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

ALBERT S. HAZZARD, PH.D.
DIRECTOR

January 28, 1954

Report No. 1396

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FISH DIVISION

*Abstract
no. 73*

EXPERIMENT IN IMPOUNDING MIGRATORY RAINBOWS FROM LAKE HURON
BY A WEIR ON THE EAST BRANCH OF THE AU GRES RIVER, AND CREEL
CENSUS RESULTS OVER A THREE-YEAR PERIOD, 1950-1952 ✓

By

Lawrence H. Bush, O. M. Corbett and Edward H. Andersen

Abstract

In the fall of 1949 the Fish Division of the Michigan Department of Conservation began the construction of a weir on the East Branch of the Au Gres River in section 10, T. 21 N., R. 6 E., Iosco County. The primary purpose of this weir was to make available to anglers for longer periods of time the large rainbow trout that ascend the stream to spawn and then return to the Great Lakes where they are unavailable to sport fishermen.

The weir was completed on April 29, 1950, and Edward H. Andersen, Fisheries Research Technician A (now District Fisheries Supervisor) was placed in charge of the project. The barrier consists of 15 removable sections (2 ft. by 5 ft.) that are made up of narrow steel gratings spaced 1½ inches apart to allow the free passage of trout less than 12 inches in length. These sections have been installed each year immediately after the last of the spring migrants have passed the weir site, which is usually early in April. In 1950, however, a late spawning run prompted the removal of some

✓ In 1953 the weir was in place from about May 1 to June 30 but no creel census was taken because of budget reduction and low priority of this job.

cc To Dr. Ratchel 2-2-54

of the sections for short periods each day until around the middle of May, and again during the period from May 18 to May 24. Also, spring floods in 1951 necessitated the removal of the gates after their installation; once on April 14 for a period of forty-four hours, and again from April 25 to May 2. During the first year of operation the gates were kept in place until September 11, but in following years they were removed around the first of July.

Following the completion of the weir in 1950, a creel census was initiated to determine the value of the installation as well as to accumulate other scientific data relative to migratory rainbow trout. It is the purpose of this report to give a general summary of the data collected during the first three years of this census and attempt to explain its significance.

The creel census on the East Branch of the Au Gres River was the "spot-check" type of census in which as many anglers as possible were contacted during each day of the trout season. The census clerks patrolled the stream on foot, or in some instances, when sufficient help was available and angling pressure was heavy, checked fishermen at fixed stations on certain parts of the stream.

The length of stream under census varied from month to month, and year to year, according to the distribution of fishing pressure and the number of creel census clerks available. In 1950 the East Branch was divided into sections and census clerks contacted anglers at various points along the entire course of the stream. However, the sections immediately above and below the weir were the only areas under continuous surveillance, and the more remote upper and lower sections were only censused during short periods. In 1951 the section system was abandoned and census operations above the weir extended not much more than a mile above the M-55 bridge. The 1952 census was again limited to the lower part of the stream, from M-55 down.

From a survey made in 1950 it has been estimated that about one-third of the anglers fishing the stream during the year were contacted. Reliable estimates of the percentage of fishermen interviewed in 1951 and 1952 are not available, but due to the fact that additional clerks were employed on week ends and holidays during this period it seems likely that sampling was at least as extensive as in 1950.

Standard equipment for the census has included a thirty-six inch measuring board graduated in tenths of inches, a twenty-pound Chatillon spring balance (milk scale), and intensive trout stream creel census blanks. The data recorded on the census blanks have included: the section of stream (above or below the weir) where the angler was contacted; the name, sex, and county of residence of the angler; the bait used; the time spent fishing; and the lengths and weights of fish taken. When possible the sex of rainbow trout was included. During 1950 a check was made of the number of licensed anglers versus the number of unlicensed anglers (minors, and wives fishing under husband's license).

Creel census returns for the three-year period show a general decline in fishing pressure and total catch, but angling quality for the stream as a whole remained constant at 0.05 fish per hour per angler during each of the three years. In 1950 a total of 1,606 individual anglers (3,189 angler trips) were tallied; in 1951 the number of individual fishermen recorded by creel census clerks dropped to 1,465 (3,010 angler trips); and in 1952 a still lower total of 1,197 individuals (2,916 angler trips) was recorded. Hours of angling effort fell off correspondingly from 19,290.5 in 1950 to 14,697.0 in 1951, and 13,601.5 in 1952, while total trout creeled dropped from 872 in 1950 to 810 in 1951, and 565 in 1952.

The reason for this falling off in fishing pressure, and in the resultant drop in total catch is not definitely obvious; the quality of fishing, although

poor, remained the same during each of the three years. One possibility is that the construction of the weir inspired greater fishing activity than normal during 1950, and that when anglers found the fishing not as good as expected, many did not return to the stream in following years.

The weir, however, seems to have proved its value by providing more fishing for more people over a longer period of time. In each of the three years enough rainbows have been trapped above the structure to provide fair fishing at least until the first part of June, and some fishing after that time; whereas, below the weir angling and catch have been negligible between the last part of May and the first of September. Also, the number of anglers and total catch above the weir have far exceeded the anglers and catch below the weir. Combined totals for the three years give: 7,658 angler days, 37,710 angler hours, and 1,807 trout for the waters above the weir, as compared to 2,002 angler days, 9,879 angler hours, and 442 trout for that part of the stream below the weir.

What effect the weir has had on subsequent spawning runs is difficult to judge at this time because the drop in total catch is more than likely related to the decrease in fishing pressure. Perhaps an analysis of the data collected from the marking experiments that were conducted in 1951 when fish traps were in operation, and age and growth studies of scale samples that were collected at that time as well as during census operations, will shed some light on this problem. At any rate it appears that further creel census studies will be needed in order to completely solve this and other problems related to the experiment in impounding rainbow trout by a weir on the East Branch of the Au Gres River.

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Introduction

The East Branch of the Au Gres River is formed by the confluence of Hale and Smith creeks in Section 31 of T. 23 N., R. 6 E., Iosco County. From its point of origin the East Branch flows in a southeasterly direction and enters Saginaw Bay about $1\frac{1}{2}$ miles south of the Iosco County line in northeastern Arenac County. Tributaries are few: Mitchell Creek joins in Section 8, Guiley Creek in Section 9, Grace Run also in Section 9, Cooper Creek in Section 17; all in T. 22 N., R. 6 E. There are no more entries until the McMullen drain enters in Section 25 of T. 21 N., R. 6 E. Through this drain run two streams, Sand and Saddler creeks. Neither stream is large, but one, Sand Creek, supports a small population of brook trout. From this point the East Branch flows sharply southward for $1\frac{1}{2}$ miles, it is then shunted directly eastward to Saginaw Bay by the Whitney A Drain in Arenac County. (See Fig. 1)

Before the Whitney Drain was constructed by a federal agency some twenty years ago to alleviate downstream flood conditions, the East Branch

* In 1953 the weir was in place from about May 1 to June 30 but no creel census was taken because of budget reduction and low priority of this job.

was tributary to the main Au Gres. Since then there has been no connection between the two rivers except a possible intermittent flow during full flood stage.

Shortly after the construction of the drain, migrating rainbow trout began to use the East Branch of the Au Gres River for spawning purposes and it has supported sizeable spring and fall migrations ever since.

