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INTENSIVE CREEL CENSUS RESULTS ON THE EXPERIMENTAL WATERS

OF HUNT CREEK, AND ON EAST FISH LAKE, 1947 TROUT SEASON

By David S. Shetter

Reports have been submitted each year since 1939 listing the results of intensive creel census activities at the Hunt Creek Fisheries Experiment Station. This report will present the results of the 1947 angling on these waters for the ninth consecutive season. A brief resume of the angling success in the portions of Hunt Creek and Fuller Creek which are under observation will be given, along with the yield per acre of the various sections, and data on the average size of the fish. The 1947 data on the results of reducing the size limit to six inches on certain waters are presented also. Finally, the angling results for East Fish Lake are discussed. The relationship between angling quality and population density will not be dealt with here, because to do so would make the report too long. This subject was discussed in a paper by the author before the April, 1947, meeting of the Michigan Academy of Science, Arts and Letters (in press).

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Angling Results, 1947, Hunt Creek

(Tables 1, 2, 3, 4, 5, and 6)

A total of 247 individuals spent 607 days in angling on the experimental sections of Hunt Creek in 1947. The total time expended amounted to 871.50 hours. Of the total angling days, 491, or 80.9 per cent, reported no 7-inch or larger brook trout captured, and 331 of the 479 angling days in the waters open to the taking of 6-inch brook trout (or 69.1 per cent) reported no success in the capture of any brook trout of 6 inches or larger. The 1947 anglers caught a total of 187 adult brook trout (3 fish were released) weighing 26.31 pounds, and in Sections C, D and E, where 6-inch fish were also legal game, removed 258 6- to 7-inch brook trout whose total weight was 21.86 pounds. The catch per hour of adult brook trout was 0.21 fish; of special brook trout (6.0 to 6.9 inches) 0.37 fish; of both adult and special brook trout combined, 0.53 fish. The pounds per hour removal may be calculated as follows: for adult fish, 0.030 pounds, for special brook trout, 0.032 pounds, for both classes combined, 0.054 pounds. During 1947, anglers reported releasing 2,790 undersized brook trout in their fishing on the experimental sections, or 3.20 small fish per hour.

The angling quality noted in 1947 for the season as a whole was the poorest recorded for any of the nine years of operation. During the opening two weeks (April 26-May 9) brook trout larger than 7 inches were caught at the rate of 0.25 fish per hour, slightly above the season's average of 0.21 fish per hour. For the next six weeks (May 10-June 20), the catch per hour ranged between 0.15 and 0.18 adult fish. There was a slight increase in quality after June 21. After that date, the catch per hour remained above 0.22 legal fish per hour in all remaining two-week periods, reaching its highest point, 0.33 adult brook trout per hour, during July 19-August 1.

Table 1

Angling Results, Section A, Hunt Creek, 1947 Trout Season  
Minimum Size Limit, 7 Inches

Period, 1947	Total Angling Days	Number Taking No Legal Fish (Percentage)	Total Hours Fished	Legal Brook Trout Caught		Sublegal Brook Trout Caught		Pounds of Legal Fish Removed	Pounds Per Hour
				Number	Catch/Hr.	Number	Catch/Hr.		
Apr. 26-May 9	14	10 (71.4)	20.00	11	0.55	43	2.15	1.61	0.081
May 10-23	7	1 (14.3)	19.00	8	0.42	87	4.58	1.53	0.080
May 24-June 6	11	7 (63.6)	22.75	11 <sup>3</sup>	0.48	171	7.52	0.87	0.038
June 7-20	5	3 (60.0)	4.50	3	0.67	48	10.70	0.40	0.089
June 21-July 4	10	6 (60.0)	15.25	4	0.26	47	3.08	0.65	0.043
July 5-18	7	5 (71.4)	9.75	8	0.82	20	2.05	1.08	0.111
July 19-Aug. 1	13	8 (61.5)	21.50	9	0.42	81	3.77	1.34	0.062
Aug. 2-15	4	1 (25.0)	8.50	4	0.47	92	10.80	0.45	0.053
Aug. 16-Sept. 1	7	5 (71.4)	11.50	5	0.43	137	11.91	0.46	0.040
Totals & Averages	78	46 (58.9)	132.75	63 <sup>3</sup>	0.47	726	5.47	8.39	0.063

<sup>3</sup>- Indicates number of legal brook trout returned to the stream.

Table 2

Angling Results, Section B, Hunt Creek, 1947 Trout Season  
Minimum Size Limit, 7 Inches

Period, 1947	Total Angling Days	Number		Total Hours Fished	Legal Brook Trout Caught		Sublegal Brook Trout Caught		Pounds of Legal Fish Removed	Pounds Per Hour
		Taking No Legal Fish (Percentage)	No Legal Fish (Percentage)		Number	Catch/Hr.	Number	Catch/Hr.		
Apr. 26-May 9	11	7 (63.6)	7 (63.6)	10.00	7	0.70	30	3.00	0.83	0.084
May 10-23	6	6 (100.0)	6 (100.0)	3.00	...	0.00	33	11.00	...	0.000
May 24-June 6	7	6 (85.7)	6 (85.7)	5.50	1	0.18	19	3.45	0.16	0.029
June 7-20	5	5 (100.0)	5 (100.0)	3.25	...	0.00	32	9.84	...	0.000
June 21-July 4	5	4 (80.0)	4 (80.0)	11.00	2	0.18	36	3.27	0.26	0.024
July 5-18	...	...	...	...	...	...	...	...	...	...
July 19-Aug. 1	6	3 (50.0)	3 (50.0)	9.00	6	0.67	57	6.33	0.90	0.100
Aug. 2-15	5	4 (80.0)	4 (80.0)	6.25	1	0.16	20	3.20	0.18	0.029
Aug. 16-Sept. 1	5	4 (80.0)	4 (80.0)	4.50	1	0.22	38	8.44	0.19	0.042
Totals & Averages	50	39 (78.0)	39 (78.0)	52.50	18	0.34	265	5.05	2.52	0.048

Table 3

Angling Results, Section C, Hunt Creek, 1947 Trout Season  
The 6- to 7-Inch Brook Trout Captured Are Given in Parentheses Under the Sublegal Brook Trout

