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

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April 21, 1950

ADDRESS
UNIVERSITY MUSEUMS ANNEX
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Report No. 1252

RESULTS OF THE INTENSIVE CREEL CENSUS ON THE EXPERIMENTAL SECTIONS
OF THE HUNT CREEK DRAINAGE, AND ON EAST FISH LAKE, 1948

By David S. Shetter

Abstract

Intensive creel census operations were continued for the tenth consecutive trout season in the various experimental waters of the upper Hunt Creek drainage. On experimental Sections A, B, C, D, and E, 504 angling trips involving 869 hours were recorded. A total of 492 brook trout larger than 7 inches and 313 brook trout between 6 and 7 inches were captured, the latter fish from Sections C, D, and E. The total weight of all trout removed by angling was 101.87 pounds. The catch per hour of adult brook trout was 0.57 fish, of 6- to 7-inch brook trout, 0.43 fish. Based on an area of 6.13 acres, the yield per acre to the angler of adult brook trout was 12.77 pounds (476 adult brook trout removed weighed 78.27 pounds). Angling pressure amounted to 141.7 hours per acre for the season. Of the total angling trips, 271, or 54 percent of all fishing trips were unsuccessful in catching any adult or 6- to 7-inch brook trout.

The most striking feature of the 1948 angling was the great increase in the catch from Section D, where beaver built three dams in 1947. The 1947 catch was 53 adult brook trout, while in 1948 the catch increased to 334 adult brook trout.

(2) (5)

On the 10-year period 1939-1948 the average yearly removal by anglers amounted to 97.5 adult brook trout per acre, and the average poundage of fish 7 inches or larger removed was 14.89 pounds. Average angling pressure in the period 1939-1948 was 203.7 hours per acre per season, ranging from 125 hours per acre in 1943 to 357 hours per acre in 1941.

For the experimental sections as a whole, the average size of brook trout creeled in 1948 was 7.7 inches total length and 2.6 ounces in weight. The 10-year average size for Hunt Creek brook trout taken by angling was found to be 7.6 inches total length, 2.6 ounces in weight.

On Fuller Creek and East Fish Lake outlet, during 190 days of angling on which 195.75 hours of fishing were spent, a total of 31 brook trout larger than 7 inches and 92 brook trout between 6 and 7 inches were creeled. The catch per hour for adult fish was 0.16, for 6- to 7-inch brook trout, 0.59.

The experimental stream sections in Hunt and Fuller creeks in which the size limit was lowered to 6 inches in 1946 continued to be subjected to average annual angling pressure (angling days) 61 percent greater than in the period 1939-1945, when the size limit was 7 inches: Average annual angling quality for adult fish (catch per hour) has dropped about 37 percent because of the great increase in pressure, also the average seasonal catch dropped about 8 percent since initiation of the 6-inch limit: However, the addition of the 6- to 7-inch fish to the creels has brought the yearly average total angling quality and average annual total yield above similar averages noted during the years when the size limit was 7 inches.

On East Fish Lake, anglers in 1948 fished a total of 853 hours (53.3 hours per acre) on 287 angling days and caught 117 brook trout, of which 113 fish weighing 55.92 pounds were kept. The catch per hour of legal fish was 0.14. The average size of the brook trout removed was 10.4 inches and 7.8 ounces. The largest brook trout taken was a 17.9-inch specimen which weighed 2 pounds, 5 1/2 ounces.

Montmorency County anglers were most numerous on the experimental waters, followed closely by fishermen who gave Wayne and Genesee counties as their residences. Non-resident anglers came chiefly from the neighboring state of Ohio.

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By David S. Shetter

Since the establishment of the Hunt Creek Fisheries Experiment Station in 1939 on the headwaters of Hunt Creek in south-central Montmorency County, intensive creel census records have been kept each season; those for the 1948 season are for the tenth consecutive year. The angling results listed in the following pages were obtained on populations of native brook trout, as no hatchery reared trout have been introduced into the drainage since the spring of 1942.

During 1948 anglers using the experimental area were under the same restrictions as elsewhere on Michigan trout waters except for the following: On designated sections of Hunt Creek and on Fuller Creek upstream from the rotary screen the size limit was 6 inches; and on East Fish Lake the daily creel limit was reduced to 5 trout.

Angling Results on Hunt Creek in
Experimental Sections A, B, C, D, and E
(Tables 1, 2, 3, 4, 5, and 6)

During 1948, there were recorded 504 fishing trips involving 869 hours of fishing on the experimental sections of Hunt Creek and these anglers caught 492 brook trout larger than 7 inches and 313 brook trout between 6 and 7 inches from Sections C, D, and E. The weight of the 476 adult brook trout removed was 78.27 pounds, while the weight of 251 "special" brook trout creeled was 23.18 pounds. In addition five brook trout not of the legal length were taken which weighed 0.42 pounds. Thus the total poundage of brook trout removed by angling may be set at 101.87 pounds.

For the entire season the catch per hour of adult brook trout was 0.57 fish, of 6- to 7-inch brook trout, 0.43 fish per hour. The angling quality as measured by the pounds of adult brook trout caught per hour was 0.090 fish, of 6- to 7-inch brook trout, 0.032 fish. Based on a stream area of 6.13 acres, the yield per acre of stream to the fishermen was 12.77 pounds per acre of brook trout larger than 7 inches. Angling pressure amounted to 141.7 hours per acre for the 1948 season.

In the experimental sections, 271 or 54 percent of all fishing trips were unsuccessful. The catch per hour of all fish less than 7 inches was 2.63.

Angling was noticeably better during 1948 than in 1947 for brook trout larger than 7 inches (0.57 adults per hour as compared with 0.21 adults per hour in 1947). Except for these periods (April 24-May 7, May 22-June 4, June 5-18), the catch per hour was better than 0.50 fish. The best fishing was recorded during the period June 19-August 13, when the catch per hour ranged between 0.75 and 1.19 fish per hour. The heaviest angling pressure came during May 22-June 4 (142.75 hours), but the total hours recorded was

Table 1

Angling Results, Section A, Hunt Creek, 1948 Trout Season

Minimum Size Limit, 7 Inches

Period, 1948	Total angling days	Number (and %) of unsuccessful angling days	Total hours of angling	Adult brook trout caught		Pounds of adult trout removed		Undersized brook trout returned	
				Number	Catch/hr.	Number	Pounds /hr.	Number	Catch/hr.
Apr. 24-May 7	11	9 (81.8)	14.25	3	0.21	0.37	0.026	46	3.23
May 8-21	5	4 (80.0)	7.25	1	0.14	0.11	0.015	10	1.38
May 22-June 4	6	4 (66.7)	6.50	4	0.62	0.44	0.068	48	7.38
June 5-18	5	4 (80.0)	7.25	3	0.41	0.37	0.051	27	3.72
June 19-July 2	5	1 (20.0)	14.00	18	1.29	2.68	0.191	105	7.50
July 3-16	8	5 (62.5)	13.75	4	0.29	0.55	0.040	122	8.87
July 17-30	2	1 (50.0)	2.00	3	1.50	0.42	0.210	17	8.50
July 31-Aug. 13	4	1 (25.0)	8.00	11	1.38	1.30	0.163	64	8.00
Aug. 14-27	7	2 (28.6)	14.00	6	0.43	0.82	0.059	97	6.93
Aug. 28-Sept. 12	4	1 (25.0)	9.00	14	1.56	2.08	0.231	84	9.33
Totals or averages, 1948	57	32 (56.1)	96.00	67	0.70	9.14	0.095	620	6.46

