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

Job Completion Report
Investigations Projects

State of Montana

Name Central Montana Fishery Study

Project No. F-5-R-8

Title Inventory of Waters of the Project Area

Job No. I

Period Covered May 1, 1958 - April 30, 1959


Abstract:

Ten lakes were surveyed for fish populations present. Physical characteristics were also checked in the lakes surveyed.

Five streams were sampled with electric shocker.

Water samples were collected from Belt Creek and other data collected in an effort to establish water quality standards. Data collected has been recorded and is on file in the District Headquarters in Great Falls.


Objectives:

The purpose of this project is to determine the physical, 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:

Fish samples were collected from lakes and ponds by use of experimental gill nets.

A 110-220 volt motor generator shocker was used to sample stream fish populations.

Periodic water samples were collected and turbidity readings obtained on a Hellige turbidimeter.

Aerial photographs were taken and used as maps in the survey work.

Findings:

Preliminary survey work was accomplished under this project on four lakes and connecting waters within the project area prior to the formulation of Development projects which included chemical treatment to control undesirable species of fish. These included Deadman's Basin Reservoir, Sutherlin Reservoir, Ackley

Reservoir and Eureka Reservoir.

Other lakes or impoundments sampled for fish populations present included Birkeland's Reservoir, Milan Reservoir, Lebo Lake, Rhoda Lake, Kolar Reservoir No. 1 and Englandt Reservoir.

Aerial photographs were taken of several lakes in the project area. The photographs were taken from such elevation as to provide as nearly vertical shots as possible. Scale is obtained by measuring recognizable features on the ground. Usable maps have been made from the photographs.

During the report period 160 samples of water from Belt Creek in Cascade County, were collected and read in a turbidimeter. Regular bi-monthly samples were taken from ten sampling stations.

The information and data collected from Belt Creek has been gathered in an effort to establish standards of existing water quality. The presence of mine mills in the drainage, though not now operating, presents a constant threat to the fishery of this important trout stream.

Fish populations from five streams were sampled by means of an electric shocker during the report period and specific creel census was conducted on two streams which was not included in the Statewide Creel Census Project.

Recommendations:

In order to formulate future fishery management plans and improvements, compilation of a complete file of information regarding all Montana waters should be continued.

Summary:

This report briefly includes an outline of work done in the project area in connection with the statewide water inventory work. It does not include all the data collected, such data are filed on special file cards to be used in future management and restoration work.

Data and Reports:

The original data and reports are filed in the Fisheries office of the District Headquarters in Great Falls.

Prepared by Nels A. Thoreson

Approved by George D. Holton
Assistant Coordinator

Date December 15, 1959

F-5-R-8

Job II

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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-5-R-8

Name Central Montana Fishery Study

Job No. III

Title Investigation of the Effectiveness of the Marias River Fishery Restoration

Period Covered May 1, 1958 to April 30, 1959


Abstract:

Fish populations checks were made by use of gill nets and an electric shocker in Tiber reservoir and upstream waters. Trout and suckers were caught in all nets set. Trout, whitefish, and suckers were found in all stream sections sampled.


Objectives:

Rehabilitation of the Marias River Drainage above Tiber Dam was accomplished during 1954 and 1955. The major objectives of this rehabilitation work was the removal of carp and goldeye, the decimation of other undesirable species and their replacement by trout. The objective of this study was to determine the completeness of the carp and goldeye removal, the extent of fish population replacement in the tributary streams of the Marias Drainage and the status of the trout fishery in Tiber Reservoir and the Marias River drainage.

Techniques Used:

Samples of fish from lakes and impounded waters by use of experimental gill nets.

Stream fish samples were taken by use of a 110-220 volt motor generator shocker.

Findings:

Creel census checks of two hundred fishermen on Tiber reservoir during opening day of the 1958 season indicated an average catch of 1.25 fish per hour. A sample of 50 rainbow trout were weighed and measured. Their mean length was 11.6 inches and the mean weight was .48 pound.

Fifteen rainbow trout were caught in gill nets set during September. Their mean lengths were 12.3 inches and mean weight .59 pound.

