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THE RECREATIONAL USE OF THE RIFLE RIVER AREA, OGEMAW  
COUNTY, IN 1956

By

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The 1956 report for the Rifle River Area presents in some detail the angling results for 3,463 anglers who fished the streams and the 2,327 fishermen who fished eight lakes on the Area. A brief summary of hunting and trapping success also is included. Altogether there were 22,019 permits issued to visitors in 1956. Sightseers represented 60 percent of the total number.

Anglers from 42 Michigan counties and 11 other states fished the waters on the Area. Saginaw and Wayne counties supplied the most fishermen (1,001 and 990, respectively), followed in order by Ogemaw, Genesee, and Bay counties. Other counties which furnished at least 100 fishermen were Oakland, Macomb, Midland, and Ingham. Among the non-resident anglers, 161 were from Ohio, 34 from Indiana, and 29 from Illinois. Other states represented were Pennsylvania, Kentucky, Florida, New Mexico, Wisconsin, New York, West Virginia, and Missouri.

Stream Fishing

During 1956, on the streams in the Rifle River Area 3,463 anglers spent 8,038 hours fishing and creeled 975 trout (Table 1). Trout were

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Table 1.--A summary of angling results on the streams of the Rifle River Area in 1956

Item	Stream							Area totals
	Rifle River	Gamble Creek	Houghton Creek	Brown Trout Creek	Fontinalis Creek	Skunk Creek	Diversion	
Number of fishermen	2,965	228	97	30	77	10	56	3,463
Hours of fishing	7,136.0	458.5	185.0	40.0	138.5	7.5	72.5	8,038
Number of trout	769	81	23	4	75	0	23	975
Pounds of trout	351.8	31.6	7.7	1.6	23.0	...	7.6	423.3
Number of other fish	249	0	3	0	0	0	0	252
Pounds of other fish	73.5	...	3.1	...	...	...	...	76.6
Total number of fish	1,018	81	26	4	75	0	23	1,227
Total pounds of fish	425.3	31.6	10.8	1.6	23.0	...	7.6	499.9
Pounds/acre	18.6	5.3	12.1	0.62	24.5	...	...	14.8 <sup>v</sup>
Percentage successful trout fishermen	14.3	18.8	12.3	13.3	35.0	0.00	19.6	15.1
Catch/hour of all trout	0.11	0.18	0.12	0.10	0.54	0.00	0.32	0.12
Catch/hour/angler of wild trout	0.07	0.10	0.09	0.17	0.40	0.00	0.21	0.08

<sup>v</sup>Skunk Creek and Diversion were not included in this calculation.

caught at the rate of 0.12 fish per hour. Only a comparatively small proportion of the anglers (15.1 percent) were successful in catching at least one trout. There was a 9.5-percent decrease in the number of anglers from 1955, and a 25-percent drop in the number of hours fished during 1956. The total harvest of trout declined from 2,699 in 1955 to 975 in 1956, or about 64 percent. In terms of angling quality, the catch per hour was reduced by about one-half. Since 55.2 percent of the total catch in 1955 were hatchery trout and only 24.3 percent were of hatchery origin in the 1956 catch, a more comparable measure of angling quality can be expressed in terms of wild trout caught. The catch of wild trout in 1955 and 1956 was 0.11 and 0.09 fish per hour, respectively.

The Rifle River supported approximately 86 percent of the total number of trips on the streams of the Area and yielded 79 percent of the catch of trout. In harvesting 769 trout from the Rifle River at a rate of 0.11 fish per hour, 2,965 anglers fished 7,136 hours. Hatchery trout comprised 23.4 percent (180) of the trout catch from this stream of which 13.7 percent (106) were rainbow trout and 9.6 percent (74) were brown trout. Only five brook trout were caught, all of which were wild trout.

Twelve species of fish were included in the catch from the Rifle River (Table 2). Brown trout, rainbow trout, brook trout, and white suckers comprised the cold-water species and they represented 81.8 percent of the 1,018 fish caught. Of the remaining eight species, rock bass and yellow perch were most abundant. All of the warm-water species caught in the Area streams were taken from the "upper" Rifle River, that portion of the stream between Devoe Lake dam and the mouth of Houghton Creek. Most of these fish were caught at the dam or in the immediate vicinity. Of the 583 wild brown trout taken from the Rifle River, only 13 were caught in the upper section.

