Original: Fish Division
cc: Educ.-Game
Inst. for Fish. Res.
Rifle River Station
Hunt Creek Station
Region II, Fish
M. H. Patriarche
H. Gowing

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

GERALD R. COOPER PH.D.
DIRECTOR

ADDRESS
UNIVERSITY MUSEUMS ANNEX
ANN ARBOR, MICHIGAN

Report No. 1681

November 22, 1963

THE EIGHTEENTH ANNUAL REPORT ON THE RIFLE RIVER RECREATION AREA,[1] OGEMAW COUNTY, 1962

By Mercer H. Patriarche and Howard Gowing

The Rifle River Recreation Area is a 4,318-acre tract of wooded land located in northeastern Ogemaw County. Six lakes, a number of ponds, and approximately 9.5 miles of stream are within its fenced boundary (Figure 1). Purchased by the Department of Conservation in 1944, it has been open to recreational use by the public since 1945. As visitors pass through the single entrance, they are given free permits which they return to the checking station upon leaving. Pertinent information on fish and game taken from the Area is recorded at the checking station. This report on the recreational use of the Area in 1962 presents detailed results of fishing on the lakes and streams and brief summaries of hunting and trapping activities.

In 1962, nearly 31,000 permits (30,755) were issued to visitors. Of these permits, 19,898 (64.7 percent) were for sightseeing, 5,639 (18.3 percent) for fishing, 3,720 (12.1 percent) for hunting, 1,434 (4.7 percent) for camping, and 64 (0.2 percent) for trapping.

---

[1] On June 14, 1963, the Conservation Commission transferred the administration of the Rifle River Area from the Fish Division to the Parks and Recreation Division and formally dedicated the Area as the "Rifle River Recreation Area."

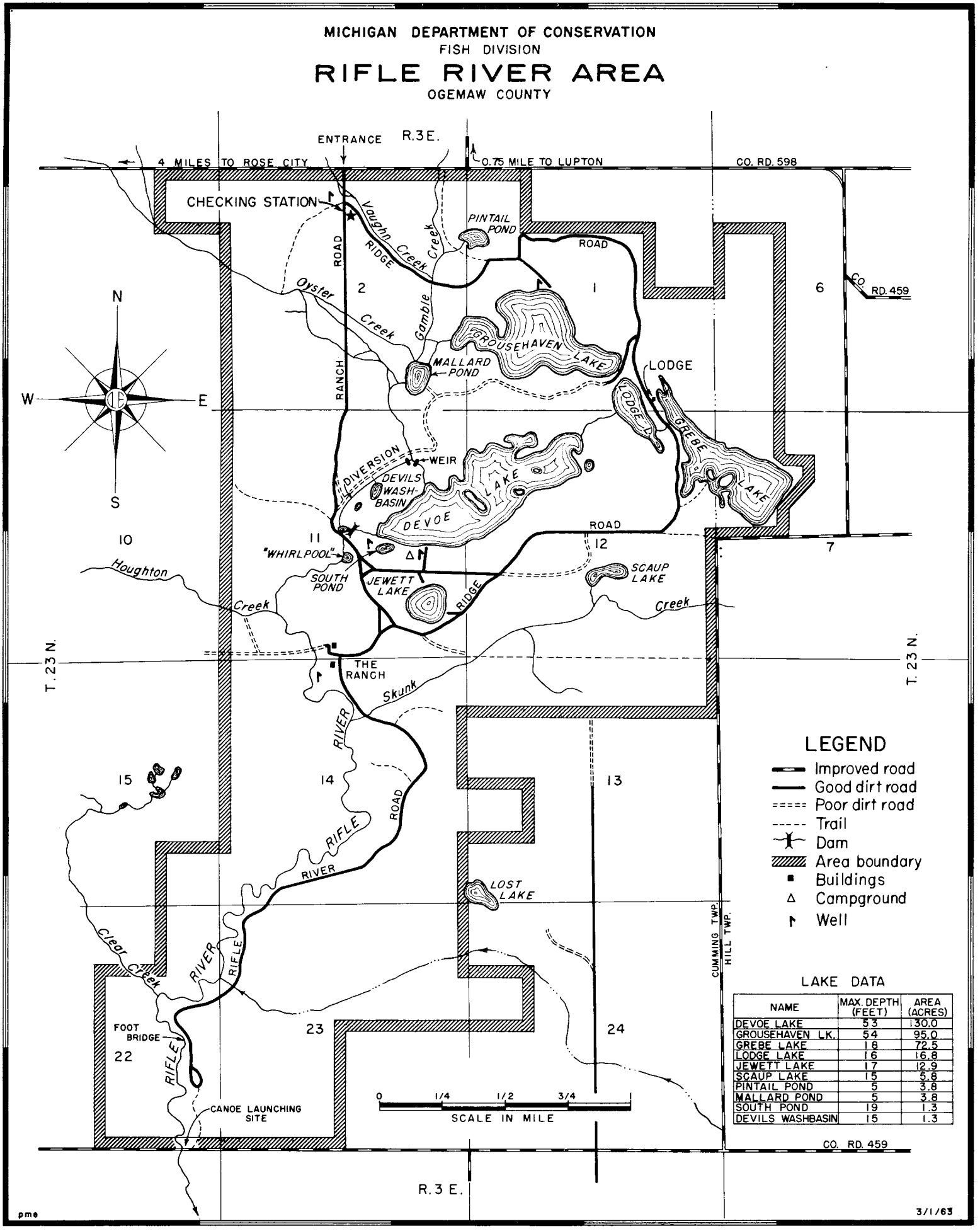
MICHIGAN DEPARTMENT OF CONSERVATION
FISH DIVISION
RIFLE RIVER AREA
OGEMAW COUNTY
ENTRANCE
R.3E.
4 MILES TO ROSE CITY
0.75 MILE TO LUPTON
CO. RD. 598
CHECKING STATION
Vaughn Creek RIDGE
ROAD
PINTAIL POND
Oyster Creek
Gamble Creek
RANCH ROAD
CO. RD. 459
GROUSEHAVEN LAKE
MALLARD POND
LODGE
LODGE LAKE
GREBE LAKE
DIVERSION
WEIR
DEVILS WASH-BASIN
DEVOE LAKE
"WHIRLPOOL"
SOUTH POND
JEWETT LAKE
RIDGE
SCAUP LAKE
Houghton Creek
THE RANCH
Skunk RIVER
RIFLE RIVER ROAD
LOST LAKE
Clear Creek
RIFLE RIVER
FOOT BRIDGE
CANOE LAUNCHING SITE
CUMMING TWP.
HILL TWP.
T. 23 N.
R.3 E.
N
S
E
W
10
11
12
13
14
15
22
23
24
LEGEND
Improved road
Good dirt road
Poor dirt road
Trail
Dam
Area boundary
Buildings
Campground
Well
LAKE DATA
NAME | MAX. DEPTH (FEET) | AREA (ACRES)
DEVOE LAKE | 53 | 130.0
GROUSEHAVEN LK. | 54 | 95.0
GREBE LAKE | 18 | 72.5
LODGE LAKE | 16 | 16.8
JEWETT LAKE | 17 | 12.9
SCAUP LAKE | 15 | 5.8
PINTAIL POND | 5 | 3.8
MALLARD POND | 5 | 3.8
SOUTH POND | 19 | 1.3
DEVILS WASHBASIN | 15 | 1.3
0 1/4 1/2 3/4
SCALE IN MILE
pme
3/1/63

