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MICHIGAN DEPARTMENT OF CONSERVATION
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THE TWENTY-FOURTH ANNUAL INTENSIVE CREEL CENSUS AT THE HUNT CREEK TROUT RESEARCH STATION, 1962

By Gaylord R. Alexander and David S. Shetter

The Hunt Creek Trout Research Station and its experimental waters (Fig. 1) are located on the headwaters of Hunt Creek in south-central Montmorency County. Hunt Creek is a tributary of the Thunder Bay River, is about 10 miles long, and is regarded as good trout water.

Angling on the experimental stream sections and ponds was censused for the twenty-fourth consecutive year. Waters included in the census were: Hunt Creek, Fuller Creek, Fuller Creek Pond, and East Fish Lake. Morphometry and fishing regulations applying to various experimental subdivisions are given in Table 1.

Creel census methods

Each angler fishing the Area is required, by Conservation Commission order, to obtain a free daily permit from the centrally located Department office. Upon completion of an angling trip he must return to the checking station and allow inspection of his catch and furnish other pertinent information.

MICHIGAN DEPARTMENT OF CONSERVATION
FISH DIVISION

HUNT CREEK FISHERIES EXPERIMENTAL AREA

MONTMORENCY COUNTY

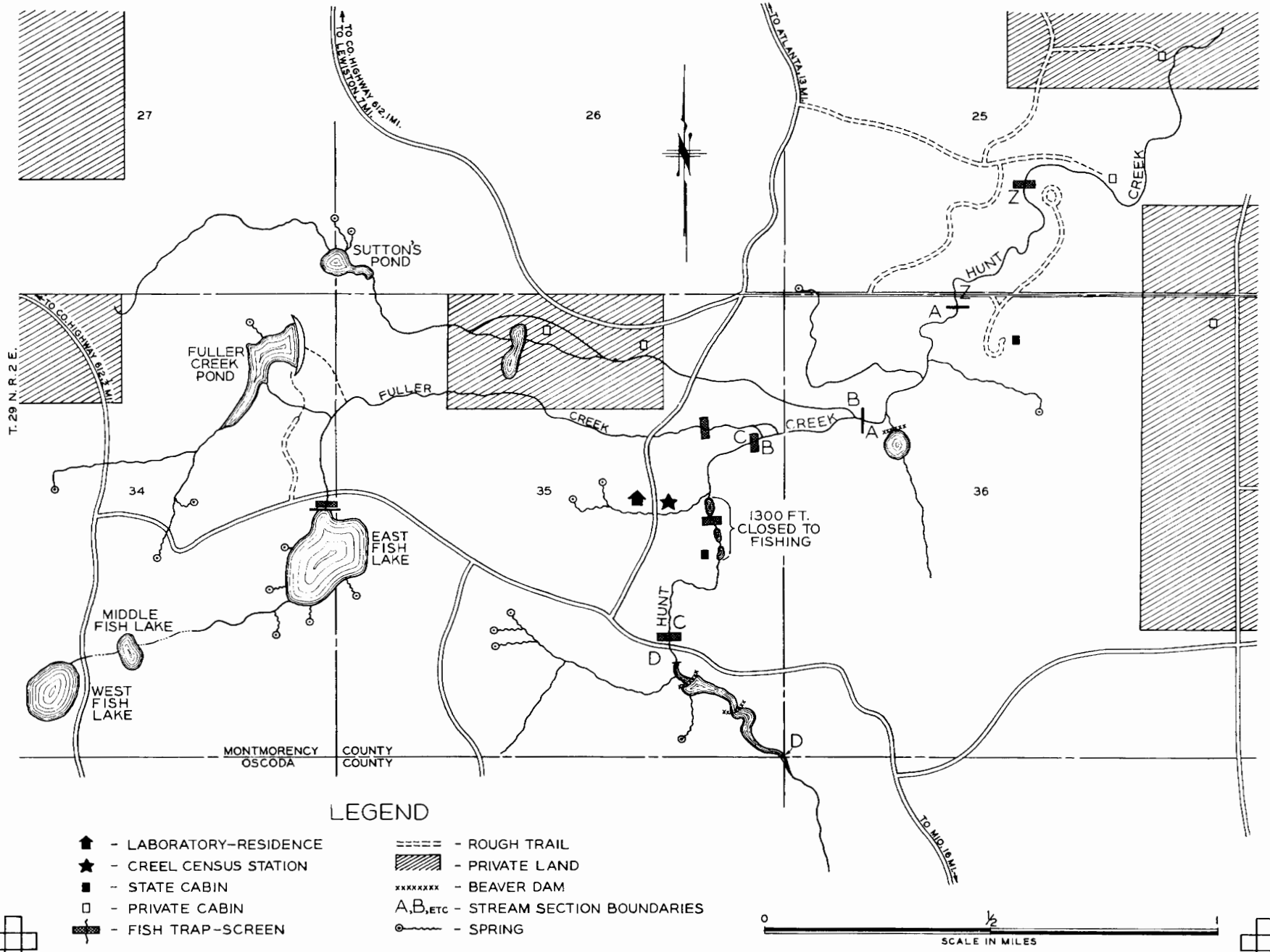

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Figure 1

HUNT CREEK FISHERIES EXPERIMENTAL AREA

OBJECTIVE -- The Hunt Creek Fisheries Experiment Station was established in 1939 as a year-round testing ground and outdoor research laboratory where trained biologists might study brook trout and the effects of angling on a typical brook trout stream. The Hunt Creek drainage was chosen because of availability of state-owned stream frontage and also because of the variety of brook trout habitats present in the area.

