Original: Fish Division
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Hunt Creek Experimental Area
Institute for Fisheries Research
INSTITUTE FOR FISHERIES RESEARCH D. S. Shetter
DIVISION OF FISHERIES H. L. Peterson
MICHIGAN DEPARTMENT OF CONSERVATION
COOPERATING WITH THE
UNIVERSITY OF MICHIGAN

ALBERT S. HAZZARD, PH.D.
DIRECTOR

ADDRESS
UNIVERSITY MUSEUMS ANNEX
ANN ARBOR, MICHIGAN

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# INTENSIVE CREEL CENSUS RESULTS ON THE HUNT CREEK FISHERIES EXPERIMENTAL AREA, 1944 TROUT SEASON

by

David S. Shetter and Pat Galvin

## Introduction

For the sixth consecutive season (1944) an intensive creel census was conducted on the various waters lying within the Hunt Creek Fisheries Experimental area. The waters under census included the five experimental sections of Hunt Creek proper, (A, B, C, D, and E), Fuller Creek, and the East Fish Lake outlet, Fuller Creek Beaver Pond, East Fish Lake, and the section of Hunt Creek immediately downstream from the experimental sections called "Below A." In other years other waters or specially designated sections have been censused but were not included in 1944 for various reasons. Suttons Pond was excluded because of the shortage of manpower (creel census clerks) and transportation facilities (gasoline and tire rationing limiting travel). Section D Beaver Pond was excluded because it no longer exists. It was badly washed during a heavy flood on May 30, 1944. What fishing that was done in this area is included in the angling results listed for Section D. Tributary Two and the old beaver pond 50 yards upstream from its mouth were not fished in 1944. In other years results of the angling done on East Fish Lake have or have not been considered in the

general creel census report. Because of the quality of the fishing that anglers had on this trout lake and because of the need for the discussion of certain management practices that have been in operation there, a separate report will be submitted on the results of angling at East Fish Lake in 1944.

## Methods

Census clerks were instructed to contact every angler fishing in the experimental area. Clerks were either stationed at points of access or visited these stations approximately every two hours. If the angler was already on the stream the clerk waited till he returned. Sometimes, if the angler was a native of the region or former visitor to the experimental area, he often obliged by voluntarily stopping at the laboratory to report his results.

When the angler was contacted the following information was obtained: name, town, county and state of residence, sex, number of legal and sub-legal trout caught and number of each released, angling time expended, section fished, lure used, and the number and information pertinent to marked trout. All of this information has been summarized either by two-week periods or for the entire season and is submitted in the tables appended to this report.

## Angling Results (Tables 1, 2, 3, 4, 5, 6)

Anglers spent 340 angling days on the five experimental sections of Hunt Creek (a 9.3 per cent increase over 1943). Slightly more than half, 53.24 per cent, of this number are listed as being unsuccessful. A total of 166 different anglers, 145 males and 21 females, spent 640.0 hours fishing the five experimental sections (an 18.5 per cent increase over 1943). The average angling day was of 1.88 hours duration. During the season these same anglers caught 364 legal brook trout and kept 344 of

these fish which weighed 53.39 pounds.[1] In other words anglers caught 0.57 trout or 0.083 pounds of trout per hour. Expressing it in another way 1.06 fish were taken for each angling day recorded. Compared with 1943, this represents a 19 per cent decrease in numbers per hour and 25 per cent decrease in pounds per hour captured. A brief analysis of the angling results by sections follows. Further discussion of topics pertinent to each individual section will be discussed under other headings.

Actually 170 different anglers spent 344 angling days on the experimental sections, as 4 anglers were seen but not contacted. Applying the data for the periods in which these uncontacted anglers fished, the following figures on the total hours expended, total legal catch, and the weight of legal brook trout removed are derived:

Total hours of fishing - 648.00

Total legal brook trout taken - 366

Total weight of legal brook trout removed - 53.72 pounds (weight of 342 fish removed)

The total weight of the catch was determined as follows: Both lengths and weights, or lengths from which weights might be read from a length-weight curve were available for 335 fish; three trout from Section B and two from Section D which were known to have been taken but which were not measured were assigned the average weight for the two-week period in which they were removed; 24 legal fish were returned to the water after capture; the total weight of the 340 fish removed amounted to 53.39 pounds.