Figure 1

RIFLE RIVER AREA

This 4,318-acre tract was purchased in 1945, with money from fishing and hunting licenses, to provide (1) additional public fishing and hunting grounds, and (2) a field laboratory for fish and game research. The former owner was H. M. Jewett, pioneer auto maker, who operated the Area as a private hunting and fishing preserve under the name of "Grousehaven."

Public use of the Rifle River Area is governed by the general rules for State-owned lands, except for special regulations which are announced on signs and posters. The Area is open daily, except Christmas; opening and closing hours are posted at the entrance. The Lodge is not open to the public; it is used by Department personnel to house people doing research work on the Area.

EVERYONE MUST REGISTER AT THE CHECKING STATION WHEN ENTERING AND AGAIN WHEN LEAVING THE AREA. Results of fishing, hunting, and trapping must be reported to the clerk at the Checking Station each day before closing time. Fish and game must be checked by the clerk. General seasons for fishing, hunting, and trapping apply, except as posted. Camps may be established only at the designated campsites on the south shore of Devoe Lake. A special camping permit may be obtained at the Checking Station. Permits for fishing and hunting must be renewed each day. Permission to build cooking fires at designated sites other than in the campground must be obtained from the clerk on duty. It is unlawful to enter or leave the Area other than through the main entrance in front of the Checking Station, except by permission of the attendant on duty.

The Area is under the jurisdiction of the Fish Division of the Conservation Department. The other divisions of the Department are consulted on special problems and cooperate in management of the Area. The United States Weather Bureau and Geological Survey provide instruments for daily recording of data on weather, stream flow, and ground water levels.

Public use of Rifle River Area since 1945

Year	Number of persons				
	Sight-seeing	Fish-ing	Hunt-ing	Trap-ping	Total
1945	9,784	4,339	2,207	40	16,370
1946	9,198	2,997	2,447	75	14,717
1947	10,532	3,893	2,342	51	16,818
1948	10,976	3,821	2,132	141	17,070
1949	13,320	4,021	1,968	134	19,443
1950	12,945	4,578	2,109	86	19,718
1951	13,391	4,216	2,018	144	19,769
1952	14,176	3,959	2,915	117	21,167
1953	13,478	5,132	5,994	88	24,692
1954	15,364	5,812	4,021	72	25,269
1955	14,825	5,651	3,236	45	23,757
1956	13,160	5,231	3,541	87	22,019
1957	13,321	4,486	3,266	66	21,139
1958	17,135	5,232	3,511	105	25,983
1959	17,150	4,722	3,471	37	25,380
1960	17,511	4,495	3,050	66	25,122
1961	17,726	5,075	3,288	33	26,122
1962	19,898	5,639	3,720	64	30,755*

*Includes 1,434 campers.

Research Activities

The many lakes and streams on the Area provide a good opportunity for research on methods to improve fishing. Management techniques developed here might be applied elsewhere in Michigan. Likewise, research on game management problems is carried on throughout the year.

A record of annual harvest of fish and game is obtained at the Checking Station. Studies on age and growth of fish and game species are made from weights and measurements taken at the Checking Station and from scale samples of fish, wings and tail feathers from grouse, and by examining the teeth of deer. Other studies may involve records of fin-clip marks or tags on fish, leg bands on grouse, and blood samples from certain birds or animals. Special research projects on the Area involve: (1) evaluation of stream and lake improvement, (2) fish population census in lakes and streams, (3) effects of fishing and hunting pressures on populations, (4) fish population manipulation, (5) stocking of different combinations of fish, (6) movements of stream fishes, (7) conditions beneath ice-covered lakes, (8) establishment of a flock of Canada geese to encourage local nesting, (9) grouse studies, (10) investigations on other game populations and their habitats, and (11) developing new techniques in fish and game research.