Cut Bank Creek was sampled both above and within the previously rehabilitated portion of the stream. Upstream sections near the boundary of Glacier Park contained

very sparse populations of fish. Farther downstream large numbers of trout and whitefish were found in all sections. The difference may be due to differences in water fertility but this has not been shown.

Whitefish have quickly established themselves in the rehabilitated portion of the stream. Substantial numbers of trout and whitefish have been found in all sections sampled within the rehabilitated streams.

Scale samples were collected and analyzed by standard age and growth techniques. Those taken from Kipp Lake have shown an exceptionally rapid growth rate.

Suckers (Catostomus sp.) have populated nearly all of the rehabilitated waters in the drainage, but no carp or goldeye have been found in population sampling. (Subsequent to period covered by this report, reliable sources have reported the presence of carp in Tiber Reservoir.)

Recommendations:

It is recommended that a follow-up investigational study be made on the Tiber impoundment and the rehabilitated waters of the Marias drainage upstream from Tiber Dam.

Data and Reports:

The original data and reports are in the fisheries office of the District Headquarters in Great Falls, Montana.

Prepared by Nels A. Thoreson

Date May 15, 1959

Approved by George D. Holton
Assistant Coordinator

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

HELENA, MONTANA

Job Completion Report
Development Project

State of Montana Name Central Montana Fishery Study

Project No. F-24-D-11 Title Statewide Lake and Stream Rehabilitation
Ackley Lake and Judith River

Period Covered: September 15, 1958 to April 30, 1959

ABSTRACT:

Ackley Lake in Judith Basin County was treated with 825 gallons of rotenone emulsives on October 14, 1958 to remove rough fish,principally common suckers (Catostomus sp.)

Following treatment of the lake the Judith River upstream from the Ackley Lake supply canal was treated with the commercial toxicant, Fish Tox.

Gill nets set in lake for a prolonged period following toxicant application failed to catch any fish.

Efforts will be made to establish a fishable population by plantings of rainbow trout fingerlings.

OBJECTIVES:

To remove or decimate as completely as possible the existing fish population from Ackley Lake and a portion of the Judith River along with the Ackley Lake supply canal above the lake. To establish a rainbow trout fishery after chemical treatment is a further objective of this project.

TECHNIQUES USED:

On October 14, 1958, Ackley Lake was treated with 620 gallons of Pro-Noxfish and 205 gallons of Chem Fish Special for a total of 825 gallons of Rotenone emulsives.

The material was pumped with a hand pump from the supply barrels to supply tanks mounted in a seventeen foot boat.

Application was accomplished by pumping water from the stern of the boat with a motor diven unit and adding toxicant into the suction side of the pump.

From October 28 to November 14, 1958 the commercial product, Fish Tox, was used in rehabilitation of the inlet canal and the Judith River upstream from Ackley Lake. Cold weather and ice formation stopped the work in mid November. The work was resumed in March, 1959 and has been continued to the present date.

Beaver dams aided in the application of the toxicant in the river since low flows hampered the movement of the material downstream. Beaver impoundments were treated with the toxicant and then the dam opened with explosives which resulted in a surge of toxic water downstream flowing into backwaters and isolated small pockets of water along the stream channel.

FINDINGS:

Ackley Lake was drawn down to 2,475 acre feet for the purpose of rehabilitation. It was originally proposed to draw it down to 1,685 acre feet but physical limitations of the outlet works prevented this.

Suckers (Catostomus sp.) were the predominant species killed in both the lake and treated portion of the stream. Rainbow trout (Salmo gairdnerii) and Kokanee (Oncorhynchu nerka) were observed in small numbers in the lake while Rainbow, Eastern Brook Trout (Salvelinus fontinalis) and Brown Trout (Salmo trutta fario) were found in the stream along with several species of minnows common to the area.

Several gill net sets made over prolonged periods since toxicant application have caught no fish.

Efforts will be made to establish a fishable population by plantings of rainbow trout fingerlings.

RECOMMENDATIONS:

It is recommended that further treatment of the river downstream from the Ackley Lake diversion be accomplished.

DATA AND REPORTS:

The original data and reports are in the fisheries office of the Fish and Game District Headquarters in Great Falls.

