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RESULTS OF THE RANDOM CREEL CENSUS OF THE RIFLE RIVER
BETWEEN M-55 AND THE SOUTH BOUNDARY OF GROUSEHAVEN
DURING THE 1944 TROUT SEASON

by

David S. Shetter and Pat Galvin

Introduction

One of the few river drainages the streams of which have been completely surveyed by the Institute for Fisheries Research is that of the Rifle River, finished during the summer of 1941.* Water temperature data collected by the 1941 investigators and compiled in the uncompleted manuscript indicated that most of the better trout water was located north of M-55, although they noted brown and rainbow trout to occur as far downstream as Greenwood Camp (T. 21 N., R. 3 E., Sec. 28). Between M-55 and Greenwood Camp, however, they classed the stream as extremely marginal trout water during the summer months because of high water temperatures.

Also, in the course of their fish collections the survey crew captured relatively few fingerling (2 - 4 1/2 inches) rainbow trout. Brown trout and in certain suitable streams brook trout were found to be reproducing

* The report on this work has not yet been completed, primarily because of the drafting of the survey party members into the Armed Services. Dr. G. P. Cooper is editing the survey report and will prepare a summary of the findings and recommendations.

very successfully, but there seemed to be some question as to whether rainbows were replacing themselves by natural spawning. They suggested that plantings of marked, hatchery-reared fingerling rainbow trout be made in an effort to determine whether rainbow trout present in the anglers' catches were the result of natural reproduction, or survivors of fall fingerling plantings by the hatchery.

Accordingly, 10,000 rainbow trout fingerlings were marked by clipping the dorsal and adipose fins in September 1942, and released at five points between the south line of the former Jewett estate and M-55. These fish averaged 3.0 inches in total length, and averaged 127 to the pound. A similar planting was repeated in September 1943, except that the right pectoral fin was removed. The 1943 fingerlings averaged 2.5 inches in length and 140 to the pound. A planting also was made in September 1944, but the number was reduced to 5,000, and the left pectoral fin was clipped. The 1944 planting averaged 2.3 inches in length and weighed 185 to the pound.

Originally it was planned that a creel census of the stream would begin at the start of the 1943 fishing season, because it was thought that a few of the rainbow fingerlings from the previous fall planting might come into the catch in 1943. Due, however, to lack of personnel, it was impossible to carry on the creel census that year.

Limited angling by Institute personnel in May and June 1943 indicated the presence of the marked rainbows from the 1942 release.

1944 Operations

Mr. Robert Barber, Fisheries Research Technician B, became available for creel census operations on May 4, 1944. He obtained a cabin at Selkirk, which is the focal point of the great majority of trout fishing on the Rifle River, and conducted a random census from May 4 through the rest of the trout season of 1944.

Four points of access to the river above Selkirk and four below were chosen as the main checking stations. Other points of access on the river and several points on Klacking, Prior, Dietrich, and Houghton creeks were checked when time permitted. All stations were visited for interview of fishermen at least once a week. On weekends, when most of the fishing was done, the majority of the checking was carried on in the vicinity of Selkirk. At the close of the season Barber estimated that he had contacted at least 50 per cent of the fishermen using the Rifle River between the Jewett estate and M-55. In view of the estimated percentage of fishermen contacted and actual number of angling records obtained, the creel census data for 1944 probably reflect a fairly accurate picture of the 1944 trout fishing on the Rifle River in the locality outlined in the title.

All trout observed in anglers' creels were weighed and measured, and scale samples were collected from all marked trout. Other data obtained included name and residence of the angler, locality by Town, Range, and Section where he fished, angling time, and the date.

Angling Results

In the course of the census 243 anglers (220 of which were males, 23 females) were contacted. These anglers spent 478 angling days on the stream. Of this number, anglers were successful on 194 occasions or 40.6 per cent of the anglers caught one or more trout (Table 1). In their successful efforts anglers removed 705 legal trout. The greatest part of this catch consisted of rainbow trout (478). The remainder of the total catch was comprised of nearly equal numbers of brook trout (107) and brown trout (120).

