

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

HELENA, MONTANA

Job Completion Report  
Development ProjectState of MontanaProject No. F-24-D-26Name Southeastern Montana Fishery StudyTitle Statewide Lake and Stream Rehabilitation Willow Creek Reservoir and Its Tributary (Big Horn County)Period Covered: September 1, 1959 to April 30, 1960Abstract:

Willow Creek Reservoir and its tributary in Big Horn County, were treated with approximately 225 gallons of toxaphene. The toxicant was aerially applied to the Reservoir. Application to the inflowing waters was made by dripping toxaphene into the stream above the Willow Creek diversion structure. Suckers and carp were the principal species killed. Efforts will be made to establish a fishable population by plantings of rainbow trout fingerlings.

Objectives:

This project is an attempt to control carp, suckers, pumpkinseeds, chubs, and shiners in the Reservoir and suckers in that portion of Lodge Grass Creek above the diversion dam. Four overnight experimental gill nets set in August 1957 caught by numbers 93-1/2 per cent undesirable fish; by weight 92-1/2 per cent undesirable fish. Four overnight experimental gill nets set in June 1959 caught by numbers 91 per cent undesirable fish; by weight 96 per cent undesirable fish. Approximately 90% of the fish shocked in a 300-foot section immediately upstream from the Willow Creek Diversion in Lodge Grass Creek were undesirable species.

Techniques Used:

Willow Creek Reservoir is part of the Crow Indian Reservation Irrigation Project in Big Horn County. The dam provides irrigation water storage for nearly 23,000 acre-feet of water. The water for storage is diverted from Lodge Grass Creek by means of a two-mile diversion canal and dam. Two intermittent tributaries of Willow Creek add storage water during spring run-off.

Approximately 225 gallons of toxaphene containing 6 pounds of technical toxaphene per gallon were aerially applied to Willow Creek Reservoir. The toxicant was pre-emulsified with 75 gallons of water before application. The spray nozzles were removed on the spray booms so the toxicant was applied in drops rather than a mist. Toxaphene was applied at the rate of approximately 0.1 ppm into remaining storage water in the reservoir.

The inflowing waters were treated by dripping toxaphene into the stream above the Willow Creek diversion structure for two weeks. The intermittent tributaries were treated by pouring "slugs" of toxicant into their upper reaches.

Findings:

Distressed fish were not visually observed immediately following toxicant application. Distressed fish were observed 4 days after application. Ten days after toxicant application, all species of fish that could be visually observed were dead. Observations of dead fish windrowed along the shore indicated that carp and suckers were the most abundant species of fish in the reservoir. To date no attempt has been made to determine the completeness of kill.

Prepared by John Peters and Perry Nelson

Approved by George D. Holton

Date May 6, 1960

*Toxicant applied in April 1960 - see Coordination  
Progress Report for that month.*