Camping in this Area was permitted for the first time in 1962. Prison inmates, under the supervision of Parks Division personnel, cleared 24 camp sites on the south shore of Devoe Lake. Between July 25 and November 30 (129 days), 400 camps were established on the sites; use totaled 1,434 camper-nights. No charge for camping was made. The maximum daily use occurred on August 11 when 21 sites were occupied by 89 campers. With a potential for 3,096 camps (129 days x 24 sites), 13 percent of the camping space was utilized. Campers who fished or hunted on the Area were required to conform to the Area rules for the daily reporting of fishing or hunting activities.

Changes in the names of several Area lakes and streams were formally approved on November 8, 1962, by the Board of Geographic Names, United States Department of the Interior. Old and new names are given below.

Old	New
Brown Trout Creek	Oyster Creek
Fontinalis Creek	Vaughn Creek
Devils Wash Basin	Devils Washbasin
North Lake	Grousehaven Lake
Spring Lake	Grebe Lake
Dollar Lake	Jewett Lake
Loon Lake	Lodge Lake
Teal Lake	Scaup Lake

The new names are used throughout this report.

Stream fishing

Six[2] trout streams in the Area have a combined length of 9.6 miles and a surface area of 33.9 acres. During the trout season 3,181 anglers fished 7,939 hours on the streams (Table 1)--a fishing pressure of 234.2 hours per acre. The average fishing trip lasted 2.5 hours.

Most (78 percent) of the stream fishermen were licensed males, 12.2 percent were unlicensed minor males, 8.1 percent were wives of licensed males, 1.1 percent were unlicensed minor females, and 0.6 percent were licensed females.

Altogether, 1,616 fish were harvested from the Area streams (47.7 fish per acre). These fish weighed 1,180.69 pounds for a yield of 34.8 pounds per acre. Of the total catch, 871 were native trout, 422 hatchery trout, and 323 "other fish." The catch of native trout consisted of 841 brown and 30 brook trout with a combined weight of 503.05 pounds --a harvest of 25.7 fish, or 14.8 pounds, per acre. The catch of hatchery trout was composed of 397 rainbow and 25 brown trout that weighed 337.65 pounds for a yield of 12.4 fish, or 10.0 pounds, per acre. The 323 "other fish" weighed 339.99 pounds.

About 11 percent of the anglers were successful in catching at least one native trout. On the Rifle River, where fishing effort was most intense, 9.5 percent were successful. On the smaller streams, percentage of success ranged from 40.2 on Vaughn Creek to 4.3 in the Diversion.

---

[2] Skunk Creek, a warm-water stream in the Area, was not included in the body of the report. Seven anglers fished Skunk Creek for 15 hours and caught no fish.

Table 1.--A summary of angling on the trout streams of the Rifle River Recreation Area in 1962

Stream	Area (acres)	Number of anglers	Hours of fishing	Fish caught							
				Hatchery-reared trout		Native fish					
						Trout		Others		Total	
				Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
Rifle River	22.8	2,736	7,074.0	403	327.71	620	423.44	316	331.61	936	755.05
Gamble Creek	5.9	164	270.5	2	0.66	60	22.46	...	....	60	22.46
Houghton Creek	0.9	102	232.5	7	4.39	29	10.25	...	...	29	10.25
Vaughn Creek	0.9	87	235.0	5	1.62	151	41.48	...	...	151	41.48
Diversion	0.8	69	101.5	5	3.27	8	4.38	7	8.38	15	12.76
Oyster Creek	2.6	23	25.5	...	...	3	1.04	...	...	3	1.04
Totals	33.9	3,181	7,939.0	422	337.65	871	503.05	323	339.99	1,194	843.04

Angling quality for all fish was 0.17 fish per hour per angler. For native trout angling quality was 0.08 fish per hour per angler and ranged between 0.06 (Rifle River and Oyster Creek) and 0.42 (Vaughn Creek). For hatchery trout the average catch was 0.04 fish per hour per angler.

As in the past, worms were the most frequently used lure (67.9 percent). About 10 percent of the anglers employed artificial flies. Both natural and artificial lures were used on 13 percent of the angler-trips.

Rifle River.--About 89 percent of the stream fishing (2,736 trips, 7,074 hours, Table 1) was done on the Rifle River for a fishing pressure of 310.3 hours per acre, slightly less than the 328.7 hours recorded in 1961.

The catch of native trout was composed of 614 brown and 6 brook trout or 71.2 percent of the native trout caught in Area streams (Table 2). In 1961 the catch was 782 brown and 10 brook trout for a yield of 34.7 fish or 16.0 pounds per acre. Although more fish were caught in 1961 than in 1962, the weight of the catch was greater in 1962. The 782 native brown trout caught in 1961 averaged 10.6 inches and 0.46 pound; the 614 caught in 1962 averaged 11.6 inches and 0.69 pound; the difference in average length was significant at the 99 percent level. Fewer small fish (7 to 9 inches) and a greater number of large fish (13 inches or longer) were represented in the catch of 1962 than of 1961.

For the past three years the quality of angling for native trout has been: 1960--0.13 fish per hour per angler; 1961--0.09; 1962--0.06.