Table 2.--Species composition of the anglers' catch from the streams of the Rifle River Area in 1956

Species	Stream												Total number	Percentage of total catch
	Rifle River		Fontinalis Creek		Gamble Creek		Houghton Creek		Diversion		Brown Trout Creek			
	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage		
Brown trout:														
Wild	583	57	54	72	43	53	21	81	9	39	4	100	714	58
Hatchery	74	7	1	1	6	7	1	4	6	26	0	...	88	7
Rainbow trout:														
Wild	1	... <sup>1</sup> ✓	0	...	0	...	0	...	0	...	0	...	1	... <sup>1</sup> ✓
Hatchery	106	10	9	12	28	35	0	...	5	22	0	...	148	12
Brook trout:														
Wild	5	1	11	15	3	4	1	4	3	13	0	...	23	2
Hatchery	0	...	0	...	1	1	0	...	0	...	0	...	1	... <sup>1</sup> ✓
Rock bass	87	9											87	7
White sucker	64	6					3	11					67	6
Yellow perch	49	5											49	4
Longear sunfish	15	2											15	1
Pumpkinseed	14	1											14	1
Bluegill	10	1											10	1
Bullhead	8	1											8	1
Smallmouth bass	1	... <sup>1</sup> ✓											1	... <sup>1</sup> ✓
Carp	1	... <sup>1</sup> ✓											1	... <sup>1</sup> ✓
Total	1,018		75		81		26		23		4		1,227	

<sup>1</sup>✓ Less than 0.5 percent.

The ages of 560 wild brown trout caught from the Rifle River were determined (96 percent of the total catch). The age composition of these fish is shown in Table 3. Brown trout in their third year of life (age group II) were the predominant age group in the catch, and two- and three-year-old trout together comprised a major portion (79 percent) of the catch from this stream. Only four trout older than 5 years were caught.

Gamble Creek ranked second in angling pressure on the streams of the Area. Anglers spent 458.5 hours on this stream and caught 81 trout, 46 of which were wild fish. Wild trout were caught at the rate of 0.10 fish per hour. During 1955, 156 angling trips (325 hours) on Gamble Creek produced 62 wild trout at a rate of 0.19 fish per hour. Of the 43 wild brown trout captured in Gamble Creek during 1956, 39 were aged. Most of these fish (59 percent) were three years old. Two-year-old fish comprised 28 percent of the creel.

The angling pressure and catch on Houghton Creek was about the same as last year. Anglers caught 19 wild trout in 1955 and 22 in 1956. Wild trout were caught at the rate of 0.10 fish per hour in 1955 and 0.12 in 1956. The anglers' catch of wild brown trout was represented primarily by fish in their third year of life (age group II).

Fishermen on Fontinalis Creek had the highest percentage of successful fishing trips and consequently the best angling quality (0.54 fish per hour). Angling pressure on this stream increased almost twofold over 1955 (from 73 hours to 138.5 hours), and the catch of wild trout increased from 15 in 1955 to 65 in 1956. The catch per hour of wild trout in 1955 was 0.21; in 1956 it was 0.47. Forty-eight of the 54 wild brown trout caught were aged. Trout in their fourth year of life represented the strongest age group (III) with age group II next in importance. The oldest trout caught was 5 years old.