Section A, the lowermost experimental section, provided the best trout fishing of the experimental sections in 1944. Anglers (85) spent 151.50 hours fishing this section of stream from which they removed 156 legal fish--a catch of 1.02 fish per hour or 0.133 pounds per hour. Fishing on any of

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[1] In addition anglers removed 20 brook trout less than the legal length which weighed a total of 2.22 pounds. Therefore the total observed poundage of trout removed during 1945 from the experimental sections amounted to 55.61 pounds from the 4.33 acres under intensive creel census.

the other four sections did not compare with this. Section B, the section of stream that was improved in the fall of 1941, lies directly upstream from Section A. This section of the stream, because it is not quite as accessible to the "auto fisherman," was visited by only 68 anglers. They fished 123.50 hours during which time they took 77 legal trout--a catch per hour of 0.62. Although the angling quality in Section B was only slightly better than average the most encouraging fact is that fewer fishermen than in other years returned with empty creels--only 42.65 per cent of the anglers reported taking no legal trout.

Section C, the middle section of water, a heretofore fairly productive stretch of stream, hit rock bottom in 1944. Some 87 anglers fished here with rather poor success. Only 163.75 angling hours are listed for this section for the 1944 season and during this time anglers removed just 62 legal brook trout--a catch per hour of 0.38 legal trout. The weight removal rate was equally low, 0.063 pounds per hour.

More anglers (92) fished Section D than any other section in 1944. There likewise was more angling time (181.75 hours) spent there. Anglers caught 64 legal trout, a catch per hour of 0.35 legal fish.

Section E, the uppermost section, lies in the heart of a rather dense cedar swamp and is not as accessible as the other sections. It is also a brushy, difficult section to fish and because of the above-mentioned disadvantages is less attractive to the average angler than other sections. For the past two years it has received very little fishing, and an analysis of the angling results may or may not be significant. Only eight anglers visited this remotely-situated section in 1944. Nearly two-thirds of them, 62.50 per cent, returned with no fish. They fished a total of 19.50 hours but caught only five legal trout--a catch per hour of 0.26 fish.

Although the quality of the fishing for all experimental sections combined was nothing of note (0.57 legal trout per hour) the quality on

individual sections certainly warrants further discussion. Section A, for instance, afforded some very fine angling most of the season. The catch per hour by two-week periods, with one exception (June 24-July 7), was consistently good, ranging from 0.58 to 1.93 fish per hour and from 0.030 to 0.227 pounds per hour.

Section A is rather flat water and flows for almost its entire length through an open marsh. Cover is supplied by low overhanging banks of peat sod and grass, vegetation beds, and debris lodged in the stream bottom. There are several good fishing pools (two of these are marked and the fishing they afford will be discussed later in this report). This section of the stream is very accessible, a good dirt road crossing at its lower boundary and a trail (150-200 yards distant) parallels it for a short distance upstream. Being open and easily reached, Section A is inviting to the average fly-fisherman. From the quality of the fishing recorded, and the ease with which the angler can approach the pools to make his casts, it is quite understandable why Section A when fished with light fly tackle produces some fine sport. Ninety-four legal brook trout (61 per cent of the total catch) were taken by fly tackle.

The angling quality was progressively poorer upstream from Section A. In Section B, anglers caught 0.62 fish per hour over the entire season, but the catch per hour by two-week periods ranged from 0.00 to 1.20 trout per hour. Fishing got off to a fair start the opening two weeks (0.51 trout per hour) and continued to get better up to June 10 when it dropped off to nothing. It later picked up and anglers caught 1.15 trout per hour through the period August 5-18. The quality of the fishing over Section B waters was inconsistent, being quite good and then rather poor.

The angling quality for Section C for the season as a whole was next to the lowest (0.38 legal trout per hour) that it has been since the stream has been covered by intensive census. The rather poor season for

Section C was high-lighted by at least two two-week periods during the season when the fishing was good. From May 27 through June 9 anglers caught 0.73 legal trout per hour. The second period of good angling was had from August 5 through August 18 when two anglers took five trout in 5.5 hours or 0.91 legal trout per hour. During the season the angling quality fluctuated from 0.00 to 0.91 legal trout per hour.

Although the quality of the fishing for the season was progressively poorer from the lower sections upstream, as mentioned previously, the angling quality for Section D was not much poorer than that for "C" (Section D is the section of stream above Section C). Anglers caught 0.35 legal trout per hour from Section D as compared to 0.38 for Section C.