One of the few sizeable trout streams on Michigan's east coast, the Au Gres is the nearest river to the Detroit metropolitan area that can provide the angler with adult rainbow trout of large size, and for a long time it has been popular with fishermen from Saginaw, Bay, Washtenaw, and Wayne counties as well as those in the immediate vicinity.

In reviewing the problems presented in rainbow trout management, two major difficulties were encountered. First, it was found that the rainbow is a robust and incorrigible traveler, hence any attempt to control the fish seemed to hinge on some sort of confining structure. Second, when allowed to spawn under natural conditions, there was reported to be a great loss in body weight from spawning activities, and this loss apparently could not be regained with the fish confined to a stream. It appeared evident that the spawners needed to return to the Great Lakes and a source of adequate food supply to prepare for future spawnings.

Investigations have also revealed that in a normal year the opening of the trout season comes at a time when spawning activity is all but completed and the majority of the spawners have left the streams for the Great Lakes where they are seldom taken by anglers. Too, the condition of freshly spawned trout is poor and their table and fighting qualities are not comparable to their performances later in the season. It is the fall-run fish that are most highly prized by experienced rainbow fishermen because of their more vigorous protestations when hooked and their superior eating qualities.

A proposal by the Saginaw Field and Stream Club for the construction of a confining structure on the East Branch of the Au Gres River prompted the Conservation Department's Fish Division to consider such a project. However, the type of dam originally suggested would have been prohibitive in cost, and known flood crests were alarming, so a weir was agreed on as a compromise. The weir which was begun in the fall of 1949 was designed by Floyd Fanselow, Fish Division Engineer, and was built by Grant Thompson, Building Construction Superintendent. It was completed the following spring, and on April 29, 1950 the gates were installed and it was put into operation.

The location which was finally selected places the weir in Section 10 of T. 21 N., R. 6 E., and nearly one mile by stream from the National City-McIvor Bridge to the north, and about the same distance from Leggett's Bridge to the south. The advantages of this location are that the surrounding land is state owned, and a rubble dam (owned and maintained by the National Gypsum Company to serve as a head for their water intake tube) acts as a buffer to flood-borne trash and logs. This dam also creates still water for several hundred yards upstream, and forms a dropping basin for detritus and offers a relatively deep refuge for spent and weakened fish. The long pool thus formed is also popular with anglers.

Access to the weir is theoretically assured by a spoil bank road maintained by the Gypsum Company; however, the road is frequently impassable during wet weather so that whoever tends the weir at such times must walk from either of the two nearest bridges. A new road constructed over state property has never been completed but is used by anglers in dry weather.

Experimental Objectives

While from the angler's viewpoint a weir should be suitable for confining fish, other information was to be derived from this experiment which would

serve as a basis for future recommendations on similar management projects brought before the Fish Division. These experimental objectives were as follows:

1. Computation of angling quality throughout the season through use of creel census tabulations with results given in fish per hour per angler. Over a period of years such figures would show any ill effect of impounding the spawning run.
2. Estimation of numbers of rainbow trout comprising the spring spawning migration. This information to be used as a basis for comparable future studies to learn what effect, if any, the operation of the confining weir and consequent heavier removal of the spawning stock has on subsequent runs.
3. Evaluation of length-weight relationships derived from creel census information to determine the changes in condition of confined rainbow trout.
4. The determination of age composition of the migrations from scale samples. This information along with creel census tabulations is to be used to learn whether or not the extra fishing is adversely affecting the spawning runs.

The Migration of Rainbow Trout in 1950

On April 30, 1950 the weir was opened to allow the upstream migrants to pass and was kept open between 4:30 p.m. and 8 a.m. each day until May 12 when downstream migrants were first observed. During that time an attempt was made to determine the number of fish in the spring spawning migration by counting them at night with the aid of a light. From these observations it was estimated that the rainbow trout passed upstream at the rate of from 5 to 8 fish per hour giving totals of from 1,012 to 1,620 trout for the major period of the spring migration.

Downstream migrants appeared above the weir in greatest numbers between 10 p.m. and 2 a.m. By June 5 a total of 5 dead trout (2 with spear injuries) had been removed from the weir, and nine others in a weakened condition as a result of spawning or hooking injuries were passed downstream over the weir.

The Migration of Sea Lampreys in 1950

Sea lampreys were first observed below the weir on May 10, 1950, and migrations were noted from May 10 to May 17, and from May 19 to June 14. Sixteen-inch splash boards were placed in the weir on June 2 in an effort to prevent the lampreys from getting above the structure but were not entirely successful, although they appeared to slow up the migration to some extent.

Fishing Methods and the History of Rainbow Trout

Angling on the East Branch of the Au Gres River

Anglers on the East Branch of the Au Gres River generally use still-fishing technique. The hooks are baited, quite often with fish eggs, (preserved salmon eggs or fresh or preserved rainbow trout spawn), the line thrown out, and the rod placed in a forked stick planted in the ground. Flies are seldom if ever used.

Although spring and early summer fishing in the upper part of the stream has been popular, the lower river has long been noted for its fall rainbow fishing. The pressure there is not as great as in the early part of the season but it does afford the hardy angler of the autumn some exciting moments. In mid-September, about the time that large concentrations of rainbow trout are near the mouth of the river in Saginaw Bay, fishing there by trolling or surf-casting rigs has become a popular sport. Later on as the fish ascend the Whitney Drain the anglers follow the fish upstream. Fishing

near the weir location in the fall is at its best in the big pool directly below the barrier and provides fall fishing for rainbows throughout the months of October and November. In past years anglers have even tried fishing through the ice at this location.

Creel Census

Census information was collected on special intensive trout creel census blanks and included the name of the stream; town, range, and section numbers; the angler's name, sex, city, and or, county of his residence; date on which the interview took place; the lure used; the length of time spent fishing, to the nearest half hour; and, if successful, the species, length, and when possible the weight and sex of the fish caught. Fish have been weighed on a twenty-pound Chatillon spring balance (milk scale) and measured on a thirty-six inch measuring board graduated in inches and tenths.

Creel census clerks employed on the East Branch of the Au Gres River have been instructed to contact as many fishermen as possible and to take scale samples from all fish examined by them. In 1950 two clerks were employed on busy week ends and holidays, and during the remainder of the time one clerk patrolled the area immediately above the weir where the greatest fishing pressure was exerted. The method used when two men were on duty was to have one man walk downstream on foot while the second man drove the vehicle to a predetermined meeting place and started patrolling the stream at a lower point of access. In 1951, additional personnel were on duty during the week ends and holidays for the first part of the season and full-time census clerks were deployed at fixed stations located at Leggett, National City-McIvor, Meadows, and M-55 bridges. Two other clerks made spot checks at various other points along the stream, and two were on duty at the weir taking creel census as well as operating the fish traps. In June the staff was reduced to two

full-time men and two assistants on week ends, and by the end of that month it was reduced still further to one full-time clerk who took creel census unassisted until the end of the trout season. In 1952 one man assumed the entire responsibility of taking creel census and tending the weir.

In 1950 the stream was divided into various small sections both above and below the weir, but the information gained from this check was not used in this paper because it was not available for succeeding years. Also, information as to whether or not the angler had completed his fishing trip at the time he was contacted by a census clerk was not used because it too was only available for the year 1950. However, this information on 1950 is available for future reference if the need should arise.