Table 2

Angling Results, Section B, Hunt Creek, 1948 Trout Season

Minimum Size Limit, 7 Inches

Period, 1948	Total angling days	Number (and %) of unsuccessful angling days	Total hours of angling	Adult brook trout caught		Pounds of adult trout removed		Undersized brook trout returned	
				Number	Catch/hr.	Number	Pounds/hr.	Number	Catch/hr.
Apr. 24-May 7	10	5 (50.0)	11.25	7	0.62	0.91	0.081	24	2.13
May 8-21	4	2 (50.0)	6.00	3	0.50	0.34	0.057	20	3.33
May 22-June 4	7	5 (71.4)	6.00	4	0.67	0.63	0.105	16	2.67
June 5-18	2	1 (50.0)	2.50	1	0.40	0.11	0.056	28	11.20
June 19-July 2	2	2 (100.0)	6.00	0	0.00	0.00	0.000	11	1.83
July 3-16	..	..	..	..	..	..	..	..	..
July 17-30	..	..	..	..	..	..	..	..	..
July 31-Aug. 13	1	0 (0.0)	1.00	2	2.00	0.28	0.280	8	8.00
Aug. 14-27	4	1 (25.0)	5.50	12	2.18	1.61	0.293	33	6.00
Aug. 28-Sept. 12	1	0 (0.0)	3.00	1	0.33	0.13	0.043	35	11.67
Totals or averages, 1948	31	16 (51.6)	41.25	30	0.73	4.04	0.098	175	4.24

Table 3

Angling Results, Section C, Hunt Creek, 1948 Trout Season
 The 6- to 7-inch brook trout captured are given in parentheses under
 "Undersized brook trout caught" and are included in those totals.

A = adult

S = Special 6- to 7-inch

Period, 1948	Total angling days	Percent taking no adult brook trout (or specials)	Total hours of angling	Adult brook trout caught		Undersized brook trout caught		Pounds of fish removed		Pounds/hr index	
				Number	Catch/hr.	Number	Catch/hr.	A	S	A	S
Apr. 24 - May 7	33	72.7 (69.7)	43.50	15	0.34	74 (10)	1.47 (0.23)	2.11	0.88	0.049	0.020
May 8 - 21	13	84.6 (64.2)	10.75	2	0.19	59 (13)	4.28 (1.21)	0.25	1.16	0.023	0.108
May 22 - June 4	26	84.6 (50.0)	51.25	5	0.10	58 (21)	0.72 (0.41)	0.71	1.82	0.014	0.036
June 5 - 18	4	100.0 (75.0)	5.00	0	0.00	3 (1)	0.40 (0.20)	...	0.09	0.000	0.018
June 19 - July 2	6	83.3 (66.7)	9.50	2	0.21	34 (1)	3.47 (0.11)	0.51	0.11	0.054	0.012
July 3 - 16	1	100.0 (100.0)	1.25	0	0.00	1 (0)	0.80 (0.00)	...	...	0.000	0.000
July 17 - 30	11	100.0 (81.8)	16.50	0	0.00	18 (6)	0.73 (0.36)	...	0.59	0.000	0.036
July 31 - Aug. 13	25	64.0 (44.0)	43.25	23	0.53	125 (27)	2.27 (0.62)	3.58	2.45	0.083	0.057
Aug. 14 - 27	17	70.6 (52.9)	46.75	10	0.21	148 (18)	2.78 (0.39)	1.55	1.72	0.033	0.037
Aug. 28 - Sept. 12	15	93.3 (66.7)	24.25	1	0.04	59 (5)	2.22 (0.21)	0.26	0.44	0.011	0.018
Totals or averages, 1948	151	79.5 (60.9)	252.00	58	0.23	579 (102)	2.30 (0.40)	8.97	9.26	0.036	0.037

Table 4

Angling Results, Section D, Hunt Creek, 1948 Trout Season
The 6- to 7-inch brook trout captured are given in parentheses under
"Undersized brook trout caught" and are included in those totals.

A = adult

S = Special 6- to 7-inch

Period, 1948	Total angling days	Percent taking no adults brook trout (or specials)	Total hours of angling	Adult brook trout caught		Undersized brook trout caught		Pounds of fish removed		Pounds/hr. index	
				Number	Catch/hr.	Number	Catch/hr.	A	S	A	S
Apr. 24-May 7	42	73.8 (61.9)	61.00	36	0.59	117 (50)	1.92 (0.82)	5.52	4.57	0.090	0.075
May 8-21	23	52.2 (52.2)	30.75	23	0.75	37 (5)	1.20 (0.16)	3.37	0.43	0.109	0.014
May 22-June 4	42	71.4 (66.7)	78.50	17	0.22	95 (20)	1.21 (0.25)	2.67	1.77	0.034	0.023
June 5-18	10	40.0 (30.0)	11.75	6 [✓]	0.51	11 (1)	0.94 (0.09)	0.74	0.10	0.063	0.009
June 19-July 2	9	77.8 (55.6)	8.25	10 [✓]	1.21	21 (2)	2.55 (0.24)	0.60	0.19	0.073	0.023
July 3-16	18	33.3 (22.2)	39.75	61 ^{2✓}	1.53	164 (264 ^{5✓})	4.13 (0.65)	10.38	1.07	0.261	0.027
July 17-30	22	59.1 (45.5)	35.25	43	1.22	122 (38 ^{74✓})	3.46 (1.08)	8.08	0.37	0.229	0.010
July 31-Aug. 13	40	50.0 (35.0)	85.00	67	0.79	173 (36 ^{9✓})	2.04 (0.42)	12.52	2.57	0.117	0.030
Aug. 14-27	18	72.2 (55.6)	22.25	18 ^{3✓}	0.81	38 (8 [✓])	1.71 (0.36)	3.30	0.69	0.148	0.031
Aug. 28-Sept. 12	36	55.6 (44.4)	101.25	53 ^{3✓}	0.52	122 (25 [✓])	1.20 (0.25)	8.57	2.16	0.085	0.021
Totals and averages, 1948	260	60.0 (49.2)	473.75	334 ^{16✓}	0.71	900 (211 ^{62✓})	1.90 (0.45)	55.75	13.92	0.118	0.029

¹✓ Number in carets indicates number of trout caught and returned to the stream

Table 5

Angling Results, Section E, 1948 Trout Season

Minimum Size Limit, 6 inches.