The angling quality for Section D was never what you might call exceptionally good. For one two-week period (May 27-June 9) anglers caught 0.64 legal trout per hour, the best catch per hour figure of the season. The angling quality in the course of the season ranged from 0.00 to 0.64 trout per hour.

The angling quality for Section E (0.26 legal trout per hour) was still lower than that for Section D but so little fishing was prosecuted in Section E that the results obtained perhaps do not reflect the true situation.

The trend of the fishing for all five sections combined was not unlike that for any individual section. Fishing got off to a mediocre start, picked up momentum and hit a peak during the period May 27-June 9. It immediately fell off considerably, regained its equilibrium early in August and hit its second and highest peak (1.30 legal trout per hour) during the period August 5-August 18. The angling quality fell off immediately thereafter until the end of the season. The best catch, in terms of pounds as well as number of trout removed, for any one period came during the period August 5-August 18. The lowest pounds per hour

removal rate and the lowest catch in number per hour was for the period July 8-July 21, (0.050 pounds and 0.35 trout per hour).

Yield to the Angler, Pounds of Legal Brook Trout, and Numbers of Legal Brook Trout Per Acre Removed by Angling (Table 7)

The yield for Section A was not far from the average for the six-year period 1939-1944. The pounds per acre figure was the same as the average (13.9 pounds), while the number per acre was slightly more (average 98, Section A 1944, 107 trout per acre). The 1944 yield in pounds of legal brook trout removed from Section A was slightly lower than that for the previous two seasons while the yield in number per acre increased from 94 fish for both the 1942 and 1943 seasons to 107 fish in 1944. This drop in pounds and increase in number per acre appears to be a result of diminution of the average weight of the fish taken. The average length of fish taken in Section A in 1942 was the same as that for 1944 yet the average weight was 0.12 ounces greater in 1942. In 1943 the average length of trout removed was 7.4 inches, 0.2 inches less than the 1944 average yet the average weight was 0.07 ounces more. The coefficient of condition of trout taken in 1944 from Section A was lower than that for trout taken either in 1942 or 1943.

The yield in numbers and pounds of trout per acre for Section B for the 1944 season was considerably above average. The yield in both numbers and pounds was in fact higher than that of any previous season. The pounds of trout removed per acre by anglers was only slightly better than that recorded for the previous two years (17.3 pounds per acre for both the 1942 and 1943 seasons and 18.5 pounds per acre for the 1944 season) while the yield in numbers showed slight increases over the 1942 and 1943 yields.

The yield of legal trout per acre for Sections C, D, and E was far

below the six-year average. The average yield in pounds per acre is 25.4 for "C," 19.2 for "D," and 15.7 for "E." The same sections yielded 14.5, 8.8, and 2.1 pounds of trout per acre in 1944. In numbers the average yield for Section C is 158 legal trout per acre, for "D" 127, and for "E" 101. In 1944, however, Section C produced only 87, Section D, 54, and Section E, 14 legal trout per acre. The average (six-year average) aggregate yield for these three sections is 386 trout; the aggregate yield in 1944 was 155 trout per acre.

The drop in yield for these sections may perhaps be ascribed in part to the comparatively low angling pressure each received in 1944.

Number of Marked Brook Trout from Experimental Plantings Entering the Catch of Legal Brook Trout During the 1944 Trout Season (Table No. 8)

In 1939, 1,000 wild and 1,000 hatchery trout were marked and planted in Section C. In 1940, approximately half this number were used (500 wild and 464 hatchery-reared brook trout fingerlings) and were also released in Section C. For the 1939 experiment the wild fish were marked by clipping the left pectoral fin while the right pectoral fin was clipped to identify the hatchery trout. Fish used for the 1940 experiment were marked by clipping the respective pelvic fins.

Up to the 1944 season from 4 to 5 times more fin-clipped wild trout than similarly marked hatchery fish had been recovered as legal fish by anglers. During the 1944 trout season 2 hatchery-reared trout of the 1939 experiment and 1 wild trout of the 1940 planting were taken. To date, the 1939 plantings have yielded slightly better than 5 times more wild trout (26 wild trout compared to 5 hatchery-reared brook trout) than hatchery brook trout. From the 1940 experiment, which was similar except that only about one-half as many trout were used, anglers have taken exactly four times more wild trout than hatchery fish.