State ownership has made possible various experimental restrictions and management procedures not otherwise feasible.

The purpose of the investigations is to find out by observation or by controlled experiments what methods of stream management will increase the quality of the brook trout angling and also preserve the species for the enjoyment of future anglers.

THE ANGLERS' PART IN OUR RESEARCH -- The best measure of an experimental procedure in trout stream management is how it affects the anglers' catch. Therefore, registration of anglers and collection of creel census records constitute an important part of the work each year. Such records provide a measure of the effects of changes in size and creel limits, and, in connection with marking experiments and year-round population estimates, reveal origin and movements of trout within the system. Creel census records compared with population estimates correspond to sales records compared with production schedules in industry.

RESEARCH HERE DURING THE LAST TEN YEARS -- has indicated that:

(1) Natural reproduction is more than adequate in Hunt Creek;
(2) Fall plantings of hatchery-reared brook trout fingerlings contribute less than 3% to the anglers' catches in subsequent years;
(3) Stream improvement, properly carried out, can improve the quality of angling.
(4) Tributary streams are not an important source of adult fish for main stream angling;
(5) In the proper type of lake good brook trout fishing can be created by the elimination of rough fish populations.

Some of the other accomplishments of the station include detailed food studies of the brook trout by Dr. J. W. Leonard, who also identified new species of trout stream insects not previously described; an exhaustive study of the use of brook trout scales in age and growth studies of Michigan brook trout by Dr. E. L. Cooper; and the development by the past and present staff of the electric shocker as a substitute for seines in trout population investigations.

CURRENT INVESTIGATIONS -- include further study of brook trout movements in the main stream through the use of the recently-installed upper and lower screens, detailed year-round population studies on the brook trout population between these traps, trout lake and beaver pond population studies by means of netting, marking and recovery, and investigations of the effect of beaver dams on the fishing in dammed portions of trout streams.

REGULATIONS -- Except for about 1,300 feet of stream in Section C of Hunt Creek, all the waters on the map on the reverse of this sheet are open to angling. The posted waters, marked by Departmental signs, are open to angling under the following restrictions set by the Conservation Commission:

(1) Each angler must first obtain at the checking station a daily free-use permit before fishing.
(2) Each angler must report the results of his fishing at the checking station on conclusion of his angling.
(3) Special regulations are to be observed in certain waters and such waters will be posted with appropriate signs. Otherwise the usual regulations for other waters of the state are in effect on the Hunt Creek Area.

SUMMARY, ANGLING STATISTICS, EXPERIMENTAL SECTIONS, HUNT CREEK, 1939-1949

	YEAR										
	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949
TOTAL ANGLER-DAYS.....	438	505	1,015	800	311	340	375	753	607	504	593
TOTAL HOURS FISHED.....	780	901	1,546	1,267	540	640	637	1,206	872	869	1,415
LEGAL BROOK TROUT TAKEN.	492	406	722	543	378	364	315	439	187	492	698
TOTAL POUNDS REMOVED....	67	60	116	83	59	53	52	68	26	78	115
CATCH PER HOUR.....	0.63	0.45	0.47	0.43	0.70	0.57	0.49	0.36	0.21	0.57	0.49
AVERAGE TOTAL LENGTH....	7.5	7.6	7.7	7.6	7.5	7.7	7.9	7.7	7.6	7.7	7.8

SUMMARY, ANGLING STATISTICS, EAST FISH LAKE, 1939-1949

	YEAR										
	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949
TOTAL ANGLER-DAYS.....	63	111	155	159	121	311	436	430	344	287	283
TOTAL HOURS FISHED.....	126	308	386	289	200	651	928	935	711	853	1,024
LEGAL BROOK TROUT TAKEN.	51	172	242	367	69	108	169	93	89	117	91
TOTAL POUNDS REMOVED....	--	28	47	97	26	79	131	69	54	55	70
CATCH PER HOUR.....	0.41	0.56	0.63	1.26	0.29	0.17	0.18	0.10	0.13	0.14	0.09
AVERAGE TOTAL LENGTH....	--	8.0	8.5	9.0	9.3	11.2	11.9	11.5	11.1	10.4	11.6

Table 1.--Morphometry (mileage in parentheses) of experimental waters of Hunt Creek drainage, with angling regulations for 1962

Experimental water	Dimensions			1962 regulations		
	Length (feet)	Average width (feet)	Area (acres)	Lure	Minimum length (inches)	Daily creel limit
Section of Hunt Creek						
Z	2,397 (0.45)	20.3	1.12	Any	7	10
A	2,577 (0.49)	24.3	1.44	Any	7	10
B	1,605 (0.30)	17.5	0.64	Any	7	10
C[1]	2,700 (0.51)	11.8	0.71	Any	7	10
D	2,896 (0.55)	100.0	6.65	Any	7	10
Total, Hunt Creek	12,175 (2.30)	37.8	10.56			
Fuller Creek	9,875 (1.87)	15.7	3.57	Any	7	10
Fuller Creek Pond	...	...	14.58	No live fish	10	5
East Fish Lake	...	...	16.0	No minnows	10	5

[1] Excludes 1,270 feet of Section C which are experimental diversions closed to fishing.

During the 1962 season, 1,096 permits were issued to anglers who made 1,413 angling trips. An angler trip resulted whenever a person fished one of the designated stream sections or ponds on the Area; one angler was listed as making more than one trip on any date when he fished on more than one stream section or pond. The number of permits and the number of trips changed little from 1961.

