

MONTANA FISH AND GAME DEPARTMENT
FISHERIES DIVISION

JOB COMPLETION REPORT
RESEARCH PROJECT SEGMENT

State of Montana

Project No. F-24-D-38

Name: State-wide Lake and Stream
Reclamation

Job No. I

Title: Rehabilitation of Lake Five,
Halfmoon and Mud Lakes

Period Covered: March 4, 1968 to June 30, 1968

ABSTRACT:

Lake Five, Halfmoon, and Mud Lakes and their interconnecting waters were chemically treated with a rotenone base toxicant (Pro-noxfish) on May 15 and 16, 1968 to eradicate over abundant populations of non-game species. The species of fish removed were pumpkinseed, Lepomis gibbosus; longnose sucker, Catostomus catostomus; northern squawfish, Ptychocheilus oregonensis; brook trout, Salvelinus fontinalis; arctic grayling, Thymallus arcticus; cutthroat trout, Salmo clarki; and smallmouth bass, Micropterus dolomieu.

Post-treatment investigation conducted in July after detoxification indicated that a complete kill of non-game species was not attained.

Halfmoon and Lake Five were restocked with westslope cutthroat trout. Mud Lake was restocked with brook trout.

RECOMMENDATIONS:

Continue managing these lakes for trout species. Periodically, collect fish population data with gill nets to determine the growth and survival of trout introductions and the relative population abundance of non-game species.

OBJECTIVES:

The purpose of this project is to (1) remove over abundant populations of non-game species affecting growth and survival of trout species and (2) restore these lakes to a trout fishery.

TECHNIQUES USED:

Lake volumes were computed from lake contour maps drawn from electronic sounding records. Lake Five has a surface area of 235 acres with a volume of 2,993 acre feet. Halfmoon Lake has an area of 61.4 surface acres with a volume of 374 acre feet. Mud Lake has a surface area of 12 acres with a volume of 280 acre feet.

Chemical treatment was accomplished on May 15 and 16, 1968 using a rotenone base toxicant (Pro-noxfish) at the rate of 1.0 ppm. A total of 1,320 gallons of toxicant was distributed in the three lake system.

A 14-foot boat, operated by one man and equipped with a venturi pump, was used to distribute toxicant in the deeper waters of the lake. A two man boat crew, equipped with a water pressure pump, distributed toxicant along the shoreline areas. Several men, equipped with back-pack fire pumps, sprayed swampy areas along the shoreline too shallow for boat travel. A prolonged metered flow of toxicant was released in the interconnecting stream system. Metered flows of toxicant were released at the outlet of Halfmoon Lake (tributary to Lake Five) and at the inlet source to Mud Lake.

Post-treatment investigations included placement of live cages of fish in Lake Five and Mud Lake to determine if detoxification had occurred. Gill nets were set to determine if a complete kill had been accomplished.

FINDINGS:

Distressed fish began surfacing within 2 hours after the application of toxicant. Small pumpkinseed, 2-4 inches, were the first to succumb.

The species of fish eradicated in order of abundance were: pumpkinseed, longnose suckers, northern squawfish, brook trout, smallmouth bass, and arctic grayling.

In mid-July, approximately 2 months after the lakes were treated, live cages of fingerling cutthroat were placed in Lake Five and Mud Lake. No mortality had occurred after remaining in the lakes for a period of 2 weeks.

A remnant population of suckers and pumpkinseed survived the chemical treatment. A few suckers were collected from gill nets set in Lake Five and several live adult suckers and one pumpkinseed were observed along the shoal areas.

In late July, 1968, westslope cutthroat trout were stocked in Lake Five and Halfmoon Lake. Lake Five received plants of 64,720 fry, 2,660 6-inch, and 2,161 16-inch fish. Halfmoon Lake received plants of 21,120 fry and 760 14-inch fish. In the fall of 1968 Mud Lake was restocked with 4,800 5-inch brook trout.

By mid winter 1969, good catches of cutthroat trout from the 6 and 16-inch plants were reported from Lake Five.

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Waters referred to:

08-8550

08-8700

08-9320