Period	Number of Anglers	% Taking No Legals (Or Specials)	Total Hours of Fishing	Legal Brook Trout Caught		Sublegal Brook Trout Caught		Lbs. of Brook Trout Removed		Lbs. per Hour	
				Number	Catch/Hr.	Number	Catch/Hr.	Legal	Special	Legal	Special
Apr. 26-May 9	36	80.5 (75.0)	59.75	11	0.18	67 (14 <del>✓</del> )	1.12 (0.23)	1.32	0.89	0.002 (0.015)	
May 10-23	12	100.0 (83.3)	14.00	0	0.00	72 (3)	5.14 (0.21)	...	0.20	0 (0.014)	
May 24-June 6	56	91.1 (80.4)	85.75	6	0.07	236 (25)	2.752 (0.29)	0.75	1.99	0.009 (0.023)	
June 7-20	29	93.1 (79.3)	31.75	3	0.09	74 (8)	2.33 (0.25)	0.41	0.73	0.013 (0.023)	
June 21-July 4	28	82.1 (60.7)	44.75	10	0.22	150 (16)	3.35 (0.36)	1.60	1.44	0.036 (0.032)	
July 5-18	30	83.3 (70.0)	43.00	5	0.12	84 (11)	1.95 (0.26)	0.64	0.93	0.015 (0.022)	
July 19-Aug. 1	11	90.9 (36.3)	13.25	1	0.08	55 (19)	4.15 (1.43)	0.17	1.66	0.013 (0.125)	
Aug. 2-15	24	95.8 (75.0)	28.75	1	0.04	134 (14)	4.66 (0.49)	0.15	1.19	0.005 (0.041)	
Aug. 16-Sept. 1	21	71.4 (42.8)	42.00	8*	0.19	65 (15)	1.55 (0.36)	0.99	1.21	0.024 (0.029)	
<b>Totals and Averages</b>											
	247	87.0 (70.4)	363.00	45	0.12	937 (125)	2.58 (0.34)	6.03	10.24	0.017 (0.028)	

\* - One 7"-8" fish eaten before being measured or weighed.

✓ - One 6"-7" fish returned to water.

Table 4

Angling Results, Section D, Hunt Creek, 1947 Trout Season  
 The 6- to 7-Inch Brook Trout Captured Are Given in Parentheses Under the Sublegal Brook Trout

Period, 1947	Total Angling Days	% Taking No Legals (Or Specials)	Total Hours Fished	Legal Brook Trout Caught		Sublegal Brook Trout Caught		Lbs. of Brook Trout Removed		Lbs. per Hour	
				Number	Catch/Hr.	Number	Catch/Hr.	Legal	Special	Legal	Special
Apr. 26-May 9	25	88.0 (84.0)	36.75	4	0.11	78 (5)	2.12 (0.14)	0.49	0.38	0.013 (0.010)	
May 10-23	14	92.8 (78.5)	14.00	1	0.07	67 (3)	4.79 (0.21)	0.13	0.25	0.009 (0.018)	
May 24-June 6	47	91.5 (85.1)	62.50	6	0.09	142 (17)	2.27 (0.27)	0.80	1.49	0.012 (0.024)	
June 7-20	27	74.1 (62.9)	40.00	7	0.18	79 (9)	1.98 (0.23)	1.09	0.85	0.027 (0.021)	
June 21-July 4	21	76.2 (57.1)	28.00	6	0.21	86 (13)	3.07 (0.46)	0.74	1.12	0.026 (0.040)	
July 5-18	26	76.9 (65.3)	38.25	8	0.21	50 (10)	1.31 (0.26)	1.35	0.80	0.035 (0.021)	
July 19-Aug. 1	9	88.9 (66.7)	14.00	3	0.21	22 (5)	1.57 (0.36)	0.48	0.49	0.034 (0.035)	
Aug. 2-15	16	75.0 (50.0)	28.50	12	0.42	84 (18)	2.95 (0.63)	1.95	1.64	0.068 (0.058)	
Aug. 16-Sept. 1	17	76.5 (58.8)	26.25	6	0.23	47 (17)	1.79 (0.65)	0.91	1.60	0.035 (0.061)	
<b>Totals and Averages</b>											
	202	82.7 (70.3)	288.25	53	0.18	655 (97)	2.27 (0.34)	7.94	8.62	0.028 (0.030)	

Table 5

Angling Results, Section E, Hunt Creek, 1947 Trout Season  
 The 6- to 7-Inch Brook Trout Captured Are Given in Parentheses Under the Sublegal Brook Trout

Period, 1947	Total Angling Days	% Taking No Legals (Or Specials)	Total Hours Fished	Legal Brook Trout Caught		Sublegal Brook Trout Caught		Lbs. of Brook Trout Removed		Lbs. per Hour	
				Number	Catch/Hr.	Number	Catch/Hr.	Legal	Special	Legal	Special
Apr. 26-May 9	5	100.0 (100.0)	5.00	...	0.00	41 (0)	8.20 (0.00)	...	...	0.000 (0.000)	
May 10-23	1	100.0 (100.0)	1.00	...	0.00	15 (0)	15.00 (0.00)	...	...	0.000 (0.000)	
May 24-June 6	8	75.0 (37.5)	7.00	3	0.42	65 (9)	9.29 (1.29)	0.38	0.71	0.053 (0.101)	
June 7-20	1	0.0 (0.0)	4.75	2	0.42	30 (7)	6.31 (1.47)	0.52	0.56	0.109 (0.118)	
June 21-July 4	1	100.0 (0.0)	1.00	...	0.00	15 (5)	15.00 (5.00)	...	0.42	0.000 (0.420)	
July 5-18	7	85.7 (28.6)	9.00	1	0.11	27 (13)	3.00 (1.44)	0.12	1.07	0.013 (0.120)	
July 19-Aug. 1	1	0.0 (0.0)	2.00	1	0.50	4 (1)	2.00 (0.50)	0.14	0.08	0.070 (0.040)	
Aug. 2-15	1	100.0 (100.0)	0.25	...	0.00	...	0.00 (0.00)	...	...	0.000 (0.000)	
Aug. 16-Sept. 1	5	80.0 (60.0)	5.00	1	0.20	10 (2)	2.00 (0.40)	0.27	0.16	0.054 (0.032)	
Totals and Averages											
	30	83.3 (50.0)	35.00	8	0.23	207 (37)	5.91 (1.06)	1.43	3.00	0.041 (0.086)	

Table 6

Angling Results, Sections A, B, C, D and E Combined, 1947 Trout Season.  
The Angling Data Pertaining to the Capture of 6- to 7-Inch Brook Trout  
from Sections C, D and E is Given in Parentheses