To date 2.6 per cent of the wild and 0.5 per cent of the hatchery-

reared brook trout of the 1939 experiment have been recovered. Slightly higher percentages of both the marked wild and hatchery fish of the 1940 experiment have been reported. A total of 24 or 4.8 per cent of the marked wild trout and 6 or 1.3 per cent of the hatchery trout have been taken.

From these experiments we can deduce the following: 1. Apparently wild fingerling brook trout have a better chance of surviving till they reach legal size than do hatchery-reared fingerlings of the same approximate size and age. However, there is a heavy mortality from fingerling to legal-size of both wild and hatchery brook trout. 2. Higher percentages both of wild and hatchery-reared, are likely to be recovered from smaller plantings.

## Other Marked Trout Taken by Angling During 1944

## Tables 9, 10, 10a

The remaining 28 recoveries were tagged fish. Two fish that bore tags had also been fin clipped. One of these was from the experiment mentioned above while the other was a fish that had been marked and used in connection with the Section B stream improvement project to determine whether trout in adjoining stream areas would move into the improved section. This fish was recovered in Section C where it was originally marked.

Eleven of the tagged trout recovered had been marked in passing through the tributary weirs while thirteen other tagged fish recovered were marked early in 1944 in an effort to determine the percentage of sub-legal trout reaching legal size during the open season. Information concerning four other tagged fish is missing. A tag from one fish was lost in removal by an angler, one angler not contacted later reported that two fish from a previous day's catch bore tags, and the original tagging data for one other recovery is missing. Actually there are complete records on only 24 of the 28 tagged trout recovered.

Thirteen of the tagged fish recovered during the 1944 season were recoveries from an experiment initiated to determine the percentage of sublegal trout reaching legal size in the course of the fishing season (Table 9).

Prior to and early in the 1944 trout fishing season 154 sublegal brook trout ranging from about 5 to 6 7/8 inches were captured in the experimental waters by seining, and angling, measured, jaw-tagged and released after removing scale samples. The following numbers of sublegal trout were tagged in the various sections of the stream; 44 in Section A, 50 in Section B, 50 in Section C, and 10 in Section D. No effort was made to capture any trout in Section E due to the trashy bottom and overhanging cover which makes the manipulation of a seine nearly impossible.

The following numbers by 10 millimeter size groups were so marked 125-134, 25 fish; 135-144, 50 fish; 145-154, 33 fish; 155-164, 19 fish; 165-174, 23 fish; and 174-175, 4 fish. In all, 14 (9.09 per cent) of the 154 marked trout were recovered as legal fish by anglers. All but one of the thirteen were recovered in the experimental waters; this lone fish was taken "Below A." Of the thirteen, 10 were taken in the same section where marked. One fish marked in Section C moved the greatest distance. It was recovered 31 days later by an angler fishing below Section A. The other two migrants had moved a short distance into the section upstream from where they were tagged.

At least one fish within each size group when tagged was later recovered. One trout was recovered from each of the first three 10-millimeter size groups (125-134, 135-144, and 145-154 millimeters), four from the 155-164 group, and seven from the 165-174 millimeter class. Slightly more than 26 per cent of all the fish tagged from the latter two groups were recovered while 2.0 to 4.0 per cent of fish of the first three classes were taken. Greater numbers of trout from 155-175 millimeters when tagged were taken, since they had to grow but a few millimeters to reach legal size (178 millimeters).

More marked trout of this experiment were recovered in Section C than in any of the other sections. On the basis of the percentage of recovery, sections D, A, and B followed in that order.

The number and percentage of marked fish recovered from Section C is probably representative of what might occur in other sections if the same number of fish had been tagged and if other sections were fished equally as much. A total of eight tagged fish were taken in Section C (16.0 per cent of the number marked). One fish from both the 135-144 and 145-154 millimeter classes was taken (5.26 and 12.5 per cent of the number tagged), two from the 155-164 millimeter group (33.3 per cent) and four from the 165-174 millimeter size class (50.0 per cent).

The recoveries made during the course of 1944 indicate that 3.5 per cent of the annual catch of Hunt Creek consists of sublegal trout that grow into the legal size class during the current season. This experiment will be repeated again in 1945.