Table 3.--Age composition of wild brown trout caught in the Rifle River Area trout streams in 1956

Age group	Stream											
	Rifle River		Fontinalis Creek		Gamble Creek		Houghton Creek		Diversion		Brown Trout Creek	
	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
I	44	8	...	...	...	...	3	16	2	25	...	...
II	289	52	13	27	11	28	13	68	4	50	1	25
III	151	27	26	54	23	59	1	5	1	12		
IV	48	9	8	17	3	8	2	11	1	12	3	75
V	24	4	1	2	2	5	...	...	...	...	...	...
VI	1	... <sup>1</sup>	...	...	...	...	...	...	...	...	...	... <sup>1</sup>
VII	2	... <sup>1</sup>	...	...	...	...	...	...	...	...	...	... <sup>1</sup>
VIII	1	... <sup>1</sup>	...	...	...	...	...	...	...	...	...	...
Total	560		48		39		19		8		4	
Total catch <sup>2</sup>	583		54		43		21		9		4	

<sup>1</sup> Less than 0.5 percent.

<sup>2</sup> Includes fish for which age was not determined.

In terms of hours, angling pressure on the Diversion decreased by more than one-half of that of the previous year and the catch of trout was reduced by a similar amount. However, if only the catch of wild trout is considered, the rate of catch would be 0.13 and 0.16 fish per hour, respectively, for 1955 and 1956.

Comparatively few hours of angling were spent on either Brown Trout Creek or Skunk Creek. Four brown trout were caught in Brown Trout Creek during 40 hours of angling, but none were taken in Skunk Creek after 7.5 hours of fishing.

Of the 738 wild trout caught in the Area streams, 714 were brown trout. One wild rainbow trout was reported from the Rifle River. Of 23 brook trout taken, 11 were caught in Fontinalis Creek. The ages of 21 of the 23 brook trout caught are listed in Table 4.

Almost twice as many anglers fished with worms than with all other lures combined (Table 5). Flies ranked second in popularity, but for every fly fishermen there were nearly four worm fishermen. For every hour spent fishing with flies, almost five hours were expended in worm fishing. Fly fishermen experienced a significantly better quality of angling than did the worm fishermen ( $t$  test:  $t = 5.95$ ). This difference might be attributed in part to a proportionately larger number of inexperienced anglers among worm fishermen. Minnow fishing produced the highest quality of angling but comparatively few trips were involved.

The most significant change in angling in 1956 occurred on the Rifle River. There were 2,818 fewer angling hours and 475 less trips than in 1955. Although the catch of wild trout was reduced by 46.2 percent (505 fish) in 1956, the accompanying reduction in angling pressure only lowered the catch per hour from 0.11 to 0.08. Plantings of hatchery trout during

Table 4.--Age composition of wild brook trout caught from the streams of the Rifle River Area in 1956

Age group	Stream									
	Fontinalis Creek		Rifle River		Gamble Creek		Diversion		Houghton Creek	
	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
I	2	18	1	25			1	25		
II	8	73	2	50	2	100	2	75	1	100
III	1	9	1	25						
Total	11		4		2		3		1	
Total catch <sup>∇</sup>	11		5		3		3		1	

<sup>∇</sup>Includes fish for which age was not determined.



Table 5.--A comparison of the amount of fishing and rate of success of anglers using various types of lures to capture wild brown trout in Rifle River Area streams, 1956

Lure	Number of trips	Total hours	Successful trips	Number of trout	Catch/hour/angler
Fly	591	1125.5	121	187	0.16
Worms	2298	5589.5	249	481	0.06
Minnows	36	69.5	9	18	0.22
Insects	24	41.5	2	2	0.02
Spinning	19	38.5	4	7	0.12
Other artificial lures <sup>1</sup>	18	22.0	1	1	0.11
Combination	465	1117.5	23	37	0.03
Unknown	12	34.0	3	5	0.09
Total	3463	8038.0	412	738	

<sup>1</sup>Plugs, spoons etc.

1955, together with survivors from releases of hatchery trout in other years, provided a larger supply of trout for fishing. No hatchery trout were planted in the Area streams during 1956, and fewer trout were available from earlier hatchery plantings.

The quality of angling on the other streams of the Area tends to fluctuate more each year than on the Rifle River because these streams are fished rather lightly and few fish are caught. Small shifts in fishing pressure and catch can easily modify angling quality; hence it is difficult to tell whether or not annual changes are significant. It is interesting to note, however, that over the past 7 years (1950-1956) the catch per hour of wild trout from all streams in the Area has been remarkably similar, ranging between 0.09 and 0.11.\* These figures emphasize the fact that if improved fishing is to result from stream and watershed improvement, it may not become apparent until many years have elapsed.