Period, 1947	Total Angling Days	% Taking No Legals (Or Specials)	Total Hours of Fishing	Legal Brook Trout Caught		Sublegal Brook Trout Caught		Lbs. of Brook Trout Removed		Lbs. per Hour	
				Number	Catch/Hr.	Number	Catch/Hr.	Legal	Special	Legal	Special
Apr. 26-May 9	91 (66)	80.2 (80.3)	131.50 (101.50)	33	0.25	259 (194)	1.97 (0.19)	4.25	1.27	0.032 (0.012)	
May 10-23	40 (27)	82.5 (81.5)	51.00 (29.00)	9	0.18	274 (6)	5.37 (0.21)	1.66	0.45	0.033 (0.016)	
May 24-June 6	129 (111)	87.6 (79.3)	183.50 (155.25)	27 <sup>3</sup>	0.15	633 (51)	3.45 (0.33)	2.96	4.19	0.016 (0.027)	
June 7-20	67 (57)	82.1 (70.2)	84.25 (76.50)	15	0.18	263 (24)	3.12 (0.31)	2.42	2.14	0.029 (0.028)	
June 21-July 4	65 (50)	76.9 (58.0)	100.00 (73.75)	22	0.22	334 (34)	3.34 (0.46)	3.25	2.98	0.033 (0.040)	
July 5-18	70 (63)	80.0 (63.5)	100.00 (90.25)	22	0.22	181 (34)	1.81 (0.38)	3.19	2.80	0.032 (0.031)	
July 19-Aug. 1	40 (21)	72.5 (47.6)	59.75 (29.25)	20	0.33	219 (25)	3.67 (0.85)	3.03	2.23	0.051 (0.076)	
Aug 2-15	50 (41)	82.0 (65.9)	72.25 (57.50)	18	0.25	330 (32)	4.57 (0.56)	2.73	2.83	0.038 (0.049)	
Aug 16-Sept 1	55 (43)	74.5 (51.2)	89.25 (73.25)	21	0.24	297 (34)	3.33 (0.46)	2.82	2.97	0.031 (0.041)	
<b>Totals and Averages</b>											
	607 (479)	80.9 (69.1)	871.50 (686.25)	187 <sup>3</sup>	0.21	2,790 (2594)	3.20 (0.37)	26.31	21.86	0.030 (0.032)	

Note: <sup>3</sup> - Numbers in carets indicate numbers of legal fish returned.



Section A yielded the best fishing during 1947 of any of the experimental sections. There were 78 angling days observed on this stretch of water, and on 46, or 58.4 per cent, no brook trout over the 7-inch mark were caught. In 132.75 hours of fishing, 63 adult brook trout weighing 8.39 pounds were caught (3 legal fish were returned to the water) for a catch per hour of 0.47 fish and 0.063 pounds per hour of fish. A total of 726 small brook trout were reported returned to the water. In 1946, under heavier angling pressure, Section A yielded 114 creel-size brook trout weighing 16.18 pounds.

Angling in Section B also decreased in 1947 compared with 1946 (50 angling days as compared with 92). On 39 days (or 78.0 per cent), no legal brook trout were captured. In a total of 52.50 hours of fishing, 18 adult brook trout were removed, whose total weight was 2.52 pounds. The catch per hour of "keeper" fish was 0.34 fish, and the pounds per hour index of "keepers" removed was 0.048, both indices considerably lower than recorded for 1946. Small fish reported as released amounted to 265.

In Section E, 35.00 hours of fishing on 30 angling days yielded 8 adult brook trout weighing 1.43 pounds, or 0.23 fish per hour and 0.041 pounds of adult trout per hour. In addition, these same fishermen removed 37 brook trout between 6 and 7 inches, whose weight was 3.00 pounds, or 1.06 "special" trout per hour and 0.086 pounds per hour of 6- to 7-inch fish. Of the total angling days, 24, or 83.3 per cent, caught no creelable trout, and 15, or 50.0 per cent, caught no "keeper" trout at all. A total of 207 undersized brook trout were returned to the water.

Section D was relatively heavily fished. A total of 288.25 hours were spent there in 202 days of angling. The fishermen caught 53 brook trout larger than 7.0 inches, which weighed 7.96 pounds--a catch per hour

of 0.18 legal fish and 0.028 pounds per hour of legal brook trout. In addition, these fishermen also removed 97 "special" brook trout, whose weight was 8.62 pounds, for a catch per hour of 0.34 "special" trout per hour, and 0.030 pounds of 6- to 7-inch brook trout per hour. Unsuccessful anglers amounted to 167, or 82.7 per cent, who caught no 7-inch fish, and 142, or 70.3 per cent, who caught neither 7-inch nor 6- to 7-inch fish. A total of 655 "short" trout were returned to the stream in this section.

Section C was the most heavily fished of any of the experimental sections, and angling quality also was the poorest. On 247 angling days, a total of 363.00 hours of fishing were prosecuted. The total yield amounted to 45 adult brook trout weighing 6.03 pounds, for quality indices of 0.12 adult brook trout and 0.017 pounds of adult brook trout per hour. The Section C anglers took 125 "special" trout weighing 10.24 pounds. Quality indices, therefore, on the 6- to 7-inch trout, were 0.34 fish and 0.028 pounds of "special" trout per hour. Two hundred and fifteen (215) or 87.0 per cent of the angling days reported no adult fish captured, and 174, or 70.4 per cent, caught neither adult nor "special" brook trout. "Short" trout returned to the stream amounted to 937.

Pounds and Numbers of Adult Brook Trout

Removed by Angling (Table 7)

The yield data for the experimental sections of Hunt Creek are given in Table 7. For comparative purposes the 1947 data are shown along with the 1939-1947 average numbers and pounds per acre removed by angling. Comparison of the per acre yields for 1947 with the average per acre yields for the past nine years indicates that 1947 was a very poor year, as the removal by the fishermen in both numbers

Table 7

The Yield in Pounds and Numbers of Brook Trout Per Acre for the 1947 Trout Season,  
Compared with the Average Per Acre Yields for the Period 1939-1947.

Actual Figures are Given in Parentheses.

The 6- to 7-Inch Brook Trout Removed in 1939 Have Not Been Included in the Totals.

Stream Section	Dimensions		Area (Acres)	Yield Per Acre in 1947 in		Average Yield Per Acre, 1939-1947 in	
	Length (ft.)	Av. width (ft.)		Pounds	Numbers	Pounds	Numbers
A	2,577	24.3	1.44	5.83 (8.39)	43.8 (63)	11.73 (152.03)	84.2 (1,091)
B	1,605	17.5	0.64	3.94 (2.52)	28.1 (18)	11.85 (68.28)	74.5 (429)
C	3,970	11.8	1.07 or 0.71	8.49 (6.03)	63.4 (45)	21.04 (149.63)	130.9 (931)
D	2,386	21.5	1.18	6.73 (7.94)	44.9 (53)	16.96 (180.19)	110.9 (1,178)
E	1,250	11.8	0.36	3.97 (1.43)	22.2 (8)	11.60 (33.41)	75.0 (216)
Totals and Averages	11,788	17.4	4.33 or 4.69	6.08 (26.31)	43.2 (187)	14.83 (583.54)	97.8 (3,845)

and pounds of brook trout in the various sections was between 50.3 and 66.8 per cent less (pounds) and between 48.0 and 70.4 per cent less (numbers) than the nine-year average yields per acre for the various sections. For the experimental sections combined, 55.8 per cent fewer adult brook trout per acre were caught and 59.0 per cent fewer pounds of adult brook trout per acre were removed than in the average "season."