Male licensees made 75.8 percent of the trips; female licensees, 0.5 percent; wives, 4.8 percent; minor males, 17.7 percent; and minor females, 1.2 percent.

Acknowledgments

O. H. Williams, T. H. Turppa, O. M. Corbett, D. E. Parsons, and D. D. Brooks assisted in the collection and tabulation of the creel census records. K. G. Fukano processed the data for IBM tabulation. The Accounting Section of the Conservation Department did the card punching, verifying, and tabulating on IBM equipment.

Recovery of planted trout

Table 2 summarizes the results from plantings made in 1958, 1959, 1960, and 1961 of hatchery-reared trout in East Fish Lake, Fuller Pond, and Section D Pond. By the end of the 1962 season 1,763 hatchery trout weighing 1,256.7 pounds had been recovered from these plantings for a recovery percentage of 49.5 by number and 172.2 by weight.

On October 15, 1958, 300 hatchery-reared rainbow trout weighing 69 pounds and averaging 8.9 inches in total length were released in East Fish Lake. During the 1959 trout season anglers caught 197 of these trout weighing a total of 187.6 pounds; in 1960 they creeled 34 carry-over fish weighing 76.8 pounds; and in 1961 two more trout weighing a total of 7.0 pounds were taken. No trout from this planting were caught in 1962. Thus, the anglers' total recovery (extending over three seasons) was 233 fish (77.7 percent numerical recovery) with a total weight of 271.4 pounds (393.3 percent of the weight planted).

A second planting of 300 rainbow trout weighing 75 pounds was made in East Fish Lake on October 15, 1959. These trout averaged 8.9 inches long. During the 1960 trout season anglers creeled 210 (70 percent return of the number planted) legal-length trout (minimum size 10.0 inches) that weighed 129.5 pounds (172.7 percent return of the weight planted). In addition, 6 sublegal-length fish weighing 2.0 pounds were brought in. During 1961, anglers creeled 33 additional trout (72.8 pounds) and in 1962 they caught 5 more trout (19.7 pounds) from this planting. By the end of 1962, recovery of the rainbows planted in 1959 amounted to 248 (82.7 percent) and 222.0 pounds (296.0 percent of the weight planted).

A third planting of 300 rainbow trout weighing 76 pounds and averaging 8.9 inches was made on October 15, 1960. During the 1961 trout season anglers creeled 252 legal-length trout weighing 210.6

pounds. In addition 3 sublegal-length rainbows (1.0 pound) were brought in. In 1962 anglers caught 22 trout (47.2 pounds) from this planting bringing the recovery to 274 trout (91.3 percent) and 257.8 pounds (339.2 percent).

A fourth planting of rainbow trout, equivalent to the earlier ones, was made in East Fish Lake in October 1961. Anglers creeled 243 of these trout (184.0 pounds) during the 1962 season. In addition 2 sublegal-length rainbow trout (0.69 pound) were brought in.

In April 1962, 30 experimental rainbow trout that had been confined in a live crate since October 1961 escaped in East Fish Lake due to abnormally high water levels at the time of ice breakup. Anglers creeled 24 (18.2 pounds) of these trout during the 1962 trout season. In percentage return and average size, these spring-released fish were comparable to the fall release.

In all four years; 1958, 1959, 1960, and 1961, the plants of rainbow trout were matched with plants of hatchery-reared brook trout (Table 2).

Of the brook trout planted in 1958, anglers in 1959 caught 88 (29.3 percent) that weighed 49.7 pounds (66.3 percent of the weight planted); none were caught after 1959. Of the brook trout planted in 1959, 68 (22.7 percent) that weighed 33.7 pounds (43.2 percent of the weight planted) were caught in 1960. In addition, one sublegal trout from this planting was creeled. No carry-over fish have been

Table 2.--Angler catch of hatchery-reared trout released in the experimental waters of Hunt Creek during 1958, 1959, 1960, 1961 and 1962

Area and date of planting	Species	Trout planted			Legal trout creeled[1]				Total legal trout creeled to date			
		Number	Pounds	Range in length (inches)	1959	1960	1961	1962	Number		Pounds	
									Total	Percentage	Total	Percentage
E. Fish Lake												
Oct., 1958	Brook	300	75	8.5- 9.5	88 (49.7)	0	0	0	88	29.3	49.7	66.3
Oct., 1959	Brook	300	78	8.5- 9.5	0	68 (33.7)	0	0	68	22.7	33.7	43.2
Oct., 1960	Brook	300	84	8.5- 9.5	0	0	158 (73.8)	0	158	52.7	73.8	87.9
Oct., 1961	Brook	300	79	8.5- 9.5	0	0	0	139 (63.9)	139	46.3	63.9	80.9
Apr., 1962	Brook	30	8	8.5- 9.5	0	0	0	9 (4.1)	9	30.0	4.1	51.3
Oct., 1958	Rainbow	300	69	8.5- 9.5	197 (187.6)	34 (76.8)	2 (7.0)	0	233	77.7	271.4	393.3
Oct., 1959	Rainbow	300	75	8.5- 9.5	0	210 (129.5)	33 (72.8)	5 (19.7)	248	82.7	222.0	296.0
Oct., 1960	Rainbow	300	76	8.5- 9.5	0	0	252 (210.6)	22 (47.2)	274	91.3	257.8	339.2
Oct., 1961	Rainbow	300	74	8.5- 9.5	0	0	0	243 (184.0)	243	81.0	184.0	248.6
Apr., 1962	Rainbow	30	7	8.5- 9.5	0	0	0	24 (18.2)	24	80.0	18.2	260.0
Fuller Pond												
Apr., 1962	Brook	100	45	10.0-11.9	0	0	0	69 (31.6)	69	69.0	31.6	70.2
Section D Pond												
Sept., 1959	Brook	500	20	3.0- 6.9	0	113 (28.7)	5 (1.5)	0	118	23.6	30.2	151.0
Sept., 1960	Brook	500	40	5.0- 6.9	0	0	88 (14.9)	4 (1.4)	92	18.4	16.3	40.8
Total		3,560	730		285 (237.3)	425 (268.7)	538 (380.6)	515 (370.1)	1,763	49.5	1,256.7	172.2