No "special" (6-7 inch brook trout) were caught in Section E in 1948

Period, 1948	Total angling days	Percent taking		Total hours of angling	Adult brook trout caught		Undersized brook trout caught		Pounds of fish removed		Pounds/hr. index	
		no adult brook trout (or special)			Number	Catch/hr.	Number	Catch/hr.	Adults	Special	Adults	Special
Apr. 24-May 7	2	100.0 (100.0)		1.50	0	0.00	1 (0)	0.67 (0.0)	...	...	...	...
May 8-21	0	...		...	...	...	...	...	...	...	...	...
May 22-June 4	1	100.0		0.50	0	0.00	1 (0)	2.00 (0.00)	...	...	...	...
June 5-18	1	0.0 (0.0)		2.00	1	0.50	0	0.00 (0.00)	0.14	...	0.070	...
June 19-Aug. 27	0	...		...	...	...	...	...	...	...	...	...
Aug. 28-Sept. 12	1	0.0 (0.0)		2.00	2	1.00	8 (0)	4.00 (0.00)	0.23	...	0.115	...
Totals or averages, 1948	5	60.0 (60.0)		6.00	3	0.50	10 (0)	1.67 (0.00)	0.37	...	0.062	0.00

Table 6

Angling Results, Sections A, B, C, D, and E, 1948 Trout Season
The data on the angling in the sections where the legal minimum size is 6 inches is summarized in parentheses.

Period, 1948	Total angling days	Number and % of unsuccessful trips	Total hours of fishing	Adult brook trout caught		Undersized brook trout caught		Pounds of brook trout removed		Pounds per hour	
				Number	Catch/hr.	Number	Catch/hr.	Adult	Special	Adult	Special
Apr. 24-May 7	98	65 (66)	131.50 (106.00)	61	0.46	262 (60)	1.99 (0.57)	8.91	5.45	0.068	0.041
May 8-21	45	27 (60)	54.75 (41.50)	29	0.53	126 (18)	2.30 (0.43)	4.07	1.59	0.074	0.029
May 22-June 4	82	51 (62)	142.75 (130.25)	30	0.21	218 (41)	1.53 (0.31)	4.45	3.59	0.031	0.025
June 5-18	22	11 (50)	28.50 (18.75)	11 [✓]	0.39	69 (2)	2.42 (0.11)	1.39	0.19	0.049	0.007
June 19-July 2	22	12 (55)	37.75 (17.75)	30 [✓]	0.79	171 (3)	4.53 (0.17)	3.79	0.30	0.100	0.008
July 3-16	27	10 (37)	54.75 (41.00)	65 [✓]	1.19	287 ¹⁵ (26 [✓])	5.24 (0.63)	10.93	1.07	0.200	0.020
July 17-30	35	20 (57)	53.75 (51.75)	46	0.86	157 ³¹ (44 [✓])	2.92 (0.85)	8.50	0.96	0.158	0.018
July 31-Aug. 13	70	26 (37)	137.25 (128.25)	103	0.75	370 ⁹ (63 [✓])	2.70 (0.49)	17.68	5.02	0.129	0.037
Aug. 14-27	46	22 (48)	88.50 (67.00)	46 ³	0.52	316 ² (26 [✓])	3.57 (0.39)	7.28	2.41	0.082	0.027
Aug. 28-Sept. 12	57	27 (47)	139.50 (127.50)	71 ³	0.51	308 ² (30 [✓])	2.21 (0.24)	11.27	2.60	0.081	0.019
Totals	504	271 (54)	869.00 (731.75)	492 ¹⁶	0.57	2,284 ⁶² (313 [✓])	2.63 (0.43)	78.27	23.18	0.090	0.027
Section A	57	32 (56)	96.00	67	0.70	620 ...	6.46 ...	9.14	...	0.095	...
B	31	16 (53)	41.25	30	0.73	175 ...	4.24 ...	4.04	...	0.098	...
C	151	92 (61)	252.00	58	0.23	579 (102)	2.29 (0.40)	8.97	9.26	0.036	0.037
D	260	128 (49)	473.75	334 ¹⁶	0.70	900 (211 ⁶²)	1.89 (0.44)	55.75	13.92	0.118	0.029
E	5	3 (60)	6.00	3	0.50	10 ...	1.67 (0.00)	0.37	0.00	0.062	0.000

¹ Number in caret indicates number of trout caught and returned to the stream.

only slightly higher at that time than during the opening two weeks, July 31-August 13, and August 28-September 12 (all of the latter had over 130 hours of angling recorded).

As measured by the catch per hour, Section B yielded the best fishing (0.73 fish per hour) for adult brook trout. Thirty-one (31) angling days, of which 52 percent were unsuccessful, were spent here, involving 41.25 hours of fishing in which time 30 brook trout weighing 4.04 pounds were caught. The pounds per hour index for this section in 1948 was 0.098.

Section D was the most heavily-fished experimental section in 1948, primarily because it was almost entirely impounded by three beaver dams re-established in mid-season of 1947 and which were brought to completion in 1948. Because of the obvious changes in water acreage this section was re-surveyed by A. K. Adams, Research Technician of the Institute for Fisheries Research, with assistance from the staff of the Hunt Creek Fisheries Experiment Station. From a plane-table map drawn to a scale of 20 feet = 1 inch it was determined that the area of Section D in 1948 was 2.98 acres. Here a pronounced increase in the catch of adult brook trout was recorded. In 1947, the catch from Section D was 53 brook trout larger than 7 inches. In 1948, a total of 334 adult brook trout were caught (of which 16 were returned to the water) in 473.75 hours of fishing on 260 angling days - a catch per hour of 0.70 adult fish. The total weight of the adult brook trout removed was 55.75 pounds, or 0.118 pounds per hour. In addition, Section D anglers caught 211 brook trout between 6 and 7 inches (of which 149 were creeled) which weighed 13.92 pounds at the rate of 0.44 fish per hour and 0.029 pounds per hour, under special regulations which permit the removal of 6- to 7-inch brook trout in Sections C, D and E, and Fuller Creek west of the water wheel.

Forty-nine per cent of the angling days on Section D were unsuccessful in capturing any adult or special brook trout. Anglers reported catching 900 small brook trout, or 1.89 small fish per hour.

The 1948 catch recorded here is the largest for Section D for any of the 10 seasons of intensive creel census. It appears likely that the increase in the catch of Section D was the response of the brook trout population to the change in habitat brought about by the beaver dams. It is known from tag recoveries that these beaver dams were not complete barriers to fish migration either upstream or downstream, so the increased catch is partially the result of migration into the beaver-dammed section.

The angling and ecological history of this section will be followed closely to determine the ultimate biological and angling fate of a beaver-dammed stream section. The staff of the station are cooperating with Mr. Adams who is making a study of beaver-trout relationships in both the Upper and Lower Peninsula.

The 1948 angling in Section A was better than in 1947 when only 0.47 fish per hour were caught. In a total of 57 angling days, 56 percent of which were unsuccessful, 96 hours of fishing yielded 67 adult brook trout weighing 9.14 pounds for a catch per hour of 0.70 fish and 0.095 pounds of fish per hour. Anglers reported returning 620 sublegal brook trout, or 6.46 small fish per hour to Section A.