Methods and Procedures in Assembling and Writing the Report

The text and tables in this report deal only with information derived from creel census data collected and tabulated over the three-year period from 1950 through 1952. Other information, such as that gained through age and growth studies of scale samples, awaits inclusion in some future report.

Catch per hour per angler figures were arrived at by the equation $\frac{\sum X}{N} = \bar{X}$, with N representing total angler trips, $\sum X$ the accumulated catch per hour per angler trip, and \bar{X} the mean. Figures in all cases were rounded off by the rule of odd-even, and standard procedures used by the Institute for Fisheries Research in handling such data were used throughout.

The preparation of data for this report was done by Edward H. Andersen, now District Fisheries Supervisor, Ora M. Corbett, Fisheries Research Technician A, and Lawrence H. Bush, Fisheries Research Technician A. Mr. Corbett was supervised and assisted by K. G. Fukano, Junior Fisheries Biologist, and Mr. Bush was supervised and assisted by Dr. David S. Shetter, Associate Fisheries Biologist in charge of the Hunt Creek Fisheries Experiment Station.

Staff

In 1950, soon after the installation of the weir, Edward H. Andersen was placed in charge of creel census and weir operations on the East Branch of the Au Gres River. Mr. Andersen was assisted by Niquolae A. Johnson, Manual Worker C during the first year of creel census operations. The following year additional assistance was provided during the spring run in an attempt to obtain more complete census data when angling pressure was at its peak. In addition to the regular staff members, Mr. Andersen, Mr. Johnson, and Fred E. Bethel who was added to the staff in June; Robert N. Schafer, Robert C. Barber, Charles A. Pfitzmaier, Floyd E. Simonis, and Frederic G. Newstead, all Institute employees, assisted in weir and creel census operations during the early part of the season. Thomas Mc Namara, an interested sportsman from Ann Arbor, also gave able assistance to Department workers during the 1951 season. In 1952, creel census on the East Branch of the Au Gres River was conducted by Niquolae A. Johnson and John B. East.

A Review of Creel Census Returns for the Calendar Year 1950

During 1950 census clerks on the East Branch of the Au Gres River recorded 3,421 angler trips representing 1,920 individual anglers who fished a total of 19,290.5 hours and took 872 trout (865 rainbows, 5 browns, and 2 brooks) for an aggregate weight of 1,564.2 pounds (See Table 1). Of this total, 682 (18.3%) of the angler trips were registered below the weir for 3,523.5 hours of angling effort and a catch of 141 (16.2%) trout that weighed a total of 238.5 pounds; while 3,054 (81.7%) angler trips representing 15,767 hours of fishing time, and a catch of 733 (83.8%) trout with a total weight of 1,325.7 pounds, were tabulated for that part of the stream above the weir (See Table 2).

Although rewarding to the angler in terms of large rainbow trout (1.79 lbs. avg. wt.), fishing on the East Branch of the Au Gres River was generally

poor in 1950. The quality of angling for the stream as a whole expressed in terms of catch per hour per angler $\frac{\sum X}{N} = \bar{X}$, with N representing total angler trips, $\sum X$ the accumulated catch per hour per angler trip and \bar{X} the mean) stood at 0.05 fish per hour per angler for the year as a whole, but there was some variation during different parts of the season. The best fishing above the weir was encountered during the first month of the regular trout season (April 29-May 26) when the catch per hour per angler stood at 0.09, and was significantly better (3.5461) than the 0.04 trout per hour per angler taken below the weir during the same period. Below the weir anglers were most rewarded for the length of time they spent fishing during the period from October 7 to November 3 when 0.08 trout were taken for each hour of angler effort \checkmark^{**} (See Table 3).

It is noteworthy that by the end of the second month of the regular season fishing pressure below the weir had become almost negligible and by the end of June 84 percent of the fishing in the upper section was confined to the area immediately above the weir. During the two months from June 24 to August 18 fishing was at a minimum below the weir with only 34 angler trips and 1 fish recorded for the entire mid-summer season. Above the weir, however, 745 angler trips and 106 trout were tallied for the same period, attesting to the value of the weir in providing some fishing when otherwise there would have been practically none.

Unfortunately little or no creel census was conducted from September 12 to October 28, but data collected during the remainder of the fall season indicates an upward trend in fishing pressure with 280 angler trips recorded below the weir and 584 above the weir, between October 7 and the end of November. Angling quality also improved during the fall and reached a peak during the same period when 0.08 trout per hour per angler were taken below the structure and 0.07 fish per hour per angler were caught above the weir. (See Tables 2 and 3)

\checkmark^{**} The gates were removed from the weir on Sept. 10 to allow free passage of the migrating rainbows.

A special check of licensed and unlicensed anglers during 1950 revealed that, of the 3,736 angler trips for the year, 3,145 or 84.2 percent were by licensed male anglers, 276 or 7.4 percent by unlicensed male anglers (minors), 20 or 0.5 percent by licensed female anglers, and 295 or 7.9 percent by female anglers who were either minors or were fishing on their husband's license. In other words 3,165 of the angler trips, or 84.7 percent were by licensed fishermen, while 571 or 15.3 percent were by unlicensed fishermen (See Table 4).

Male rainbow trout outnumbered females in the 1950 creels of Au Gres River anglers. Of the 865 rainbows taken, sex was determined for 690, and of that number 393 were males and 297 females. Only during two months of the year, July 22—August 18, and August 19—September 15 were there more female trout in the catch than males. (See Table 5)

Of the 863 measured rainbows in the catch 382, or 44.3 percent ranged from 14.0 to 18.0 inches in total length with the 15- to 16-inch group providing the greatest numbers. Fish ranging from 10 to 12 inches in length were conspicuous by their absence, only 15 trout falling into this size range. (See Table 5)

Individual anglers fishing the stream in 1950 numbered 1,920, and of this total 1,606 (83.6%) caught no trout while 161 (8.4%) took only one fish each. The most trout taken by a single fisherman was 37 and the greatest number of trips made by any one individual also totaled 37. A total of 1,322 individuals fished the stream only once during the year.

From the records collected during 1950 one fact remained obvious and indisputable--the weir provided anglers with rainbow trout fishing long after that part of the stream in which the fish were free to return to the Great Lakes ceased to produce fish.

Table 1.--Monthly totals of creel census data from the East Branch, Au Gres River, 1950.