[1] Weight in parentheses

recovered. Of those planted in 1960, anglers in 1961 creeled 158 legal trout (52.7 percent) that weighed 73.8 pounds (planting weight recovered 87.9 percent). In addition, 5 sublegal trout were brought in. No carry-over fish were caught in 1962. Of the 1961 planting, anglers in 1962 caught 139 trout (46.3 percent) that weighed 63.9 pounds (80.9 percent of the weight planted). In addition 4 sublegal trout weighing 1.4 pounds were brought in. In April 1962, 30 experimental brook trout that had been confined to live crates since October 1961, escaped in the lake. Anglers creeled 9 of these fish weighing 4.0 pounds.

On September 21, 1959, 500 hatchery brook trout ranging from 3.0-6.9 inches in length were planted in Section D Pond. In 1960, anglers caught 113 trout that weighed 28.7 pounds. During 1961, 5 trout (1.5 pounds) from this planting were creeled; none were caught in 1962. Recovery by the end of 1962 was 118 trout (23.6 percent) and 30.2 pounds (115 percent of the weight planted).

A second planting of 500 hatchery-reared brook trout that ranged in length from 5.0-6.9 inches was made in Section D Pond in September 1960. During 1961, anglers recovered 88 trout (14.9 pounds) and in 1962 4 additional trout were creeled (1.4 pounds). The total recovery from this planting was 92 trout (18.4 percent) and 16.3 pounds (40.8 percent of the planting weight). Sixteen (17 percent) of the recaptures were made in Section C of Hunt Creek downstream from the planting area. On November 16, 1960, the beaver dam in Section D

broke and the pond reverted to normal stream channel level. The poor return from this planting (in comparison with the plant made in 1959) and the extensive downstream movement of planted trout can be attributed to the failure of the beaver dam.

Angling results

A summary of statistics for the various waters of the Area is given in Table 3. Residual populations of trout at the close of the fishing season, as estimated from electrofishing, are shown in Table 4. Physical characteristics of the experimental waters were described in earlier reports. In general, Sections Z and A, the lowermost stream sections, are wider, deeper and more open than Sections B, C, and Fuller Creek. During the 1962 season Section D consisted of a stream channel through a chain of washed-out beaver ponds. Fuller Pond and East Fish Lake are maintained by earthen dams on sites of former beaver dams. Their outlet streams are blocked by screens or Wolf-type fish traps that effectively block fish migration.

Hunt Creek

The 1962 trout season was the third season in which Sections Z and A were fished under the usual Michigan trout fishing regulation. During the period 1955-1959 these two sections were fished under a "flies-only" regulation. The usual trout fishing regulations applied

Table 3.--Summary of angling data, experimental waters of Hunt Creek drainage, 1962

(W = wild; H = hatchery; HC = hatchery control)

Experimental water	Total fishing			Trout caught					
	Trips	% trips successful	Hours	Species	Origin	Number	Pounds	Average length (inches)	Trout per hour
Section of Hunt Creek									
Z	161	51	385.5	Brook	W	297	48.42	7.7	
				Rainbow	W	1	0.31	9.5	
				Brown	W	1	0.12	7.2	
				All		299	48.85	7.7	0.78
A	133	60	271.0	Brook	W	301	51.31	7.9	
				Rainbow	W	3	1.05	9.2	
				All		304	52.36	7.9	1.12
B	77	57	126.0	Brook	W	144	23.00	7.7	
				Rainbow	W	2	0.56	9.1	
				All		146	23.56	7.7	1.16
C	147	38	252.0	Brook	W	132	20.83	7.7	
				Brook	H	1	0.21	8.3	
				Rainbow	W	10	1.95	8.0	
				Brown	W	1	0.12	7.1	
				All		144	23.11	7.8	0.57
D Pond and stream	184	31	309.5	Brook	W	175	35.53	8.3	
				Brook	H	3	1.16	10.3	
				All		178	36.69	8.3	0.58
Total Hunt Creek	702	45	1,344.0	Brook	W	1,049	179.09	7.8	
				Brook	H	4	1.37	9.8	
				Rainbow	W	16	3.87	8.5	
				Brown	W	2	0.24	7.2	
				All		1,071	184.57	7.9	0.80
Fuller Creek	152	47	299.0	Brook	W	161	25.00	7.7	
				Rainbow	H	1	0.13	7.2	
				All		162	25.13	7.7	0.54
Fuller Pond	59	46	150.0	Brook	H	69	31.56	10.8	0.46
East Fish Lake	500	39	1,861.0	Brook	W	20	10.86	11.4	
				Brook (1961)	H	139	63.85	10.7	
				Brook (1961)	HC	9	4.05	10.7	
				Rainbow (1961)	H	243	184.01	12.4	
				" (1961)	HC	24	18.19	12.4	
				" (1960)		22	47.19	17.4	
				" (1959)		5	19.68	21.5	
				All		462	347.83	12.1	0.25
All waters	1,413	43	3,654.0	Brook	W	1,230	214.95	7.9	
				Brook	H	221	100.83	10.7	
				Rainbow	W	16	3.87	8.5	
				Rainbow	H	295	269.20	12.9	
				Brown	W	2	0.24	7.2	
				All trout		1,764	589.09	9.1	0.48
Sublegals						12	2.74	8.3	