In addition to angling, which removed 26.31 pounds of brook trout larger than 7 inches and 21.86 pounds of brook trout between the sizes of 6 and 7 inches from the experimental sections, 6 adult brook trout and 8 small brook trout weighing a total of 1.25 pounds were removed for the scale researches of E. L. Cooper during 1947 (Table 8). Also, anglers kept 26 brook trout of less than the legal minimum size of 6 or 7 inches, which weighed 1.53 pounds. Actually, the total yield of Sections A, B, C, D and E was 482 brook trout of all sizes with a total weight of 50.95 pounds.

Similarly in the waters below Section A, 26.43 pounds of brook trout larger than 7 inches were taken by anglers, and 21 adults weighing 3.69 pounds; 203 smaller brook trout weighing 7.84 pounds were taken by Cooper for his scale studies. Short fish illegally in the possession of anglers amounted to 26 brook trout weighing 1.85 pounds. Thus the total yield of below A was 430 brook trout of all sizes, whose weight was 39.81 pounds.

Table 8

Recapitulation of Numbers and Pounds of All Brook Trout  
Removed From the Open Waters of Hunt Creek During 1947.

Item	Experimental Sections		Below A	
	Number	Pounds	Number	Pounds
Adults removed by angling	184	26.31	180	26.43
Adults removed for research	6	0.63	21	3.69
6- to 7-inch fish by angling	258	21.86	...	...
Trout less than 6 or 7 inches kept by anglers	26	1.53	26	1.85
Trout less than 7 inches removed for research	8	0.62	203	7.84
Totals	482	50.95	430	39.81

Average Size of the Fish in Anglers' Catch During 1947

(Table 9)

The average total length (in inches) and the average weight (in ounces) of the brook trout removed from the various sections and the grand averages of length and weight are given in Table 8. For comparative purposes, the average lengths and weights for the period 1939-1947 also are shown. The 183 brook trout larger than 7 inches which were removed from the experimental waters ranged in size from 7 inches to 12.2 inches, and were of an average total length of 7.6 inches and their average weight was 2.3 ounces. The average total length for the period 1939-1947 also was 7.6 inches, but the average weight for the nine-year period was 2.5 ounces--0.2 ounces heavier than the average weight for 1947.

Only in Section A and in Section E were the average lengths greater than the averages noted for the nine-year period. In Sections B, C and D, the average lengths were from 0.1 inch to 0.3 inch less than the average length for the period 1939-1947 in those sections. The average weights in Sections A, B, C and D for 1947 also were from 0.1 ounce to 0.5 ounce less than the average weights noted for the entire period, but the average weight of the Section E brook trout in 1947 was 0.2 ounces more than the 1939-1947 average weight for Section E.

As will be noted in the table, the average size of the "special" brook trout removed from Sections C, D and E was 6.3 inches and 1.3 ounces.

Contribution of the Tributaries to  
the Anglers' Catch During 1947

Two-way fish traps were operated as usual on Tributaries 2, 3 and 4 and almost all downstream migrants either jaw-tagged or fin-clipped

Table 9

Average Size of the 1947 Anglers' Catch  
From the Experimental Sections of Hunt Creek,  
and the Average Size for the Period 1939-1947.

Stream Section	Average Size, 1947 Adult Brook Trout			Average Size, 1939-1947 Adult Brook Trout				Average Size, 1947 6- to 7-Inch Brook Trout		
	Number of Specimens	Average Length (in.)	Average Weight (oz.)	Number of Specimens	Average Length (in.)	Number of Specimens	Average Weight (oz.)	Number of Specimens	Average Length (in.)	Average Weight (oz.)
A	60	7.6	2.2	1,029	7.5	1,017	2.4	...	...	...
B	18	7.5	2.2	394	7.8	389	2.7	...	...	...
C	44	7.5	2.2	905	7.8	881	2.6	124	6.3	1.3
D	53	7.5	2.4	1,156	7.6	1,147	2.5	97	6.4	1.4
E	8	7.9	2.8	195	7.7	171	2.6	37	6.3	1.3
Totals & Averages										
	183	7.6	2.3	3,679	7.6	3,605	2.5	258	6.3	1.3

for future recognition. In Tributaries 2, 3 and 4, a total of 305 brook trout were marked as follows: 159 fish less than 4 inches long were fin-clipped; 12 fish between the sizes of 4 and 6.9 inches were fin-clipped; 128 fish between 4 and 6.9 inches were jaw-tagged; 6 fish larger than 7 inches were jaw-tagged.

The 1947 anglers' catch in the experimental sections included no tagged brook trout from the tributaries. One left-pelvic marked fish, originating in Fuller Creek, entered the 6- to 7-inch catch of Section C. Obviously, as in past years, the tributaries did not contribute much in the way of larger brook trout to the catch of the experimental waters of the main stream.

Progress of the Fishing in Experimental Waters

Where the Legal Size Limit is 6 Inches (Table 10)

The 1947 season was the second year in which the removal of 6- to 7-inch brook trout was permitted in experimental Sections C, D and E of Hunt Creek and in Fuller Creek west of the water wheel. Anglers removing these "short" fish which would be regarded as possessed illegally in other parts of Michigan, were given copies of the creel census blank made out for them to validate possession of such fish.

To show what changes have occurred in Sections C, D and E of Hunt Creek and in that part of Fuller Creek where 6- to 7-inch brook trout are legal game, the 1939-1945 averages (when a size limit of 7 inches was in effect) for those sections are compared with the 1946-1947 averages for those same sections (after the 6- to 7-inch fish were allowed to be removed). Comparison of the two sets of averages indicates that 70.4 per cent more angling days were spent on the special sections after the 6- to 7-inch brook trout were permitted to be taken, and that there were 11.5 per cent fewer angling days that were unsuccessful when the minimum size limit was 6 inches. Total angling hours were, on the average, greater



Table 10

Comparison of Angling Data for Sections C, D and E of Hunt Creek and Fuller Creek Before (1939-1945) and After (1946-1947) Inauguration of the 6-Inch Minimum Size Limit in Those Waters. Figures in Parentheses Refer to 6- to 7-Inch Brook Trout Taken.