The quality of the fishing for the season in general was only fair (Table 1). Anglers caught 0.38 legal trout per hour, or 0.100 pounds of trout per hour. The quality of the fishing during the forepart of the

season (May 4-June 23) was better than for the latter Half (June 24-September 4) except for the two-week period July 22 to August 4. From May 4 to June 23 the number of trout caught ranged from 0.27 to 0.56 fish per hour, while the weight of trout removed per unit of effort ranged from 0.076 to 0.203 pounds per hour. The best fishing for the first half of the season was had from May 13 to May 26. During this period the catch per hour in both numbers and pounds was good (0.56 fish per hour, 0.155 pounds per hour). The best fishing solely on the basis of the weight of fish removed per hour, however, was for the preceding period (May 4 to May 12). During this period anglers reported catching 33 legal trout (16 rainbow, 9 brook and 8 brown trout), the average size of which was better than the season average. These 33 trout weighed 18.75 pounds and were caught in 92.50 angling hours, which represents a removal rate of 0.203 pounds or approximately 3.25 ounces per hour.

Probably the best fishing for the entire season, in terms of number and pounds of trout caught per hour, was from July 22 to August 4. For this period anglers reported catching 137 legal trout in 148.5 angling hours (in number there was a catch per hour of 0.92 fish, in terms of weight removed, a catch of 0.181 pounds per hour). The quality of the fishing during this period was partly artificial and was the result of a sizable planting of legal trout. On July 27, 1944, 1,300 trout (1,000 rainbow and 300 brook trout) ranging from 8 to 11 inches long were planted in the Rifle River at the following points of access: Greenwood Camp, High-Banks, M-55 and Selkirk. To show how this planting influenced the total catch for this period, anglers caught 137 trout and 131 of these were rainbow trout (probably the most of which were hatchery fish). This is the largest catch of rainbow trout recorded for any period during the season. The difference in the quality of the fishing for this two-week period and the preceding two-week period is further evidence of the influence

of this planting. For the preceding period anglers caught 20 legal trout in 153 angling hours (a catch per hour of 0.13 fish); for the period following, 117.50 hours of fishing yielded only 27 trout (21 rainbow, 1 brook, 5 brown) for a catch per hour of 0.23 legal fish. Note that the quality of the fishing was only affected for a short period of time, a fact previously observed in other creel census studies on streams where marked hatchery plantings have been made.

It is interesting also to note that the planting of brook trout had little apparent effect on the quality of the fishing. It is doubtful if these brook trout survived in the Rifle River for any length of time since the average afternoon water temperature at Selkirk at the time was 70.1°F. During July and August as one goes downstream from Selkirk the stream becomes less and less suitable for brook trout habitation because of high water temperatures. At this time of year the stream below M-55 because of water temperatures is very marginal trout water (unpublished survey data).

Further evidence of the influence water temperatures had on the brook and brown trout fishing is the pronounced decline in the catch paralleling the rise of water temperatures. From June 24 through August 18 the average water temperature by two-week periods (Table 2) ranged from 62.5°F. in the morning to 72.3°F. in the late afternoon (water temperatures were usually taken around 9:00 A.M. and 5:00 to 6:30 P.M.). Over that same period anglers caught only 6 brook trout, and 23 brown trout, 29 in all, in 725.25 angling hours (0.04 fish per hour). Brown trout fishing, however, did improve late in the season (August 19-September 4) when water temperatures begin to decline. The average afternoon water temperature for the period August 5 to August 18 was 72.3°F. For the same time of day the average water temperature dropped to 64.8°F. for the remainder of the season (August 19 to September 4).

In the course of the creel census on the Rifle River anglers reported catching fewer sublegal than legal trout. On most trout streams in Michigan the sublegal catch exceeds the number of legal trout taken according to previous creel census studies. The Rifle River is truly exceptional in this respect.

Anglers reported catching and returning the following numbers of sublegal trout to the stream: 320 rainbow, 25 brown and 13 brook trout. This total^{was}/only a part of the total sublegal catch, since no records were kept of the number of sublegal fish caught between May 4 and May 12.

Sublegal trout were caught and returned to the stream at the rate of 0.20 fish per hour. Through the season this rate varied from 0.01 to 0.52 fish per hour.