In Section C, 252 hours were spent on 151 angling days, and 61 percent of the angling trips were not successful in catching either adult or special brook trout. A total of 58 adult brook trout were captured, weighing 8.97 pounds, and 102 special brook trout (between 6 and 7 inches) which weighed 9.26 pounds. The catch per hour and the pounds per hour indices for the two types of fish were 0.23 fish per hour and 0.036 pounds per hour for adult brook trout, and 0.40 fish per hour and 0.037 pounds per hour for the

special brook trout. There was lighter angling pressure in Section C in 1948 (252 hours as compared with 363 hours in 1947), but the angling quality was better in 1948, both for adult brook trout and special brook trout (0.23 fish per hour and 0.40 fish per hour in 1948 as compared with 0.12 fish per hour and 0.34 fish per hour in 1947).

As in most years, Section E, which lies mainly in the "Bushman" swamp, was lightly fished. In 1948 it really was the head end of the 3rd beaver dam of Section D. Most anglers did not attempt to fish it, as there were plenty of brook trout available in the ponded lower end of the 3rd dam. Five fishermen, three of whom were unsuccessful, fished 6 hours and caught three adult brook trout weighing 0.37 pounds for a catch per hour of 0.50 fish and 0.062 pounds per hour. No special trout were captured and 10 short brook trout were returned to the water.

Pounds and Numbers of Adult Brook Trout

Removed by Angling (Table 7)

The yield data for Sections A, B, C, D, and E, where the intensive creel census operations contacted (so far as is known) all but one angler using the above waters, are presented in Table 7. The areas, the calculated yields per acre, and the average yields per acre, as well as the actual numbers and pounds are given. For comparison, the average yield per acre to the anglers for the 10-year period 1939-1948 is given for each section and also for all sections combined.

Over the 10 years, a total of 661.81 pounds of adult brook trout have been removed from the experimental sections, or an average of 14.89 pounds of fish per acre. The total number of adult trout caught during the past 10 seasons (including legal fish reported returned to the water) was 4,337, or 97.5 brook trout per acre. Angling pressures have varied from 125 hours per acre to 357 hours per acre. Over the period 1939-1948, the average

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Table 7

The Yield in Pounds and Numbers Per Acre for the 1948 Trout Season, Compared
With the Average Yield Per Acre for the Period 1939-1948.

Actual figures are given in parentheses.

The 6- to 7-inch brook trout removed are not included in these figures.

Stream section	Dimensions		1948 Area (acres)	Yield per acre in 1948 in		Average yield per acre, 1939-1948 in	
	Length (feet)	Average width (feet)		Pounds	Numbers	Pounds	Numbers
A	2,577	24.3	1.14	6.35 (9.14)	46.5 (67)	11.19 (161.18)	80.4 (1,158)
B	1,605	17.5	0.64	6.31 (4.04)	46.9 (30)	11.30 (72.32)	71.7 (459)
C	3,970	11.8	0.71	12.63 (8.97)	81.7 (58)	20.28 (158.59)	126.5 (989)
D	2,386	54.0	2.98	18.71 (55.75)	112.1 (334)	18.73 (235.94)	120.0 (1,512)
E	1,250	11.8	0.36	1.03 (0.37)	8.3 (3)	10.42 (33.78)	67.6 (219)
Totals and 11,788 averages		22.7	6.13	12.77 (78.27)	80.3 (492)	14.89 (661.81)	97.5 (4,337)

angling pressure was 203.7 hours per acre. During 1948, the combined yield per acre was 80.3 fish and 12.77 pounds per acre, or 14.2 and 17.6 percent below the 10-year average. As will be noted in Table 7, all the experimental sections during 1948 except Section D yielded from 34.6 to 87.7 percent fewer adult brook trout per acre than the 10-year averages from the same sections. Similar results were to be found on comparing the pounds per acre yields for 1948 with the 10-year averages. In Section D, the 1948 yield per acre was only slightly less than the 1939-1948 average yield per acre in pounds and numbers.

The preceding data refers only to brook trout larger than 7 inches caught by angling, and Table 7 is drawn up including only those fish so that a comparison of the yield to the angler between earlier and later years is possible. Since the inception of the creel census in 1939, an additional part of the brook trout population has been made available to the anglers through the experimental liberalization of the size limit to 6 inches in Sections C, D and E of Hunt Creek, and each year since 1946, an appreciable part of the catch of these sections has consisted of 6- to 7-inch brook trout. In 1947 and 1948, a number of brook trout were removed from the stream for E. L. Cooper's researches on the age and growth of Michigan brook trout. Also a small number of brook trout of a length not legal for possession were kept by anglers. The total removals by all agencies during 1948 from the experimental waters amounted 753 brook trout weighing 107.41 pounds, or a total yield of 17.52 pounds per acre, or 60.7 more pounds per acre than noted for the total removal in 1947 (50.95 pounds, or 10.90 pounds per acre).

Table 8

Recapitulation of Numbers and Pounds of All Brook Trout
Removed from the Open Waters of Hunt Creek During 1948.

Item	Experimental Sections		Below A	
	Number	Pounds	Number	Pounds
Adults removed by angling	476	78.27	135	18.52
6- to 7-inch fish removed by angling	251	28.13	...	...
6- to 7-inch fish removed for Cooper's work	1	0.09	1	0.06
Fish less than 6 or 7 inches illegally kept by anglers	5	0.42	6	0.70
Fish less than 6 inches removed for Cooper's scale work	20	0.50	11	0.42
Totals, all removals.	753	107.41	153	19.70

Average Size of the Brook Trout in the Anglers' Catch During, 1948

(Table 9)

Anglers on the experimental sections during 1948, caught adult brook trout ranging in size from 7.0 inches to 10.9 inches. The average total length (in inches) and the average weight (in ounces) for the brook trout removed from the various sections are given in Table 9. For comparison, the average sizes for the same sections are given for the period 1939-1948.

In Section A, the 1948 average size was 7.3 inches and 2.2 ounces, - 0.2 inches and 0.2 ounces less than the 10-year averages. In Section B, the 1948 catch averaged 7.5 inches and 2.2 ounces, 0.1 inches larger but 0.5 ounces less than the 10-year average. Examination of the 1948 individual creel census records for Section B indicates that about half of the brook trout caught were not in good condition, i.e., were rather thin for their length. The reasons for the apparent poor condition are not clear. ✓

Section C brook trout were of an average size of 7.7 inches and 2.5 ounces, 0.1 inches and 0.1 ounces lower than the 1939-1948 averages. Only in Section D, where the adult brook trout catch was of an average size of 7.8 inches and 2.8 ounces did the 1948 catch exceed the 10-year averages. Here the 1948 fish were 0.2 inches and 0.2 ounces larger than the collective average size determined from the 1939-1948 catches. The three fish from Section E were probably not representative of the 1948 population as they were 0.6 inches and 0.8 ounces below the 1940-1948 averages for this water.

✓ It should be mentioned here that it is somewhat misleading to attempt judgement of the condition of the brook trout from average weights and average lengths. If a comparison of coefficient of condition is desired, the coefficient of condition ($K = \frac{1000 \times \text{wt}}{\text{length}^3}$) should be calculated for individual specimens and the average of such calculations determined for comparative purposes.

