

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

JOB COMPLETION REPORT
DEVELOPMENTS AND OPERATIONS

State of Montana

Project No. F-24-D-14

Name Southeast Montana Fishery Study

Job No. I

Title Statewide Lake and Stream Rehabil-
itation; Cooney Reservoir and
tributaries.

Period Covered September 1, 1958-April 30, 1959

Abstract:

Cooney Reservoir and portions of streams tributary to this reservoir were chemically treated in 1958 in order to eradicate the carp population of the reservoir and to reduce populations of other undesirable fish in the drainage. Toxaphene was applied to the reservoir at the rate of 0.1 ppm. Storage at the time of treatment was about 9000 acre feet. The tributary streams were treated with a combination of toxaphene and liquid rotenone-based toxicants.

Rainbow trout will be reintroduced when the water loses its toxicity.

Objectives:

Cooney Reservoir is an irrigation storage reservoir built about twenty years ago by the Montana State Water Conservation Board. Much of the storage water is unsold, resulting in a relatively stable water level. The quality of the fishery in this reservoir has deteriorated in recent years. Netting indicated that suckers and carp made up a large part of the fish population. Bluegills were also present in the reservoir; dace and chubs were abundant in certain portions of the tributary streams. While carp, bass and bluegills were restricted to the reservoir and to a few small backwaters immediately above, the suckers ranged extensively in the tributaries. Western white and longnosed suckers were found to a line generally slightly below the highway between Red Lodge and Roscoe, while mountain suckers ranged considerably higher into the foothills of the Beartooth Mountains. Irrigation canals originating in adjacent drainages and spilling into various ditches and tributaries in the Cooney Reservoir drainage constitute potential sources of recontamination with suckers.

Rehabilitation was undertaken with the intention of eliminating carp in the drainage and reducing common sucker and other cyprinid populations as severely as possible. It was not considered practical or necessary to treat the portions of the tributaries inhabited only by trout and Jordan suckers.

Procedures Used:

The reservoir has a maximum surface area of 862 acres and a storage capacity of 27,000 acre feet. Normal residual storage at the completion of the irrigation

season is about 10,000 acre feet. At the time that this project was planned, the State Water Board indicated an intention to cooperate by lowering the water to 5000 acre feet or less in 1958. Later, the board decided not to lower the water below the usual level. Because of this change in conditions, the project was amended to utilize a less expensive toxicant, toxaphene, in the reservoir rather than rotenone-based material as had been originally planned. A brief study of the effectiveness of toxaphene in running water was made in one of the tributaries. Because of the inconclusive results and the threat of oncoming freezing weather, a rotenone-based toxicant was used in the tributaries in addition to toxaphene. On October 27 the reservoir was treated with 300 gallons of Stauffer Chemical Company's "Toxaphene 6-E" containing six pounds of technical toxaphene per gallon. The manufacturer's analysis of this material is as follows: toxaphene (technical chlorinated camphene containing 67-69% chlorine): 59.89%; solvent: 35%; inert material: 5.2%. The reservoir contained approximately 9000 acre feet of water, resulting in a concentration of approximately 0.073 ppm of technical toxaphene. Two boats were used. The toxicant was applied without previous dilution by a combination of gravity flow and suction caused by the motion of the distribution tube through the water. On one boat, the distribution tube was taped to the outboard motor with the end of the tube behind and slightly above the propeller. On the other boat the distribution tube was connected to a drain hole in the bottom of the boat just forward of the transom. A favorable wind aided in distributing the toxicant into the shoal areas of the inlet deltas.

Toxaphene was distributed at intervals of about five airline miles along the two principal tributaries (Willow Creek and Red Lodge Creek) on the day previous to application to the reservoir. In addition, both toxaphene and Chem-fish Special had been applied at various points in the drainage over a period of several weeks in the course of checking distribution of fish and in testing toxicants.

On October 28 and 29 Pro-nox Fish was applied to backwaters and slow side channels in the streams of the drainage with pack pumps. On October 30 toxicant was applied in 'slugs' on the streams. Fifty gallons of "Toxaphene 6-E" and 80 gallons of Pro-nox Fish were used. Toxaphene and Pro-nox Fish was applied in 'slugs' along Willow Creek and Red Lodge Creek on three occasions during the first half of November in order to maintain toxicity in the inlets of the reservoir.

Results:

Large numbers of dead and distressed suckers were found windrowed along the shoreline of the reservoir on October 28 and 29. On the latter date many distressed carp and some dead carp were observed. Few trout were observed along the shore. No activity by fish was noted one week after application of toxicant. The fish kill resulting from this treatment occurred more rapidly than has been observed in most other cases where toxaphene has been used. The application rate used in Cooney Reservoir, however, was considerably higher than is usually used for fish population control. This high concentration was chosen because of the rapid transfer of water in the reservoir; the two principal tributaries had a combined flow of nearly 100 cfs. and the outlet flow was similar. It was felt that it was necessary to accomplish a complete kill quickly before the areas around the inlets became detoxified.

Four 125-foot experimental gill nets were set in March, 1958, in the reservoir. These nets were checked at the end of one week and were lifted at the end of two weeks. No fish were captured. Three cages containing rainbow trout were placed in

the reservoir on April 8, 1959. All fish were dead on the first subsequent observation on April 15. It is probable that water exchange and dilution will result in loss of toxicity after runoff has occurred in the higher portions of the drainage. Further testing will be done at that time.

Prepared by Cliff Hill

Date May 1, 1959

Approved by George D. Holton
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