There is considerable doubt as to the value of the anglers' reports of sublegal fish caught and returned, since most fishermen rely on memory for their record. However the number reported probably does reflect the relative abundance of undersized trout in the various streams censused.

The fishing of one angler should be called to the reader's attention. He was truly an expert. He fished on 22 occasions between May 4 and Labor Day and was unsuccessful on only two of these trips. He fished a total of 108.50 hours (5.8 per cent of the total hours recorded), and caught 14 brook trout (13.1 per cent of the total), 43 brown trout (35.8 per cent of the total), and 144 rainbow trout (30.1 per cent of the total). His total catch for the season of 201 trout represents 28.5 per cent of the total recorded trout catch. These fish weighed 57.43 pounds, and made up 31.9 per cent of the total weight of fish removed by the anglers observed. His catch per hour for the season was 1.86, and the pounds per hour removed by him amounted to 0.529, both several times higher than the average catch for the season on this portion of the Rifle River.

Mr. Lewis took 15 fish on 6 occasions, 10 to 14 fish on 6 other trips, 6 to 9 fish on 4 other trials, 1 to 5 fish on 4 other occasions, and was "shut out" only twice.

Average Length and Weight of Trout Taken

Many fine trout were weighed and measured in the operation of this census. Early season catches were exceptionally good and the average size of all three species for the whole season was certainly of note (Table 3). The average length and weight of the different species of trout caught between May 4 and May 12 was as follows: rainbow trout - 10.8 inches, 11.4 ounces; brook trout - 8.5 inches, 3.7 ounces; brown trout - 11.7 inches, 10.6 ounces.

With the exception of the brook trout, the average size of the fish taken during the remainder of the season never exceeded the average size of trout taken during this period, although the average size of the brown trout for the remainder of the season did remain consistently high. The average size of brown trout recorded by two-week periods only once fell short of eight inches (August 5 to August 18). The average length of all brown trout taken was 9.8 inches, the average weight 6.9 ounces. The average length and weight of brook trout and rainbow trout for the season was as follows: rainbow trout - 8.3 inches, 4.2 ounces; brook trout - 8.0 inches, 3.0 ounces.

Recovery of Marked Rainbow Trout (Table 4)

All rainbow trout fingerlings planted in the fall of 1942 were marked by clipping the adipose and dorsal fins, and those of the 1943 planting were marked by the removal of the right pectoral fin. A total of 90 of these marked fish entered the 1944 catch. More fish of the 1943 planting (57) were recovered than of the 1942 plantings (33) because probably more fish of the former planting were available to the angler in 1944. Fewer

trout of the 1942 planting were on hand because the carry-over of fall-planted fingerling rainbow trout to the second fishing season is smaller than the carry over to the first. Part of this planting which reached legal size had also been removed by anglers during the 1943 season.

In 1944 most of the marked trout with the dorsal and adipose fins missing were taken during the forepart of the season. Fish with the right pectoral fin removed did not enter the catch until about the middle of June (about the time the faster-growing individuals began to reach legal size).

All recoveries of marked rainbow trout of the 1942 planting were comparatively large fish. For the season their average length was 10.6 inches, their average weight 7.3 ounces, and for no census period did they average less than 10 inches. The average length of the right pectoral-marked rainbow trout for the season was 7.2 inches, their average weight 2.4 ounces. The average length of these fish when marked was 3 inches. Their average growth was 4.7 inches after they were planted. Fish of the 1942 planting grew an average of 7.6 inches after release.

Marked rainbow trout (90) constituted 18.8 per cent of the total number of rainbow trout caught. Perhaps the remaining 81.2 per cent were of native origin but we are fairly certain that some originated from the previously-mentioned planting of 1,000 legal rainbow on July 27. To what extent the planting of legal-sized hatchery fish contributed to the catch of unmarked rainbow trout cannot be estimated with any degree of accuracy, since the plantings of adult hatchery stock were unmarked (see Table 5 for numbers released in 1944 and other years).