Item	Total Angling Days	Percentage of Unsuccessful Fishermen	Total Hours of Angling	Brook Trout Caught		Catch per Hour		Pounds of Adult Trout & 6- to 7-Inch Trout Taken	Pounds per Hour of Adult Trout (6- to 7-Inch)
				Adults	Small	Adults	Small		
1939-1945 averages, Section C-before 6" limit.	155	64	268.82	110.9	1,043	0.41	3.83	17.89	0.067
1946-1947 averages, Section C-with 6" limit.	253	81(65)	394.25	77.5	1,088(157)	0.20	4.03(0.40)	12.19(13.42)	0.031(0.034)
1939-1945 averages, Section D-before 6" limit.	201	64	303.75	143.1	847	0.47	2.79	21.77	0.072
1946-1947 averages, Section D-after 6" limit.	225	78(66)	345.13	87.5	838(143)	0.25	2.43(0.41)	13.89(12.40)	0.040(0.036)
1940-1945 averages, Section E-before 6" limit.	25	55	41.17	33.0	163	0.80	3.96	5.08	0.124
1946-1947 averages, Section E-after 6" limit.	25	73(42)	35.50	9.0	214(42)	0.25	6.01(1.17)	1.45(3.54)	0.041(0.100)
1940-1945 averages, Fuller Cr.-before 6" limit.	38	62	83.50	34.0	391	0.41	4.69	4.94	0.059
1946-1947 averages, Fuller Cr.-after 6" limit.	217	86(42)	253.38	41.0	875(92)	0.16	3.45(0.36)	5.84(8.09)	0.023(0.032)
1939-1945 averages, All sections-before 6" limit.	423	61	679.42	311	2,366	0.46	3.48	48.26	0.071
1946-1947 averages, All sections-after 6" limit.	721	80(54)	1,028.00	215	3,514(433)	0.21	3.42(0.42)	33.32(37.46)	0.032(0.036)
Per cent difference after 6" limit was in force	+70.4	+31.1(-11.5)	+513	-30.9	+32.7(+40.1)	-54.4	-1.7(+9.4) <sup>1/2</sup>	-31.0(+46.7) <sup>1/2</sup>	-54.9(+9.9) <sup>1/2</sup>

<sup>1/2</sup> - Figures in parentheses give the percentage increases based on the totals of 6- to 7-inch plus 7-inch and larger trout taken.

by 51.3 per cent during the 1946-1947 period, but the average total catch of brook trout larger than 7 inches decreased 30.9 per cent. On the other hand, the catch of trout less than 7 inches increased 32.7 per cent (from 2,366 to 3,514, in addition to which an average of 433 brook trout in the 6- to 7-inch size range also were taken). The average total pounds of trout larger than 7 inches decreased 31.0 per cent, but when the average total pounds of all trout (6- to 7-inch as well as 7 inches and larger combined) is considered there was an increase of 46.7 per cent during the 1946-1947 period.

Average angling quality for brook trout larger than 7 inches decreased 54.4 per cent after the 6-inch limit was in effect. Considering all fish less than 6 inches in size, the average angling quality (catch/hr.) for small fish decreased 1.7 per cent after the 6-inch limit was in effect. The average total number of pounds of all removable trout taken per hour after the inauguration of the 6-inch size limit increased 9.9 per cent, mainly because of the inclusion of the 6- to 7-inch fish in the anglers' creels. The general results of the liberalization of the size limits in the special waters might be summed up as follows: Through the 1946 and 1947 seasons, the average angler's use of the special sections was almost  $\frac{3}{4}$  greater, and the average yearly take of brook trout larger than 7 inches has been approximately  $\frac{1}{3}$  less. It should be noted that a similar decline in the catch of trout of this size also occurred in Sections A and B where the legal size is still 7 inches. The decline in fishing quality in the waters with a 6-inch size limit can not be attributed to lowering the legal size. However, the average number and weight of brook trout taken in the 6- to 7-inch size range has been great enough so that the combined totals of 6- to 7-inch brook trout and brook trout larger than 7 inches more than equal the total number and total weight formerly removed under 7 inch minimum size limit. Only continued

observation can determine how long this general situation will obtain. From a pounds per hour basis, the average angling has been about 10 per cent better during 1946-1947 than in the preceding 1939-1945 period.

Creel Census Results Below Section A, 1947 Season

(Table 11)

As in the past years, angling data were obtained from all fishermen observed in that part of the stream immediately below the experimental sections, known as "Below A." It has been estimated that records of from 75 to 85 per cent of all the fishing done between the A Bridge and O. L. Brailey's cabin--about 3/4 mile of stream--are obtained. In this stream area, the minimum size limit is 7 inches.

A total of 194 angling days, made up by 154 different individuals, 118 (or 60.8 per cent) of which were unsuccessful were observed, during which time a total of 452.00 hours produced a catch of 184 brook trout larger than 7 inches for a catch per hour of 0.41 adult brook trout per hour. The total weight of the 180 fish removed amounted to 26.43 pounds, or 0.058 pounds of creel-size fish per hour of fishing. Anglers reported returning 1,820 brook trout smaller than the legal size of 7 inches, or 4.03 small brook trout per hour.

As in the experimental waters, the best fishing was experienced during the period July 19-August 1, when 58.25 hours of effort yielded a catch of 46 brook trout larger than 7 inches for a catch per hour of 0.79 adult fish. The most fishing (99.75 hours) was done during the opening two weeks of the season, but only 39 adult brook trout were captured, and the catch per hour was only 0.39 fish per hour of a size larger than 7 inches. In general, fishing quality was approximately twice as good Below A as in the experimental sections.

The average size of the 180 brook trout removed by the 1947 fisher-

Table 11

Angling Results Below Section A, 1947 Trout Season.  
Percentage of Unsuccessful Anglers Are Given in Parentheses.

Period, 1947	Total Angling Days	Number Taking No Legal Fish	Total Hours of Fishing	Adult Brook Trout Caught		Small Brook Trout Returned		Pounds of Adult Brook Trout Removed	
				Number	Catch/Hr.	Number	Catch/Hr.	Number	Lbs./Hr.
Apr. 26-May 9	44	27 (61.4)	99.75	39	0.39	249	2.49	5.21	0.052
May 10-23	15	8 (53.3)	38.25	16	0.42	191	4.99	2.14	0.057
May 24-June 6	27	21 (77.7)	49.00	8	0.16	296	6.04	1.00	0.020
June 7-20	16	12 (75.0)	38.75	13	0.34	195	5.03	2.37	0.061
June 21-July 4	27	12 (48.0)	63.25	34✓	0.54	300	4.74	4.51	0.071
July 5-18	15	9 (60.0)	39.75	13	0.33	159	4.00	1.78	0.045
July 19-Aug 1	25	11 (44.0)	58.25	46✓	0.79	289	4.96	6.85	0.118
Aug. 2-15	9	6 (66.7)	17.00	4	0.24	46	2.71	0.52	0.031
Aug. 16-Sept. 1	18	12 (66.7)	48.00	11	0.23	95	1.98	2.05	0.043
Totals, Averages 1947 Season	194	118 (60.8)	452.00	184✓	0.41	1,820	4.03	26.43	0.058

Note: ✓ - Numbers in carets indicate number of adult trout returned to the stream.

men was 7.6 inches and 2.3 ounces, 0.2 inches less than the average length for 1946, and 0.4 ounces less than the average weight noted for 1946.

Two of 18 tagged brook trout from Tributary No. 3 entered the anglers' catch of Hunt Creek waters Below A, which amounted to 184 fish larger than 7 inches. Also, one dorsal-clipped brook trout marked in Tributary No. 3 and one adipose-clipped fish from Tributary No. 2 were noted in the catch recorded below the experimental waters. Thus a total of 4 of 184, or 2.17 per cent of the catch of Below A, originated in the tributary streams.