Table 9

Average Size of the 1948 Anglers' Catch
From the Experimental Sections of Hunt Creek,
and the Average Size for the Period 1939-1948

Stream Section	Average size, 1948 adult brook trout			Average size, 1939-1948 adult brook trout				Average size, 1948 6- to 7-inch brook trout		
	Number	Average length (inches)	Average weight (ounces)	Number	Average length (inches)	Number	Average weight (ounces)	Number	Average length (inches)	Average weight (ounces)
A	67	7.3	2.2	1,096	7.5	1,084	2.4	...	...	...
B	30	7.5	2.2	424	7.4	419	2.7	...	...	...
C	58	7.7	2.5	963	7.8	939	2.6	102	6.4	1.5
D	318	7.8	2.8	1,474	7.6	1,465	2.6	149	6.4	1.5
E	3	7.1	1.8	197	7.7	173	2.6	...	...	...
Totals and averages	476	7.7	2.6	4,154	7.6	4,080	2.6	251	6.4	1.5

For the experimental sections as a whole the 476 fish measured during 1948 averaged 7.7 inches and 2.6 ounces in size, or 0.1 inches longer and the same in weight as the 1939-1948 average size.

In both Section C and Section D, the average size of the special trout was 6.4 inches and 1.5 ounces during 1948. In previous years the average size for special fish was as follows: 1947 - 6.3 inches, 1.3 ounces; 1946 - 6.4 inches, 1.4 ounces.

Contribution of the Tributaries to the Anglers'

Catch in Hunt Creek During 1948

During 1948, only the fish-trap on Fuller Creek was operated, as the traps on Tributary 2 and Tributary 3 had caught relatively few fish in the last few years, and it was not felt profitable to continue operation of the latter two devices. In 1948, a total of 29 brook trout between 2.3 and 5.1 inches were tagged or fin-clipped moving downstream in Fuller Creek toward Hunt Creek. However, none of these fish were noted to enter the 1948 anglers' catch.

Angling Results, Fuller Creek, 1948

(Tables 10 and 11)

Angling records from Fuller Creek are separated into two categories, those obtained for fishing between the rotary screen and Hunt Creek (Lower Fuller), and those taken on fishing upstream from the rotary screen (Upper Fuller, including East Fish Lake outlet). This division is necessary because the rotary screen is the dividing line between waters where 6 inches is the legal minimum size and the lower stream section where creable brook trout must be 7 inches. During 1948, the lower portion of Fuller Creek was fished on 58 angling days, 53 (or 91.4 percent) of which were unsuccessful.

Table 10

Angling Results, Fuller Creek Lower Section, 1948 Trout Season
Minimum Size Limit, 7 inches.

Period 1948	Total angling days	Percent taking no adult trout	Total hours fished	Adult brook trout caught		Undersized brook trout caught		Pounds of adult brook trout removed	
				Number	Catch/hr	Number	Catch/hr	Pounds	Pounds/hr
April 24 - May 7	22	100.0	9.00	0	0.00	17	1.89	0.00	...
May 8 - 21	8	100.0	5.00	0	0.00	23	4.60	0.00	...
May 22 - June 4	12	91.7	11.00	1	0.09	10	0.91	0.22	0.020
June 5 - 18	...	...	...	...	...	...	...	...	...
June 19 - July 2	5	60.0	5.25	2	0.38	0	0.00	0.26	0.050
July 3 - 16	4	100.0	2.25	0	0.00	9	4.00	0.00	0.000
July 17 - 30	3	66.7	4.00	5	1.25	15	3.75	0.73	0.183
July 31 - August 13	1	100.0	0.50	0	0.00	4	8.00	0.00	0.000
August 14 - 27	3	67.0	2.00	1	0.50	21	10.5	0.17	0.085
August 28-September 12	...	...	...	...	...	...	...	...	...
Totals and averages, 1948 Lower section	58	91.4	39.00	9	0.24	99	2.54	1.38	0.035

Table 11

Angling Results, Fuller Creek, Upper Section, 1948 Trout Season
 Minimum Size Limit, 6 inches.

The 6- to 7-inch brook trout captured are given under "Undersized brook trout caught" and are included in those totals.

A = adult S = special 6- to 7-inch.

Period, 1948	Total angling days	Percent taking no adults (or specials)	Total hours fished	Adult brook trout caught		Undersized brook trout caught		Pounds of fish removed		Pounds/hr. removed	
				Number	Catch/hr.	Number	Catch/hr	A	S	A	S
Apr. 24-May 7	32	96.9(65.6)	28.75	2	0.07	176 (23)	6.12(0.80)	0.27	1.83	0.009	0.064
May 8-21	12	83.3(66.7)	15.50	3	0.19	84 (14)	5.42(0.90)	0.38	1.13	0.025	0.073
May 22-June 4	21	76.2(66.7)	29.75	5	0.17	139 (10)	4.67(0.34)	0.65	0.94	0.022	0.032
June 5-18	5	80.0(40.0)	5.25	1	0.19	48 (13)	9.14(2.48)	0.11	1.12	0.021	0.213
June 19-July 2	10	90.0(50.0)	16.75	1	0.06	43 (9)	2.57(0.54)	0.21	0.84	0.013	0.050
July 3-16	6	83.3(66.7)	8.75	1	0.11	105 (6)	12.00(0.69)	0.14	0.60	0.016	0.069
July 17-30	8	50.0(37.5)	6.00	4	0.67	18 (2)	3.00(0.33)	1.09	0.15	0.182	0.025
July 31-Aug. 13	12	91.7(85.2)	10.50	1	0.10	43 (2)	4.01(0.19)	0.17	0.19	0.016	0.018
Aug. 14-27	19	89.5(63.1)	28.00	2	0.07	70 (11)	2.50(0.39)	0.24	0.89	0.009	0.032
Aug. 27-Sept. 12	7	71.4(57.1)	7.50	2	0.27	25 (2)	3.33(0.27)	0.31	0.22	0.041	0.029
1948 Totals and averages, Upper Section	132	84.8(62.1)	156.75	22	0.14	751 (92)	4.79(0.59)	3.57	7.91	0.023	0.050
1948 Totals and averages, Lower Section	58	91.4	39.00	9	0.23	99	2.54	1.38	...	0.035	...
Fuller Creek Totals	190	86.8(62.1)	195.75	31	0.16	850 (92)	4.34(0.59)	4.95	7.91	0.025	0.040

Nine (9) brook trout larger than 7 inches were captured in 39 hours of fishing or 0.23 legal brook trout per hour. These fish weighed 1.38 pounds and the pounds per hour removed amounted to 0.035 pounds. Ninety-nine undersized brook trout were returned to the water or 2.54 short fish per hour.