The fall fingerling plantings of 1942 and 1943 contributed the following percentage of the total rainbow catch of 1944:

1942 - 33 fish, or 6.9 per cent

1943 - 57 fish, or 11.9 per cent

Unmarked rainbow trout made up 81.2 per cent of the total catch.

If Barber's estimate of a 50 per cent coverage of the fishing effort is correct, we might logically assume that the catch of marked and unmarked rainbow trout is twice that listed in Table 1. Theoretically, a total of 66 dorsal-adipose-marked fish, 114 right pectoral-marked fish, and 776 unmarked rainbow trout were captured by the total angling effort.

In the absence of creel census data for the 1943 season, one might assume that the recovery percentage of the 1942 marking in 1943 would be comparable to the recovery percentage obtained on the 1943 marking in 1944. If this assumption is true, then the following percentages of survival from fall fingerling plantings to the anglers' creels might be estimated from releases of 10,000 fingerlings:

In the first season - 1.14 per cent

In the second season - 0.66 per cent

It will be of interest to see how many of the various groups of marked fingerlings enter the 1945 catches, and also to observe whether or not the 1944 marking of 5,000 fingerlings has a different percentage of survival to sizes at which they may be removed by the anglers.

Although the percentage of recovery on these fall plantings of fingerling rainbow trout is low, the survivors have made noticeable contributions to the total catch, and to the catch per hour.

Angling Quality in Different Stream Sections

After making a general analysis of all census data for the Rifle River, the authors thought that it might be significant to assay the fishing by sections. Three sections of stream were arbitrarily selected.

Section One was designated as that part of the stream extending from Greenwood Camp to Highway M-55. Section Two commences at M-55 and extends upstream to the Smith Bridge, which is one and one-half miles about due north of Selkirk. Section Three, the uppermost census area, starts at the Smith Bridge and runs upstream to the south line of the Grousehaven property (the former Jewett estate).

All census data were sorted and tabulated according to the various sections for which the angling was recorded. Although the preponderance of the fishing recorded was done in Section Two, and particularly in the vicinity of Selkirk, we believe that the data are significant since approximately the same effort was made to contact fishermen at other points of access when the angling pressure seemed to be greatest, but because the primary objective of the creel census was to contact as many fishermen as possible, it seemed advantageous to visit more often those stations most frequented by anglers. In spite of seemingly large differences in the number of angling days recorded on the arbitrarily delineated sections, it is quite probable that the census clerk obtained records of approximately the same percentage of the total angling done on each of the sections. In other words, the angling recorded appears to be representative of the total angling prosecuted on the different stream areas.

Angling data by sections is submitted in Table 6. A brief summary of these data follows:

Section	Number of angling days	Total angling hours	Legal trout caught			Total trout caught	Catch per hour
			Rainbow	Brook	Brown		
1	32	115	38	1	4	43	0.37
2	437	1,730.5	436	104	106	646	0.37
3	9	23.5	4	2	10	16	0.68

From these data it is evident that most of the fishing (92.5 per cent of the total angling time) was done in Section Two and that a large part of the total catch (91.6 per cent) was removed from that section. Of the remaining 7.5 per cent of the total angling hours, 6.2 per cent were listed for Section One and 1.3 per cent for Section Three. The percentage of the total catch removed from each section is somewhat similar to the percentage of total angling time.

The quality of the fishing is apparently better in the upper reaches of the stream. This is even more apparent if we exclude the rainbow trout (26) caught by two anglers in Section One on the same day a planting of rainbow trout and brook trout was made. Judging by the number and ease with which these 26 trout were caught, it is likely that they were mostly trout of this planting. The quality of the fishing below Highway M-55 would be much poorer than 0.37 trout per hour if these catches were not included in the records.

The improvement in the quality of the fishing as one progresses upstream seems plausible because stream temperatures decrease. Further evidence of this is brought to light by recovery data of marked rainbow trout taken. Two of 43 trout caught in Section One (4.7 per cent) were marked trout. From a total catch of 646 trout in Section Two, 86 or 13.3 per cent were marked fish. Two or 12.5 per cent of all trout caught in Section Three were marked hatchery fish. Hence it is apparent that in both Section Two and Three marked fish made up a larger percentage of the total catch than they did in Section One, despite the fact that plantings were widely distributed.