Table 4.--The fall populations of legal (7.0+ inches) and sublegal (1.5-6.9 inches) wild brook trout in Sections Z, A, B, and C, Hunt Creek, 1949-1962

Year	Section Z		Section A		Section B		Section C	
	Sub-legal	Legal	Sub-legal	Legal	Sub-legal	Legal	Sub-legal	Legal
1949	1,413	95	2,156	41	1,040	15	1,437	19
1950	1,989	89	1,687	70	1,231	29	1,351	41
1951	1,210	71	1,940	41	896	23	2,159	34
1952	1,130	75	2,472	44	1,109	28	2,126	21
1953	1,641	42	2,957	35	1,157	19	1,305	16
1954	1,545	40	3,203	47	1,407	9	2,328	27
1955	1,276	88	2,563	105	1,147	30	1,638	44
1956	904	109	2,403	158	1,003	29	2,212	30
1957	1,527	67	3,015	68	1,257	35	2,632	31
1958	1,455	54	2,459	72	1,288	44	2,555	35
1959	1,190	263	2,331	280	1,349	99	1,682	32
1960	1,481	105	2,689	157	1,444	66	1,884	34
1961	1,285	109	1,548	102	1,085	42	1,088	26
1962	1,065	115	2,518	174	1,268	71	1,902	42

to the other sections for the entire period 1939-1962. Table 5 summarizes the angler statistics since 1939 for Hunt Creek Sections.

In 1962 anglers fishing Section Z creeled 297 wild brook trout (48.4 pounds), one wild rainbow (0.3 pound), and one wild brown trout (0.1 pound). Trout averaged 7.7 inches in length and were caught at a rate of 0.76 fish per hour. The catch of wild brook trout was 60 percent above the average for the previous 13 years. The catch per hour and average size of trout increased, but the number of hours spent in fishing decreased by 6 percent. Fifty-one percent of the anglers caught at least one trout per trip compared to 35 percent in 1961; 3 sublegal trout were creeled and 815 sublegal fish were reported caught and returned to the stream. A population study[1] made in October 1962 indicated that approximately 115 legal and 1,065 sublegal brook trout remained in Section Z at the end of the trout season. The residual population of legal size trout showed a slight increase, whereas the sublegal population was down about 17 percent.

In Section A anglers creeled 301 wild brook trout (51.3 pounds) and 3 wild rainbow trout (1.1 pounds) in 133 trips for a catch per hour of 1.12 trout. Sixty percent of the anglers were successful. The catch of wild brook trout was about twice as great as the 13-year mean. Fishing pressure, catch per hour, and average size of trout increased considerably. One sublegal trout was creeled and anglers reported catching and releasing 909 trout in Section A. About 174 legal and

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[1] See I. F. R. Report 1641.

Table 5.--Legal wild brook trout caught in Hunt Creek, 1939-1962

Section and year	Total fishing		Total catch		Catch per hour		Average size	
	Trips	Hours	Number	Pounds	Number	Pound	Length (inches)	Weight (pound)
A, B, C and D								
1939	438	780	461	67	0.59	0.09	7.5	0.15
1940	505	901	406	60	0.45	0.07	7.6	0.15
1941	1,015	1,546	706	113	0.46	0.07	7.7	0.16
1942	808	1,267	532	83	0.42	0.07	7.6	0.16
1943	311	540	372	59	0.69	0.11	7.5	0.16
1944	340	640	337	53	0.53	0.08	7.7	0.16
1945	375	637	312	52	0.49	0.08	7.9	0.17
1946	753	1,206	434	68	0.36	0.06	7.6	0.16
1947	607	872	184	26	0.21	0.03	7.6	0.14
1948	504	869	476	78	0.55	0.09	7.7	0.16
1949	432	1,063	517	87	0.49	0.08	7.8	0.17
1950	369	915	415	75	0.45	0.08	8.0	0.18
1951	552	1,066	431	76	0.40	0.07	8.0	0.18
1952	488	1,195	556	103	0.47	0.09	8.0	0.19
1953	656	1,587	572	118	0.36	0.07	8.4	0.21
1954	748	1,649	483	88	0.29	0.05	8.0	0.19
1955	702	1,522	508	94	0.33	0.06	8.0	0.19
1956	704	1,245	585	104	0.47	0.08	7.8	0.19
1957	668	1,307	630	123	0.48	0.09	8.1	0.20
1958	701	1,257	583	121	0.46	0.10	8.2	0.21
1959	590	1,060	433	81	0.41	0.08	7.9	0.19
1960	641	1,179	674	122	0.57	0.10	8.0	0.18
1961	601	1,084	500	78	0.46	0.07	7.7	0.16
1962	541	959	752	131	0.78	0.14	7.9	0.17
Z								
1949	165	375	186	28	0.50	0.07	7.6	0.15
1950	165	473	160	21	0.34	0.04	7.4	0.13
1951	129	322	124	18	0.39	0.06	7.5	0.14
1952	188	570	222	34	0.39	0.06	7.7	0.15
1953	225	566	183	27	0.32	0.05	7.6	0.15
1954	363	838	143	22	0.17	0.03	7.7	0.16
1955	139	293	198	29	0.68	0.10	7.6	0.15
1956	176	354	197	32	0.56	0.09	7.6	0.16
1957	113	218	127	22	0.58	0.10	7.9	0.17
1958	84	175	101	15	0.58	0.09	7.6	0.15
1959	97	197	118	17	0.60	0.09	7.5	0.14
1960	227	541	509	91	0.94	0.17	8.0	0.18
1961	172	390	151	22	0.39	0.06	7.6	0.15
1962	161	386	297	48	0.77	0.12	7.7	0.16