Prepared by Nels A. Thoreson

Approved by George D. Holton
Assistant Coordinator

Date July 28, 1959

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

HELENA, MONTANA

Job Completion Report
Development Project

State of Montana

Name Central Montana Fishery Study

Project No. F-24-D-15

Title Statewide Lake and Stream Rehabilitation
Deadman Basin Reservoir

Period Covered: September 15, 1958 to April 30, 1959

ABSTRACT:

One hundred and twenty gallons of an emulsion concentrate of toxaphene containing six pounds actual technical toxaphene per gallon was applied to Deadman Basin Reservoir in Wheatland County on September 30, 1958. At time of treatment the reservoir had been drawn down to a low of approximately 23,500 acre feet. Carp and suckers were the principal fish killed. As soon as the water is determined to be non-toxic it will be planted with rainbow trout.

OBJECTIVES:

To remove or decimate as completely as possible the existing fish population from Deadman Basin Reservoir and the supply canal to it from the Musselshell River. The reservoir and supply canal are located in Wheatland County, Montana. Because of construction work done on the fill, the reservoir was drawn down to an exceptionally low level. As soon as the water is considered free of toxicant it will be planted with rainbow trout.

TECHNIQUES USED:

During the last of September and the first of October, 1958, Deadman Basin Reservoir was treated with 120 gallons of an emulsion concentrate of toxaphene containing six pounds actual toxaphene per gallon.

The emulsion was pumped with a hand pump from the supply barrels to supply tanks mounted in a seventeen-foot boat.

Application was accomplished by pumping water from the stern of the boat with a motor driven unit and adding toxicant through an accurately controlled valve on the suction side of the pump. From the pump the mixture was delivered below the water surface on both sides of the box of the boat.

Five small reservoirs along the supply canal were treated by dragging sacks of a commercial fish toxicant behind a small boat and by use of fire fighting type back pumps.

FINDINGS:

The Deadman Basin Reservoir has contained in excess of 35,000 acre feet normally, however, in 1958 it was drawn down to a low of slightly more than 23,500 acre feet. With the new construction on the fill it will be possible to impound in excess of 75,000 acre feet.

Because of the relatively small amount of toxicant (1/100 of 1 ppm.) to be applied to the reservoir, a system had to be devised to prevent the toxicant from being pumped too rapidly. A drip type valve on a by-pass circuit was incorporated into the pumping system which made possible a very precisely controlled system. The material was applied into a flow of approximately 25 gallons per minute and pumped into the reservoir over a period of fourteen hours continuous operation.

Carp (Cyprinus carpio) and suckers (Catostomus sp.) were the predominant fish killed in the reservoir. Rainbow trout (Salmo gairdneri)and Kokanee (Oncorhynchus nerka) were observed in small numbers. Other fish killed included dace (Rhinchthys sp.) and several species of minnows common to the area.

The application of toxicant in the reservoir and supply canal was accomplished during September and October 1958.

Several gill net sets,made over prolonged periods since toxicant application, have caught no fish.

Checks will be made of toxicity in the reservoir and when suitable for planting, rainbow trout fingerlings will be planted at state expense.

RECOMMENDATIONS:

It is recommended that a follow-up investigational study be made to determine the success of establishing a fishable population by planting rainbow fingerlings.

DATA AND REPORTS:

The original data and reports are in the fisheries office of the Fish and Game district headquarters in Great Falls.

Prepared by Nels A. Thoreson

Date July 21, 1959

Approved by George D. Holton
Assistant Coordinator

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

HELENA, MONTANA

Job Completion Report
Development Project

State of Montana

Name Central Montana Fishery Study

Project No. F-24-D-16

Title Statewide Lake and Stream Rehabilitation
Sutherlin Reservoir

Period Covered: October 1, 1958 to April 30, 1959

ABSTRACT:

On October 7, 1958, Sutherlin Reservoir in Meagher County, was treated with thirty gallons of rotenone emulsives. Because of repair work which was necessary on the fill, the reservoir had been drawn down to approximately ninety acre feet. Common suckers (Catostomus sp.) were the principal species killed. Efforts will be made to establish a fishable population by plantings of rainbow trout fingerlings.