## Contribution of the Tributary Streams to the Total Catch of the Experimental Waters (Table 10)

Counting weirs are operated on nearly all of the tributaries to Hunt Creek lying within the experimental area, and one of the purposes of the weir operations is to learn to what extent tributary streams contribute to the anglers' catches in Hunt Creek. For several years only trout over four inches long were marked so they might later be identified. Since the spring of 1944, however, all trout moving through the weirs have been marked by either jaw-tagging or the clipping of one or a combination of fins. At present any trout that migrate into the main stream when later taken may be assigned to their place of origination. Whether or not feeder streams do contribute to the stock and eventually to the catch of legal trout taken by the angler in larger streams is one of those problems long unanswered. Weir operations and creel census data are providing more knowledge on this question.

A total of 13 brook trout, all migrants from three tributaries of Hunt Creek (Tributary Two, Three, and Four) were taken by anglers in 1944. Most of this number (11) were taken in the experimental waters. Six were migrants from Tributary Three, four from Tributary Four, and one from Tributary Two. This number (11) represents 3.0 per cent of the 1944 legal catch of the experimental waters.

Only two fish were reported that had moved down from the tributaries into Hunt Creek and were taken as legal fish outside of the experimental waters. Both of these were caught in the section of the stream "Below A." These two migrants constituted 0.6 per cent of the total catch of that section. Both fish originated in Tributary Three.

Of the 13 migrants eight originated in Tributary Three. For the past several years a goodly share of the brook trout taken which have originated in the "feeder" streams have come from Tributary Three.

Migrants out of the tributaries into the main stream which were later caught were from 99 to 187 millimeters long when tagged (Table 10a). The same fish when recovered by anglers ranged from 177 to 245 millimeters in size, an average gain of 58 millimeters. The time interim between tagging and angler-recovery averaged 437 days.

Since most trout moving out of the tributary stream into the main stream move downstream, it is not impossible that some migrate entirely out of the area normally covered by creel census. Until a counting weir can be installed below the experimental waters we can never completely assay the importance of feeder streams as contributors to the anglers' catch in the main stream.[2/] Many trout have moved into the main stream from the tributaries which have never been accounted for. Do most of these fish move out of the experimental area or do only a few survive to reach legal

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[2/] A weir site about 1/2 mile downstream from the lower boundary of Section A was acquired by the state early in 1945 and when restrictions on critical building materials are eased it is hoped that a weir will be erected there similar to the one now operating on Fuller Creek.

size and then perhaps are taken by the angler? Continued operation of the weirs and creel census supplemented sometime in the future by the installation of a weir below Section A may in time furnish the missing links that will bring this problem from out of the realm of unsolved questions.

Yield of Specially Designated Water Areas (Table 11)

For the past five years a special effort has been made to determine what per cent of the total catch is contributed by certain pools or designated stream areas. All angling results for any section or special stream area is reported on the regular census blank, but any census data pertaining to these specially designated waters are indicated.

Only two such areas, both in Section A (pool 1 and 2) were censused in 1944. Section D Beaver Pond, a heretofore special water area, was not considered in 1944 because of low water level, a consequence of the wash-out of the old beaver dam caused by heavy rains on May 30.

Pools 1 and 2 are both situated in Section A. Pool 1 lies about mid way between the upper and lower ends of Section A. Pool 2 is located near the upper boundary of Section A, just below the junction of Sections A and B.

Both pools are located at bends in the stream and in both instances the pool lies along the east bank of the stream. In each case the stream has changed its course nearly 90° to the north and the pools have been formed by the impingement of the stream with the east bank.

Pool 1 is located in the open marshland, has sandy bottom and is nearly devoid of shade or underwater cover. It is, however, deeper than Pool 2 and cover is furnished by the deep water and partially undercut banks.

In contrast, Pool 2 has a fine gravel and sand bottom, undercut banks, and a fair amount of bank cover furnished by a rather profuse growth of tag alders.

In years past these two pools have yielded varying numbers and pounds of trout but the percentage of the total catch of Section A contributed by the pools has usually exceeded the percentage of the area of Section A made up by the pools. Pool 1 constitutes 2.6 and Pool 2, 2.8 per cent of the total area of Section A. In 1944, however, the yield for these two areas fell markedly. The percentage of the total catch in both numbers and pounds originating in these pools was lower than the yield for any three years previous.