#### Lake Fishing Results

Despite inclement weather during the spring and summer, there were more fishermen on the Area lakes this year than in 1955. The 2,327 anglers in 1956 (who fished for 7,428 hours) represented an increase of 71 fishermen. As shown in Table 6, Devoe Lake was fished by the most fishermen (1,044) but South Pond received the most fishing pressure in hours per acre (90.0). In 1956, 4,255 fish with a total weight of 1,063.4 pounds were caught in the eight lakes and ponds. Thirty-five percent of the fishermen caught at least one fish.

Bluegills comprised 45 percent of the total catch of fish from the lakes (Table 7), followed by perch (24 percent) and pumpkinseeds (9 percent). As a group, the pan fishes (perch, sunfish, bluegill, crappie, and rock bass) constituted 90 percent of the catch. Anglers on Dollar

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\* Average catch per hour (total fish caught divided by total hours fished). These values are not strictly comparable to figures for the average catch per hour per angler given in Table 1. (See Inst. for Fish. Res. Methods Memo. No. 17.)

Table 6.--The fishing pressure, yield, and rate of success of anglers on the Rifle River Area lakes in 1956

Item	Lake								Area totals
	Devil's Wash Basin	Devoe	Dollar	Loon	North	South Pond	Spring	Teal	
Number of fishermen	6	1,044	406	239	403	53	127	49	2,327
Fishermen per acre	5.0	8.0	31.2	14.1	4.2	40.8	1.8	8.0	6.9
Hours of fishing	7	3,762	1,075	714	1,434	117	220.5	98.5	7,428
Hours per acre	5.4	28.9	82.7	42.0	15.0	90.0	3.1	16.4	22.1
Number of fish	0	1,020	1,502	1,256	292	181	0	4	4,255
Fish per acre	0	7.8	115.4	73.9	3.0	139.2	0	0.7	12.7
Pounds of fish	0	434.3	250.3	217.0	134.5	26.6	0	0.7	1,063.4
Pounds per acre	0	3.3	19.1	12.8	1.4	20.5	0	0.1	3.2
Catch/hour/angler	0	0.26	1.44	1.69	0.15	1.87	0	0.06	...
Percentage successful	0	28.5	57	67	18.5	73	0	8	35

Table 7.--The species composition by number (N) and percentage (P) of the catch from six lakes on the Rifle River Area in 1956

Species	Lake												Total number	Percentage of Area total
	Devoe		Dollar		Loon		North		South P.		Teal			
	N	P	N	P	N	P	N	P	N	P	N	P		
Bluegill	28	3	1,104	73	632	50	5	2	147	81	1	25	1,917	45
Yellow perch	426	42	87	6	290	23	199	68	3	2	...	...	1,005	24
Pumpkinseed	72	7	161	11	122	10	1	... <sup>2</sup>	8	4	3	75	367	9
Black crappie	87	9	71	5	129	10	5	2	...	...	...	...	292	7
Rock bass	149	15	28	2	5	1	21	7	6	3	...	...	209	5
Smallmouth bass	80	8	...	...	...	...	37	13	...	...	...	...	117	3
Bullhead	5	... <sup>2</sup>	14	1	70	6	3	1	3	2	...	...	95	2
Rainbow trout	85	8	...	...	...	...	1	... <sup>2</sup>	...	...	...	...	86	2
Largemouth bass	19	2	37	2	4	... <sup>2</sup>	10	4	2	1	...	...	72	2
Brown trout	36	4	...	...	...	...	...	...	...	...	...	...	36	1
White sucker	21	2	...	...	...	...	4	1	...	...	...	...	25	... <sup>2</sup>
Longear sunfish	8	... <sup>2</sup>	...	...	...	...	...	...	12	7	...	...	20	... <sup>2</sup>
Northern pike	2	... <sup>2</sup>	...	...	...	...	6	2	...	...	...	...	8	... <sup>2</sup>
Hybrid sunfish	...	...	...	...	4	... <sup>2</sup>	...	...	...	...	...	...	4	... <sup>2</sup>
Carp	2	... <sup>2</sup>	...	...	...	...	...	...	...	...	...	...	2	... <sup>2</sup>
Totals	1,020		1,502		1,256		292		181		4		4,255	

<sup>2</sup>No fish were caught in Devil's Wash Basin and Spring Lake.