Period	Angler trips, male	Angler trips, female	Total angler trips	Angler trips, O-trout	Percentage of angler trips,O-trout	Hours of angling	Trout caught				Total pounds of trout
							Brook	Brown	Rainbow	All species	
April 29 - May 26	681	48	729	592	81.2	3,528.0	1	2	213	216	401.6
May 27 - June 23	1,178	127	1,305	1,093	83.8	7,322.5	1	2	352	355	636.2
June 24- July 21	519	65	584	536	91.8	3,053.5	0	0	82	82	154.7
July 22- Aug. 18	184	11	195	177	90.8	746.5	0	0	25	25	36.3
Aug. 19- Sept. 10	290	31	321	285	88.8	1,485.5	0	1	43	44	75.0
Totals regular trout season	2,852	282	3,134	2,683	85.6	16,136.0	2	5	715	722	1,303.8
Sept. 11- Oct. 6	18	0	18	18	100.0	86.0	0	0	0	0	0
Oct. 7- Nov. 3	414	22	436	358	82.1	2,257.0	0	0	123	123	209.8
Nov. 4- Nov. 30	137	11	148	130	87.8	811.5	0	0	27	27	50.6
Totals fall season	569	33	592	496	87.2	3,154.5	0	0	150	150	260.4
Grand totals	3,421	315	3,736	3,189	85.4	19,290.5	2	5	865	872	1,564.2

Table 2.--A comparison of angling pressure and catch totals
above and below the weir on the East Branch, Au Gres River, 1950

Period	BELOW WEIR				ABOVE WEIR			
	Angler trips	Hours of angling	Trout taken	Pounds of trout	Angler trips	Hours of angling	Trout taken	Pounds of trout
April 29- May 26	229	1,141.0	36	62.9	500	2,387.0	180	338.7
May 27- June 23	109	571.0	16	24.2	1,196	6,751.5	339	612.0
June 24- July 21	30	127.0	1	0.3	554	2,926.5	81	154.4
July 22- Aug. 18	4	12.5	0	0	191	734.0	25	36.3
Aug. 19- Sept. 15	27	117.5	7	5.4	294	1,368.0	37	69.5
Totals regular season	399	1,969.0	60	92.8	2,735	14,167.0	662	1,210.9
Sept. 16- Oct. 13	3	13.0	0	0	15	73.0	0	0
Oct. 14- Nov. 10	218	1,168.5	74	135.5	218	1,088.5	49	74.3
Nov. 11- Nov. 30	62	373.0	7	10.2	86	438.5	20	40.4
Totals fall season	283	1,554.5	81	145.7	319	1,600.0	69	114.7
Grand totals 1950	682	3,523.5	141	238.5	3,054	15,767.0	731	1,325.6

Table 3.--Angling quality on the East Branch, Au Gres River during the calendar year 1950, and a comparison of quality above and below the weir

Period	BELOW THE WEIR			ABOVE THE WEIR				ENTIRE STREAM		
	Total angler days	Catch per hour per angler	Standard deviation	Total angler days	Catch per hour per angler	Standard deviation	Test for sig.diff. above:VS. below ("T")	Total angler days	Catch per hour per angler	Standard deviation
April 29- May 26	229	0.04	0.1300	500	0.09	0.2502	3.5461	729	0.07	0.2207
May 27- June 23	109	0.04	0.2083	1,196	0.05	0.1622	0.4878	1,305	0.05	0.1664
June 24- July 21	30	0.007	0.0400	554	0.03	0.1204	0.2584	584	0.03	0.1179
July 22- Aug. 18	4	0	...	191	0.03	0.1257	...	195	0.03	0.1241
Aug. 19- Sept. 10	26	0.06	0.1389	289	0.05	0.2821	0.9901	315	0.05	0.2731
Totals regular trout season	398	0.04	0.1517	2,730	0.05	0.1892	0.1186	3,128	0.05	0.1849
Sept. 11- Oct. 6	4	0	...	20	0	...	...	24	0	...
Oct. 7- Nov. 3	125	0.08	0.1910	156	0.07	0.1655	0.4630	281	0.07	0.1772
Nov. 4-30	155	0.04	0.1446	148	0.04	0.1718	0.7463	303	0.04	0.1581
Totals special fall season	284	0.06	0.1664	324	0.05	0.1640	0.7463	608	0.06	0.1649
Grand totals 1950	682	0.05	0.1581	3,054	0.05	0.1868	0.0	3,736	0.05	0.1819

Table 4.--A comparison of licensed and unlicensed anglers fishing the East Branch, Au Gres River in 1950

Period	MALE ANGLERS		FEMALE ANGLERS		Total licensed	Total unlicensed
	Number licensed	Number unlicensed	Number licensed	Number unlicensed		
April 29- May 26	632	49	7	41	639	90
May 27- June 23	1,077	101	10	117	1,087	218
June 24- July 21	465	54	2	63	467	117
July 22- Aug. 18	168	16	1	10	169	26
Aug. 19- Sept. 15	265	25	0	31	265	56
Totals regular season	2,607	245	20	262	2,627	507
Sept. 16- Oct. 13	18	0	0	0	18	0
Oct. 14- Nov. 10	388	26	0	22	388	48
Nov. 11- Nov. 30	132	5	0	11	132	16
Totals fall season	538	31	0	33	538	64
Grand totals 1950	3,145	276	20	295	3,165	571

Table 5.--Sex ratios of rainbow trout taken by anglers
from the East Branch, Au Gres River in 1950

Period	Males	Females	Unknown	Total
April 29- May 26	100	69	44	213
May 27- June 23	151	129	72	352
June 24- July 21	39	26	17	82
July 22- Aug. 18	8	12	5	25
Aug. 19- Sept. 15	7	17	19	43
Totals regular season	305	253	157	715
Sept. 16- Oct. 13	0	0	0	0
Oct. 14- Nov. 10	72	36	15	123
Nov. 11- Nov. 30	16	8	3	27
Totals fall season	88	44	18	150
Grand totals 1950	393	297	175	865

Table 6.--Length frequency in the angler's catch of rainbow trout taken from the East Branch, Au Gres River in 1950

Length range inches and tenths	Number of rain- bow trout	Length range inches and tenths	Number of rain- bow trout
7.0 - 7.9	45	19.0 - 19.9	24
8.0 - 8.9	62	20.0 - 20.9	30
9.0 - 9.9	20	21.0 - 21.9	40
10.0 - 10.9	10	22.0 - 22.9	42
11.0 - 11.9	5	23.0 - 23.9	43
12.0 - 12.9	15	24.0 - 24.9	28
13.0 - 13.9	38	25.0 - 25.9	17
14.0 - 14.9	113	26.0 - 26.9	11
15.0 - 15.9	133	27.0 - 27.9	3
16.0 - 16.9	80	28.0 - 28.9	4
17.0 - 17.9	56	29.0 - 29.9	2
18.0 - 18.9	41	30.0 - 30.9	1
Total	...	...	863

Table 7.--Numbers of individual anglers making various numbers of trips, and catching various numbers of trout on the East Branch, Au Gres River in 1950

Number of individual anglers making number of trips and percent of total			Number of individual anglers catching numbers of trout and percent of total		
Number of trips	Number of individual anglers	Percent of total	Number of trout	Number of individual anglers	Percent of total
1	1,322	68.85	0	1,606	83.64
2	307	15.99	1	161	8.38
3	96	5.00	2	71	3.70
4	67	3.49	3	24	1.25
5	36	1.88	4	13	.68
6	16	.83	5	17	.89
7	16	.83	6	9	.47
8	18	.94	7	3	.17
9	4	.21	8	0	...
10	4	.21	9	1	.05
11	3	.17	10	2	.10
12	6	.31	11	2	.10
13	3	.17	12	1	.05
14	1	.05	13	0	...
15	2	.10	14	4	.22
16	2	.10	15	0	...
17	1	.05	16	0	...
18	2	.10	17	1	.05
19	2	.10	18	0	...
20	3	.17	19	0	...
21	0	...	20	0	...
22	1	.05	21	0	...
23	1	.05	22	0	...
24	0	...	23	1	.05
25	1	.05	24	0	...
26	0	...	25	0	...
27	0	...	26	0	...
28	2	.10	27	1	.05
29	0	...	28	0	...
30	0	...	29	0	...
31	0	...	30	0	...
32	0	...	31	2	.10
33	1	.05	32	0	...
34	1	.05	33	0	...
35	1	.05	34	0	...
36	0	...	35	0	...
37	1	.05	36	0	...
			37	1	.05
Total	1,920	...	Total	1,920	...

