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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-24-D-4 Name Southwestern Montana Fisheries Study

Job No. I Title Statewide Lake and Stream Rehabilitation-Fairy Lake

Period Covered: September 1, 1957 - April 30, 1958

Abstract:

Fairy Lake, a 11.5 acre mountain lake, was surveyed, the fish population sampled, and the lake chemically treated. A large population of suckers was removed. Subsequent netting indicated the rehabilitation was successful. Catchable size rainbow trout were stocked into the lake.

Objectives:

Fairy Lake provided poor fishing and the rehabilitation job was undertaken to remove a population of suckers which were introduced by minnow fishermen.

Techniques Used:

The lake was surveyed, sounded and a map prepared from this data. Total volume of the lake was calculated from this map.

Gill net samples were made to determine the fish population in the lake. A boat and pump were used to apply the fish toxicant (pro-noxfish) which was applied at a rate of 0.8 ppm.

Test netting was conducted to check on the success of the toxicant and a live box installed to check for residual toxicity.

Results:

Description of the Lake

Fairy Lake is located in the Bridger Mountains at an elevation of 7,549 feet. It is approximately thirty-five miles from Bozeman in T2N, R6E, Sec. 22, 23 of Gallatin County in the Gallatin National Forest. There is good access and a Forest Service campground on the lake. This area is extremely popular with the people in the surrounding population centers of Bozeman, Livingston, Clyde Park, and Wilsal.

The esthetic values of the area must be rated as high. A small spring stream has been diverted into the lake. The outlet of the lake forms Fairy Lake Creek. Fish are unable to move into the lake from Fairy Creek due to the steep gradient. Fairy Lake has an area of 11.53 acres and contains 224 acre feet of water with a maximum depth of 40 feet. The bottom is composed of sand, mud, and rubble with little vegetation. Spawning gravel is inadequate to maintain a fishable trout population.

Fish Population

Twenty-eight net hours with 125-foot experimental gill nets on June 8-9, 1957, resulted in the capture of 91 suckers, (84%) and 16 brook trout (16%). The brook trout netted were large (average length 15.1 inches, range 14.0 inches to 17.6 inches). This size trout were scarce however and had contributed little to the creel.

In the fall of 1957, pro-noxfish was applied to the lake at a rate of 0.8 ppm. Observations of the fish kill indicated excellent results. Two boat crews managed to recover 52 trout. Fifty percent brook and fifty percent rainbow. Numerous suckers were observed in distress but time did not permit an estimate as to numbers.

On June 18-19, 1958, two experimental gill nets were set for a total of 48 net hours and no fish were captured. Visual examination of the shoal areas revealed no fish so it is assumed the chemical treatment successfully eradicated all fish present. Rainbow trout survived two weeks in a live box indicating the water was no longer toxic. A visual check indicated a fair population of amphipods in late June.

A total of 4,500 catchable size (5 to 6 per pound) rainbow were stocked on July 8, 1958. Limited creel checks indicate good fishing success to date. It is anticipated that heavy use will be made of the area the remainder of the season.

Recommendations:

The most economical management of this lake would be to maintain the population through periodic stocking of fingerling trout (preferably cutthroat).

It is therefore recommended that this lake be managed by stocking of cutthroat fingerling trout every three years. However, due to the ease of access, lack of spawning areas, and low productivity, it is recommended that subsequent observations of these cutthroat plants be made to determine their effectiveness and determine changes should they become necessary.

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