2,518 sublegal wild brook trout remained in Section A after the trout season. The legal population showed a 71-percent increase and the sublegal population increased 63 percent over the fall of 1961.

Angling in Section B produced 144 wild brook trout and 2 wild rainbow trout. Anglers made 77 trips, fished 126 hours, and caught trout at a rate of 1.16 per hour. The catch of wild brook trout exceeded the 13-year average by 157 percent. Fishing pressure, and catch per hour were up considerably whereas the average size of trout was unchanged. One sublegal trout was creeled and 544 trout were reported caught and released. Post-season population estimates indicated that 71 legal and 1,268 sublegal brook trout remained in Section B. The legal population was up 69 percent and the sublegal population was 17 percent greater than in the fall of 1961.

In Section C, anglers creeled 132 wild brook trout (21 pounds), 1 hatchery brook (0.2 pound), 10 wild rainbow trout (2.0 pounds), and 1 wild brown trout (0.1 pound) in 147 trips. In 310 hours of fishing anglers averaged 0.59 trout per hour, an improvement over 1961. Compared to the 13-year average the fishing pressure was down but the catch was up. Trout averaged 7.7 inches long. No sublegal trout were creeled from Section C but anglers caught and released 254 trout. The fall population estimate indicated that 42 legal and 1,902 sublegal wild brook trout remained after the season. This represents a 62 percent increase in the legal population and a 75 percent increase in the sublegal population.

Section D, the uppermost section of Hunt Creek, was mostly stream habitat during the 1962 season. One small pond (about 1 acre) was maintained by beavers during the year. In 1962 anglers made 184 trips to Section D. They creeled 175 wild (35.5 pounds) and 3 hatchery brook trout (1.1 pounds) in 309.5 hours of angling. These trout averaged 8.3 and 10.3 inches long respectively.

For Hunt Creek as a whole, 1,049 wild brook trout (weighing 179.0 pounds) were creeled in 1962. This was a marked increase over the catch of 651 trout in 1961 and was 47 percent above the 13-year average for the area. In addition 4 hatchery brook, 16 wild rainbow, and 2 wild brown trout were creeled. The total catch was 1,071 trout weighing 184.57 pounds for the second highest catch made since 1949. Trout averaged 7.8 inches in total length. Anglers spent 1,344 hours fishing Hunt Creek and creeled fish at an average rate of 0.80 trout per hour--the highest catch rate ever recorded at Hunt Creek.

Fuller Creek

Table 6 summarizes the angling statistics for Fuller Creek since 1940. In 152 trips to Fuller Creek in 1962 anglers creeled 161 wild brook trout (25.0 pounds). The catch was the second highest recorded since 1940 and exceeded the 22-year average by 101 trout. To encourage and facilitate fishing in Fuller Creek, the lower branches of cedar trees in close proximity to the stream were removed; anglers

Table 6.--Legal wild brook trout caught in Fuller Creek, 1940-1962

Year	Total fishing		Total catch		Catch per hour		Average size	
	Trips	Hours	Number	Pounds	Number	Pound	Length (inches)	Weight (pound)
1940	20	36	16	3	0.44	0.08	...	0.19
1941	59	97	21	3	0.22	0.03	...	0.15
1942	31	39	11	2	0.28	0.05	8.3	0.18
1943	19	25	19	3	0.76	0.12	7.6	0.14
1944	96	145	61	8	0.42	0.06	7.6	0.15
1945	102	159	64	9	0.40	0.06	7.5	0.14
1946	223	278	56	8	0.20	0.03	7.4	0.14
1947	212	219	27	4	0.12	0.02	7.5	0.14
1948	190	196	31	5	0.16	0.03	7.7	0.16
1949	115	295	43	6	0.15	0.02	7.4	0.13
1950	107	185	12	2	0.06	0.01	7.6	0.16
1951	110	246	59	9	0.24	0.04	7.6	0.16
1952	85	221	64	10	0.29	0.05	7.6	0.15
1953	86	212	84	14	0.40	0.07	7.8	0.16
1954	99	201	68	11	0.34	0.05	7.7	0.16
1955	110	214	68	10	0.32	0.05	7.6	0.14
1956	230	476	192	35	0.40	0.07	8.0	0.18
1957	179	377	76	12	0.20	0.03	7.6	0.15
1958	159	332	71	11	0.21	0.03	7.7	0.16
1959	126	234	70	11	0.30	0.05	7.8	0.16
1960	134	222	98	15	0.44	0.07	7.6	0.15
1961	135	246	99	14	0.40	0.06	7.6	0.14
1962	152	299	161	25	0.54	0.08	7.7	0.16

in 1962 were the first to benefit from the experiment. Anglers were successful on 47 percent of their trips and caught 0.54 trout per hour. Trout averaged 7.7 inches long.