In Upper Fuller Creek, where 6-inch brook trout were legal game, 132 angling days were spent, 82 of which were unsuccessful in capturing even any special trout. A total of 156.75 hours were spent in fishing and 22 brook trout larger than 7 inches weighing 3.57 pounds and 92 brook trout between 6 and 7 inches weighing 7.91 pounds were captured. Angling quality indices on adult brook trout were: catch per hour - 0.14 fish, pounds per hour - 0.023 pounds; on 6- to 7-inch brook trout; catch per hour - 0.59 fish, pounds per hour - 0.050. Undersized brook trout were returned at the rate of 4.26 small fish per hour (total of 659 returned).

The nine adult brook trout from Lower Fuller Creek were of an average size of 7.6 inches and 2.4 ounces. In Upper Fuller Creek, the 22 adult brook trout had an average size of 7.7 inches and 2.6 ounces. The average size of the special brook trout in the Upper Fuller Creek catch during 1948 was 6.5 inches and 1.3 ounces.

Angling Results, Below A, 1948 (Table 12)

Angling data were again recorded for all fishermen observed to fish in the 3/4-mile portion of Hunt Creek between Brailey's cabin and the A Bridge. It is known that these records are not complete, as it was not always possible to contact those anglers who parked at or below Brailey's cabin and fished upstream. It has been estimated that the creel census clerks contacted between 75 and 85 percent of all anglers using this part of the stream. The minimum legal size in this portion of Hunt Creek is 7 inches.

Table 12

Angling Results, Below Section A, Hunt Creek, 1948 Trout Season
Minimum Size Limit, 7 inches

Period, 1948	Number of angling days	Unsuccessful angling days (percent)	Total hours of angling	Adult brook trout caught		Pounds of adult brook trout removed		Undersized brook trout reported returned	
				Number	Catch/hr.	Pounds	Pounds/hr.	Number	Catch/hr.
Apr. 24-May 7	35	24 (68.6)	91.50	24	0.26	3.04	0.033	308	3.37
May 8-21	12	9 (75.0)	24.75	8	0.32	1.08	0.044	142	5.74
May 22-June 4	13	5 (38.5)	32.50	18 [✓]	0.55	2.49	0.077	194	5.97
June 5-June 18	9	6 (66.7)	19.00	5	0.26	0.68	0.036	57	3.00
June 19-July 2	5	4 (80.0)	8.50	2 [✓]	0.24	...	...	24	2.82
July 3-16	19	8 (42.1)	51.25	30	0.59	3.96	0.077	234	4.57
July 17-30	6	0 (0.0)	17.00	15	0.88	2.09	0.123	42	2.47
July 31-Aug. 13	9	4 (44.4)	20.00	11	0.55	1.74	0.087	71	3.55
Aug. 14-27	19	10 (52.6)	47.00	17	0.36	2.36	0.050	98	2.09
Aug. 28-Sept. 12	14	10 (71.4)	34.00	10 [✓]	0.29	1.08	0.032	103	3.03
1948 totals	141	80 (56.7)	345.50	140 [✓]	0.41	18.52	0.054	1,273	3.68

✓ Numbers in carets indicate number of adult trout caught and returned to the stream.

Records were obtained for 141 angling days of which 80 (or 57 percent) were unsuccessful. In 345.50 hours of fishing 140 legal brook trout were caught, or 0.41 fish per hour. The total weight of 135 fish kept was 18.52 pounds, or 0.054 pounds per hour. Anglers reported returning 1,273 small brook trout to the stream or 3.68 fish per hour. The average size of the 135 adult brook trout removed was 7.5 inches, 2.2 ounces

In addition to these fish legally captured, 7 short brook trout (between 6 and 7 inches) weighing a total of 0.70 pound were kept by anglers. Also, for scale and growth studies E. I. Cooper removed 12 brook trout from 3 to 5 inches weighing 0.45 pound. Thus the known total weight of brook trout removed from this water area by all agencies may be set at 19.67 pounds.

Progress of the Angling in Sections C, D, E. and Fuller Creek

Where the Legal Minimum Size is 6 Inches (Table 13)

In Table 13 are presented the pertinent data on the portions of the experimental area where brook trout as small as 6 inches are legally creelable (Sections C, D, and E of Hunt Creek, Fuller Creek west of the water wheel). Anglers removing such fish are given a duplicate of the creel census blank validating possession of their catches away from Hunt Creek.

The 1948 season was the third year the liberalized length order was in effect. For purposes of comparison the 1939-1945 averages (when 7 inches was the legal minimum length for brook trout) or the various sections involved are given in the table, followed by the 1946-1948 averages. The grand averages of all 6-inch water before and after the lowering of the size limit is given at the bottom of the table with the percentage changes that have been noted since the introduction of the 6-inch size limit.

The data indicate that there has been an increase in the angling pressure (61 percent more angling days, 46 percent more angling hours) on the

Table 13

Comparison of Angling Data for Sections C, D, and E of Hunt Creek and Fuller Creek Before (1939-1945) and after (1946-1948) Inauguration of 6-inch Minimum Size Limit in Those Waters. Figures in parentheses refer to 6- to 6.9-inch brook trout taken in addition to those 7-inch and larger.

Item	Total angling days	Percent of unsuccessful fishermen	Total hours of angling	Brook trout caught		Catch per hour		Pounds of adult trout (and 6-7 inch trout) taken	Pounds/hr. of adult trout (and 6-7 inch trout)
				7 inches+	Less than 7 inches	7 inches+	Less than 7 inches		
1939-1945 averages Section C	155	64	268.82	110.0	1,043	0.41	3.83	17.89	0.067
1946-1948 averages Section C-with 6" limit	219	81(64)	346.83	71.0	877(138)	0.20	2.53(0.40)	11.12(12.03)	0.032(0.035)
1939-1945 averages Section D	201	64	303.75	143.1	847	0.47	2.79	21.77	0.072
1946-1948 averages Section D-with 6" limit	237	71(57)	388.00	169.7	826(165)	0.44	2.13(0.43)	27.84(12.91)	0.072(0.033)
1940-1945 averages Section E	25	55	41.17	33.0	163	0.80	3.96	5.08	0.124
1946-1948 averages Section E-with 6" limit	19	73(45)	25.67	7.0	133(28)	0.27	5.18(1.09)	1.09(2.36)	0.042(0.091)
1940-1945 averages Fuller Creek	38	62	83.50	34.0	391	0.41	4.69	4.94	0.059
1946-1948 averages Fuller Creek-with 6" limit	208	86(55)	234.17	38.0	834(92)	0.16	3.56(0.39)	5.50 (8.03)	0.023(0.034)
1939-1945 averages C, D, E and Fuller Creek	423	61	679.42	311.0	2,366	0.46	3.48	48.26	0.071
1946-1948 averages C, D, E and Fuller Creek with 6" limit	683	79(59)	994.67	285.7	2,670(423)	0.29	2.68(0.43)	45.55(35.54)	0.046(0.036)
Percent difference averages after 6" limit was in force	+61	+30(-3)	+46	-8	+13	-37	-23(+54 ^{1/2})	-6(+68 ^{1/2})	-35(+15 ^{1/2})

^{1/2} Figures in parentheses give percentage changes based on all brook trout above 6 inches.

waters open to 6-inch angling than in the same areas when the size limit was 7 inches. About 3 percent fewer angling days were unsuccessful than previously (when possession of 6-inch trout is regarded as success), but the average percentage of angling days unsuccessful in capturing 7-inch trout rose 30 percent.