Number of Angling Days Recorded in the Capture of Varying
Number of Legal Trout (Table 7)

Of a total of 478 angling days recorded, 284 or 59.4 per cent were listed as unsuccessful. Of the successful days listed, anglers reported taking not more than 5 fish on 157 occasions. A large percentage of the successful anglers (14.6) took but one fish and only 7.8 per cent of them reported catching more than five fish. Better than half of the fishermen taking more than five trout (4.7 per cent of all anglers) took not more than 10 fish. Only 15 anglers took over 10 fish and 8 of these made limit catches. Probably these fishermen when they had caught upwards of 10 fish continued to fish to satisfy that inner desire to take "the limit."

Residence of Anglers (Table 8)

Most of the anglers that fished the Rifle River were residents of metropolitan areas situated in the east and southeast part of the state. Anglers residing in Saginaw County were the most frequent visitors. The majority of the anglers who fished the Rifle River resided in one of the following counties: Saginaw, Bay, Ogemaw, Wayne, and Genesee. Four anglers were non-residents of this state, two coming from both Illinois and Pennsylvania.

Summary and Recommendations

1. A random creel census of the Rifle River, estimated to have covered about 50 per cent of the 1944 angling between the south line of the former Jewett estate and Greenwood camp, yielded data on the angling in the Rifle River.

2. In 1,869.00 hours of fishing recorded, 487 rainbow trout, 107 brook trout and 120 brown trout were captured which weighed 186.3 pounds. The quality of the fishing, as measured by the catch per hour in both numbers and pounds was as follows: number caught per hour - 0.38, pounds caught per hour - 0.100. Only 40.6 per cent of the angling days were reported as

successful. The average size of trout taken was good; brown trout averaged 9.8 inches and 6.9 ounces, brook trout had a mean size of 8.0 inches and 3 ounces, while rainbow trout were 8.3 inches and 4.2 ounces in average size.

3. Rainbow trout of hatchery origin, marked as fingerlings before planting in the falls of 1942 and 1943, constituted only 18.8 per cent of the total rainbow trout catch, despite the fact that 20,000 fingerlings had been released. Therefore the other 81.2 per cent of the rainbow trout catch (the unmarked portion) originated from stockings of legal-sized hatchery rainbow trout and from natural spawning.

Since there appears to be such a low percentage of recovery on fingerling rainbow trout planted in the fall, the discontinuance of fall stocking of this size of rainbow trout is recommended.

4. If at all possible, anglers' creels on the lower Rifle should be checked during 1945 and 1946 to obtain some ideas as to the length of time the marked will appear in the anglers' catches.

5. In the future, all plantings of trout of any size released in the Rifle River drainage should be marked. Such a program will make possible the determination of wild and hatchery-reared trout in the anglers' catches both in the Rifle River Area and the lower Rifle River in the years to come.

INSTITUTE FOR FISHERIES RESEARCH

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Table 1

Angling Statistics for the 1944 Trout Season on a Part of the Rifle River

Period	Angling days	No. taking no fish	% taking no fish	Total hours angling	Legal trout caught			Total legal trout caught	Catch per hour	Sub-legal trout caught				Catch per hour	Total weight (Grams) of legal trout caught				Pounds of legal trout caught per hour
					Rainbow	Brook	Brown			Rainbow	Brook	Brown	Total		Rainbow	Brook	Brown	Total	
May 4-May 12	44	33	75.00	92.50	16	9	8	33	0.36	...	...	...	...	...	5,165	934	2,406	8,505	0.203
May 13-May 26	67	33	49.25	243.50	45	66	26	137	0.56	0	2	1	3	0.01	6,517	5,859	4,780	17,156	0.155
May 27-June 9	74	46	62.16	296.00	42	19	19	80	0.27	11	0	1	12	0.04	5,233	1,486	3,474	10,193	0.076
June 10-June 23	61	28	45.90	312.00	65	7	28	100	0.32	79	7	18	104	0.33	7,071	471	6,642	14,184	0.100
June 24-July 7	73	51	69.86	306.25	61	1	13	75	0.24	29	1	1	31	0.10	5,720	130	2,405	8,255	0.059
July 8-July 21	37	30	81.08	153.00	17	1	2	20	0.13	77	1	1	79	0.52	2,309	61	370	2,740	0.040
July 22-Aug. 4	38	16	43.24	148.50	131	3	3	137	0.92	46	0	0	46	0.31	11,651	223	290	12,164	0.181
Aug. 5-Aug. 18	31	21	67.74	117.50	21	1	5	27	0.23	25	0	0	25	0.21	1,496	78	349	1,923	0.036
Aug. 19-Sept. 4	53	26	49.06	199.75	80	0	16	96	0.48	53	2	3	58	0.29	6,760	0	2,758	9,518	0.105
Totals and averages	478	284	59.41	1,869.00	478	107	120	705	0.38	320	13	25	358	0.20	51,922	9,242	23,474	84,638	0.100