Table 2.--Number of fish of different species caught in six streams of the Rifle River Recreation Area in 1962[1]

Kind of fish	Stream						Total number of fish	Percentage of total catch
	Rifle River	Gamble Creek	Houghton Creek	Vaughn Creek	Diversion	Oyster Creek		
Brown trout								
Native	614	55	28	134	8	2	841	52.0
Hatchery	20	1	...	4	...	...	25	1.5
Rainbow trout								
Hatchery	383	1	7	1	5	...	397	24.6
Brook trout								
Native	6	5	1	17	...	1	30	1.8
White sucker	222	...	...	...	7	...	229	14.2
Perch	66	...	...	...	...	...	66	4.1
Northern pike	15	...	...	...	...	...	15	0.9
Carp	7	...	...	...	...	...	7	tr
Rock bass	5	...	...	...	...	...	5	tr
Pumpkinseed	1	...	...	...	...	...	1	tr
Total	1,339	62	36	156	20	3	1,616	...
Percentage of total Area catch	82.9	3.8	2.2	9.7	1.2	tr	...	...

[1] In body of table, tr = less than 0.5 percent.

The percentage of successful fishing trips has followed a similar trend: 16.1, 13.3, and 9.5 in 1960, 1961, and 1962, respectively.

Native brown trout in the catch came from age-groups I to VII; the bulk of the catch was divided about equally between age-groups II and III (Table 3). Of the remainder, fish of age-group IV were about twice as numerous as age-group I; age-group V and age-group I were represented about equally. The greater average size of the fish in 1962 than in 1961 was primarily the result of a change in the age composition of the catch; older fish were relatively more numerous in 1962, as shown below:

Age-group	Percentage	
	1961	1962
I	4.1	3.7
II	56.4	44.4
III	35.6	40.8
IV	3.4	8.0
V	0.5	2.7
VI	...	0.2
VII	...	0.2

Hatchery trout made a major contribution to the catch from the Rifle River. Of the 1,023 trout caught, 403 (383 rainbows, 20 browns), or 39.4 percent, were of hatchery origin. The brown trout were survivors from plantings made prior to 1962; two of them were from fingerling plantings in Gamble Creek. Most of the 383 rainbow trout came from a planting in the Rifle River (within the Area) in 1962. The origin of hatchery trout in the 1962 catch was as follows:

Table 3.--Number (N) and percentage (P) of native brown trout of different age groups caught in streams of the Rifle River Area in 1962

Age-group	Stream											
	Rifle River		Gamble Creek		Houghton Creek		Vaughn Creek		Diversion		Oyster Creek	
	N	P	N	P	N	P	N	P	N	P	N	P
I	22	3.7	...	...	8	28.6	5	3.9	...	...	...	...
II	264	44.4	33	62.3	17	60.7	75	59.1	1	14.3	1	50.0
III	243	40.8	16	30.2	3	10.7	44	34.6	5	71.4	1	50.0
IV	48	8.0	4	7.5	...	...	2	1.6	1	14.3	...	...
V	16	2.7	...	...	...	...	1	0.8	...	...	...	...
VI	1	0.2	...	...	...	...	...	...	...	...	...	...
VII	1	0.2	...	...	...	....	...	...	...	...	...	...
Totals	595		53		28		127		7		2	
Total catch[1]	614		55		28		134		8		2	

[1] Includes fish for which age was not determined.

Locality of release	Year released	Species	Number caught
Rifle River, in Area	1961	Brown	12
Rifle River, in Area	1958	Brown	2
Gamble Creek	1960	Brown	1
Gamble Creek	1959	Brown	1
Unknown	1959	Brown	4
Rifle River, in Area	1962	Rainbow	317
Rifle River, in Area	1961	Rainbow	37
Devoe Lake	1962	Rainbow	18
Devoe Lake	1961	Rainbow	9
Rifle River, below Area	1960	Rainbow	1
Devoe Lake	1960	Rainbow	1

A planting of legal-length rainbow trout was made in the Rifle River on June 7, 1962. The purpose of this planting was to determine the validity of a "non-migratory" strain of rainbow trout. The test group, or non-migratory strain, numbered 200 fish and the control group consisted of 200 Michigan strain rainbow trout. From the planting, 317 rainbow trout were caught in the Rifle River for a return of 79.2 percent. For the Michigan strain, 165 (82 percent) were caught compared to 152 (76 percent) for the non-migratory strain. Most of the recaptures were made a short time after release; about 45 percent within the first 7 days, 74 percent by the end of 14 days, and 86 percent within 21 days.

A few fish from this planting were recovered elsewhere. Of the Michigan strain, three fish were caught in Houghton Creek within the Area and one was caught in the Rifle River immediately below the Area. For the non-migratory strain, two fish were caught in Houghton Creek

within the Area and one was recovered in Houghton Creek above the Area near Rose City. Thus, the total return from this planting amounted to 324 fish (81.2 percent), 169 Michigan strain (85 percent) and 155 non-migratory strain rainbow trout (78 percent). With one exception, all recoveries originated from the Rifle River stocking.

A planting of 9,996 (712 pounds) rainbow trout was made in the Rifle River within the Area in the spring of 1961. The fish in this planting averaged 5.5 inches (range 4.0 to 6.5 inches). In 1961, the return from this planting amounted to 506 trout (total weight, 76 pounds; average length, 7.5 inches). In 1962, anglers recovered an additional 37 trout (total weight, 12.4 pounds; average length, 9.6 inches). Thus, at the end of two seasons anglers removed 543 trout with a combined weight of 88.4 pounds. The totals do not include 21 sublegal trout (combined weight 2.3 pounds) that were caught in 1961.