In numbers, Pool 1 contributed 3.2 per cent of the total catch while Pool 2 produced 2.6 per cent of the catch for that section. The yield in pounds of fish contributed by these individually censused stream areas did not correspond with the decrease in numbers. Of the total poundage removed in Section A, Pool 1 contributed 3.6 per cent and Pool 2, 4.0 per cent of the total yield for "A." In years past the percentage of the total catch by weight originating in these designated areas has usually fell short of the percentage of the total catch in numbers. Both Pools 1 and 2 had a higher "weight percentage" than "number percentage" in 1944. Apparently fewer but larger or heavier fish were taken in these areas than were taken other years or fish taken in the pools were in better condition and hence heavier than fish taken in other parts of Section A.

The average length and weight of trout removed from Pool 1 was nearly the same as the average size of all trout taken in Section A (average length of trout taken in Pool 1, 195 millimeters, average length of trout taken in Section A, 192 millimeters, average weight--Pool 1, 66.6 grams, Section A, 67.1 grams) (Table 11a). The average size of trout caught from Pool 2, however, was considerably larger than the average size of trout for Section A. Comparing average lengths and weights, trout taken in Pool 2 were 14 millimeters longer and 16 grams heavier than the average fish taken elsewhere in Section A.

## Size of Legal Brook Trout Taken by Anglers in the Census Sections on Hunt Creek 1944 Season (Table 12)

Anglers reported catching 364 legal brook trout from the experimental waters in 1944. They chose to keep 340 of this number since they reported returning 24 to the stream. Lengths and weights were taken on all but five of the 340 retained. These five fish were taken by anglers who failed to report their catch before leaving the area either because they were not contacted by the census clerks or because they intentionally evaded having their catch checked.[3]

Actual weights and measurements were obtained for most of the trout checked, (335). Some (26) of the trout taken had been dressed previous to being weighed, so curve weights were substituted for this missing data. These curve weights were read from length-weight curves prepared from all the known length and weight figures recorded for the 1944 season. The fishing season was divided into three periods, April 28 through May 31, June 1 through July 15, and July 16 through Labor Day. Length-weight data from the five experimental sections was combined and then the combined data was separated according to the date collected. This data in turn was ascribed to one of the three periods mentioned above. So few length and weight figures were available by monthly periods for individual sections that it seemed best to combine the data at hand in the above manner. Average weights of fish by five-millimeter size groups was determined and the average weights were then plotted against the corresponding size group.

After plotting all the data at hand by periods it was possible to draw a regular curve which portrays fairly accurately the length-weight relationship of all brook trout caught in the experimental waters during the 1944 season.

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[3] These were local anglers and they made their catch reports at a later date.

With such curves at hand it was then possible to obtain the weight of a fish that had been dressed if the length was known by reading the weight directly from the curve for the period during which the fish in question was taken. By supplying the missing weights an almost complete set of weights is available. As a result, the average size of brook trout caught and the total weight of trout removed from the experimental waters is more valid than through use of arbitrarily assigned weights.

Average lengths and weights were computed by two-week periods for each section and for all the sections combined. Seasonal averages are also given in inches and ounces as well as grams and millimeters.

The average length of brook trout removed from the experimental waters in 1944 was slightly larger than the average fish taken either in 1942 or 1943 and the same size as those in the 1941 season.

Average size (inches and ounces) of brook trout taken in the experimental sections, 1941-1944

| | 1941 | 1942 | 1943 | 1944 |
|---|---|---|---|---|
| Av. length | 7.7 | 7.6 | 7.5 | 7.7 |
| Av. weight | 2.5 | 2.48 | 2.6 | 2.5 |

The average length of trout by sections was slightly larger than that listed for the 1943 season.

Average size of brook trout by sections, Hunt Creek 1943, 1944

| Section | Average length 1943 | Average length 1944 | Average weight 1943 | Average weight 1944 |
|---|---|---|---|---|
| A | 7.4 | 7.6 | 2.4 | 2.4 |
| B | 7.6 | 7.6 | 2.7 | 2.6 |
| C | 7.6 | 7.9 | 2.5 | 2.7 |
| D | 7.7 | 7.9 | 2.8 | 2.6 |
| E | | 7.6 | | 2.6 |

The average weight of brook trout taken in 1944 was either the same or fell short of the 1943 figures with the exception of the average size of trout removed from Section C. Fish from this section were 0.2 ounces heavier than the average trout caught in 1943 from those waters.