A Review of Creel Census Returns for the Calendar Year 1951
and Comparisons with Angling Results for the Preceding Year

In 1951 a total of 1,791 individual anglers representing 3,010 angler trips and 14,697.0 hours of angling effort took 810 trout (7 brooks, 8 browns, and 795 rainbows) at the rate of 0.05 fish per hour per angler. (See Tables 8, 10, 13) These totals were generally lower than those for the previous year and reflected a 6.7 percent (-129) decline in the number of individual anglers, 19.4 percent (-411) in total angler trips, 23.8 percent (-4,593) in total hours of angling effort, and a 7.1 percent (-62) drop in the number of fish taken. However, the angling quality of 0.05 trout per hour per angler was the same as for the 1950 season.

Fishing both above and below the weir reflected the same general decline in the number of individuals, angler trips, and total hours, but 9 more fish were recorded below the weir than in 1950 for a total catch of 150 trout in that section of the stream. This increase in the downstream take, which along with the decreased fishing pressure, raised the catch per hour per angler for that part of the stream from 0.05 in 1950 to 0.06 in 1951, was the result of a more productive fall season. (See Table 9) A comparative review of the data for the two years shows that angler trips below the weir were 28.4 percent (-194) below those in 1950, while the total hours of angling effort dropped 24.6 percent (-866.5), and the total catch was up 6.0 percent due to the 9 additional trout mentioned above. Above the weir angler trips dropped 17.5 percent (-534), hours declined 23.6 percent (-3,727.0), and the total catch was 9.7 percent (-71) below that of the previous year. (See Tables 2, and 9)

As in 1950 male rainbows outnumbered female rainbows in the anglers' creels, but only by 2 specimens as compared to 96 in the previous season. Also, totals for the regular season from April 28 through September 9 show that 264 female rainbow trout were taken as compared to 107 males and were

more numerous in each of the monthly totals throughout that period. The reverse was true during the special fall season when 206 males were caught by anglers as opposed to 47 females. The number of trout for which sex was not determined in 1951 was 172, or 3 less than in the 1950 season. (See Table 11)

Though fewer in number, rainbow trout from the East Branch of the Augres River averaged larger in size in 1951 than during the previous year. Of 794 measured rainbows 288, or 36.3 percent, were over 20 inches in length as compared to 221, or 25.6 percent, the year before. The group from 14 to 18 inches in total length which comprised 44.3 percent of the take in 1950 only made up 26.2 percent of the 1951 catch, while slightly over a third (33.8%) of the measured fish ranged in size from 20 to 26 inches. (See Table 12) The average weight of all fish taken in 1951 was 2.08 pounds. *** as compared to 1.79 pounds in 1950.

A total of 1,791 individual anglers fished the stream in 1951 as compared to 1,920 the previous year. Of this number 1,465 were unsuccessful, 185 managed to catch but one fish, while one angler took 28 trout during the season. A total of 1,327 anglers made one fishing trip on the stream in 1951, and one angler made 31 trips during the year. (See Table 13)

In 1951 additional personnel were on duty during week ends and holidays for the first part of the season, and full-time census clerks were deployed at fixed stations located at Leggett, National City-McIvor, Meadows, and M-55 bridges. Two other clerks made spot checks of various other points along the stream, and two were on duty at the weir taking creel census as well as operating the fish traps. Census clerks worked from 10 to 12 hours a day from the beginning of the trout season until the end of May. Overtime was authorized for all employees and liquidated by compensatory leave at the

*** Weights for 422 trout were from curves made up for males and females separately.

termination of this period. In June the staff was reduced to two full-time men and two assistants on week ends, and by the end of that month it was reduced still further to one full-time clerk who took creel census unassisted until the end of the trout season.

Since, although the staff was substantially larger, fewer angler trips were registered during the first two months of the 1951 trout season than were recorded for the same period in 1950 (1,601 in 1951, and 2,034 in 1950), it seems likely that fishing pressure during the first part of the season must have been considerably lower than the figures would seem to indicate. Also, from the fact that one man recorded 693 angler days for the 1951 fall season; whereas, two clerks tabulated only 496 angler days for this same season fishing in 1950, it appears that anglers may have been far more numerous, comparatively speaking, than the totals imply. It has been estimated that the percentage of anglers contacted in 1951 was the same as in 1950, roughly one-third, but in view of the facts given above this may be low providing the 1950 estimate was correct. It would seem especially inaccurate for that part of the stream above the weir which from all indications gets the most fishing pressure during the early part of the trout season.

Again as in 1950 the figures indicate that the weir provided anglers with some rainbow fishing during the late spring and summer months when there would otherwise have been very little, if any.

Table 8.--Monthly totals of creel census data from the East Branch, Au Gres River, 1951

Period	Angler trips, male	Angler trips, female	Total angler trips	Angler trips 0-trout	Percentage of angler trips, 0-trout	Hours of angling	Trout caught				Total pounds of trout
							Brook	Brown	Rainbow	All species	
April 28- May 25	1,048	70	1,118	944	84.4	5,430.5	5	7	253	265	626.7 (165)*
May 26- June 22	444	39	483	365	75.6	2,826.5	2	0	183	185	410.9 (133)
June 23- July 20	339	20	359	320	89.1	1,469.0	0	1	44	45	99.1 (21)
July 21- Aug. 17	142	15	157	143	91.1	567.0	0	0	18	18	52.4 (4)
Aug. 18- Sept. 14	203	13	216	199	92.1	723.0	0	0	23	23	59.2 (9)
Totals regular season (Apr. 28-Sept. 9)	2,160	157	2,317	1,957	84.5	10,953.0	7	8	517	532	1,248.3
Sept. 15- Oct. 12	298	11	309	257	83.2	1,697.0	0	0	72	72	122.8 (30)
Oct. 13- Nov. 9	259	18	277	197	71.1	1,400.0	0	0	139	139	209.4 (38)
Nov. 10- Nov. 30	85	6	91	61	67.0	584.0	0	0	63	63	102.3 (22)
Totals fall season (Sept. 10-Nov. 30)	658	35	693	529	76.3	3,744.0	0	0	278	278	434.5
Grand totals 1951	2,818	192	3,010	2,486	82.6	14,697.0	7	8	795	810	1,682.8 (422)

*() Indicates number of fish for which weights are curve weights.