Table 2

Average Weekly Water Temperatures, and Maximum Air and Water Temperatures

Rifle River for the 1944 Trout Season, Taken at Selkirk, with Catch Per Hour Data

Period	Averages of daily readings				Highest readings in each period				Catch per hour
	Av. air		Av. water		Max. air		Max. water		
	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	
May 4-May 12	49.8	...	46.6	...	65.0	...	53.0	...	0.36
May 13-May 26	62.4	...	54.3	...	74.0	...	62.0	...	0.56
May 27-June 9	64.4	...	58.5	...	78.0	...	62.5	...	0.27
June 10-June 23	64.9	74.1	58.5	66.8	74.0	86.5	65.0	74.0	0.32
June 24-July 7	67.6	80.9	62.8	71.9	75.0	90.0	69.5	79.0	0.24
July 8-July 21	65.9	77.6	62.5	70.4	73.0	88.0	68.0	75.0	0.13
July 22-Aug. 4	67.5	78.3	62.5	70.1	77.5	92.0	68.5	77.5	0.92
Aug. 5-Aug. 18	66.8	82.6	62.8	72.3	72.0	92.0	67.5	75.5	0.23
Aug. 19-Sept. 4	64.2	75.0	57.7	64.8	71.0	81.0	62.0	70.0	0.48

Table 3

Average Weight in Grams and Ounces, and Average Length in Millimeters
of Trout Caught by Fishermen contacted on the Rifle River--1944

Period	Average weight						Average length		
	Rainbow		Brook		Brown		Rainbow	Brook	Brown
	Gr.	Oz.	Gr.	Oz.	Gr.	Oz.			
May 4-May 12	322.8	11.4	103.8	3.7	300.8	10.6	274.6	216.8	296.8
May 13-May 26	144.8	5.1	88.8	3.1	183.8	6.5	235.2	203.5	255.1
May 27-June 9	124.6	4.4	78.2	2.8	182.8	6.4	217.7	197.3	240.0
June 10-June 23	108.8	3.8	67.3	2.4	237.2	8.4	213.8	187.3	255.4
June 24-July 7	93.8	3.3	130.0	4.6	185.0	6.5	201.9	240.0	249.5
July 8-July 21	135.8	4.8	61.0	2.2	185.0	6.5	194.4	180.0	242.0
July 22-Aug. 4	88.9	3.1	74.3	2.6	96.7	3.4	209.2	199.7	211.7
Aug. 5-Aug. 18	71.2	2.5	78.0	2.8	69.8	2.5	195.6	201.0	187.6
Aug. 19-Sept. 4	84.5	3.0	00.0	0.0	172.3	6.1	197.3	...	249.8
Averages	120.0	4.2	86.4	3.0	195.6	6.9	211.2	202.4	250.1

Table 4

Number, Average Length, and Average Weight of Fin-clipped Fingerling Rainbow Trout

Recovered as Legal Fish During the 1944 Trout Season from the Rifle River

(Lengths are given in millimeters, weights are given in grams)