The best average size of trout taken by two-week periods varied as follows: the largest average size of brook trout taken in Section A were caught from June 24-July 7, while in Section B they were removed during the period July 22-August 4. Section C yielded its best fish in the first 2 weeks of the season. The best fish removed in Section D were caught between June 10-June 23. This apparently was the peak period for Section D since more fish of better average size were taken during that period than for any other period during the season. The best average size trout taken in Section E were caught during the final period of the season. Trout of better average size for all sections combined were caught from June 10-June 23.

There apparently was no particular time when larger fish were taken in all sections simultaneously.

## Relationship between Angling Pressure and Fish Yield in the Experimental Sections of Hunt Creek (Table 13a)

This subject will be discussed in a separate report but the figures are presented for the convenience of the reader in Table 13a.

## Angling Results on Other Waters in the Experimental Area

### Hunt Creek below Section A (Table 14)

This section of stream joins with the lower end of Section A and extends for approximately 3/4 miles downstream. Only a partial census of this stream area was carried on, so the data are incomplete. To contact all anglers who entered and left the stream via the lower end of this section was not possible with the personnel available, so only those anglers who entered and left the stream at the "A" Bridge, or who at least

left by that route were contacted.

This section of stream was visited by at least 197 anglers during the 1944 season. Slightly more than half that number (53 per cent) left the stream without a legal trout. During the angling time recorded (494.75 hours) anglers removed 333 legal trout, a catch per hour of 0.67. Nearly 45 pounds (44.85) of legal brook trout were removed from these waters, a per hour take of 0.091 pounds.

The average size of trout taken by anglers was 7.6 inches and 2.47 ounces.

Anglers reported catching 1,981 sublegal trout which they returned to the stream at the rate of 4.00 fish per hour. In addition to this number they caught 22 undersize fish between 6 1/2 and 7 inches which they did not return to the stream, which weighed 2.47 pounds.

Anglers experienced some phenomenal fishing over these waters from May 13 through May 26 when 13 fishermen, only two of whom were unsuccessful, caught 84 legal trout in 37.75 hours fishing--a catch per hour of 2.23 brook trout. The quality of the fishing up to June 24 was better than average ranging from 0.76 to 2.33 trout per hour. From that date to the close of the season the angling quality was only fair to poor. During the last period of the season (August 19 through September 4) anglers caught only 0.16 legal trout per hour and 78 per cent of them caught no legal fish whatsoever.

Fuller Creek (Table 15)

In 1944, 96 anglers fished this tributary stream. About two-thirds that number (64 out of 96) took no fish in the 144.75 angling hours recorded. Successful anglers caught 61 legal trout over this period of time, a rate of capture of 0.42 fish per hour. The angling quality (catch per hour) computed by two-week periods varied from 1.26 for the period June 10 to June 23 to 0.14--the catch per hour for the period July 8 through July 21.

A total of 8 1/3 pounds of legal trout were removed from this stream during the season, a removal rate of 0.058 pounds per hour.

The average size of legal trout taken was 7.5 inches and 2.34 ounces.

Anglers caught and returned to the stream 7.17 sublegal trout at the rate of 4.95 fish per hour. They also caught 10 undersize fish which were not returned to the stream. The latter were all more than 6 1/2 inches long, and weighed 1.10 pounds.

Fuller Creek Beaver Pond (Table 16)

This beaver pond which lies near the headwaters of this stream has been inactive since about 1939. The pond was rather heavily fished in 1939, 1940, and 1941, until the dam rotted, and the water level lowered in the summer of 1941. The pond level since that date has become progressively lower, and at present is nearly confined to its original channel and normal stream level.

This pond, for the past few years, has received little fishing, primarily because of the drop in water level. It is nearly impossible to maneuver a boat or raft on the pond at its present level because of the accumulations of silt plus dense Chara beds, and it is not feasible to wade much of the soft bottom. To the average angler this is difficult water to fish. There were a few anglers in 1944, however, who were able to approach the likely pools without causing too much disturbance.

They caught 36 legal trout in 5.5 hours fishing--6.54 legal trout per hour. None of the anglers were unsuccessful in their angling efforts. The legal trout taken averaged 7.54 inches and 2.26 ounces.

A total of 4.67 pounds of trout[4] were removed during the season--a catch of 0.849 pounds per hour!

