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Original: Fish Division  
cc: Mr. Ruhl  
Mr. C. F. Idema of  
Kinne Creek Club  
D. S. Shetter

INSTITUTE FOR FISHERIES RESEARCH  
DIVISION OF FISHERIES  
MICHIGAN DEPARTMENT OF CONSERVATION  
COOPERATING WITH THE  
UNIVERSITY OF MICHIGAN

ALBERT S. HAZZARD, PH.D.  
DIRECTOR

ADDRESS  
UNIVERSITY MUSEUMS  
ANN ARBOR, MICHIGAN

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A SUMMARY OF THE 1939 TROUT SEASON  
ON KINNE CREEK, WINGLETON CLUB

by

David S. Shetter

During the 1939 trout season Wingleton Club members again cooperated with the Institute for Fisheries Research by keeping a detailed catch record for the angling done on the various sections of Kinne Creek. This report will be a brief discussion of the results obtained from that creel census and the possible conclusions which are suggested.

On April 11-12, before the opening of the 1939 season, 994 brown trout of legal size (average total length 7.7 inches) were jaw-tagged and released in Section A. These fish were well scattered between Cartier Pond and the Lower Dam. The fish were purchased from the Trout Brook Hatchery of Hudson, Wisconsin. They were free from parasites but were rather thin.

About April 17, 1939, Mr. Pullman heard reports of a number of dead brown trout bearing tags being found in the Pere Marquette River, and at the same time began to observe that many of the tagged fish were not able to maintain themselves against the current directly in front of the rotary screen on the lower dam. The weaker individuals would be swept by the current force between the rotary screen and the sill board, and often would be crushed to death. An unknown mortality in excess of 63 tagged brown trout

(collected after death by Mr. Pullman) occurred in this manner. A sample of the dead fish was examined by Leonard Allison, pathologist for the Institute, who reported no evidences of internal parasites or disease.

Throughout the 1939 trout season the club members recorded their catches in detail, listing the number of tagged and unmarked fish taken in each section (A, B, C) of Kinne Creek. The catch record for the entire season is presented in Table 1, which shows the number of trout of each species taken in the various sections by Wingleton Club anglers.

One fact which will be noted immediately from Table 1 is that not a single tagged brook trout from the April, 1938, planting was taken during the 1939 season. Since only 185 tagged brook trout were removed from the stream in 1938, there should have been available, theoretically, some 1315 brook trout from the 1938 introduction. The complete absence of these fish in the 1939 catch indicates an extreme season-to-season mortality which also has been noted in other tagging experiments on public waters.

The tabulation also demonstrates that Section C was the best area for brook trout fishing during the 1939 season, where almost five times as many legal fish were removed as were taken from Section B. The lower section (A) yielded six fontinalis, but the species probably suffers in these lower waters from competition with the brown trout and should probably not be stocked there in the future.

Conversely, Section A yielded the largest number of wild brown trout, where about 40 per cent more fish were removed than in Section B. No brown trout were taken from Section C from which this species has fortunately been excluded.

Three rainbow trout (one of them tagged) were recorded from Section A during the 1939 trout season. The tagged rainbow was one of two which were in the shipment and released at the same time as the brown trout.

Table 1

## Catch Record for Kinne Creek for the 1939 Trout Season, by Stream Sections

Two-week period	Brook trout						Brown trout						Rainbow trout from			Other data on tagged brown trout planted in Kinne Creek, but taken in P. M. River.
	tagged from section			untagged from section			tagged from section			untagged from section			section			
	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	
Apr. 29 - May 12	..	..	..	..	1	5	9	..	..	10	..	..	↓1	..	..	2 - from P. M. River
May 13 - 26	..	..	..	..	2	5	6	..	..	8	1	..	..	..	..	1 - from P. M. River
May 27 - June 9	..	..	..	2	6	13	31	1	..	10	7	..	..	..	..	4 - from P. M. River
June 10 - 23	..	..	..	..	..	..	11	1	..	10	1	..	1	..	..	1 - from P. M. River
June 24 - July 7	..	..	..	..	..	11	13	1	..	18	12	..	..	..	..	
July 8 - 21	..	..	..	1	3	7	10	1	..	18	19	..	1	..	..	
July 22 - Aug. 4	..	..	..	..	..	8	3	..	..	14	9	..	..	..	..	
Aug. 5 - 18	..	..	..	3	1	11	8	..	..	10	20	..	..	..	..	
Aug. 19 - Sept. 4	..	..	..	..	2	11	2	1	..	10	4	..	..	..	..	
Total by stream sections	..	..	..	6	15	71	93	5	..	108	73	..	3	..	..	1 - date unknown from P. M. River.
Total for Kinne Creek	..	..	..	92			98			181			3			9 (Total of 107 tags recovered)

↓ This was one of the two tagged rainbow placed in the stream on April 11-12.

The recovery on the tagged brown trout made by club anglers from Kinne Creek was 98 tagged fish out of 994 planted or 9.8 per cent. The total known percentage of recovery, which includes returns from the Pere Marquette River, was 107 fish out of 994 planted, or 10.7 per cent.

The percentage of the total catch of brown trout made up by the tagged hatchery fish was 98 out of 279, or 35.1 per cent. These results somewhat parallel the results of the 1938 planting of marked brook trout, when a 12 per cent recovery accounted for 52.5 per cent of the total brook trout catch of 1938.