<sup>2</sup>Less than 0.5 percent.

Lake took the most fish, and no fish were taken from either Spring Lake or the Devil's Wash Basin. Only one bluegill and three pumpkinseeds were caught in Teal Lake. Spring Lake had a winterkill early in 1956 and it is quite probable that the Devil's Wash Basin also suffered similarly. No fish were caught in the latter pond by hook and line and none were taken in nets used in October.

The creel census returns for South Pond and Dollar, Loon, Devoe, and North lakes were large enough to warrant detailed consideration. These data were compiled according to method of fishing and season of the year. The seasons were arbitrarily defined as follows: Spring - April 1 to June 15; Summer - June 16 (opening of bass season) to September 3 (Labor Day); Fall - September 4 to November 30; Winter - January 1 to March 31 and December.

After the first of July as many fish as possible were either scale-sampled, or at least measured. Before then a good selection of scale samples was obtained for most species except bluegill from Dollar Lake and perch from Devoe Lake. Only 20 percent of 172 bluegills and 13 percent of 107 perch taken before July 1 were scale-sampled. However it is quite likely that all bluegills and perch over 8.0 inches long were scale-sampled and the estimates of the age compositions of the two catches for the year should be reasonably close.

Fish that were measured but not scale sampled were grouped into length frequencies in which a class interval of one-half inch was used. Ages were then assigned according to the percentage of age groups represented in similar class intervals of scale-sampled fish. If so desired, an estimate of the total contribution of each year class of a species to the catch can be made by applying the estimated percentages given in the tables to the respective total numbers caught.

South Pond: Fifty-three anglers fished this 1.3-acre pond in 1956. They caught 181 fish, 147 of which were bluegills. Most of the bluegills caught were between 6.0 and 6.9 inches long. The rest of the catch was divided among six species (Table 7). Seventy-three percent of the anglers fished this pond during the summer period and nearly half of them still-fished with worms from the shore.

From the scales of 64 percent of the bluegills it was estimated that 86 percent of the total bluegill catch were 3-year-old fish (1953 year class). The oldest fish was in its sixth summer of life when caught. This 1953 year class appears to dominate the population and good bluegill fishing should prevail in this pond next year.

Dollar Lake: This 13-acre lake annually receives a considerable amount of fishing pressure. In 1956, 406 anglers fished the lake for 1,075 hours and caught 1,502 fish which weighed 250 pounds. These fish were removed at the rate of 19 pounds per acre (Table 6). Nearly three-fourths (73 percent) of the total catch was composed of bluegills, followed by pumpkinseeds, perch, and crappies (Table 7). The other three species in the creels (largemouth bass, rock bass, and bullheads) made up only 5 percent of the catch. Redear sunfish were stocked as fingerlings in this lake in 1954 but none were caught by anglers despite the fact some of these fish are now over 9 inches long.

The data in Table 8 indicate the age composition of the catches of five species caught in Dollar Lake in 1956. The 1952 year class (age group IV) of four of these species made important contributions to this year's catch, whereas three-year-old fish were most abundant in the perch harvest. The 1949 year class (age group VII) of bluegill, crappie, and largemouth bass also comprised a relatively important part of these catches. Other numerically important age groups in the samples are noted in the table.