Some of the trout emigrated out of the Rifle River and were recovered in the other streams on the Area--97 trout (14.6 pounds) in 1961 and 5 trout (1.6 pounds) in 1962.

The total return from this planting amounted to 645 trout with a combined weight of 104.6 pounds; percentage of return was 6.4 by number and 14.7 by weight.

After the close of the 1961 season an estimated 488 of the 9,996 rainbow trout planted in the Rifle River were present. Loss from spring to fall amounted to nearly 90 percent, including the 603 caught by anglers. None of the rainbow trout planted in 1961 were found in the Rifle River when population estimates were made at the close of the 1962 season.

In addition to trout, six other species of fish were caught in the Rifle River (Table 2). Of these, white suckers (222 fish) were the most common, followed by yellow perch (66 fish). Northern pike are infrequently caught in the Rifle River but in 1962, 15 were taken by anglers--the greatest number since the Area was opened to the public in 1945.

Gamble Creek.--In 1962, fishing pressure and the catch of native trout declined from those of 1961. During the 1962 season, 164 anglers fished 270.5 hours for an average of 1.2 hours per trip (Table 1). In 1961 nearly the same number of anglers fished 368.5 hours for an average of 2.2 hours per trip. Fishing pressure decreased from 62.4 hours per acre in 1961 to 45.8 in 1962. The harvest of native trout in 1962 consisted of 55 brown and 5 brook trout for a yield of 10.2 (3.8 pounds) fish per acre. The catch was slightly smaller than the previous year when 70 native trout were caught (11.9 fish per acre). Angling quality was almost identical in the two seasons; 0.15 fish per hour per angler in 1962 and 0.16 in 1961 (Table 4). About 16 percent of the fishermen were successful in catching one or more native trout. Approximately 62 percent of the native brown trout caught were from age-group II and 30 percent were from age-group III. No trout from age-group I entered the catch.

Hatchery trout made a minor contribution to fishing during 1962 compared to 1961. Of the two hatchery trout caught in 1962, one originated from a planting of sublegal rainbow trout in the Rifle River in 1961 and one originated from a planting of fingerling brown trout in Gamble Creek in the fall of 1959. In 1961, 49 hatchery trout, most of which came from Devoe Lake, were caught.

Table 4.--A summary of angling quality for native trout on the trout streams of the Rifle River Recreation Area in 1962

Stream	Trout caught per acre of stream		Catch per hour per angler	Percentage fishermen successful
	Number	Pounds		
Rifle River	27.2	18.6	0.06	9.5
Gamble Creek	10.2	3.8	0.15	15.8
Houghton Creek	32.2	11.4	0.12	12.7
Vaughn Creek	167.8	46.1	0.42	40.2
Diversion	10.0	5.5	0.06	4.3
Oyster Creek	1.2	0.4	0.10	13.0
Average	25.7	14.8	0.08	10.7

Houghton Creek.--Fishing effort and catch of native and hatchery trout declined in 1962 from 1961. Anglers caught 28 native brown, 1 native brook trout, and 7 hatchery rainbow trout (Table 1) in 102 trips and 235.5 hours of fishing. Fishing pressure amounted to 258.3 hours per acre and the yield of native trout was 32.2 fish per acre. In the previous year fishing pressure was 506.1 hours per acre; the catch of 40 native trout amounted to 44.4 fish per acre. The 28 native brown trout caught in 1962 consisted of 8 fish from age-group I, 17 from age-group II, and 3 from age-group III. Angling quality for native trout was 0.12 fish per hour per angler compared to 0.09 in 1961.

In all, seven hatchery trout were caught in 1962, only about one-tenth the catch of 1961. Of the seven trout caught, five originated from a planting of rainbow trout in the Rifle River in 1962 and two came from a planting of sublegal rainbow trout in the Rifle River in 1961.

Vaughn Creek.--Unlike the other small streams on the Area, fishing pressure and catch of native trout in Vaughn Creek increased over that of the previous year. In 1962 fishing was at the rate of 261.1 hours per acre compared to 199.4 in 1961. The catch of 134 brown and 17 brook trout was the highest catch on record for this stream. The catch amounted to 167.8 fish, or 46.1 pounds, per acre (Table 3). Of the smaller Area streams, Vaughn Creek provided the best fishing. About 40 percent of the anglers were successful and native trout were caught at the rate of 0.42 fish per hour per angler. In 1961, angling quality was 0.36 fish per hour per angler. Most (59.1 percent) of the native brown trout caught

in 1962 were age-group II fish and together with age-group III constituted 93.7 percent of the entire catch.

Five hatchery trout, four brown and one rainbow, were caught in 1962. Three of the brown trout were survivors from a planting of fingerlings in Gamble Creek in 1960 and one was from a planting (legal-length) in the Rifle River in 1961. The one rainbow trout originated from a planting of sublegal trout in the Rifle River in 1961.

Diversion.--In 1962, the fishing effort of 69 anglers amounted to 101.5 hours as compared to 154.5 hours of fishing by 98 anglers in 1961. Whereas 8 native trout (brown trout) were caught in 1962, 11 (10 brown and 1 brook trout) were caught in 1961. Angling quality for native trout remained essentially unchanged, 0.05 fish per hour per angler in 1962 and 0.06 in 1961. Five hatchery trout were caught in 1962; four of them came from three different plantings of rainbow trout in Devoe Lake; the fifth was a survivor from a planting of sublegal rainbow trout in the Rifle River in 1961. This particular planting contributed 14 rainbow trout to the catch in 1961.

