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THE HUNT CREEK FISHERIES EXPERIMENT STATION

by

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When you have been fishing a trout stream all morning steadily and perhaps not too successfully, the chances are you will pick a shady spot about noon and after a lunch and while smoking a pipe may wonder why fishing isn't better. What has happened to the thousands of fingerling trout--some of them close to legal size--planted in this stream last fall? Would fishing have been better if a part of them had been held over the winter for planting just before the season opened? How many young wild trout resulted from the spawning of those beautiful fish that you saw working the beds just below the next bend during deer season? What about tributary streams? How many trout--if any-- do they feed down every year? And what about the beaver ponds up on the headwaters? There were big trout in them a year ago, but now they seem to be gone. What happened to the trout during this last cold winter? How many fish do kingfishers, watersnakes and herons take, and are they the weaklings that would die anyway, or should we be making an effort to control these so-called "predators"? How many legal trout can we expect a stream to

produce per acre and is there any way the yield can be increased?

These are questions the Fish Division of your Conservation Department has been asking too. Research has given some facts but not enough to be sure of the right answer even for one stream. At its July meeting in 1937, the Conservation Commission instructed the Division to examine all of the trout water then in state ownership to see if a suitable location for a fisheries experiment station were available. With the help of conservation officers and sportsmen, all of the streams in state forests and state game areas were examined. The search seemed hopeless as most of the land owned by the Department had very little trout stream frontage and most of that was swamp bordered--hardly suitable for experimental work. In the fall of 1938 the search ended on the headwaters of Hunt Creek, about ten miles south of Atlanta. Here the Game Division had purchased some excellent deer and grouse cover as a part of the Lundeen Game Area. The purchase included about two miles of Hunt Creek proper, seven tributary streams and four lakes, all within a radius of one mile from a fine building site which could be supplied by a spring boiling out of the hillside above. A truck trail already passed the site, and telephone and the new power line were not far distant. It seemed the ideal location for the experiment station.

Nothing was done that fall, however, as it was essential to see the stream under winter conditions. The following January, when the thermometer stood at twenty below, a party of fisheries biologists on snowshoes cruised the entire headwaters of Hunt Creek and found most of the streams free of ice. This meant that screens and fish traps could be operated without clogging and that trout could be observed and seined readily even in mid-winter. There might be some days when the resident biologist would be snow-bound, but he could reach all parts of the area on snowshoes and

and would have a warm place to bring his samples of fish and fish food for detailed examination.

Having decided that this was the place, the main stream was examined carefully and was divided into four sections by types of water: a lower, sand-bottomed, open meadow, sluggish portion; next upstream a more rapid, gravelly part running through tamarack and cedar swamp; then a narrow, swift stretch with gravel and rock bottom partly shaded by aspen and other upland second growth; finally the source, which flows through old beaver ponds and dense cedar swamp. At least one tributary enters each section and the whole system seems quite typical of the headwaters of a Michigan brook trout stream.

Before the trout season opened last April, signs marking off these sections were placed along the stream and fishermen were requested not to clean trout until their catches could be examined by census clerks. Three men were located at strategic points on the stream and camped there throughout the season. Except for two fishermen, the catches of all who used the area were examined. Each trout was measured and weighed; scales were scraped from the sides for growth studies; stomachs were preserved to determine the food eaten at different times during the season. All of the data collected during this census has not been worked up yet, but Dr. David S. Shetter has summarized the yield in a recent report. From the $4 \frac{1}{3}$ acres of stream, census clerks checked 413 legal brook trout weighing 67 pounds--an average production of 112 trout and 15.4 pounds per acre.

A large scale map of Hunt Creek and tributaries was made on which bottom type, cover, depth, etc. are shown. The four lakes on the project were surveyed to determine area, depth, location of weed beds, and other fish shelter, etc. The fish food supply of lakes and streams was sampled

thoroughly and will be studied at every season.

Fish traps were built on two of the tributaries early in the summer and have been operated continuously. Now that the design has been perfected and found to be effective during winter and summer, it is expected that similar traps will be installed on all of the tributaries. It is also planned to construct weirs on Hunt Creek to check movements of fish into and out of the experimental area.

All of the trout planted in the Hunt Creek system last fall were marked by removing the dorsal or back fins. In one section a thousand wild fingerling trout were seined, the right pectoral fin removed, and the fish returned to the same area. At the same time, a thousand trout of equal size from the Hunt Creek Rearing Station were fin-clipped (by cutting off the left pectoral) and were planted in this section. Seining at intervals this past winter indicated that up to the middle of January about the same survival and growth held for both lots of fish. Creel census will be carried on in the headwaters again this year and the entire stream will be checked starting in 1941 (when fish marked in 1939 should come into the catch). The first definite figures on the results of planting with fingerlings in a brook trout stream will be available from this experiment. As soon as the fish trap is installed in the lower end of the experimental section, plantings of marked fish will be made starting with advanced fry and up through all sizes of fingerlings to adults. The catch in subsequent years as checked through creel census will show what method of planting gives the best returns to the fisherman.

As funds become available for development, it is planned to screen off short sections of the stream in which experimental plantings of varying numbers of trout can be made to determine the carrying capacity and the effect of these plantings on the food supply.

After several years of creel census, a controlled part of the stream in which cover and pools is scarce will be improved by installing deflectors, covers, etc. The catch during the next few years for this part of the stream will be compared with the yield before improvement and the results should be a measure of the actual value of such work in terms of more trout for the angler.

A combination field laboratory and residence located in the center of the experimental area is now nearing completion. This building will provide year-around living and working quarters for the resident biologist. The bunk room and laboratory will also be available for the use of Department employees who may be working on problems in the area. Certain of the Institute staff members have been assigned definite problems on lake and stream fish production and will use the Station as headquarters for their work.

A major project at the Hunt Creek Experiment Station this season will be the development of a satisfactory method of determining the fish population in any type of stream. What angler has not wondered just how many trout were present in his favorite piece of water. Stream census by blocking and seining has been carried on in Michigan since 1930 and has generally shown more trout to be present than was thought possible, but the method is slow and difficult in most streams. Recently electricity and stupefying drugs which stun but do not kill trout have been used by researchers in Germany and in this country. If the fish manager is to check up on the results of his work, some such rapid and accurate method must be worked out.

It is hardly to be expected that all of the questions in the minds of the trout fishermen and our fisheries administrators can be answered by the work at the new experiment station, and it will take quite a few

years to be sure of the results of most of the research, but the establishment of this station represents what is believed to be the first step toward securing the answer to better trout fishing.

CAPTIONS FOR ILLUSTRATIONS FOR REPORT NO. 587

1. Hunt Creek in a swamp-bordered, rapid section.
2. Fuller Creek, the largest tributary of upper Hunt Creek.
3. Two-way fish trap on Fuller Creek.
4. West Fish Lake. Note evidence of filling in form of floating bog islands.
5. The combined residence and laboratory on the Hunt Creek Project.
6. A corner of the nearly completed laboratory.