Table 8.--The estimated age composition of portions of the total catch of five species of fish from Dollar Lake, 1956

Age group	Species									
	Bluegill		Pumpkinseed		Crappie		Largemouth bass		Perch	
	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
II	...	...	1	1	...	...	2	5	12	29
III	19	3	32	36	...	...	6	16	23	57
IV	619	80	54	60	7	21	16	44	3	7
V	86	11	1	1	4	12	1	3	1	2
VI	18	2	...	...	7	21	2	5	...	...
VII	23	3	1	1	10	31	6	16	2	5
VIII	1	... ↙	...	...	4	12	2	5	...	...
IX	2	... ↙	...	...	1	3	1	3	...	...
X	3	... ↙	1	1	...	...	...	...	...	...
XI	1	... ↙	...	...	...	...	...	...	...	...
XII	...	...	...	...	...	...	1	3	...	...
Totals	772		90		33		37		41	
Total catch	1,104		161		71		37		87	

↙ Less than 0.5 percent.

Scale samples were obtained from all of the largemouth bass while 70 percent of the bluegills were either scale-sampled or measured. The 12-year-old bass was the largest bass caught (19.7 inches, 59 ounces), and the 11-year-old bluegill was 9.1 inches long and weighed 7.5 ounces. Eight bluegills were caught in 1956 that were known to have weighed at least 8 ounces. However, most of the bluegills were between 5.5 and 6.5 inches long. The oldest pumpkinseed was 10 years old, weighed 8 ounces, and was 8.8 inches long--somewhat larger than the 9-year-old crappie (7.7 inches).

Seventy percent of the fishing on this lake was done during the summer season but some angling also was done in each of the other three seasons. Still-fishing with worms was the most popular method of fishing. Sixty-two percent of the anglers fished in this manner and caught most of the fish. However, twice as many bass were caught by fishermen who cast with plugs than by the above-mentioned anglers. In 1956, 71 percent of the fishermen on this lake caught at least one fish.

Devoe Lake: More than 1,000 anglers fished this 130-acre lake in 1956 and took 1,020 fish, nearly half of which (42 percent) were perch (Table 6). However, the 3,762 hours of fishing on this lake amounted to only 28.9 hours per acre. The yield of fish, by weight, was only 3.3 pounds per acre. Rock bass also were numerically important in the catch, followed by crappies, rainbow trout, smallmouth bass, and pumpkinseeds (Table 7). A total of 14 species were represented in the 1956 catch.

As shown in Table 9, fish under 4 years of age appeared to dominate the catches of perch, rock bass, smallmouth bass, brown trout, and crappie. Six-year-old rock bass, perch, and crappies also comprised an important part of the catch. The 1953 year class of rock bass appears to be stronger than the others, and the 1954 broods of crappie and smallmouth bass were best represented in their respective catches.



Table 9.--The estimated age composition of portions of the total catch of five species of fish from Devoe Lake, 1956

Age group	Species									
	Perch		Rock bass		Crappie		Brown trout		Smallmouth bass	
	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
I	21	10	3	2	...	...	...	...	4	5
II	75	38	16	11	33	40	2	6	35	44
III	75	38	85	61	8	10	20	61	20	25
IV	10	5	11	8	6	7	9	27	15	19
V	4	2	7	5	10	12	1	3	1	1
VI	9	4	14	10	17	21	1	3	2	2
VII	6	3	4	3	5	6	...	...	2	2
VIII	...	...	...	...	3	4	...	...	1	1
Totals	200		140		82		33		80	
Total catch	426		149		87		36		80	

One 12-year-old largemouth bass was caught in 1956 but one-third of the remaining bass were 2-year-olds. All rainbows caught were hatchery-planted fish, none of which were scale-sampled. No rainbows were stocked in 1956. Seventy-seven percent of these fish caught were stocked in 1955. For five trout no markings could be positively identified. Only 2 of the 36 brown trout caught were hatchery fish.

Of the 1,044 fishermen on Devoe Lake, 312 (30 percent) fished the lake in the spring before the opening of the bass season. Numerically important species in their catches were perch, rainbow trout, brown trout, and suckers. Perch comprised 41 percent of their catch; rainbows 29 percent. Perch likewise dominated the catches of the summer anglers, followed by rock bass and smallmouth bass. The 50 anglers on the lake after Labor Day caught more than half of the crappie taken in 1956.