Fuller Creek Pond

An earthen dam on the site of an old beaver dam maintains this impoundment. In the fall of 1961 Fuller Pond was drained and a spillway, permitting Fuller Creek to be discharged at the dam, was constructed. Formerly water was discharged through a by-pass channel at one side of the pond, thus permitting the area near the dam to become poor trout habitat through warming in the summer and oxygen depletion in the winter.

In April 1962, Fuller Pond was planted with 400 hatchery rainbow trout, 400 hatchery brook trout, and 400 wild brook trout, to evaluate survival, growth, and exploitation. The three groups of trout averaged 5.5 inches at planting, and none were creeled during the 1962 fishing season. A planting of 100 legal-sized brook trout was also made in April. In 59 trips to the pond anglers creeled 69 of these weighing 31.5 pounds. They averaged 10.8 inches long and were creeled at 0.46 fish per hour.

East Fish Lake

During 1962 anglers spent 1,861 hours fishing East Fish Lake. They caught 462 trout that weighed a total of 348 pounds (Table 3). The

catch, by number and weight, was the second highest yet recorded. The bulk of the catch (64 percent) was composed of rainbow trout. The rainbow catch was divided as follows: those planted in the fall of 1962--91 percent, one year carry-overs--7 percent, and 2 year carry-overs--2 percent. These age groups of rainbows averaged 12.4, 17.4, and 21.5 inches in total length.

Anglers caught 148 of the brook trout planted in October 1961 and these trout averaged 10.7 inches long. No carry-over brook trout were caught. In addition 20 wild brook trout, averaging 11.4 inches long, were creeled.

Rainbow trout continue to contribute more to anglers than brook trout, mainly because of better survival. Angler-use continues to increase since the inception of rainbow trout planting, due to more and larger fish being available during the latter half of the trout season. Since rainbow trout stocking, angling hours have increased from 800 hours per year to 1,861 hours this past season.

All waters

From all experimental waters of the Area, anglers creeled 1,764 trout (total weight, 589 pounds) in 1,413 trips involving 3,654 hours of angling (Table 3). The catch increased 32 percent from 1961. In number this year's catch was 111 trout short of the record catch made in 1960, however the weight was 28 pounds greater. Average size of trout creeled was 9.1 inches.

Summary of lures used

The 1962 catch is summarized in Table 7 according to the lures used to capture trout. Area waters were grouped into two categories, according to habitat.

On streams, anglers used worms or worms and spinners on 76 percent of their trips, and these lures accounted for 63 percent of the catch. Fishermen using other live bait or a combination of lures made 7 percent of the trips and caught 6 percent of the fish. Fly fishermen made 16 percent of the trips and caught 30 percent of the trout. Anglers using other artificial lures made 0.5 percent of the trips and caught 0.6 percent of the fish.

On pond waters anglers used worms or worms and spinners on 76 percent of their trips and caught 73 percent of the fish. Anglers using other live bait or a combination of lures made 15 percent of the trips and accounted for 15 percent of the catch. Fly fishermen made 1.0 percent of the trips and made 1.0 percent of the catch. Anglers using other artificial lures made 7 percent of the trips and accounted for 11.0 percent of the catch.

In general, effort with, and catch by particular lures were proportional. The only deviation was in stream waters where fly fishermen, making up 16 percent of the anglers, caught 30 percent of the fish. Fly fishermens' success was probably due to their higher

Table 7.--A comparison of different fishing lures showing frequency of use, numbers of trout caught, and catch per hour, Hunt Creek Trout Research Station, 1962

Water	Lure	Number of angler trips	Percentage of total trips	Number of trout caught	Percentage of total catch	Number of hours fished	Average catch per hour
Streams							
(Sections Z, A, B, C, D and Fuller Creek)	Worm	554	64.9	650	52.7	1,104.5	0.59
	Worm and spinner	96	11.2	121	9.8	143.0	0.85
	Flies	137	16.0	373	30.3	254.5	1.47
	Minnow	7	0.8	14	1.1	10.0	1.40
	Insect	11	1.3	16	1.3	13.0	1.23
	Artificial lure	4	0.5	7	0.6	7.5	0.93
	Natural	1	0.1	0	0.0	2.5	0.00
	Combination	42	5.0	48	3.9	104.0	0.46
	Unknown	2	0.2	4	0.3	4.0	1.00
	Totals	854	100.0	1,233	100.0	1,643.0	0.75
Ponds							
(Fuller Pond and East Fish Lake)	Worm	315	56.3	265	49.9	1,189.5	0.22
	Worm and spinner	112	20.0	124	23.4	418.5	0.30
	Flies	8	1.4	6	1.1	14.5	0.41
	Artificial lure	39	7.0	57	10.7	122.0	0.47
	Natural	1	0.2	0	0.0	1.0	0.00
	Combination	82	14.7	77	14.5	255.5	0.30
	Unknown	2	0.4	2	0.4	10.0	0.20
	Totals	559	100.0	531	100.0	2,011.0	0.26

average skill rather than a real difference between lures. The great majority of anglers elect to use worms or worms and spinners when there are no lure restrictions.

Number of trout caught per trip (Table 8)

On waters with a daily creel limit of 10 trout a minimum size of 7 inches, anglers creeled 6 or more trout on 7.1 percent of the trips; but these trips accounted for 39.4 percent of the season's catch from Hunt Creek and Fuller Creek. Fifty-four percent of the anglers failed to catch a trout.

