ORIGINAL: Fish Division
CC: Education - Game ✓
Institute for Fisheries Research
D. S. Shetter
E. L. Cooper
J. T. Wilkinson

See letter of Jan 27-1949 from Hazzard supplementing this outline

Letter of Jan 11-1949 in corr file re: this matter.

January 11, 1949

REPORT NO. 1207

A BRIEF OUTLINE OF PROPOSED TROUT EXPERIMENTS TO BE CONDUCTED ON THE PIGEON RIVER

By

Albert S. Hazzard

There is need for more exact information as to the value of present regulations on trout fishing and the improvements which might result from more restrictive or more liberal laws. Some anglers claim that fishing would be better if the daily limit were ten or even five on all waters. Others contend that a higher size limit would give the same result; still others insist that size limits are doing no good and should be abolished. A small but apparently growing number believe that artificial flies only should be permitted at least on certain waters.

Starting with the 1948 season the size limit was raised to 8 inches and the daily limit reduced to ten trout on the Rifle River, Ogemaw County, within the state-owned Rifle River Area. Brown trout are mainly involved in this experiment. Also in 1948 the daily limit on East Fish Lake, Montmorency County, was lowered to five. Only brook trout are present in this lake. Beginning in 1946 the size limit on brook trout was lowered to 6 inches in parts of Hunt Creek and its

tributary Fuller Creek. For all of the above waters prior catch records are available and the continuing creel census will demonstrate the effects of these changes in regulations.

In addition to studying the possible value of changes in regulations on a larger stream containing all three trout species, there is also need for more exact information than is now available on certain problems involved in planting legal-sized trout: how many of what kinds need to be stocked and how often to maintain a certain quality of fishing under present or other regulations? The question is frequently raised as to the fate of planted legals not caught by anglers. Some sound facts were secured from the many experiments conducted on a number of representative streams and these have been presented in various Institute reports since 1937 and many have been published. Our data are in good general agreement with the findings secured in other states in similar experiments. These may be summarized in the statement that the results of legal-size plantings in streams and small lakes are temporary, the fishing produced is usually highly artificial and the costs are excessive. However, it is recognized that fishermen are not yet convinced by the earlier experiments and by the recent demonstration (1947 and 1948) in which all legal trout planted were fin-clipped. Probably the chief criticism of most of the experiments with legal trout plantings was that the planted and censused sections of stream were not controlled by weirs and that planted fish not recorded in the creel census could have moved out of the experimental areas and been caught and not reported. It is known that some such movement occurred and that some marked trout were caught outside but the small number found in the limited checking of creels outside of

the planted sections and from voluntary reports indicated that this was not a major source of error affecting the results. Repeating such planting experiments in screened sections would be desirable, however, and will be undertaken if the proposed study is approved. Also the fish caught will be examined more carefully than was possible in the earlier experiments to determine if planted trout grow well after stocking and how fast they gain or lose weight. Any heavy losses of trout after planting should also be evident from the frequent patrol of the stocked sections.

Of equal or perhaps greater importance than the experiments discussed will be the opportunity to secure additional fundamental information on the life history of all three species of trout—their growth rate, feeding habits, spawning, inter-specific competition, shelter, and other requirements. Location of a competent group of workers on an important stream where the fish and their environment can be kept under constant observation is essential to such investigations.

After some consideration of various state-owned waters it was decided that a part of the Pigeon River within the State Forest of that name would be well adapted to the proposed investigations. Two buildings (the "classroom" and the staff house) could be made available by the Forestry Division as well as some space in the garage. Re-modeling of the "classroom" to serve as a year-round residence is proposed as well as some changes in the staff building to convert it into a checking station and laboratory.

The above facilities are quite central to the proposed experimental area. The Pigeon River is completely state-owned from about 3/4 mile below the Lansing Club dam to a mile or so downstream from the Pine Grove Camp—a distance of about 12 miles. The stream in this section will

average approximately 35 feet in width and is of fairly uniform character. It is considered a good trout stream and is quite heavily fished, at least in the more available areas. It is known that brook, brown, and rainbow trout live and reproduce successfully in this section. The stream is not subject to severe flooding and good weir sites have been located, subject to check by our engineer, in the upper 4 miles where the experiments have been planned.

In addition to the river there are seven small trout lakes within the immediate area where past experiments in stocking and other management have been or are being conducted. At present these are being used for cooperative studies by the Institute and Michigan State College to determine the proper methods of fertilization and stocking.