Oyster Creek.--From 20 to 30 anglers have fished this stream annually between 1956 and 1961. During this period the annual catch has varied from one to seven native trout. In 1962, 23 anglers fished 25.5 hours and caught two brown and one brook trout.

All streams.--Fishing pressure in 1962 declined slightly from that of 1961. The number of fishermen and hours fished decreased 2.0 and 8.6 percent, respectively; fishing pressure dropped from 256.3 hours per acre in 1961 to 234.2 in 1962.

The catch of native trout fell from 1,014 in 1961 to 871 in 1962, a 14-percent drop. Native trout were caught at the rate of 29.9 fish per acre in 1961 compared to 25.7 in 1962. More native trout were caught in 1961 than in 1962, but the total weight of those caught in 1962 was 13.5 percent greater. Relatively more older and larger brown trout were caught in 1962 than in 1961, hence the greater total weight. The quality of angling for native trout in 1961 and 1962 was 0.10 and 0.08 trout per hour per angler, respectively.

About 33 percent of the trout caught in the Area streams in 1962 were of hatchery origin compared to approximately 45 percent in 1961. In both years the primary source of hatchery trout was from plantings of rainbow trout made in the Rifle River during the fishing season.

Whirlpool.--A 0.6-acre pond adjoins the Rifle River about 200 feet below the outlet of Devoe Lake. During the year (January 1 to November 30), 157 anglers fished 267.5 hours and caught 86 fish (273.78 pounds). Winter fishing (January 1 to March 31) accounted for 11 white suckers, 7 northern pike, and 7 carp. The yield of fish from the Whirlpool was as follows:

Period	Number of anglers	Hours fished	Brown trout	Northern pike	White sucker	Carp
Jan. 1 to Nov. 30	157	267.5	1 (2.31)[1]	20 (49.72)	30 (35.69)	35 (186.06)

[1] Weight in pounds given in parentheses.

Lake fishing

In 8, 324 hours of fishing anglers caught 2, 388 fish that weighed 899.4 pounds (Table 5). However, fishermen failed to catch as many as 10 pounds per acre from any lake. Nineteen percent of the anglers caught and kept at least one fish and the average catch per hour per angler was 0.33. Yellow perch comprised 34.5 percent of the catch, bluegills 28.2 percent, and hatchery rainbow trout 17.3 percent (Table 6). None of the other 13 kinds of fish contributed as much as 5.0 percent. No fish were caught in Devils Washbasin where a winterkill had eliminated the redear sunfish population. Only three bluegills and two hybrid sunfish were caught in South Pond because the pond was treated with toxaphene on May 22 in preparation for an experimental planting of a "bluegills-only" population. Fifty-eight pounds of fish (mostly bluegills) were recovered in the six days immediately following the treatment.

Procedures for scale sampling and estimating the age composition of the catches followed those of previous years (see I. F. R. Report Nos. 1550 and 1575). Fishing records for the lakes and ponds were tabulated by method of fishing and by season of the year. Seasons of the year were defined as follows: spring--open-water angling prior to the opening of the bass season (June 1, 1962); summer--June 1 to September 3 (Labor Day), inclusive; fall--open-water fishing after Labor Day; and winter--fishing through the ice.

Table 5.--The fishing pressure, yield, and fishing quality on seven Rifle River Area lakes in 1962

Lake[1]	Fishing pressure				Yield				Fishing quality	
	Number of fishing trips	Trips per acre	Hours of fishing	Hours per acre	Number of fish	Fish per acre	Pounds of fish	Pounds per acre	Catch per hour per angler	Percentage fishermen successful
Devoe	1,660	12.8	5,568	42.8	1,136	8.7	513.6	4.0	0.19	23
Grousehaven	409	4.3	1,051	11.1	300	3.2	118.1	1.2	0.25	16
Jewett[2]	369	28.6	910	70.5	535	41.5	125.1	9.7	0.47	30
Lodge	109	6.5	371	22.1	309	18.4	95.3	5.7	0.80	55
Grebe	180	2.5	380	5.2	94	1.3	44.1	0.6	0.15	15
Scaup	21	3.6	36	6.2	9	1.6	1.9	0.3	0.23	19
South Pond[2]	11	8.5	8	6.2	5	3.8	1.3	1.0	0.24	9
Totals	2,759	8.2	8,324	24.8	2,388	7.1	899.4	2.7	0.33	19

[1] Number of surface acres for each lake are: Devoe, 130.0; Grousehaven, 95.0; Jewett, 12.9; Lodge, 16.8; Grebe, 72.5; Scaup, 5.8; South Pond, 1.3. Total acreage, including 1.3-acre Devils Washbasin: 335.6.

[2] Jewett Lake was treated with toxaphene October 29; South Pond, May 22.