Table 9.--A comparison of angling pressure and catch totals above and below the weir on the East Branch of the Au Gres River, 1951

Period	BELOW WEIR				ABOVE WEIR			
	Angler trips	Hours of angling	Trout taken	Pounds of trout	Angler trips	Hours of angling	Trout taken	Pounds of trout
April 28- May 25	165	910.5	14	20.2	951	4,520.0	251	606.6
May 26- June 22	1	7.5	1	1.6	482	2,819.0	184	409.3
June 23- July 20	0	...	...	...	359	1,469.0	45	99.1
July 21- Aug. 17	0	...	...	...	157	567.0	18	52.4
Aug. 18- Sept. 14	29	95.0	5	12.1	187	628.0	18	47.1
Totals regular season (Apr. 28 - Sept. 9)	192	999.0	20	33.8	2,123	9,954.0	512	2,214.5
Sept. 15- Oct. 12	119	687.5	40	58.6	190	1,009.5	32	64.2
Oct. 13- Nov. 9	134	701.0	61	84.6	143	699.0	78	124.8
Nov. 10- Nov. 30	40	255.5	29	37.7	51	328.5	34	64.6
Totals fall season 1951 (Sept. 10-Nov. 30)	296	1,658.0	130	180.8	397	2,086.0	148	253.7
Grand totals	488	2,657.0	150	214.6	2,520	12,040.0	660	1,468.2

Notes: Weights given for 53 of the trout taken above the weir and 369 of those taken below the weir are curve weights.

Table 10.--Angling quality on the East Branch, Au Gres River during the calendar year 1951, and a comparison of quality above and below the weir

Period	BELOW THE WEIR			ABOVE THE WEIR				ENTIRE STREAM		
	Total angler days	Catch per hour per angler	Standard deviation	Total angler days	Catch per hour per angler	Standard deviation	Test for sig. diff. above:VS. below ("T")	Total angler days	Catch per hour per angler	Standard deviation
April 28- May 25	165	0.02	0.0964	953	0.06	0.1905	0.4124	1,118	0.05	0.1803
May 26- June 22	1	0.13	...	482	0.07	0.1942	...	483	0.07	0.1939
June 23- July 20	0	...	...	359	0.03	0.0872	...	359	0.03	0.0872
July 21- Aug. 17	0	...	...	157	0.03	0.0933	...	157	0.03	0.0933
Aug. 18- Sept. 9	26	0.06	0.1600	174	0.02	0.0837	1.2500	200	0.03	0.0975
Totals regular trout season	192	0.03	0.1072	2,125	0.05	0.1661	0.2342	2,317	0.05	0.1622
Sept. 10- Oct. 5	89	0.07	0.1378	169	0.03	0.0970	2.4390	258	0.04	0.1145
Oct. 6- Nov. 2	151	0.08	0.1931	164	0.09	0.1929	0.4587	315	0.09	0.1929
Nov. 3- Nov. 30	58	0.08	0.1517	62	0.10	0.1977	1.5625	120	0.09	0.1766
Totals special fall season	298	0.08	0.1700	395	0.07	0.1631	0.7821	693	0.07	0.1661
Grand totals 1951	490	0.06	0.1507	2,520	0.05	0.1658	1.3333	3,010	0.05	0.1634

Table 11.--Sex ratios of rainbow trout taken by anglers
from the East Branch, Au Gres River in 1951

Period	Males	Females	Unknown	Total
April 28- May 25	67	116	70	253
May 26- June 22	22	93	68	183
June 23- July 20	9	30	5	44
July 21- Aug. 17	3	13	2	18
Aug. 18- Sept. 14	6	12	5	23
Totals regular season (Apr. 28-Sept. 9)	105	263	149	517
Sept. 15- Oct. 12	50	15	7	72
Oct. 13- Nov. 9	107	24	8	139
Nov. 10- Nov. 30	49	8	6	63
Totals fall season (Sept. 10-Nov. 30)	208	48	22	278
Grand totals 1951	313	311	171	795

Table 12.--Length frequency in the angler's catch of rainbow trout taken from the East Branch, Au Gres River in 1951

Length range inches and tenths	Number of rain- bow trout	Length range inches and tenths	Number of rain- bow trout
7.0 - 7.9	45	19.0 - 19.9	28
8.0 - 8.9	61	20.0 - 20.9	28
9.0 - 9.9	27	21.0 - 21.9	45
10.0 - 10.9	19	22.0 - 22.9	74
11.0 - 11.9	17	23.0 - 23.9	56
12.0 - 12.9	38	24.0 - 24.9	41
13.0 - 13.9	44	25.0 - 25.9	24
14.0 - 14.9	63	26.0 - 26.9	5
15.0 - 15.9	77	27.0 - 27.9	6
16.0 - 16.9	36	28.0 - 28.9	6
17.0 - 17.9	32	29.0 - 29.9	2
18.0 - 18.9	19	30.0 - 30.9	1
Total	...	...	794

Table 13.--Numbers of individual anglers making various numbers of trips, and catching various numbers of trout on the East Branch, Au Gres River in 1951

Number of individual anglers making number of trips and percent of total			Number of individual anglers catching numbers of trout and percent of total		
Number of trips	Number of individual anglers	Percent of total	Number of trout	Number of individual anglers	Percent of total
1	1,327	74.09	0	1,465	81.80
2	231	12.90	1	185	10.33
3	103	5.75	2	53	2.96
4	38	2.12	3	19	1.06
5	25	1.40	4	13	0.73
6	17	0.95	5	8	0.45
7	9	0.50	6	5	0.28
8	8	0.45	7	12	0.67
9	8	0.45	8	6	0.34
10	4	0.22	9	4	0.22
11	6	0.34	10	3	0.17
12	2	0.11	11	1	0.05
13	5	0.28	12	1	0.05
14	2	0.11	13	3	0.17
15	0	...	14	0	...
16	0	...	15	0	...
17	1	0.05	16	2	0.11
18	0	...	17	0	...
19	0	...	18	0	...
20	1	0.05	19	0	...
21	1	0.05	20	1	0.05
22	2	0.11	21	0	...
23	0	...	22	0	...
24	0	...	23	0	...
25	0	...	24	0	...
26	0	...	25	0	...
27	0	...	26	0	...
28	0	...	27	0	...
29	0	...	28	1	0.05
30	0	...	29	0	...
31	1	0.05	30	0	...
Total	1,791	...	Total	1,791	...

A Review of Creel Census Returns for the Calendar Year 1952 and
A Comparison with Angling Results During the Two Preceding Years

Creel census data for the calendar year 1952 show that 1,791 individual anglers fishing the East Branch of the Au Gres River made 2,916 trips for a total of 13,601.5 hours of fishing time and creeled 565 trout including 562 rainbows and 3 browns. (See Table 14) Again, as in 1951, the totals were below those of the preceding year. Individual anglers dropped 21.6 percent (-387), angler trips 3.1 percent (-94), hours of fishing effort 7.5 percent (-1,095.5), and total catch 30.2 percent (-245). Angling quality, however, was no better or no worse than in either of the two previous years and remained at the relatively low figure of 0.05 trout per hour per angler for the stream as a whole. (See Table 16)

Fishing below the weir contrary to the pattern set by creel census totals for the entire stream showed an increase in fishing pressure and total catch over and above the 1951 season. Angler trips increased by 41.3 percent (344), hours of fishing time by 28.2 percent (1,041.5), and the take of trout by 0.7 percent (1). Above the weir it was obviously a different story as angler trips fell off 17.3 percent (-436), total hours dropped 17.7 percent (2,137.0), and the creel of trout was 37.3 percent (-264) below that of the 1951 season. (See Table 15)

