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January 22, 1948

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Report No. 1146

THE HUNT CREEK FISHERIES EXPERIMENT STATION,

1939-1947--A RESUME

by

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In the late 1930's it became evident that to maintain Michigan brook trout streams and the fishing they should afford, fisheries biologists and administrators should have at hand all possible data concerning this favorite species of native Michigan trout. As a step toward gathering such facts the Hunt Creek Fisheries Experiment Station was established in 1939 to serve as year-round outdoor laboratory and proving ground for various means of perpetuating the brook trout and increasing its numbers, if possible, in the angler's catch.

The station, consisting of a laboratory-residence for the biologist in charge, and two small cabins for assistants, is located on the upper headwaters of Hunt Creek in south-central Montmorency County, about 10 miles east of Lewiston. Observations and experimentation are carried out on approximately 2-1/2 miles of Hunt Creek and on several spring tributaries which enter Hunt Creek in this area, as well as on East Fish Lake, which is tributary to one of the headwater streams. The site for the station was chosen after inspection of many brook

trout streams in all parts of Michigan. The area finally chosen presented the advantages of state ownership of stream frontage, a trout population consisting of brook trout only, several feeder streams on which to experiment, and there were a variety of brook trout habitats within the general area.

Because the final measure of success or failure of any management policy is the number of fish in the angler's creel, an accurate tally of the number of fishermen and the number and weight of brook trout in their catches has been kept each season since 1939. For example, it has been possible to evaluate the success of planting fingerlings, the contribution of feeder streams to the legal catch, and the effect of stream improvement on the catch of legal trout.

The quality of the fishing in the experimental waters of Hunt Creek has varied considerably in the nine years it has been tabulated. Angling pressure has varied from a low of 540 hours (1943) to a high of 1,546 hours (1941). The total catch of legal brook trout in any season has ranged from 187 fish (1947) to 722 fish (1941). Angling quality was poorest in 1947 when the average fisherman's catch was only 0.21 fish per hour, best in 1943 when the catch per hour was 0.70 legal fish. The average size of the brook trout removed from Hunt Creek has been relatively constant, varying between about 7.3 inches and 7.9 inches.

Testing the value of planting fingerling brook trout was carried out by means of fin-clipping in conjunction with the creel census. As the marked fingerlings grew to legal size and came into the anglers' catches they were tallied in the creel census or otherwise reported.

From catch records on Hunt Creek, both in the experimental sections and from areas further downstream between 1940 and 1944, it can be demonstrated that fingerling plantings of 17,000 and 35,000 fish never furnished more than 2.56 percent of the legal catch in any year. It appears unlikely that any more than 2.8 percent of these fingerlings were ever recovered. Obviously fall fingerling planting is an unjustifiable procedure in Hunt Creek or similar brook trout streams where adequate natural reproduction occurs.

A similar line of attack was followed in finding out the relationship of the feeder streams to the catch of legal trout in the main stream. Since 1939, from two to five fish traps have been operated on the various tributaries. All legal-sized brook trout passing through the traps have been tagged, and a majority of the sub-legal fish marked by distinctive fin-clip combinations or jaw-tags. Although 2,918 trout of all sizes have been tagged as they passed through the weirs on the tributaries of Hunt Creek, (the bulk of them travelling toward the main stream) in no year have brook trout from tributaries comprised any more than three percent of the catch of legal fish. In the Hunt Creek drainage, at least, little benefit to the angler would come from the closing of feeder streams to fishing. The end result would be an increase in angling pressure on the main stream were feeder streams shut off to the "brush-stream" addicts, but no appreciable enlargement of the catch on the main stream.

One of the more important investigations that has been prosecuted at the station concerned the value of stream improvement devices in

improving the angler's catch. Again the final yard-stick was the angling data provided by the creel census. Section B, a relatively shallow 1,600-foot portion of the experimental waters containing originally nine small pools, produced an average of 29.3 legal trout with an average weight of 4.34 pounds during the trout seasons of 1939, 1940, and 1941. By means of current deflectors installed during the fall of 1941 the number of pools was increased to 29 and the average depth of the pools was raised about 6 inches. From the creel census data, it can be demonstrated that the average number of legal trout taken in the years since the improvements were installed (1942-1947) has increased 94.2 percent (from 29.3 fish to 56.9 fish), the average weight of legal trout removed has increased 110.1 percent (from 4.34 to 9.12 pounds), and the average angling quality (catch per hour) has increased 28.9 percent (from 0.45 to 0.58 fish per hour) despite a 46.4 percent increase in angling pressure in the years following improvement (from 64.91 hours to 95.08 hours). The increase in the anglers' catches since 1941 is felt to be the result of deepening existing pools and providing additional pools in which a larger number of trout could survive to reach the angler's creel. While this method of brook trout stream management is not an inexpensive procedure, simplification of structures, the proper choice of structure location, and the use of modern power tools will make future stream habitat improvement work less costly.

During the past three years considerable time has been spent by the staff of the Hunt Creek Fisheries Experiment Station on trout stream population studies and the tools and techniques involved. In addition to obtaining information on the composition of brook trout populations, it is hoped that basic data on the population level of legal fish needed

to produce angling of good quality eventually will be available from the studies at Hunt Creek. For example, the 1947 pre-season legal brook trout population of the experimental waters was estimated (by means of the electric "shocker," marking and subsequent recovery) to be 149 fish. During the 1947 trout season, 187 legal brook trout were removed by angling, and 116 legal brook trout were estimated to be present immediately after the close of the season. The 154 additional legal fish known and estimated to be present were the result chiefly of recruitment through growth and to some extent migration into the area. The 1947 catch per hour calculated from the creel census data was 0.21 fish (187 fish caught in 871.50 hours of fishing). It can be calculated easily that 436 fish should have been removed if the angling quality was to equal 0.50 fish per hour. The question is: How much larger would the legal brook trout population have to be to yield the additional 248 fish to the anglers? Simultaneous creel census and population studies on test waters over a period of years should give some needed data on this vital question.

The foregoing brief discussion presents some of the major problems under study at the Hunt Creek Fisheries Experiment Station. Numerous other pertinent researches into various angles such as the percentage of legal trout surviving the winter seasons, spawning habits and the results of spawning, the insect and other invertebrate food present and its utilization by the fish, the effect on the angling, present and future, of a 6-inch size limit are in progress and will be reported on as promptly as possible.

In addition to operating the long-time and more or less continuous projects in the Hunt Creek drainage pertaining to brook trout, the staff of the Station has assisted with and cooperated in several lake surveys

and fisheries research projects in northern Michigan, such as the lake surveys of the Spectacle Lakes, Sage Lakes, Avery Lake, Voyer Lake Inlet Dam Pond in Montmorency, and the lakes and streams of the Rifle River Area in Ogemaw County. During 1944, 1945, 1946 and 1947 part of the staff aided in, or was in charge of, lake trout fingerling marking for the experimental plantings in Lakes Michigan and Huron. It can be truly said that the Hunt Creek Fisheries Experiment Station is a field laboratory where practical experience and knowledge are sought that will aid in "reducing the time between bites" for Michigan anglers.

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