Table 6.--The species composition, by number (N) and percentage (P), of the catch from six lakes on the Rifle River Area, 1962[1]

Species	Lake												Total number of fish	Percentage of Area total[2]
	Devoe		Grousehaven		Jewett		Lodge		Grebe		Scaup			
	N	P	N	P	N	P	N	P	N	P	N	P		
Bluegill	94	8.3	53	17.7	384	71.8	142	46.0	...	...	1	11.1	674	28.2
Yellow perch	478	42.1	191	63.7	50	9.3	18	5.8	83	88.3	4	44.5	824	34.5
Pumpkinseed	20	1.8	6	2.0	7	1.3	6	1.9	...	...	3	33.3	42	1.8
Rock bass	17	1.5	19	6.3	33	6.2	5	1.6	...	...	...	...	74	3.1
Largemouth bass	29	2.6	4	1.3	40	7.5	41	13.3	...	...	...	...	114	4.8
Smallmouth bass	27	2.4	16	5.3	...	...	...	...	...	...	...	...	43	1.8
Black crappie	25	2.2	1	tr	...	...	...	...	3	3.2	...	...	29	1.2
Hybrid sunfish	1	tr[3]	...	...	12	2.2	10	3.2	...	...	1	11.1	24	1.0
Redear sunfish	...	...	...	...	1	tr	...	...	...	...	...	...	1	tr
Brown trout	20	1.8	...	...	...	...	...	...	...	...	...	...	20	0.8
Rainbow trout	414	36.4	...	...	...	...	...	...	...	...	...	...	414	17.3
Northern pike	2	tr	5	1.7	...	...	2	tr	8	8.5	...	...	17	0.7
White sucker	2	tr	5	1.7	...	...	...	...	...	...	...	...	7	tr
Smelt	2	tr	...	...	...	...	...	...	...	...	...	...	2	tr
Carp	1	tr	...	...	...	...	...	...	...	...	...	...	1	tr
Bullheads[4]	4	tr	...	...	8	1.5	85	27.5	...	...	...	...	97	4.1
Totals	1,136	...	300	...	535	...	309	...	94	...	9	...	2,383	...

[1] Not shown is the catch of three bluegills and two hybrid sunfish taken in South Pond before it was treated with toxaphene.

[2] South Pond catch included.

[3] tr = less than 0.5 percent.

[4] Black bullhead or brown bullhead.

Devoe Lake.--In 1,660 fishing trips, anglers fished 5,568 hours and caught 1,136 fish (Table 5), for the largest catch from any Area lake. Anglers caught 513.6 pounds of fish or 4.0 pounds per acre. Yellow perch (42.1 percent) and hatchery rainbow trout (36.4 percent) together accounted for 78.5 percent of the total catch (Table 6).

Most of the rainbow trout originated from two plantings made in 1962. One thousand unmarked fish (mean length 8.2 inches) were planted May 16 and 17 percent of them were caught. On June 7, a special planting of 400 tagged trout (11.1-15.9 inches) was made; the plant was divided into 200 "non-migratory" rainbows and 200 controls. The catch of 223 tagged trout was divided almost equally between non-migratory (108) and controls (115). Twenty-one rainbow trout from plantings made before 1962 were caught. Sea lamprey scars were noted on 10 rainbows, 2 crappies, and 15 brown trout.

The mean length of the perch caught was 6.7 inches and three-year-old fish dominated the catch. Among the bluegills and both species of bass, two- and three-year-old fish predominated. In Devoe Lake, few bass older than three years are caught, but in 1962 one largemouth bass was taken which was at least eight years old.

The two most frequently used methods of fishing on Devoe Lake were trolling with a worm and spinner combination and still fishing with worms. The 51 percent of the anglers who used these methods caught 69 percent of the fish. Casting with artificial lures for 164 hours produced a total catch of 17 fish, 12 of which were bass. Eighteen of the 20 brown

trout caught were taken in the spring. Only 33 of 672 still fishermen interviewed fished over the marked artificial brush shelters installed in 1958.

Grousehaven Lake.--Three hundred fish were caught in Grousehaven Lake in 1,051 hours of fishing (Table 5). On the average, it took four hours to catch a fish. Perch and bluegills, together, comprised 81.4 percent of the catch (Table 6). The average size of the perch was 7.9 inches, and most were 2 to 4 years old. All 53 bluegills caught belonged to the 1957 year class, the same age group which dominated the catch in 1961. Their mean length was 7.7 inches. These fish are believed to have originated from adjacent Mallard Pond during the 1959 flood. Most of the fish were caught by anglers who used earthworms for bait.

Jewett Lake.--Among Area lakes, Jewett Lake received the most fishing pressure in terms of hours per acre (70.5), and the total catch of 41.5 fish (9.7 pounds) per acre was the highest yield (Table 5). The total catch of 535 fish, however, was less than in 1961. Bluegills comprised 71.8 percent of the catch, followed by perch (9.3 percent) and largemouth bass (7.5 percent), as shown in Table 6. One redear sunfish was caught. Only 40 largemouth bass were caught in 1962, whereas in each of the past two years more than 100 were taken. Apparently recruitment has not kept pace with the high exploitation rate noted those years. Only 14 three-year-old bass (1959 year class) were caught (Table 7). Bluegills averaged 6.4 inches in length and approximately 70 percent were three-year-old fish. Sixty-three percent of the

Table 7.--The estimated age composition of the catch of two species of fish from Jewett Lake in 1962

(N = number; P = percentage)

Age-group	Year class	Species			
		Bluegill		Largemouth bass	
		N	P	N	P
II	1960	14	3.6	...	...
III	1959	267	69.5	14	35.9
IV	1958	43	11.2	19	48.7
V	1957	58	15.1	2	5.1
VI	1956	2	0.6	1	2.6
VII	1955	...	...	3	7.7
Totals		384	100.0	39[1]	100.0

[1] One bass was not scale sampled.

fishermen used earthworms for bait and caught 60 percent of the fish. However, 65 percent of the bass were caught on artificial lures.