Angling Results on Fuller Creek, 1947 Trout Season

(Tables 12 & 13)

Since the beginning of the 1946 trout season when the 6-inch minimum size limit was established on that portion of Fuller Creek west of the rotary screen, it has been necessary to keep separate records for the stream above and below the water wheel. Comparison of the records for the two sections indicate that approximately twice as much angling was prosecuted on the water where the minimum size limit was 6 inches, as on the lower waters where 7 inches was the minimum "keeper" size. From Lower Fuller Creek, 10 adult brook trout weighing 1.38 pounds were taken in 52.0 hours of fishing, or 0.19 "keepers" per hour. (0.027 pounds of fish per hour). Of the 73 angling days recorded, 89.0 per cent reported taking no adult brook trout. Brook trout less than 7 inches in size were returned to the water at the rate of 3.77 fish per hour.

On the other hand, in the upper section where the 6-inch limit is in force, 139 angling days were spent, during which time 167 hours of fishing yielded 17 adult brook trout and 93 brook trout between the size of 6 and 7 inches, whose respective total weights were 2.46 pounds and 8.13 pounds. The catch per hour was 0.10 fish for brook trout larger than 7 inches and 0.66 fish per hour for 6- to 7-inch brook trout

Table 12

Intensive Creel Census Results, Lower Fuller Creek,  
1947 Trout Season. Minimum Size Limit, 7 Inches.

Period, 1947	Total Angling Days	Number Taking No Adult Fish	Total Hours of Fishing	Adult Brook Trout Caught		Small Brook Trout Returned		Pounds of Adult Brook Trout Removed	
				Number	Catch/Hr.	Number	Catch/Hr.	Number	Lbs./Hr.
Apr. 26-May 9	17	15 (88.2)	13.25	2	0.15	33	2.49	0.23	0.017
May 10-23	8	8 (100.0)	7.25	...	0.00	49	6.76	...	0.000
May 24-June 6	15	14 (93.3)	11.00	1	0.09	53	4.82	0.12	0.011
June 7-20	8	8 (100.0)	5.25	...	0.00	17	3.24	...	0.000
June 21-July 4	5	4 (80.0)	2.50	1	0.40	8	3.20	0.15	0.060
July 5-18	4	4 (100.0)	1.50	...	0.00	5	3.33	...	0.000
July 19-Aug. 1	7	5 (71.4)	5.25	3	0.57	12	2.29	0.39	0.074
Aug. 2-15	5	4 (80.0)	2.50	1	0.40	13	5.20	0.15	0.060
Aug. 16-Sept. 1	4	3 (75.0)	3.50	2	0.57	6	1.71	0.34	0.097
Totals, Averages 1947 Season	73	65 (89.0)	52.00	10	0.19	196	3.77	1.38	0.027

Table 13

Intensive Creel Census Results, Upper Fuller Creek,  
1947 Trout Season. Minimum Size Limit, 6 Inches.  
Data Given in Parentheses Pertains to the Results  
Concerning the Take of 6- to 7-Inch Brook Trout.

Period, 1947	Total Angling Days	% Taking No Adults or (6- to 7-Inch Trout)	Total Hours of Fishing	Adult Brook Trout Caught		Small Brook Trout Returned		Lbs. of Brook Trout Removed		Lbs. per Hour Adult, (6- to 7-Inch)
				Number	Catch/Hr.	Number	Catch/Hr.	Adult	6- to 7-Inch	
Apr. 26-May 9	20	85.0 (70.0)	19.50	3	0.15	68(7)	3.49 (0.36)	0.38	0.56	0.019 (0.029)
May 10-23	14	85.7 (50.0)	15.75	3	0.19	71(11)	4.51 (0.70)	0.36	0.90	0.023 (0.057)
May 24-June 6	25	96.0 (68.0)	30.25	1	0.03	96(12)	3.17 (0.40)	0.13	0.89	0.004 (0.029)
June 7-20	20	90.0 (35.0)	34.25	3	0.09	97(18)	2.83 (0.53)	0.44	1.67	0.013 (0.049)
June 21-July 4	26	92.3 (69.2)	30.50	3	0.10	102(16)	3.34 (0.53)	0.47	1.47	0.015 (0.048)
July 5-18	4	100.0 (100.0)	2.50	...	0.00	7(0)	2.80 (0.00)	...	...	0.000 (0.000)
July 19-Aug. 1	10	100.0 (40.0)	11.75	...	0.00	84(12)	7.15 (1.02)	...	1.09	0.000 (0.093)
Aug. 2-15	9	77.8 (66.7)	4.50	2	0.44	15(4)	3.33 (0.88)	0.40	0.37	0.088 (0.082)
Aug. 16-Sept. 1	11	81.8 (36.4)	18.00	2	0.11	55(13)	3.06 (0.72)	0.28	1.18	0.016 (0.066)
Totals, Averages 1947 Season(Upper)	139	89.9 (58.3)	167.00	17	0.10	595(93)	3.56 (0.66)	2.46	8.13	0.015 (0.049)
Fuller Creek (Lower), 1947	73	89.0	52.00	10	0.19	196	3.77	1.38	...	0.027
All Fuller Creek 1947 Trout Season	212	89.6 (73.5)	229.00	27	0.12	751(93)	3.28 (0.41)	3.84	8.13	0.017 (0.036)

(pounds per hour indices were: adult brook trout, 0.015 pounds per hour; 6- to 7-inch brook trout, 0.049 pounds per hour).

The total results for both sections combined were as follows: 212 angling days by 114 individuals, 89.6 per cent of which brought in no adult trout and 73.5 per cent of which caught no "keeper" fish of any size, were recorded. In a total of 229.0 hours of fishing, 27 adult brook trout and 93 6- to 7-inch brook trout were taken, for a catch per hour of 0.12 adult brook trout and 0.41 6- to 7-inch brook trout. A total of 751 small brook trout were reported returned to the water. A total of 3.84 pounds of adult brook trout and 8.13 pounds of 6- to 7-inch brook trout were creeled by the Fuller Creek fishermen, or 0.017 pounds per hour and 0.036 pounds per hour of adult and 6- to 7-inch brook trout respectively.

The average size of the brook trout taken in the two sections of Fuller Creek under consideration were as follows: In the upper section, where the size limit was 6 inches, the average total length of the 17 adult brook trout removed was 7.6 inches, 2.3 ounces. The average size of the 6- to 7-inch brook trout creeled was 6.4 inches, 1.4 ounces.

In the stream below the rotary screen, where the size limit was 7 inches, the average size of the 10 adult brook trout was 7.4 inches, 2.2 ounces.

