ten days in October 1967. The installation was checked and cleaned of debris twice daily, in the morning and evening. Trap leads washed out when large amounts of debris was coming down river. Construction activities upstream accounted for some debris, but most came from decidous trees. More frequent cleaning of leads would have prevented most wash-outs.

Catch of fish for the ten days, October 10 through 20, included 49 whitefish (Prosopium williamsoni), two Dolly Varden (Salvelinus malma), one rainbow trout (Salmo gairdneri), and two suckers (Catostomus spp.).

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