In 1952 as in 1950 male rainbow trout far outnumbered females (336 males, and 217 females), and differed in this respect from the 1951 catch which was made up of almost an equal number of males and females. During the regular season 163 males were taken as compared to 143 females, and in the fall season male rainbows totaled 153 and females 61. Of 565 rainbows taken only 11 were listed as sex unknown. (See Table 17)

Rainbow trout creeled by Au Gres anglers were larger on the average than those taken in previous years. In 1950 the average weight for the rainbows was 1.79 pounds, in 1951 it had jumped to 2.08 pounds, and in 1952 it reached the even higher figure of 2.18 pounds. The scarcity of small fish under 12 inches in total length was apparently one reason for this up-swing in average weight during the 1952 season. In 1950 fish between 7 and 12 inches comprised 16.5 percent of the total catch, and in 1951 trout of this size range made up 21.5 percent of the rainbows in anglers' creels, but in 1952 only 6.7 percent of the take measured less than 12 inches in length. In size ranges above 12 inches the 1952 catch was more comparable to that of 1950 than to the 1951 take. Fish from 14 to 18 inches in length constituted 22.0 percent of the catch in 1952, 25.6 percent in 1950, and 36.3 percent in the 1951 season. (See Table 18)

A total of 1,404 individual anglers were contacted by creel census clerks on the East Branch of the Au Gres River in 1952 as compared to 1,791 in 1951 and 1,920 during the first year of census operations. Of this number 1,197 came back from fishing with empty creels, 120 caught only one fish each, while one man took home 25 fish during the season and his wife went him one better and made the 1952 record for one person by hooking 26 rainbows. The two people who caught the most fish also made the greatest number of trips, 42 and 43 respectively; while 993 of the individuals only made one trip each. (See Table 19)

Again, as in previous years, creel census returns for 1952 point to the value of the weir in providing rainbow anglers with their favorite quarry during that time of the year when the stream is normally devoid of the big fish. From May 24 to September 12 only 2 trout were reported taken below the weir, while 143 rainbows were caught above the structure during the same period, mostly prior to the removal of the screens.

Table 14.--Monthly totals of creel census data from the East Branch, Au Gres River, 1952

Period	Angler trips, male	Angler trips, female	Total angler trips	Angler trips, O-trout	Percentage of angler trips,O-trout	Hours of angling	Trout caught				Total pounds of trout
							Brook	Brown	Rainbow	All species	
April 12-25 (Special spring season)	329	16	345	319	92.5	1,608.5	0	0	39	39	60.6
April 26- May 23	640	35	675	567	84.0	2,933.0	0	2	160	162	420.7
May 24- June 20	425	36	461	383	83.1	1,963.5	0	1	95	96	236.6
June 21- July 18	156	9	165	145	87.9	849.5	0	0	24	24	52.8
July 19- Aug. 15	77	8	85	84	98.8	424.5	0	0	1	1	0.4
Aug. 16- Sept. 12	110	9	119	102	85.7	690.0	0	0	24	24	25.2
Totals regular trout season (Apr. 26-Sept. 14)	1,438	99	1,537	1,309	85.2	7,054.0	0	3	308	311	741.31
Sept. 13- Oct. 10	313	17	330	292	88.5	1,697.5	0	0	46	46	80.9
Oct. 11- Nov. 7	393	36	429	373	86.9	1,923.0	0	0	67	67	125.9
Nov. 8 - Nov. 30	293	14	307	245	79.8	1,512.0	0	0	106	106	229.9
Totals fall season (Sept. 15-Nov. 30)	969	65	1,034	882	85.3	4,939.0	0	0	215	215	431.2
Grand totals	2,736	180	2,916	2,510	86.1	13,601.5	0	3	562	565	1,232.7

Table 15.--A comparison of angling pressure and catch totals above and below the weir on the East Branch, Au Gres River, 1952

Period	BELOW WEIR				ABOVE WEIR			
	Angler trips	Hours of angling	Trout taken	Pounds of trout	Angler trips	Hours of angling	Trout taken	Pounds of trout
April 12-25 (Special spring season)	122	575.0	6	8.1	223	1,033.5	33	52.5
April 26- May 23	139	510.5	32	69.4	536	2,422.5	130	351.4
May 24- June 20	1	2.0	2	5.2	460	1,961.5	94	231.3
June 21- July 18	6	25.0	0	...	159	824.5	24	52.8
July 19- Aug. 15	1	5.0	0	...	84	419.5	1	0.4
Aug. 16- Sept. 12	1	4.5	0	...	118	685.5	24	25.2
Totals regular season (Apr. 26-Sept. 14)	154	585.5	34	74.6	1,383	6,468.5	277	666.7
Sept. 13- Oct. 10	107	564.0	12	30.8	223	1,133.5	34	50.2
Oct. 11- Nov. 7	262	1,134.0	48	93.0	167	789.0	19	32.9
Nov. 8- Nov. 30	193	378.5	51	94.9	114	633.5	55	135.0
Totals fall season (Sept. 15-Nov. 30)	556	2,538.0	111	218.7	478	2,401.0	104	212.5
Grand totals 1952	832	3,698.5	151	301.3	2,084	9,903.0	414	931.3

Table 16.--Angling quality on the East Branch, Au Gres River during the calendar year 1952, and a comparison of quality above and below the weir

Period	BELOW THE WEIR			ABOVE THE WEIR				ENTIRE STREAM		
	Total angler days	Catch per hour per angler	Standard deviation	Total angler days	Catch per hour per angler	Standard deviation	Test for sig.diff. above:VS. below ("T")	Total angler days	Catch per hour per angler	Standard deviation
April 12-25 Special spring season	122	0.01	0.0933	223	0.03	0.0877	1.9417	345	0.02	0.0900
April 26- May 23	139	0.08	0.3318	536	0.06	0.1910	0.6826	675	0.06	0.2272
May 24- June 20	1	0	...	460	0.05	0.1453	...	461	0.05	0.1449
June 21- July 18	6	0	...	159	0.05	0.1844	...	165	0.04	0.1814
July 19- Aug. 15	1	0	...	84	0.003	0.0265	...	85	0.003	0.0265
Aug. 16- Sept. 12	1	0	...	118	0.03	0.0894	...	119	0.03	0.0894
Sept. 13-14	6	0	...	26	0.03	0.0742	...	32	0.02	0.0678
Totals regular trout season	154	0.07	0.3161	1,383	0.05	0.1612	0.7752	1,537	0.05	0.1828
Sept. 15 Oct. 10	101	0.03	0.0995	197	0.03	0.0883	0.0	298	0.03	0.0922
Oct. 11- Nov. 7	262	0.04	0.1162	167	0.03	0.0900	1.0000	429	0.04	0.1068
Nov. 8-30	193	0.06	0.1789	114	0.08	0.1892	0.9132	307	0.07	0.1828
Totals special fall season	556	0.05	0.1389	478	0.04	0.1229	0.1222	1,034	0.04	0.1319
Grand totals 1952	832	0.05	0.1814	2,084	0.05	0.1453	0.0	2,916	0.05	0.1575

Table 17.--Sex ratios of rainbow trout taken by anglers
from the East Branch, Au Gres River in 1952