While making an estimate of the population in the spring (May 7-June 8), 302 fish were marked by removal of the left pelvic fin. The proportion of these marked fish caught by anglers in 1962 constitutes the source for the estimated exploitation rates shown in Table 8. Rock bass had the highest rate, but none of the marked pumpkinseeds were caught. The 1962 rate (18.5 percent) for bass fell considerably short of the 47 percent rate which occurred in 1960. An exploitation rate for perch is not available, despite the fact 50 were caught by anglers. These fish, taken in the fall, were two-year-olds but in the spring they were too small to be retained in the nets so had not been marked.

Jewett Lake was treated with toxaphene at the rate of 35 ppb on October 29, to eliminate the population. In 1963 a population of bluegills will be established. At this lake, and at South Pond, bluegills will be cropped (with nets and angling) at specified rates to determine what cropping rate will maintain a desirable population.

Lodge Lake.--The fishing quality, as measured by catch per hour and percentage of success, was better on Lodge Lake than any other Area lake in 1962 (Table 5). In 371 hours of fishing 309 fish were caught; more than half of the fishermen succeeded in catching at least one fish. Bluegills constituted 46 percent of the catch, bullheads 27.5 percent. Eight kinds of fish were caught (Table 6). The mean length of the bluegills was 6.3 inches. Only 2 of the 41 largemouth bass caught were more

Table 8.--Exploitation rates of fish by angling in Jewett Lake, 1962

Species	Minimum length (inches)	Number of marked fish	Number of marked fish caught	Percentage exploitation
Largemouth bass	10.0	65	12	18.5
Bluegill	5.0	154	45	29.2
Rock bass	5.0	34	14	41.2
Pumpkinseed	5.0	8	0	0.0
Bluegill x pumpkinseed	6.0	12	2	16.7
Brown bullhead	9.0	26	7	26.9
Redear sunfish	10.0	3	1	33.3
Totals		302	81	26.8

than 2 years old whereas bluegills ranged between 2 and 7 years of age. Fifty-three percent of the anglers used earthworms for bait and caught 72 percent of the fish. Fishermen who used only artificial lures accounted for 63 percent of the bass.

Grebe Lake.--Winterkills in 1956 and 1960 plus a toxaphene treatment in 1958 prevented the establishment of a population in this lake. Hence, no fish had been caught in Grebe Lake since 1955. As an experiment, a winterkill-resistant fish population (pike, perch, crappies) was introduced, and with the development of this population anglers have shown some interest in fishing the lake. In 1962, 94 fish (83 perch, 8 pike, 3 crappies) were caught by 180 anglers who fished for 380 hours (Tables 5, 6). The perch averaged 8.6 inches long, and most were yearlings. Seventy-three percent of the perch were caught on minnows. Fish were marked in April and May when the population size was estimated. The proportion of marked fish caught by anglers is shown below:

Species	Minimum length (inches)	Number marked	Number of marked fish caught	Percentage
Perch	7	371	10	2.7
Pike	20	183	5	2.7
Crappie	10	8	0	0.0
Black bullhead	7	430	0	0.0

Scaup Lake.--Thirty-six hours of fishing in this lake in 1962 produced a catch of 9 fish. The species composition of the catch is shown in Table 6.

Hunting

A summary of the 1962 hunting pressure and results is presented in Table 9. The 1962 grouse kill was the fourth highest on record for the Area. The number of grouse shot per 100 hours of hunting (7.8) was the highest since 1952 (10.8). The harvest of 70 woodcock was the highest ever recorded.

Deer hunting results were summarized by L. C. Ruch in Game Division Report No. 2406. Total kill amounted to 100 animals, 6 of which were unclaimed animals found in the field. Thirty-eight bucks with antlers at least 3 inches long were taken in the 1962 gun season, a total that has been exceeded only five times in 18 years. The oldest buck was 5 1/2 years old and was also the heaviest (137 pounds).

Trapping

Six trappers used the 64 daily permits issued in 1962. Their results are shown in Table 9. No effort was made to trap for muskrats in 1961 but this year trappers took 84--mostly from Grebe Lake.

Table 9.--Summary of hunting and trapping activities on the Rifle River Area in 1962

Season and game species	Number of permits	Hunting hours or trap nights	Number of animals harvested
HUNTING			
Small game	682	2,106	...
Ruffed grouse	...	...	166
Woodcock	...	...	70
Duck	...	...	18
Squirrel	...	...	35
Cottontail	...	...	9
Snowshoe	...	...	2
Raccoon	...	...	1
Deer[1]			
Gun	2,541	12,743	92
Archery	497	1,952	2
TRAPPING	64	1,040	...
Beaver	...	...	8
Muskrat	...	...	84
Mink	...	...	4

[1] In addition to the kill shown, 6 unclaimed deer were found.

Acknowledgments

A. W. DeClaire, C. J. Kohn, K. R. Sammons, and G. Smith, Jr. assisted in the collection and tabulation of data. K. G. Fukano handled the processing of stream data for IBM tabulation by the Department's Administrative Services. The junior author prepared the section on stream fishing; the rest of the report was prepared by the senior author. Portions of the hunting data were provided by L. C. Ruch and R. J. Moran of the Game Division.

INSTITUTE FOR FISHERIES RESEARCH

Mercer H. Patriarche and Howard Gowing

Report approved by Walter R. Crowe

Typed by M. S. McClure