Two-week period	Dorsal-adipose mark			Right pectoral mark		
	Number recovered	Average length	Average weight	Number recovered	Average length	Average weight
May 4-May 12	6	274.2	216.2	0	...	...
May 13-May 26	12	258.3	192.4	0	...	...
May 27-June 9	4	265.3	207.5	0	...	...
June 10-June 23	6	281.8	226.2	10	181.4	67.3
June 24-July 7	1	305.0	315.0	20	183.3	66.0
July 8-July 21	2	258.0	168.0	3	181.7	65.0
July 22-Aug. 4	0	...	...	9	186.7	61.9
Aug. 5-Aug. 18	0	...	...	0	...	...
Aug. 19-Sept. 4	2	275.0	185.0	15	184.3	70.6
Totals or Averages	33	268.7	206.5	57	183.7	66.8

Table 5

Planting Record for the Rifle River 1940-1944 Inclusive

Year	Plantings by	Brook trout		Brown trout		Rainbow trout		Totals	
		Fingerling	Adult	Fingerling	Adult	Fingerling	Adult	Fingerling	Adult
1940	State	15,000	...	33,575	500	66,000	500	114,575	1,000
	Federal	...	...	...	...	...	...	...	...
1941	State	10,000	...	77,000	300	45,000	800	132,000	1,100
	Federal	...	...	...	...	...	200	...	200
1942	State	...	...	30,000	1,000	↓10,000	1,200	40,000	2,200
	Federal	...	...	...	...	...	240	...	240
1943	State	...	...	200	1,600	↘10,000	500	10,200	2,100
	Federal	...	...	...	...	...	...	...	...
1944	State	...	400	...	2,000	↘5,000	1,000	5,000	3,400
	Federal	...	2,000	...	...	...	...	2,000	...

↓ Marked fingerlings planted in fall; dorsal and adipose fins clipped

↘ Marked fingerlings planted in fall; right pectoral fin-clipped

↙ Marked fingerlings planted in fall; left pectoral fin-clipped

Table 6

A Comparison of the Angling on Different Sections of the Rifle River During the 1944 Trout Season
(see text for description of section limits). Figures in Parentheses Give Percentages of Totals.

Section	Number of angling days	Number taking no fish	Total hours angling	Legal trout caught			Total trout	Catch per hour	Marked fish caught	
				Rainbow	Brook	Brown			Adipose- dorsal	Right pectoral
1	32 (6.7)	21 (65.9)	115.0 (6.2)	38 [↓]	1	4	43 (6.1)	0.37	0 (0.0)	2 (3.5)
2	437 (91.4)	256 (58.5)	1,730.5 (92.5)	436	104	106	646 (91.6)	0.37	31 (93.9)	55 (96.5)
3	9 (1.9)	7 (63.6)	23.5 (1.3)	4	2	10	16 (2.3)	0.68	2 (6.1)	0 (0.0)
Totals, averages	478	284 (59.4)	1,869.0	478	107	120	705	0.38	33	57

[↓] Probably some of these were hatchery fish planted July 27, 1944.

Table 7

Number and Percentage of Angling Days Recorded in the Capture of Various Numbers
of Legal Brook, Brown, and Rainbow Trout in the Rifle River, 1944

Item	Number and percentage of fisherman-days in which various numbers of brook, brown, and rainbow trout were caught																Totals
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
Number of trout																	
Number of fisherman days	284	70	41	25	10	11	4	6	5	2	5	0	4	1	2	8	478
Percentage of fisherman days	59.4	14.6	8.6	5.2	2.1	2.3	0.8	1.3	1.1	0.4	1.1	0.0	0.8	0.2	0.4	1.7	100.00

Table 8

Residence of Resident Anglers by Counties
and of Non-residents by States

County	Number of angling-days from county
Arenac	27
Bay	93
Genessee	141
Huron	1
Ingham	8
Jackson	1
Kent	2
Lapeer	2
Lenawee	2
Montmorency	1
Montcalm	1
Oakland	8
Ogemaw	71
Oscoda	1
Saginaw	141
Tuscola	2
Washtenaw	4
Wayne	65
<hr/> Total residents	<hr/> 474
Illinois	2
<hr/> Pennsylvania	<hr/> 2
<hr/> TOTALS	<hr/> 478