Worms were the most popular bait used by anglers on this lake. Forty-seven percent used worms only and many others used worms as well as other baits. Artificial lures were relatively unsuccessful in catching fish; only 14 fish were caught by the 87 anglers who used them. Trolling is rather important on this lake and most of the trollers used worms for bait. Most of the trout were captured by trolling.

Loon Lake: There were 714 hours of fishing on this 17-acre lake in 1956 (Table 6). The 239 fishermen caught 1,256 fish, the second highest yield among the lakes. The total weight of these fish was 217 pounds and fish were removed at the rate of 12.8 pounds per acre. These fishermen had the second highest rate of success (1.69 fish per hour per angler) and two-thirds of them were successful in catching at least one fish.

Bluegills comprised 50 percent of the catch followed by perch, crappies, and pumpkinseeds (Table 7). As in 1955, anglers caught more

crappies and bullheads in Loon Lake than in the other Area lakes but, unlike last year, very few largemouth bass were caught. This species suffered a heavy mortality because of winterkill as did crappies and large carp. Counts of 93 bass, 173 crappies, 65 bluegills, and 46 carp were made by Gowing and DeClaire along the shoreline after the ice disappeared on April 16, 1956. Other species noted included rock bass and bullheads. Maximum lengths of dead bass, carp, and crappies were 20, 30, and 13 inches respectively.

The estimated age compositions of major portions of the catches of four species are presented in Table 10. Only five bluegills were older than 4 years. The perch catch was dominated by the 1952 year class (age group IV). Two age groups (IV and VI) predominated in the crappie catch, but only three fish were longer than 8.0 inches.

Eighty-three percent of the fishing hours were put in during the summer months, at which time 85 percent of the fish were caught. Because of the nature of the shoreline, practically all of the angling on this lake is done from a boat. Again, the still-fishermen who used worms were most numerous (62 percent) while others also used both worms and other baits. The 12 ice fishermen, using grubs for bait, caught 39 crappies at a rate of almost two fish per hour. Very little casting or trolling was done on this lake.

North Lake: This 95-acre lake has had a history of poor fishing and 1956 was no exception. The 403 anglers caught 292 fish which weighed a total of 134.5 pounds (Table 6). Only 18.5 percent were successful and their catch rate was a low 0.15 fish per hour per angler. Perch comprised 68 percent of the harvest (Table 7), followed by smallmouth bass (13 percent) and rock bass (7 percent). Eleven species were

Table 10.--The estimated age composition of portions of the total catch of four species of fish from Loon Lake, 1956

Age group	Species							
	Bluegill		Perch		Crappie		Pumpkinseed	
	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
I	...	...	1	...	...	...	...	...
II	31	7	47	18	1	1	8	7
III	203	42	65	25	2	2	48	47
IV	247	51	143	55	33	34	29	28
V	1	...✓	2	1	20	21	13	13
VI	1	...✓	2	1	37	39	4	4
VII	...	...	...	...	3	3	1	1
Totals	483		260		96		103	
Total catch	632		290		129		122	

✓ Less than 0.5 percent.

represented in the catch. One rainbow trout was caught but no brown trout were taken. Five crappies were reported caught from North Lake this year, the first in several years. Two-thirds of the smallmouth bass were caught in June within 2 weeks after the opening date.

As shown in Table 11, 84 percent of the smallmouth bass were 3-year-old fish and apparently this year class is dominant in the lake at the present time. Four-year-old fish were most numerous in the perch catches, but fish between 7 and 12 years old dominated the limited catch of largemouth bass.

Perch were most abundant in the catches of the summer fishermen. Relatively little fishing was done at any other time of the year. No fish were caught by the 31 spring fishermen, but the 42 anglers who fished in the fall of the year caught 41 fish, 32 of which were perch.

A variety of fishing techniques were used on North Lake. Still-fishermen who used worms were most numerous. More people fished from shore on this lake than on any other lake in the Area. These anglers caught half of the largemouth bass and 73 percent of the smallmouth bass, most of them on worms. Few fish of any kind were taken on artificial baits. Twenty-five percent of the anglers trolled exclusively and those who used minnows took the one rainbow trout, four of the pike, and three of the bass.