OBJECTIVES:

To remove or decimate as completely as possible the existing fish population from Sutherlin Reservoir, Meagher County, Montana. Because of construction work done on the fill by the Montana State WaterBoard the reservoir was drawn down to an exceptionally low level. As soon as the water is considered free of toxicant, efforts will be made to establish a fishable population of rainbow trout.

TECHNIQUES USED:

On October 7, 1958, Sutherlin Reservoir was treated with thirty gallons of rotenone emulsives.

The emulsion was pumped with a hand pump from the supply barrels to supply tanks mounted in a seventeen foot boat.

Application was accomplished by pumping water from the stern of the boat with a motor driven unit and adding toxicant into the suction side of the pump.

FINDINGS:

Sutherlin Reservoir was drawn to a low of approximately 100 acre feet in order to accomplish construction work on the fill.

The project documents were written in the early part of October, 1958. An attempt was made to coordinate the actual rehabilitation work and to accomplish the objectives of the documents after the probable effective date of the project. It developed that this was not possible in this instance. The lake was drawn to a low level and the toxicant applied before the effective date of the project. Waiting would have increased the cost because treatment of more water would have been necessary.

Suckers (Catostomus sp.) were the predominant species killed. Rainbow trout (Salmo gairdnerii) and Kokanee (Oncorhynchus nerka) were the game species killed. Sculpins, and other small fish common to the drainage were observed.

Efforts will be made to establish a fishable population by planting of rainbow trout fingerlings.

RECOMMENDATIONS:

None

DATA AND REPORTS:

The original data and reports are in the fisheries office of the Fish and Game District Headquarters in Great Falls.

Prepared by: Nels A. Thoreson

Approved by: George D. Holton
Assistant Coordinator

Date: July 28, 1959

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

Job Completion Report
Development Project

State of Montana

Project No. F-24-D-17 Name Central Montana Fishery Study

Job No. IV Title Statewide Lake and Stream Rehabilitation, Eureka Reservoir

Period Covered: October 1, 1958 to April 30, 1959

Abstract: On October 9, 1958, Eureka Reservoir in Teton County, was treated with seventy-five gallons of rotenone emulsives. The Teton Canal Company cooperated with the Fish and Game Department by drawing the lake down to approximately two hundred and twenty-five acre feet of water. Common suckers (Catostomus sp.) were the principal species killed. Efforts will be made to establish a fishable population by plantings of rainbow trout fingerlings.

Objectives: To remove or decimate as completely as possible the existing fish population from Eureka reservoir, Teton County, Montana. As soon as the water is considered free of toxicant, efforts will be made to establish a fishable population of rainbow trout.

Techniques Used: On October 9, 1958, Eureka reservoir was treated with seventy-five gallons of rotenone emulsives.

The emulsion was pumped with a hand pump from the supply barrels to supply tanks mounted in a seventeen foot boat.

Application was accomplished by pumping water from the stern of the boat with a motor driven unit and adding toxicant into the suction side of the pump.

Findings: The Teton Canal Company assisted in the fish restoration plan by drawing the reservoir down to approximately two hundred and twenty acre feet of water.

The project documents were written in the early part of October, 1958. An attempt was made to coordinate the actual rehabilitation work and to accomplish the objectives of the documents after the probable effective date of the project. It developed that this was not possible in this instance. The lake was drawn to a low level and the toxicant applied before the effective date of the project. Waiting would have increased the cost because treatment of more water would have been necessary.

Suckers (Catostomus sp.) were the predominant species killed. Rainbow trout Salmo gairdnerii were the only game fish of consequence killed. Sculpins, Long-nosed dace and other small fish common to the drainage were observed among the dead fish.

Approximately two miles of stream and connecting canal were treated with one hundred twenty pounds of the commercial product, Fish Tox.

Efforts will be made to establish a fishable population by planting of rainbow trout fingerlings.

Recommendations: none

Data and Reports: The original data and reports are in the fisheries office of the Fish and Game District Headquarters in Great Falls.

Prepared by: Nels A. Thoreson

Approved by George D. Holton
Assistant Coordinator

Date December 15, 1959