Period	Males	Females	Unknown	Total
April 12-25 (Special spring season)	19	11	9	39
April 26- May 23	86	72	2	160
May 24- June 20	52	43	0	95
June 21- July 18	8	16	0	24
July 19- Aug. 15	1	0	0	1
Aug. 16- Sept. 12	14	10	0	24
Totals regular season (Apr. 26-Sept. 14)	163	143	2	308
Sept. 13- Oct. 10	38	8	0	46
Oct. 11- Nov. 7	49	17	1	67
Nov. 8- Nov. 30	68	38	0	106
Totals fall season (Sept. 15-Nov. 30)	153	61	1	215
Grand totals 1952	335	215	12	562

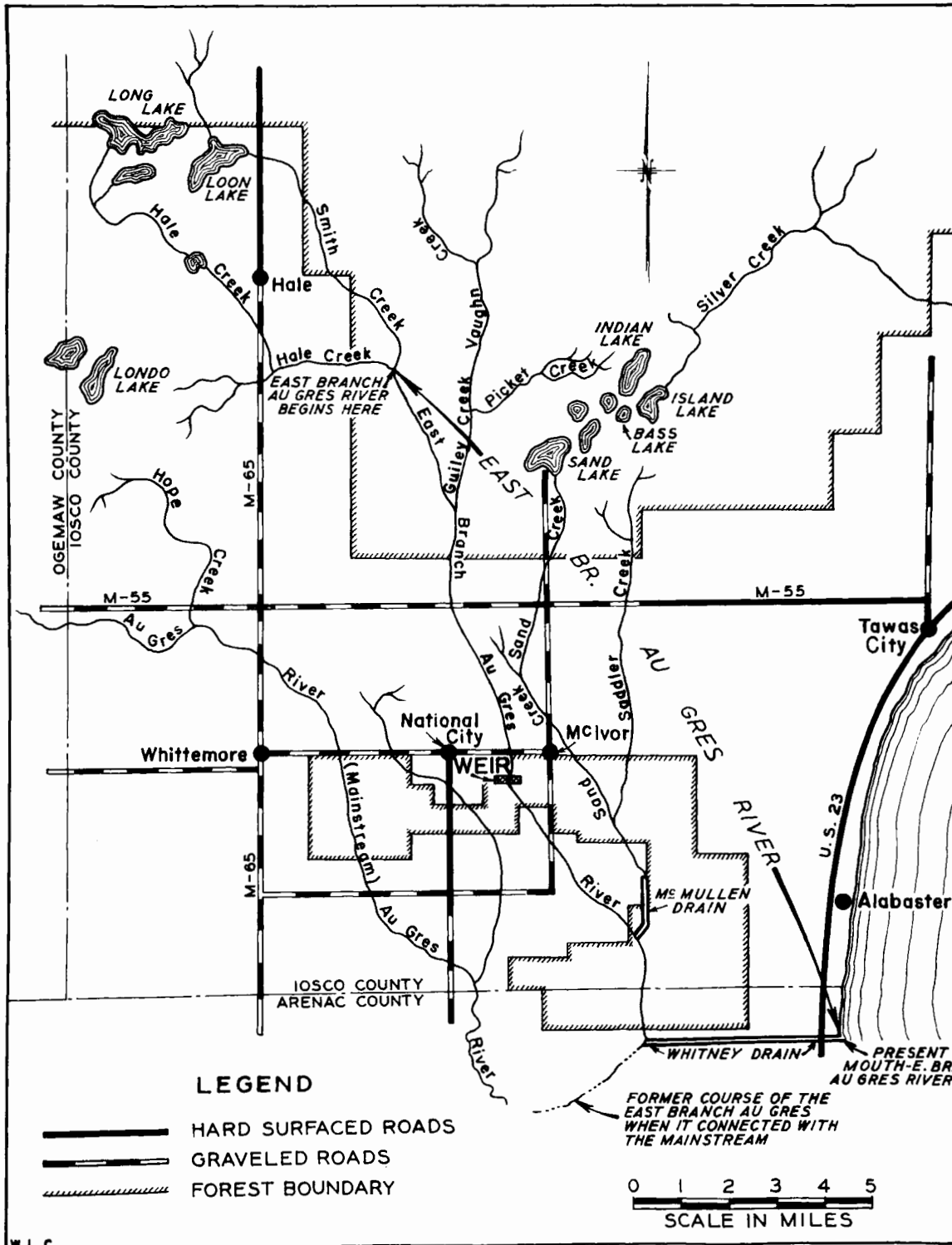
Table 18.--Length frequency in the angler's catch of rainbow trout taken from the East Branch, Au Gres River in 1952

Length range inches and tenths	Number of rain- bow trout	Length range inches and tenths	Number of rain- bow trout
7.0 - 7.9	2	19.0 - 19.9	27
8.0 - 8.9	8	20.0 - 20.9	12
9.0 - 9.9	10	21.0 - 21.9	19
10.0 - 10.9	9	22.0 - 22.9	7
11.0 - 11.9	9	23.0 - 23.9	21
12.0 - 12.9	12	24.0 - 24.9	21
13.0 - 13.9	35	25.0 - 25.9	18
14.0 - 14.9	84	26.0 - 26.9	13
15.0 - 15.9	69	27.0 - 27.9	3
16.0 - 16.9	78	28.0 - 28.9	4
17.0 - 17.9	59	29.0 - 29.9	4
18.0 - 18.9	38	30.0 - 30.9	2
Total	...	...	564

Table 19.--Numbers of individual anglers making various numbers of trips, and catching various numbers of trout on the East Branch, Au Gres River in 1952

Number of individual anglers making number of trips and percent of total			Number of individual anglers catching numbers of trout and percent of total		
Number of trips	Number of individual anglers	Percent of total	Number of trout	Number of individual anglers	Percent of total
1	993	70.73	0	1,197	85.26
2	196	13.96	1	120	8.55
3	68	4.84	2	30	2.14
4	45	3.21	3	17	1.21
5	17	1.21	4	9	0.64
6	13	0.93	5	12	0.85
7	12	0.85	6	4	0.28
8	11	0.78	7	2	0.14
9	10	0.71	8	1	0.07
10	4	0.28	9	0	...
11	7	0.50	10	2	0.14
12	5	0.36	11	1	0.07
13	1	0.07	12	1	0.07
14	5	0.36	13	1	0.07
15	1	0.07	14	2	0.14
16	2	0.14	15	0	...
17	0	...	16	0	...
18	1	0.07	17	0	...
19	0	...	18	1	0.07
20	1	0.07	19	1	0.07
21	1	0.07	20	1	0.07
22	0	...	21	0	...
23	0	...	22	0	...
24	1	0.07	23	0	...
25	0	...	24	0	...
26	0	...	25	1	0.07
27	0	...	26	1	0.07
28	1	0.07			
29	1	0.07			
30	1	0.07			
31	2	0.14			
32	1	0.07			
33	2	0.14			
34	0	...			
35	0	...			
36	0	...			
37	0	...			
38	0	...			
39	0	...			
40	0	...			
41	0	...			
42	1	0.07			
43	1	0.07			
Total	1,404	...	...	1,404	...

Fig. 1. Map of a part of the Au Gres River system
including the censused waters of the East
Branch.



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