

A Trout Fishery in Oklahoma¹

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There is probably no way of knowing how many attempts have been made to establish trout populations in Oklahoma. Existing records provide very little information about such introductions and I have found no accounts of the fishery benefits that may have been developed. The purpose of this report is to provide a more complete record of a recent introduction.

The Oklahoma Department of Wildlife Conservation constructed Lake Carl Etling in Cimarron County in 1958 for recreational use. It is located approximately 25 miles northwest of Boise City and covers 159 acres when full.

Rainbow trout *Salmo gairdneri* were introduced in the lake in 1959 and the first open season was held in 1961. Since reproduction was not expected, the population has been maintained by continued stocking.

On 27 - 30 April 1959 Mr. Ronald Elkin, Jr. Department of Wildlife biologist, and Mr. James "Pat" Weldon, Ranger, Cimarron County, treated the lake and its watershed with rotenone to remove all native fish.

On 12 May 1959, 52,800 fingerling rainbow trout from the Santa Rosa, New Mexico, federal fish hatchery were placed in the lake. Within 24 hours it appeared that the entire stock had died. Because of the low water temperatures (65°F) and the relatively short time since rotenone treatment it was concluded that the fish were killed by rotenone which had not dissipated.

Mr. Elkin conducted tests with fingerling trout in the lake on 24 June 1959 to determine the advisability of further stocking. No harmful effects were observed and additional stocking was recommended.

On 9 July 1959 an additional 50,000 fingerling trout from the Santa Rosa hatchery were stocked in the lake.

A sample of 27 fish from the May 12 stocking were measured. Their total lengths ranged from 1.7 to 2.6 inches and averaged 2.1 inches.

Mr. Leland Roberts, Department of Wildlife Biologist, made two fish collections in the lake during 1960. On May 5 he collected 57 trout that averaged 7.9 inches in length and ranged from 6.0 to 10.8 inches. Their average weight was 80 grams. On November 11 he collected 50 fish whose average length was 10.2 inches and ranged from 9.2 to 11.7 inches. Their average weight had increased to 175 grams.

Personnel of the Oklahoma Fishery Research Laboratory conducted a tagging operation and creel census on 27 - 30 April 1961 when 254 trout were measured. The average length at this time had reached 11.6 inches and ranged from 9.4 to 14.5 inches. The average weight had also increased and was then 256 grams or 0.56 pounds. During the first year the average increment of growth in length was 5.8 inches and in the second year was 3.7 inches (Figure 1).

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The size and condition of the fish during the fall of 1960 indicated an open season would be possible in the spring of 1961. Accordingly, the Department of Wildlife Commission proclaimed an open season of 60 days which began on April 28 and closed after 30 June 1961.

Personnel of the Oklahoma Fishery Research Laboratory were assigned to conduct a creel census during the opening of the season. In order to derive an estimate of the rate of exploitation, 150 fish from the lake were captured, marked and released prior to the opening. Seines, traps and angling methods were used to capture fish. Plastic dart tags were used to mark 75 fish and 75 were marked by clipping the upper lobe of the caudal fin. A check station was set up at the single entrance to the lake. All fish carried away from the lake during daylight hours of the first two days of the season were checked at the station.

During the first day 1,210 fish passed through the station. By the end of the second day a total of 1,606 fish had been checked and 50 were fish which had been marked. Using this number of recaptured marked fish a ratio was established for determining a population estimate by the Petersen method according to Ricker 1958. It was estimated that there were 4,818 harvestable-size fish in the lake at the beginning of the season. Confidence limits for this estimate at the 95 percent level were 3,773 and 6,665. The 1,210 fish caught on the first day constituted 25.1 percent of the available population and when 1,606 had been removed after two days, 33.3 percent had been harvested.

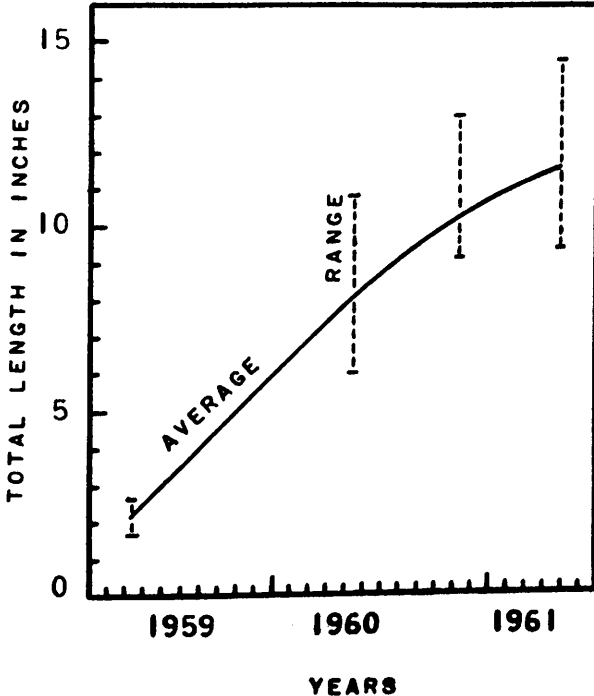


Figure 1. Growth of Rainbow Trout in Lake Carl Etling.

It appears that only 10 percent of the 50,000 fish stocked survived to reach harvestable size and only 3 percent survived to reach the anglers creel during the first two days of the season.

Based upon an estimated 40 acres of water in the lake on opening day, the standing crop was 120 fish and 11.6 pounds per acre.

At least two stockings have been planned for 1961 but no dates have been set for future seasons.

LITERATURE CITED

Ricker, W. E. 1958. Handbook of Computations for Biological Statistics of Fish Populations. Bull. 119, Fish. Res. Bd., Canada.