Number and Percentage of Angling Days in Which

Various Numbers of Brook Trout Were Captured (Table 14)

On the experimental sections, the proportion of unsuccessful fishermen increased over 1946 (from 59.9 per cent to 68.4 per cent). The percentage of anglers catching one and two fish decreased slightly, and the proportion of fishermen removing three to 10 fish dropped noticeably, from 14.9 per cent to 9.1 per cent. Also, the percentage of fishermen



Table 14

Number (and Percentage) of Angling Days During the 1947 Trout Season  
on Which Various Numbers of Brook Trout 6 Inches or Larger Were Taken.  
The Minimum Size Limit in Below A, Section A,  
Section B, and Lower Fuller Creek was 7 Inches.

Stream and/ or Stream Section	Number of Angling Days on Which 0 to 15 Brook Trout Were Caught																Total Anglers
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
<b>Hunt Creek</b>																	
Section A	46	14	11	3	3	...	1	...	...	...	...	...	...	...	...	...	78
B	39	8	1	...	2	...	...	...	...	...	...	...	...	...	...	...	50
C	173	27	24	10	7	3	1	...	2	...	...	...	...	...	...	...	247
D	142	29	13	4	5	4	2	...	2	...	...	...	...	...	...	1	202
E	15	3	6	1	2	2	...	...	...	1	...	...	...	...	...	...	30
Totals	416	81	55	18	19	9	4	...	4	1	...	...	...	...	...	1	607
Per cent	(68.4)	(13.2)	(9.1)	(2.9)	(3.1)	(1.5)	(0.7)		(0.7)	(0.2)						(0.2)	(100.0)
<b>Below A</b>																	
	118	35	15	10	4	3	5	1	3	...	...	...	...	...	...	...	194
Per cent	(60.8)	(18.0)	(7.8)	(5.2)	(2.1)	(1.5)	(2.6)	(0.5)	(1.5)								(100.0)
<b>Fuller Creek</b>																	
Lower	65	6	2	...	...	...	...	...	...	...	...	...	...	...	...	...	73
Upper	81	31	12	9	4	...	2	...	...	...	...	...	...	...	...	...	139
Totals	146	37	14	9	4	...	2	...	...	...	...	...	...	...	...	...	212
Per cent	(68.9)	(17.5)	(6.6)	(4.2)	(1.9)		(0.9)										(100.0)
<b>East Fish Lake<sup>1</sup></b>																	
	297	26	13	3	1	2	1	...	1	...	...	...	...	...	...	...	344
Per cent	(86.3)	(7.6)	(3.7)	(0.9)	(0.3)	(0.6)	(0.3)		(0.3)								(100.0)

<sup>1</sup> - Daily possession limit 10 fish.

catching 11 to 15 trout larger than 6 inches dropped from 0.5 per cent to 0.2 per cent.

Below Section A, the 1947 results were approximately the same as for 1946, with approximately 60 per cent of the angling days recorded as unsuccessful, and 40 per cent catching one to 10 fish.

In Fuller Creek, 1947 results also approximated those noted for 1946; 68.9 per cent of the angling days were blanks, 24.1 per cent brought in one and two fish, and 7.0 per cent caught from three to 10 fish.

#### Residence of the Anglers (Table 15)

On the experimental sections during 1947, a total of 575 angling days were prosecuted by residents of 26 counties from the Lower Peninsula of Michigan, and 32 non-residents from Ohio, Indiana, Illinois, North Carolina and New York. Below Section A, 185 Michigan fishermen and 9 out-state sportsmen from Ohio, Indiana, Illinois and New York were contacted. On Fuller Creek, 203 Michigan anglers and 9 fishermen from Ohio and New York were listed.

Montmorency County anglers were the most frequent users of the experimental sections and of Fuller Creek, but were slightly behind on the waters Below A, where Wayne County fishermen were most numerous. In the two previously mentioned stream areas, Wayne County sportsmen were the next most often noted. As in other years, the various areas were used frequently by fishermen from Oakland, Oscoda and Genesee counties. Ohio fishermen (34) were the most numerous of the non-residents, followed by Indiana sportsmen (8), Illinois anglers (4), two representatives from North Carolina, and one New York angler.

#### Angling Results on East Fish Lake

##### 1947 Trout Season (Table 16)

The fishing on East Fish Lake, a designated trout lake, has been followed closely through the intensive creel census for the past nine

Table 15

Residence of Anglers Using Various Waters on  
Hunt Creek Fisheries Experimental Area, 1947 Trout Season

County or State of Residence	Number of Angling Days Registered from Various Counties on			
	Experimental Sections	Below A	Fuller Creek	East Fish Lake
Alcona	...	2	...	...
Alpena	1	3	...	...
Arenac	1	1	...	...
Bay	17	4	6	11
Barry	...	...	...	1
Branch	...	2	...	...
Calhoun	12	15	2	...
Crawford	1	1	...	3
Eaton	3	...	...	4
Genesee	45	22	27	8
Hillsdale	...	2	...	3
Huron	...	...	...	5
Ingham	5	1	...	1
Isabella	7	1	...	...
Jackson	18	21	2	1
Kent	4	...	...	3
Lapeer	...	...	1	...
Lenawee	1	...	...	...
Livingston	...	...	...	4
Macomb	3	3	...	5
Midland	10	1	7	...
Monroe	20	7	3	...
Montmorency	137	35	89	138
Oakland	56	9	16	20
Oscoda	55	2	11	6
Otsego	...	...	...	5
Presque Isle	1	...	1	...
Saginaw	13	11	3	6
Sanilac	8	...	2	...
Shiawassee	2	1	1	...
St. Clair	38	4	2	8
Tuscola	3	...	2	27
Washtenaw	8	...	...	17
Wayne	106	37	32	47
<b>Resident Totals</b>	<b>575</b>	<b>185</b>	<b>203</b>	<b>330</b>
Unknown Residence	...	...	...	5
Ohio	20	6	8	11
Indiana	7	1	...	...
Illinois	3	1	...	1
North Carolina	1	...	1	...
New York	1	1	...	...
Texas	...	...	...	2
<b>Non-Resident Totals</b>	<b>32</b>	<b>9</b>	<b>9</b>	<b>14</b>
<b>Grand Totals</b>	<b>607</b>	<b>194</b>	<b>212</b>	<b>344</b>

Table 16

Angling Results, East Fish Lake, 1947 Trout Season  
 Minimum Size Limit 7 Inches. Creel Limit 10 Fish Daily.