The general plan of operation proposed is that all fishing be under daily permit only in the upper portion of the state-owned sections of the Pigeon River and in the following lakes: Ford, Section 4, North Twin, South Twin, Lost and West Lost lakes (T. 32 N., R. 1 W., Sections 2, 3, 4, 8, 9, 10, and 17), Otsego County, and Hemlock Lake (T. 33 N., R. 1 W., Sections 34 and 35), Cheboygan County. The foregoing description includes all of the waters listed. Anyone fishing any of these waters must first secure a permit from the checking station (to be located at the present State Forest headquarters). Permit to fish only one lake or one section of the river will be issued without return to the checking station to report the catch. All fishermen must check back upon completion of fishing and permit his fish to be examined and essential data to be taken. No fish are to be cleaned before checking. A Commission order prescribing the regulations in effect and providing a penalty for infractions will be necessary. To determine

the results of the experiments it is essential that all fishermen report before and after fishing and confine their efforts to a single body of water. It is recognized that such regimentation may be distasteful to some and that patrol and checking will be necessary to insure enforcement but there is no alternative to accurate records save stationing a man on each lake (or pair of lakes as North and South Twin and Lost and West Lost) and on each pair of stream sections. This would require about six times the manpower and cost of operating a checking station. Also the man on duty at the station can do much other work during dull periods.

Beginning with the opening of the season in 1949, the stream will be marked off into approximately equal sections of a mile each starting at the old Cornwall Dam and extending upstream to just below the Vanderbilt Road bridge. The sections are described and experiments to be conducted in each are given as follows:

Section A - (Cornwall Dam to Old Forest Headquarters Bridge)

Artificial flies only, 10 inch size limit, 5 trout daily limit--no stocking.

Section B - (Old Forest Headquarters to Checking Station)

Artificial flies only, 10 inch size limit, 5 trout daily limit--stocking of 10 inch trout.

Section C - (Checking Station to road ending at stream due north of center of Section 17)

Present regulation--stocking 7-9 inch trout.

Section D - (Road ending at stream due north of center of Section 17 to just below Vanderbilt Road bridge)

Present regulation--no stocking.

The above experiments will permit the testing of more restrictive regulations with stocking and without stocking.

The stocked sections are purposely placed in the center so that movements of planted trout (all to be jaw-tagged) will be reported if taken from sections above or below the point of planting.

Equal numbers of brook, brown, and rainbow trout of the same size range will be planted each time so that the results may be compared.

The rate of stocking will be varied to determine the relation between the number released and return to the angler.

Experiments in 1949 will be conducted without weirs to block off the sections since these structures cannot be built in time for the opening of the season. However, frequent checks with the electric shocker are planned which should reveal any considerable movement out of the stocked sections. Also the creel census covering a mile of stream above and a mile below the sections planted should furnish an additional check on migration.

At the end of the 1949 trout season, weirs will be built to enclose the stocked sections with fish traps to take migrants. Fish caught in traps will be tagged or fin-clipped (if not already marked) and passed in the direction traveling when captured.

Records will be kept of conditions in the stream: flow rate, level, temperatures of air and water (twice daily).

Scale samples will be taken for growth rate studies from all wild fish. Lengths and weights will be determined for all trout caught. Tag numbers or fin marks will be recorded.

Adequate bottom food and stomach samples will be preserved for a comparative study of feeding habits of wild and hatchery trout and of the different species at different times of year.

Population estimates will be made at least three times each year (prior to opening, mid-season, and post-season) and oftener if possible.

Observations will be made during proper seasons to determine when and where each kind of trout spawns and the possible competition between species.

Dr. David S. Shetter, in charge of Hunt Creek Fisheries Experiment Station, will have general supervision of the project.

Staff Required and Budget (1949)

Biologist III in charge	- 7 months	$ 3060 - 437	
Biologist I assistant	- 4½ months	$ 1035	
Fish. Res. Tech. A	- 7 months	$ 1400 200	1948-49
2 Fish. Res. Tech. B	- (one 7 months; one 9 months)	$ 2690 672.50	
Total Personal Service		$ 8185 1310 -	$ 8,185
S. M. and C. S.		$ 900 - 150	$ 900
Equipment		$ 1500 500	$ 1,500
Improvements			
3 weirs at $6,000 each*/		$18000 - 18000	
Remodeling existing buildings*/		$ 6000 - 6000	
		$24000 24000	$24,000
Total cost - 1949			$34,585

Estimated Annual Operating in 1950

Personal Service			
Biologist III	- 12 months	$ 4380	
Biologist I	- 12 months	$ 2940	
1 Fish. Res. Tech. A	- 12 months	$ 2400	
2 Fish. Res. Tech. B	- (one 7 months; one 12 months)	$ 3630	
Total Personal Service		$13350	$13,350

*/ Rough estimates to be checked by Construction Engineer

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Brought Forward		$13,350
S. M. and C. S.	$ 1,500	$ 1,500
Total		$14,850

Estimated annual operating costs in future years—$15,000.

INSTITUTE FOR FISHERIES RESEARCH

A. S. Hazzard
Director

REPORT APPROVED BY: A. S. Hazzard

REPORT TYPED BY: E. L. Preston