#### Hunting Results

A summary of the 1956 hunting pressure and success is presented in Table 12. During the small-game seasons 741 hunters were on the Area for 2,030 hours and bagged 173 game birds and animals. About half as many grouse were shot in 1956 as in 1955 and there was an 18-percent drop in the kill of woodcock from last year. Only 7 rabbits were shot

Table 11.--The age composition of portions of the total catch of three species of fish from North Lake, 1956

Age group	Species					
	Perch		Smallmouth bass		Largemouth bass	
	Number	Percentage	Number	Percentage	Number	Percentage
II	...	...	2	5	1	10
III	21	19	31	84	2	20
IV	58	51	1	3	1	10
V	20	17	2	5	...	...
VI	9	8	...	...	...	...
VII	5	4	1	3	2	20
VIII	1	1	...	...	1	10
XI	...	...	...	...	2	20
XII	...	...	...	...	1	10
Totals	114		37		10	
Total catch	199		37		10	

Table 12.--A general summary of 1956 hunting results on the Rifle River Area

Season	Hunter days	Hunting hours	Ducks	Ruffed grouse	Woodcock	Rabbit	Squirrel	Raccoon	Fox	Legal Deer
Small game	741	2,030.5	29	56	55	7	23	1	2	...
Deer (gun)	2,350	10,371	...	...	...	...	...	...	...	62
Deer (archery)	450	1,761.5	...	...	...	...	...	...	...	1
Totals	3,541	14,163	29	56	55	7	23	1	2	63

✓ Eighteen illegal kills were found on the area during and after the hunting season.

this year as compared to 46 in 1955, while the duck kill was almost identical both years. Squirrel, fox, and raccoon also were included in the 1956 total bag for the Area.

Whereas small-game hunters had relatively poor success, the 2,800 deer hunters shot 81 deer. Thirty-eight legal bucks were killed in the regular gun season and 24 deer were killed during the special 2-day "any-deer" season December 1 and 2. Archers shot one doe in 450 hunter days. Eighteen illegal kills were reported. Ten of these were found during the gun season and eight were located later during the winter by following fox tracks to the carcasses.

The buck kill this year has been exceeded only five times in the last 12 years in spite of the fact there have been three special seasons prior to 1956. Five of the deer taken in 1956 were born before 1952 when the first special season that included this Area was authorized. The average weight of the bucks dropped from 107 pounds in 1955 to 101.4 pounds in 1956. Of the 38 bucks, 36 were shot during the first 5 days of the season.

#### Trapping Results

Spring trappers took eight beaver, one fox, and one mink. In the fall and winter trapping period, trappers caught 100 muskrat, 13 mink, and 6 raccoons. These results were approximately the same as recorded for 1955.

#### Miscellaneous Area Activities

Mr. Howard Gowing continued his studies on the growth rates of trout in the Area streams, and the nearby tributaries to the Rifle River. Population estimates for trout were made for portions of Houghton Creek



and Gamble Creek as in the past few years. Fish sampling also was done at seven stations on the Rifle River. Weirs were operated in the spring on Gamble Creek and in the outlet of North Lake. From the latter weir 20 northern pike were tagged and transferred to Teal Lake.

The senior author was employed in June, 1956, to assume charge of the fisheries research program on the Area. The fish populations in most of the Area lakes and ponds were sampled by means of shoreline seining and various types of netting gear in August, September, and October. These preliminary surveys were made to obtain: (1) some idea of the effectiveness of the gear, (2) a measure of the relative size of the fingerling crops, (3) the species composition of fish populations in the lakes, and (4) scale collections for growth studies. A start was made on calculating the growth rates of fishes in the lakes and reviewing the creel census information for the past 11 years.

The continuing grouse investigations were conducted by Mr. Walter Palmer of the Game Division, assisted by students from Michigan State University and the University of Michigan.

New construction on the Area was confined to the building of a boardwalk across the marsh to the edge of Teal Lake, and a footbridge across the Diversion for access to the Devil's Wash Basin. The roads were kept open during the winter months in 1956 for the first time since the Department acquired the Area in 1945.

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