The average yearly catch of fish larger than 7 inches dropped 8 percent in number and 6 percent in weight since the 6-inch limit was in effect, and average angling quality for the 7-inch brook trout dropped 37 percent. The average number of "small" fish handled (which includes 6-7 inch trout) increased 13 percent, although the average catch per hour of such fish decreased 23 percent since the 6-inch fishing began.

In addition to the average number of pounds of 7-inch and larger brook trout creeled, the average weight of 6-7 inch brook trout when added in brought the average total pounds of all trout removed 68 percent higher. The pounds per hour index was similarly affected. Considering adult brook trout only the average pounds per hour index diminished 35 percent after the initiation of 6-inch fishing; however when the average pounds per hour index of all trout above 6 inches is calculated, there was an increase of 15 percent in the yearly average pounds per hour index for all trout after 6-inch fishing began.

To summarize briefly, after the initiation of the 6-inch size limit, the sections under this limit were subjected to a 61 percent increase in angling trips and 46 percent increase in total hours. The average total catch and total pounds of 7-inch and larger brook trout decreased 8 percent and 6 percent respectively, and the average yearly catch of small brook trout (including 6- to 7-inch fish) increased 13 percent. The average catch per

hour for adults alone has decreased noticeably because of the increase in average angling pressure together with a slight decrease in the average yearly total catch.

However, when the average numbers and pounds of 6- to 7-inch fish removed are added to the average numbers and pounds of the adult brook trout caught, it can be demonstrated that the total angling quality (which includes all fish larger than 6 inches) since the initiation of the 6-inch size limit has been increased; the average catch per hour by about 54 percent and the average pounds per hour removed by about 15 percent.

Number and Percentage of Fishing Days on Which

Various Numbers of Brook Trout were Caught (Table 14)

During 1948 anglers caught 0 to 17 brook trout in their various trips (the latter individuals returned several fish to the waters of the Section D beaver ponds). As usual, over half of the angling days were unsuccessful, even with the 6-inch minimum legal size. A total of 271 angling days, or 53.8 percent of the total days (504) recorded for the experimental sections were unsuccessful. Angling days for which 1, 2, 3, 4, 5, and 6 fish were captured comprised 17.3, 9.7, 5.0, 2.8, 2.4, and 2.2 percent respectively, while the percentage of angling days on which 7 to 13 brook trout were taken varied between 0.4 and 1.4. Three angling days showed catches of 15 fish (0.6 percent) and one angler (0.2 percent) caught 17 brook trout.

In Hunt Creek below Section A, where the legal minimum size limit is 7 inches, the various anglers caught 0 to 6 fish. The percentage of angling days catching various numbers was: 0-56.7; 1-17.0; 2-12.1; 3-5.7; 4-2.8; 5-4.3; 2-1.4.

On Fuller Creek, where a short piece of the stream is under the 7-inch limit, but most of it under a 6-inch minimum size, except for one angler,

Table 14

The Number and Percentage of Angling Days on Which Various Numbers of Brook Trout Were Taken, Hunt Creek Fisheries Experiment Area, 1948 Trout Season

Stream, Lake or Section	Number of angling days on which 0 to 17 brook trout of legal size were caught																	Totals
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	17	
Hunt Creek																		
Section A ¹ ✓	32	10	5	4	2	0	1	3	0	0	0	0	0	0	0	0	0	57
B ¹ ✓	16	7	6	1	0	0	0	0	1	0	0	0	0	0	0	0	0	31
C ² ✓	92	21	16	8	2	5	5	0	0	0	2	0	0	0	0	0	0	151
D ² ✓	128	48	21	12	10	7	5	4	1	4	5	4	5	2	0	3	1	260
E ² ✓	3	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
Totals	271	87	49	25	14	12	11	7	2	4	7	4	5	2	0	3	1	504
Percent	53.8	17.3	9.7	5.0	2.8	2.4	2.2	1.4-	0.4-	0.8-	1.4-	0.8-	1.0-	0.4-		0.6-	0.2-	100.0
Hunt Creek Below A ¹ ✓	80	24	17	8	4	6	2	0	0	0	0	0	0	0	0	0	0	141
Percent	56.7	17.0	12.1	5.7	2.8	4.3	1.4	...	...	...	...	...	...	...	...	...	...	100.0
Fuller Creek																		
Lower ¹ ✓	53	4	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	58
Upper ² ✓	82	23	14	6	0	4	2	0	0	0	0	0	0	1	0	0	0	132
Totals	135	27	14	6	0	5	2	0	0	0	0	0	0	1	0	0	0	190
Percent	71.1	14.2	7.4	3.2	0	2.6	1.0+	...	...	...	...	...	...	0.5+	...	...	...	100.0
East Fish Lake ³ ✓	230	30	12	5	5	3	1	1	0	0	0	0	0	0	0	0	0	287
Percent	80.1	10.5	4.2	1.7	1.7	1.0	0.4	0.4	...	...	...	...	...	...	...	...	...	100.0

- ¹✓ Indicates minimum legal size 7 inches, 15 trout per day.
- ²✓ Indicates minimum legal size 6 inches, 15 trout per day.
- ³✓ Indicates minimum legal size 7 inches, 5 trout per day.

the catches also varied between 0 and 6 fish. In a total of 190 days of angling, 71.1 percent took no legal brook trout of any size, 14.2 percent caught one fish, 7.4 percent and 3.2 percent took 2 and 3 fish respectively, and 2.6 and 1.0+ percent removed 5 and 6 fish, and one angler (0.5+ percent) captured 13 legal brook trout.

Residence of the Anglers (Table 15)

Residents of 25 Michigan counties and four other states (plus 1 angler whose residence was not learned) fished the experimental Sections A, B, C, D and E, for a total of 504 angling days. Below Section A, 141 days of angling were prosecuted by residents of 22 Michigan counties and two other states. On Fuller Creek and East Fish Lake outlet, anglers from 19 counties in Michigan and three other states sought their sport for a total of 190 days of angling. On East Fish Lake, fishermen from 21 counties in Michigan and four other states (plus three angling days for which the residence was not given) made up the 287 days of angling on this trout lake.

Montmorency County anglers (the county in which the Hunt Creek area is located) furnished the most pressure on all waters, followed closely by Wayne County. Genesee County anglers were in third position. The most non-resident fishermen came from Ohio, followed by Illinois, Indiana, West Virginia and Montana. Slightly less than 7 percent of the total angling days consisted of non-resident angling effort.

Angling Results on East Fish Lake

1948 Trout Season (Table 16)

During 1948 the total number of angling days decreased (from 344 to 287), but the total angling effort increased (from 711.25 hours to 853.25 hours). The percentage of unsuccessful fishermen-days also decreased from 86 to 80 percent. The minimum size limit here was 7 inches, but beginning with 1948 the creel limit was reduced from 10 to 5 brook trout daily.