From waters with a daily creel limit of 5 trout and a minimum size limit of 10 inches, anglers made limit catches on 4.7 percent of the trips. These trips accounted for 24.5 percent of the catch. On 16.1 percent of the trips anglers caught 3 or more trout per trip and these trips accounted for 64.2 percent of the trout caught. Anglers catching 1 or 2 trout per trip made only 35.8 percent of the catch. No trout were caught on 60.1 percent of the trips.

Age distribution of wild trout in the catch

The age distribution of the wild brook trout taken from the Area waters is summarized in Table 9. Separate tabulations were made for trout creeled in Sections Z and A; Sections B, C, D, and Fuller Creek; and East Fish Lake.

Table 8.--Number and percentage of fishing trips on which different numbers of trout were caught, Hunt Creek Trout Research Station, 1962

Number of trout caught per trip	Daily creel limit[1] 10 trout, 7 inches		Daily creel limit[2] 5 trout, 10 inches	
	Number of trips	Percentage of trips	Number of trips	Percentage of trips
0	464	54.33	336	60.11
1	126	14.75	76	13.60
2	85	9.95	57	10.20
3	52	6.09	45	8.05
4	35	4.10	19	3.40
5	31	3.63	26	4.65
6	17	1.99	...	.....
7	10	1.17	...	.....
8	11	1.29	...	.....
9	4	0.47	...	.....
10	19	2.22	...	.....
Totals	854	99.99	559	100.01

[1] Experimental section of Hunt Creek, also Fuller Creek.

[2] East Fish Lake, Fuller Pond.

Table 9.--The age distribution of wild brook trout caught by anglers in experimental waters, 1962

Stream section	Age group	Number of fish	Average length (inches)	Percentage of total catch
Z + A	I	67	7.3	11.2
	II	446	7.8	74.6
	III	80	8.3	13.4
	IV	5	9.2	0.8
	Total	598	...	100.0
B, C, D and Fuller Creek	I	38	7.4	6.2
	II	447	7.7	73.0
	III	121	8.5	19.8
	IV	6	9.9	1.0
	Total	612	...	100.0
East Fish Lake	I	...	...	....
	II	17	11.2	85.0
	III	3	12.4	15.0
	IV	...	...	....
	Total	20	...	100.0
All waters	I	105	7.4	8.5
	II	910	7.8	74.0
	III	204	8.4	16.6
	IV	11	9.6	0.9
	Total	1,230	...	100.0

The age composition (percentage of catch in various age groups) from Sections Z and A was; I's--11.2, II's--74.6, III's--13.4, and IV's--0.8. From Sections B, C, D, and Fuller Creek age-group percentages were: I's--6.2, II's--73.0, III's--19.8, and IV's--1.0.

In general, about three-fourths of the stream trout caught were II's (third summer fish), about 16 percent were III's, and the I's and IV's made up only a small part of the catch. The age distribution (percentage) of wild brook trout from East Fish Lake was: II's--85.0 and III's--15.0. This population of brook trout is characterized by a rapid growth rate. Exploitation rate is high and few wild old fish are available.

Residence of anglers

The residence of the anglers making the 1,413 trips to the area is summarized by county and by state in Table 10. Thirty-five counties of the Lower Peninsula, one Upper Peninsula county, and five states were represented. About 23 percent of these anglers were from Montmorency and adjacent counties. Thirty-three percent of the anglers were from the metropolitan area of southeastern Michigan. About 22 percent of the anglers came from the Saginaw-Bay City-Midland triangle. Eight percent of the anglers were nonresidents.

Table 10.--Residence of anglers fishing experimental waters of Hunt Creek Trout Research Station, 1962

Residence (County)	Number of trips	Residence (County or state)	Number of trips
Montmorency	286	Otsego	5
Wayne	232	Grand Traverse	4
Bay	161	Lenawee	4
Oakland	111	Berrien	3
Genesee	86	Kent	3
Ingham	67	Lapeer	3
Macomb	58	Alpena	2
Midland	55	Crawford	2
Washtenaw	40	Kalamazoo	2
Oscoda	37	Ogemaw	2
Monroe	22	St. Joseph	2
Livingston	19	Calhoun	1
Saginaw	15	Dickinson	1
Huron	12	Montcalm	1
Jackson	12	Total	1,305
Shiawassee	11	Ohio	97
Arenac	10	West Virginia	6
St. Clair	9	Illinois	3
Gratiot	8	Pennsylvania	2
Hillsdale	8	Indiana	1
Tuscola	6	Total	108
Ionia	5	Grand total	1,413

Types of fishing gear used

The various types of fishing gear used by anglers at the Area during 1962 are listed in Table 11. The categories are based primarily on the type of reel used in conjunction with various rods. For example, a fly-rod used with a spinning reel was classed as spinning gear; a spinning rod with a single-action fly reel was listed as fly-fishing gear. Most of the anglers fishing stream sections used fly-fishing tackle, whereas most anglers used spinning gear on pond waters.

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Table 11.--Type of fishing gear used in the experimental waters of Hunt Creek Area, 1962

Experimental water	Trips using type of gear						Total trips
	Fly	Spinning	Casting	Cane pole	Combination	Unknown	
Streams							
(Sections A, B, C, D and Z stream and Fuller Creek)	490	295	48	9	3	9	854
Ponds							
(Fuller Pond and East Fish Lake)	63	403	49	2	36	6	559
Totals	553	698	97	11	39	15	1,413