The total number of fish taken from Kinne Creek was much less in 1939 than in 1938, as the following comparison will show.

Table 2  
Total Trout Catch in Kinne Creek, 1938 and 1939 Seasons

Item	1939	1938
Wild brook trout	92	163
Hatchery brook trout	...	180
Wild brown trout	181	370
Hatchery brown trout	98	...
Wild rainbow trout	2	4
Hatchery rainbow trout	1	...
<b>Total fish</b>	<b>374</b>	<b>717</b>

Since 97 of the 98 tagged brown trout reported were measured, calculations on the growth of the planted fish have been made for the increase in length throughout the season, and are presented in Table 3.

Table 3

Growth of Kinne Creek Brown Trout (Tagged) Released April 11-12, 1939, Recovered in 1939 Trout Season

Period	Number of recoveries in period	Average total length of fish recovered		Average number of days free	Average increase (in mm)	Average increase per day (in mm)
		Apr. 12	At recovery			
Apr. 29 - May 12	9	202	197	22	-5	0.00
May 13-26	6	199	194	39	-5	0.00
May 27 - June 9	32	197	205	49	+8	0.16
June 10 - 23	12	205	219	66	+14	0.21
June 24 - July 7	13	196	209	75	+13	0.17
July 8-21	11	191	212	89	+21	0.24
July 22 - Aug. 4	3	204	235	104	+31	0.30
Aug. 5 - 18	8	186	210	122	+24	0.20
Aug. 19 - Sept. 4	3	188	218	145	+30	0.21

The reader will note that the 15 fish recovered in the first month of the season apparently shrunk in length according to the measurements. The discrepancy is probably caused by a slight error in measurement by the angler combined with the natural shrinkage of dead fish remaining in a creel for any extended period of time. The actual growth in the time periods indicated in the table was probably so small that it was not measurable, until some date after the 26th of May.

The first period to exhibit any growth of a measurable extent was May 27 to June 9. Tagged brown trout recaptured in that time were found to have increased an average of 8 millimeters, or about  $5/16$  of an inch. The tagged fish appear to have grown most between the 8th of July and the 4th of August. The average size of almost any tagged brown trout taken in August was usually at least 1 inch longer than when that fish was released in April.

The tagged brown trout planted and recaptured in 1939 increased in length, after they started to grow, at a somewhat more rapid rate than did the tagged brook trout planted and recaptured in 1938. The average increase in size to the end of the 1938 season, for the tagged brook trout, was 16 millimeters, or about  $5/8$  of an inch; for the tagged brown trout in 1939 the average increase in size, to the end of the season, was 30 millimeters, to Aug. 18, where a more suitable number of samples were present, 24 millimeters or just barely short of an inch.

It will be noted that as the season progressed, the tagged fish which were smaller at the time of tagging began to appear in the catch, especially during the last two periods of the season.

The average size of the wild (unmarked fish) has been calculated from the measurements furnished by the club anglers, and has been summarized by stream sections. The average total length of the unmarked brook trout in Section C was 7.94 inches (71 fish), in Section B, 7.90 inches (13 fish), and in Section A, 8.00 inches (5 fish).

The wild brown trout in Section A averaged 9.13 inches in total length, while those in Section B were of an average size of 9.18 inches. In general, the average size of the unmarked brown trout exceeded the average size of the tagged brown trout.

Recoveries of tagged fish from Section B and from the Pere Marquette River demonstrate conclusively that the rotary screens are still not fish-tight. Five of the 98 recoveries made in Kinne Creek were made in Section B, while 9 fish were reported from the Pere Marquette River. These latter fish also indicate that a completely unknown percentage passed through the rotary screen at the lower dam alive. The longest movements in the Pere Marquette River, upstream and downstream respectively, were 2 and 15 miles.

#### Management Suggestions for 1940

1. Fewer legal-sized trout should be released at any one time. It has been recommended, after conference with the Creek Committee, that a planting of 250 rainbow and 250 brook trout (size 8-10 inches) be made in early April. These fish are to be tagged and placed below the railroad tracks, with the exception of 50 brook trout which should be put into the power pond just east of the railroad embankment. If the catch records for the early part of 1940 demonstrate a high rate of removal of these trout, another planting of similar size might be undertaken at or before midseason. The fish will be purchased from the Iron River Trout Company of Iron River, Michigan, which has been recommended to the Institute by the fisheries biologist of the Huron Mountain Club.

2. Certain parts of the stream are still in need of some improvement devices to fit in with the changing concepts of the type of fishing which it is desired to provide in the various stream sections. Since Sections A and B are now regarded as dominantly brown trout water, devices should be installed which will deepen the pools in these sections, particularly in the upper end of Section A, and in Section B from 200 yards above the old stone dam at Morley's Spring. The revolving screen should be kept clean at all times.

In the lower end of Section C, above the railroad pond, weed beds are now taking hold in the areas blocked off behind the log and sand embankments, and the channel appears to have been successfully narrowed. Red osier and tag alder slips should be started here to give the stream some shade, and to help hold the stream banks together. Some larger rocks and boulders should be moved into the areas of fine gravel and sand in the stream channel to break up the relatively placid current, and some floating and under-water cover provided for resting and hiding places, which are now somewhat limited in number.