Table 15

Number of Angling Days Done by Residents and Non-residents 1948
Trout Season, Hunt Creek Fisheries Experimental Area.

County or State of residence	Experimental Sections	Below A	Fuller Creek and East Fish Lake outlet	East Fish Lake
Alpena	4	...	...	...
Bay	2	4	...	2
Benzie	1	...	...	...
Branch	...	1	...	...
Calhoun	...	...	...	19
Cheboygan	4	2	...	...
Clinton	1	...	2	...
Crawford	2	...	...	...
Genesee	46	5	15	14
Gratiot	...	...	...	1
Hillsdale	4	3	...	5
Huron	...	1	...	...
Ingham	1	10	3	4
Ionia	...	...	...	4
Isabella	8	2	...	...
Jackson	16	8	10	6
Kalamazoo	2	...	4	...
Kent	...	1	...	7
Lapeer	...	2	1	...
Lenawee	...	2	...	...
Macomb	7	2	...	10
Midland	25	...	13	2
Monroe	1	4	3	2
Montmorency	146	25	55	88
Oakland	26	15	4	10
Oscoda	29	6	5	2
Otsego	4	...	...	1
Saginaw	20	6	1	7
Sanilac	...	...	...	...
St. Clair	8	1	4	7
Tuscola	7	2	11	18
Washtenaw	10	1	...	6
Wayne	86	26	54	50
Resident totals	460	129	185	265
Illinois	5	4	2	5
Indiana	6	...	...	...
Montana	...	...	1	3
Ohio	31	6	2	7
West Virginia	1	...	...	4
Non-resident totals	43	10	5	19
Unknown residence	1	2	...	3
Grand totals	504	141	190	287

Table 16

Angling Results, East Fish Lake, 1948 Trout Season
 Minimum Size Limit 7 inches. Daily Creel Limit - 5 fish

Period, 1948	Total angling days	Number (and %) of unsuccessful angling days	Total hours of angling	Adult brook trout caught		Pounds of adult brook trout removed		Undersized brook trout returned	
				Number	Catch/hr.	Number	Pounds/hr.	Number	Catch/hr.
Apr. 24-May 7	153	116 (75.8)	496.25	78	0.16	44.69	0.090	3	0.01
May 8-21	12	12 (100.0)	12.50	0	0.00	0.00	0.000	0	0.00
May 22-June 4	35	35 (100.0)	102.75	0	0.00	0.00	0.000	5	0.05
June 5-18	26	26 (100.0)	72.75	0	0.00	0.00	0.000	0	0.00
June 19-July 2	7	7 (100.0)	22.50	0	0.00	0.00	0.000	0	0.00
July 3-16	5	5 (100.0)	11.50	0	0.00	0.00	0.000	0	0.00
July 17-30	4	4 (100.0)	12.00	0	0.00	0.00	0.000	0	0.00
July 31-Aug. 13	6	5 (83.3)	12.75	1	0.08	0.27	0.021	1	0.08
Aug. 14-27	22	11 (50.0)	64.25	21 ³	0.37	6.28	0.098	6	0.09
Aug. 28-Sept. 12	17	9 (52.9)	46.00	14 ¹	0.30	4.68	0.102	3	0.07
Totals or averages, 1948	287	230 (80.1)	853.25	117 ⁴	0.14	55.92	0.066	18	0.02

¹ Number in caret indicates number of trout larger than 7 inches caught and returned to the water.

The total catch by angling amounted to 117 brook trout of which four were returned to the water. The total weight of brook trout creeled was 55.92 pounds. Angling quality indices of 0.14 fish per hour and 0.066 pounds per hour may be thus computed. Eighteen (18) brook trout less than 7 inches were reported as returned to the water.

On a per acre basis the returns to the angler were 3.49 pounds and 7.3 legal brook trout per acre. However, to the angling data should be added the 26 brook trout between 6 and 15.8 inches removed during January and March of 1948 for E. L. Cooper's scale studies. All but one of these brook trout were larger than 7 inches. Their total weight amounted to 14.40 pounds. The total catch and total weight of brook trout removed by all methods in 1948 was 143 brook trout weighing 70.32 pounds or slightly less than 9 fish per acre and 4.39 pounds per acre.

The heaviest angling pressure and the largest catch was recorded in the first two weeks of the season when 496.25 hours of fishing removed 78 legal brook trout. Of these totals over $\frac{3}{4}$ of the angling hours and of the total catch was noted on the opening weekend. The catch on the opening weekend alone constituted better than $\frac{1}{2}$ of the season's total catch. Anglers caught legal brook trout from April 24 through May 2, but after that date no fish were creeled until August 11, although there were from 11.50 to 102.75 hours of fishing in the six intervening two-week periods. After August 14, angling quality was best, as far as numbers were concerned, the catch per hour running from 0.30 brook trout to 0.37 brook trout per hour.

The average size of the 1948 brook trout catch, based on the measurements from 113 fish, was 10.4 inches and 7.8 ounces. Fish taken during the opening two weeks were the largest, 78 fish averaging 11.0 inches in length and 9.2 ounces in weight. The average size of the brook trout caught in the latter

part of the season ranged between 8.7 inches and 4.3 ounces and 9.7 inches and 5.8 ounces. The largest brook trout captured during 1948 was a 17.9 inch fish which weighed 2 pounds, 5 1/2 ounces. Of the total catch, two fish weighed more than 2 pounds, 6 fish were more than 1 pound in weight,

Marked brook trout in the catch of 117 fish consisted of 6 fish with the adipose-left pelvic fin combination missing and ranging in size from 9.5 to 14.0 inches, and one tagged fish 10.2 inches in length. All of these fish were marked passing down the inlet. The tagged fish grew from 4.9 to 10.2 inches in 360 days, a growth of 5.3 inches. The fact that only 7/107 of the catch bore marks from either the inlet weir or outlet weir strongly suggests that some successful spawning occurs within the lake itself, inasmuch as all downstream or upstream migrants caught in the inlet and outlet traps have been given a distinctive mark since the fall of 1944. The inlet trap was removed in the fall of 1948 in an effort to encourage additional migration for spawning in the inlet.

The capture of several creek chubs, and also one common sucker (bearing a hook mark on its back) indicates that rough fish have regained a foothold here.

The continued high angling pressure (53.3 hours per acre) indicates that this lake is still a popular brook trout "fishin' hole" despite the relatively low catch over the entire season.

The number of fish caught on various days of angling from East Fish Lake in 1948 will be found in Table 14. From 0 to 7 legal brook trout were captured. Some 80.1 percent of the angling days were unsuccessful; 10.5 percent caught one fish, while 4.2 percent of the days recorded had captured two fish. The percentage catching three and four fish was 1.7, while 1.1 percent took the limit of five fish, and 0.3+ percent caught six and seven fish (returning the additional one and two fish) to the water.

The residence of the East Fish Lake fishermen will be found in Table 15. As mentioned earlier, Montmorency and Wayne county anglers provided a majority of the angling pressure.

INSTITUTE FOR FISHERIES RESEARCH

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