Period, 1947	Total Angling Days	Number (& Per Cent) Taking No Adult Fish	Total Hours of Fishing	Adult Brook Trout Caught		Pounds of Adult Brook Trout Removed		Average Size of Brook Trout Taken	
				Number	Catch/Hr.	Number	Lbs./Hr.	Length(in.)	Weight(oz.)
Apr. 26-May 9	89	67 (74.2)	194.25	50	0.26	35.31	0.180	11.7	11.3
May 10-23	75	58 (77.3)	168.50	31	0.18	16.62	0.098	10.7	8.6
May 24-June 6	44	39 (90.7)	92.25	5	0.05	1.34	0.014	8.9	4.3
June 7-20	33	33 (100.0)	63.25	...	0.00	...	0.000	...	...
June 21-July 4	37	37 (100.0)	75.00	...	0.00	...	0.000	...	...
July 5-18	16	16 (100.0)	34.00	...	0.00	...	0.000	...	...
July 19-Aug. 1	12	10 (83.3)	25.75	2	0.08	0.94	0.036	10.6	7.5
Aug. 2-15	17	17 (100.0)	27.00	...	0.00	...	0.000	...	...
Aug. 16-Sept. 1	21	20 (95.2)	31.25	1	0.03	0.16	0.005	8.1	2.5
Totals, Averages 1947 Season	344	297 (86.3)	711.25	89	0.13	54.38	0.076	11.1	9.8

Note - Six (6) fish of less than 7 inches in length were returned to the water; 3 were retained for scale studies by E. L. Cooper; and 3 were kept illegally. The weight of small fish retained was 0.59 pounds.

seasons. During 1947, the pressure dropped noticeably (from 935.25 hours in 1946 to 711.25 hours in 1947). These hours were spent by 188 individuals during 344 different angling days. Approximately the same proportion of fishermen days were unsuccessful in 1947 (86.3 per cent) as in the previous year (86.0 per cent).

The catch of adult brook trout was 89 fish (as compared with 93 in 1946) which weighed 54.38 pounds, or 0.15 adult fish and 0.076 pounds of adult brook trout per hour of fishing. Twelve brook trout smaller than the minimum length of 7 inches were also caught; three of these were retained for scale studies, three were kept by over-eager anglers; those retained weighed a total of 0.59 pounds. Therefore the total poundage of brook trout removed by angling from East Fish Lake in 1947 amounted to 54.97 pounds, or 3.44 pounds per acre, under an angling pressure of 44.4 hours per acre for the 16.0 acres of water surface.

In addition to the brook trout removed by angling, 29 adult brook trout were removed from East Fish Lake in August (15 fish) and September (14 fish), 1947, for scale studies by E. L. Cooper. These fish ranged in size from 9.4 inches to 14.5 inches and the total weight of the 29 fish was 7.83 pounds. Thus the total number and total pounds of brook trout removed from East Fish Lake by all methods during 1947 amounted to 118 adult fish weighing 62.80 pounds, or 3.92 pounds per acre.

The average size of the East Fish Lake brook trout captured by angling during 1947 was 11.1 inches and 9.8 ounces. Average sizes in the various two-week periods varied from 8.1 inches and 2.5 ounces (August 16-September 1) to 11.7 inches and 11.3 ounces (April 26-May 9). The largest fish taken during 1947 was 18.2 inches and 2 pounds, 6 1/4 ounces in weight. Of the total catch, 2 fish weighed 2 pounds or more, 21 fish weighed one pound or more.

The best fishing (and the heaviest fishing pressure) was during the

opening two weeks of the season (April 26-May 9), when 194.25 hours of angling yielded 50 adult brook trout for a catch per hour of 0.26 fish and a pounds-per-hour index of 0.180 pounds of adult brook trout. Thirty-one adult brook trout were caught during the following two weeks (May 10-23) in 168.50 hours of fishing (0.18 fish per hour, 0.098 pounds per hour), and during the third period (May 24-June 6) 5 adult brook trout were boated in 92.25 hours. After June 6, only three small fish were taken despite 193 hours of effort after that date.

It should be pointed out that the 1947 season contrasted sharply with the 1946 season in the pattern of the removal of the anglers' take. In 1946, the early season fishing was poor. Also, some fish were taken in every two-week period throughout the season. However, in 1947, the fish responded very well to the early season fishing, and 86 of the 89 caught were taken by June 6, and during four of the six remaining two-week periods, fishing was unproductive. Contrary to the experience in preceding years, the fishing during the mayfly "hatches" in May, June and July drew consistent blanks.

Of the 89 fish in the 1947 catch, 20 were marked fish; 19 of them had been marked at the inlet weir (data on one tagged fish was apparently not recorded). Fifteen of the fish were adipose-left pelvic fin-clips ranging in size from 6.0 to 15.0 inches, four were tagged fish from 9.3 to 15.5 inches. These latter fish had grown at the usual rapid pace characteristic of East Fish Lake brook trout described in previous reports.

Since over 75 per cent of the catch in both 1946 and 1947 consisted of unmarked trout, it appears likely that the bulk of the population is spawned within the confines of the lake, since all trout moving into the lake have been marked since the fall of 1944.

As stated previously, 86.3 per cent of the 344 angling days were unsuccessful. Anglers taking one fish amounted to 7.6 per cent of the total, and fishermen days on which 2, 3, 4, 5, 6 and 8 brook trout were taken amounted to 3.7, 0.9, 0.3, 0.6, 0.3 and 0.3 per cent respectively (Table 14).

East Fish Lake anglers came from Ohio (11), Indiana (1) and Texas (2), as well as from 21 counties of the Lower Peninsula of Michigan. Montmorency County fishermen were most numerous (138), followed by Wayne County residents (47) and Tuscola County anglers (27) (See Table 15).

A review of the data collected during the past nine seasons (Table 17) indicates there may be some relationship between the proportion of the total catch removed during the first two weeks of the season and the success of anglers who fish later in the season. In five of the nine seasons, from 56.1 to 85.8 per cent of the total catch has been removed during the first two weeks. In those seasons, the number of subsequent two-week periods when no fish were taken has ranged from 1 to 5 (1942, 1; 1939 and 1947, 4; 1941, 3; 1940, 5). In the four years when from 1.1 to 17.6 per cent of the total catch is made in the opening two weeks, trout were caught in all periods during the season, or were not caught in only one of the two-week periods (1943--one period only in which trout were not caught, 1944, 1945, 1946, trout caught in all periods).

INSTITUTE FOR FISHERIES RESEARCH

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Table 17

Annual Catch, Catch During Opening Two Weeks,  
and Number of Subsequent Two-Week Periods in Which  
No Trout Were Caught in East Fish Lake, 1939-1947.  
Percentage of Total Catch Made in the Opening Period is Given in Parentheses.

Year	Catch in Opening Two Weeks	Total Catch for Year	Number of Periods 0 Fish Taken
1939	39 (76.5)	51	4
1940	109 (63.4)	172	5
1941	196 (80.9)	242	3
1942	315 (85.8)	367	1
1943	8 (11.6)	69	1
1944	19 (17.6)	108 <sup>3</sup>	0
1945	11 (6.5)	169 <sup>11</sup>	0
1946	1 (1.1)	93 <sup>1</sup>	0
1947	50 (56.1)	89	4

Note: <sup>3</sup> - Numbers in carets indicate number of trout larger than 7 inches returned to the water.