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DIVISION OF FISHERIES
MICHIGAN DEPARTMENT OF CONSERVATION
COOPERATING WITH THE
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REPORT NO. 384

REPORT ON THE INSTALLATION OF A DOUBLE FISH WEIR ON PERRY CREEK, OSCODA COUNTY, MICHIGAN

It has been the desire of the Institute for Fisheries Research for some time to learn more concerning periods of spawning migrations, and the density of the spawning population on some of the streams of Michigan, particularly the trout streams. The only satisfactory way to obtain these data is to trap the fish in some type of weir and count them.

Plans for a weir have been in the files of the Institute for Fisheries Research for over a year preceding this installation. These plans represented a combination of the ideas of Dr. C. L. Hubbs and Dr. Clarence Tarzwell of the Institute for Fisheries Research and Robert Fortney, Superintendent of the Paris Hatchery. Models furnished by Mr. Fortney served as a basis for the present design. Until this summer, funds and man-power for the construction of the device were not available.

During the winter of 1936, the Institute for Fisheries Research and the Wildlife Unit of the Huron National Forest agreed on a cooperative project whereby these agencies were to install a small weir on one of the streams of the Huron National Forest. The cost of materials and man power was to be supplied by the Forest Service; the Institute for Fisheries Research was to help in directing the installation, instruct in the collecting of data, and analyze the results, which would be available to both agencies. The project estimates were prepared by Mr. D. V. Gray of the U. S. Forest Service Wildlife Unit in the spring of 1936. The estimates were approved and materials purchased during the early summer of 1936.

The weir was located on Perry Creek in T. 27 N., R. 3 E., Sec. 28 for the following reasons:

1. Relatively large numbers of brown and rainbow trout from the Main Au Sable River use it as a spawning area.
2. It is a small stream, and the expense of installation would be comparatively small.

Information which may be obtained from the observation of the fish trapped in the weir is as follows:

1. Number and size of mature fish using creek to spawn.
2. Time of spawning migrations in relation to temperature of air and water.
3. By combining observations at weir with observations on brown and rainbow trout tagged at weir, one might learn:
   (a) range of dispersal of species spawning in stream.
   (b) number of times fish use stream as spawning area, and whether or not the fish use same stream each year.
   (c) growth rate of fish between spawning seasons.
4. Possibly one may obtain information on mortality of the fish on the spawning beds.
5. If the fry and fingerling do not move downstream at a size too small to be trapped, information on the success of spawning fish above the weir may be calculated.

Following the subsidence of the fire hazard (1936), construction on the weir was initiated on August 12, 1936. Materials were assembled at Camp Luzerne on the Huron National Forest and the rough frame set up under the direction of Mr. Morrill and the author, with aid of five CCC enrollees stationed at Camp Luzerne. The frame was taken to the stream-side on August 13th and the banks of the stream excavated to accommodate the trap boxes. On August 14th the pipes were driven and the traps covered with doors equipped with locks.

The general features of the weir can be seen from the accompanying photographs.

The main arm of the weir is sixteen feet long. The trap boxes are approximately five feet square. The water varies from knee deep to ankle deep. The pipes were driven from six to twelve inches in the bottom (which consists of firm clay), and were placed one-half inch apart, except at the intersection of the main arm and the trap arm. At these two points, a four inch gap was left to permit entrance to the traps. This structure completely blocks the stream for passage of fish up or down, and operates in the method of all fish traps: a small opening allows fish to enter the traps proper, where they can be captured with a dip net.

The weir is now in operation, and it is planned to have it observed as follows:

August 16 - September 15 -- visited once daily

September 16 - November 30 -- visited twice daily

December 1, 1936 - February 28, 1937 -- visited every other day

March 1 - March 31 -- visited every day

April 1 - May 15 -- visited twice daily

May 16 - June 30 -- visited once daily

July 1 - September 15 -- visited every other day

At each visit the accompanying data sheet is to be filled out. Any fish in the traps are to be dipped out, recorded, and sent on their way; i.e., fish caught on the upstream ~~side of the trap~~ run are to be dipped over and placed on the upstream side of the trap; those in the downstream trap are to be recorded and assisted downstream.

It is regretted that the weir was located so far upstream, but it was necessary to do this to follow the Forest Service regulation that permanent structures be erected on Government-owned land. For this reason it is very possible that only a few adult fish from the Au Sable will be trapped. However, this structure should definitely prove whether or not a weir of this type can stand the rigors of a severe Michigan winter. If this is the case, weirs will be practical research tools when located in advantageous points of other streams in the state.

INSTITUTE FOR FISHERIES RESEARCH

David S. Shetter

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DAILY RECORD
OF
FISH WEIR
--PERRY CREEK--

Date _____

Air Temp. _____ Water Temp. _____

Weather (Warm) (Cool) (Cold) (Windy) (Calm)

Sky (Clear) ($\frac{1}{4}$ Cloudy) ($\frac{1}{2}$ Cloudy) (Clouded)

Time of Examination _____ A. M. _____ P. M.

Number of Fish in Upstream Trap

Species	No. Taken	Size Range*
Brown Trout		
Brook Trout		
Rainbow Trout		

Number of Fish in Downstream Trap

Species	No. Taken	Size Range*
Brown Trout		
Brook Trout		
Rainbow Trout		

* (On Size Range--Measure a dozen fish that range from the smallest of the species to the largest of the species).