Sublegal trout were caught and returned to the pond at the rate of 5.63 fish per hour.

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[4] Actually anglers caught 36 legal trout but 3 were returned to the stream. This is the total weight of only 33 legal trout.

## Number and Percentage of Angling Days Recorded in the Capture of Various Numbers of Legal Brook Trout in the experimental sections of Hunt Creek (Table 17)

A little more than half (181 or 53.2 per cent) of the 340 angling days recorded for the experimental waters in 1944 were unsuccessful in regard to legal fish taken. Anglers who were successful (159) caught at least one and not more than nine trout. At least 94.9 per cent (151 out of 159) of this number caught less than six legal trout. Eight fishermen caught from six to ten trout. Four anglers caught six fish, two seven, and one eight, and another nine trout in a day's fishing.

Of the fishermen taking from one to six fish, 21.5 per cent caught one trout, 10.9 per cent two fish, and 6.2, 3.2, and 2.6 per cent, 3, 4, and 5 trout respectively.

Judging from the angling success that anglers had the sections might be rated in this order: Section A first, where only 42.4 per cent of the anglers were unsuccessful and the only section where several anglers (8) caught more than five fish, Section B second, where 42.7 per cent of the anglers took no fish, and Section D, C, and E, third, fourth, and fifth where 61.9, 62.1, and 62.5 per cent of the anglers reported unsuccessful fishing.

## Residence of Anglers (Table 18)

Anglers fishing the experimental waters in 1944 came from 23 different counties in the state, all in the lower peninsula, and from one state other than Michigan (Ohio).

The most frequent visitors, as one might suspect in these gas-rationed times, were the local (Montmorency County) anglers, followed by anglers from Wayne, Genesee, Oakland, and St. Clair and 18 other counties in the state.

A tally of the residence of anglers using the Hunt Creek area

(experimental waters, Section Below A, East Fish Lake, Fuller Creek, and the Fuller Creek Beaver Pond) follows nearly the same residence pattern as that for the experimental waters only. The five leading counties of residence being, Montmorency, Wayne, Genesee, Oakland, and Washtenaw. In addition to these, anglers were contacted from 28 other counties, all in the lower peninsula and from two other states, Ohio and North Dakota. Out-of-state anglers were more than six times as numerous as in 1943.

Local residents seem to be the dominant fishermen in the area and in spite of fluctuations in the number of angling days the past few years, the number of local anglers using the area is gradually increasing. In 1940, 187 Montmorency County anglers fished in the Hunt Creek area; 1941, 201 fished the experimental waters; in 1942, 204; in 1943, 257; and in 1944, 314.[5] Perhaps one explanation for this increase in local anglers has been the necessity for a meat substitute requiring no ration points.

INSTITUTE FOR FISHERIES RESEARCH

By David S. Shetter and Pat Galvin

Approved by: A. S. Hazzard

Typed by: M. Klaphaak

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[5] Only anglers fishing the experimental waters were listed.

Table 1

Angling results on Section "A," Hunt Creek, 1944 trout season

| Period | No. of anglers | Number taking no fish | Per cent taking no fish | Total hours angling | Legal brook trout: Number caught | Legal brook trout: Catch per hour | Sublegal brook trout: Number returned | Sublegal brook trout: Catch per hour | Total wt. legal trout | Average weight legal trout: Grams | Average weight legal trout: Ounces | Wt. legal trout/hour (pounds) | Average length legal trout |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| April 29-May 12 | 17 | 6 | 35.29 | 40.00 | 36 (3✓) | 0.90 | 158 | 3.95 | 2,129 | 64.51 | 2.28 | 0.117 | 191.5 |
| May 13-May 26 | 6 | 3 | 50.00 | 12.50 | 22 (3✓) | 1.76 | 89 | 7.12 | 1,288 | 67.78 | 2.39 | 0.227 | 194.7 |
| May 27-June 9 | 9 | 4 | 44.44 | 15.00 | 29 (7✓) | 1.93 | 116 | 7.73 | 1,416 | 64.36 | 2.27 | 0.208 | 184.6 |
| June 10-June 23 | 5 | 2 | 40.00 | 15.50 | 9 (6✓) | 0.58 | 70 | 4.52 | 212 | 70.66 | 2.49 | 0.030 | 195.7 |
| June 24-July 7 | 10 | 6 | 60.00 | 20.00 | 5 | 0.25 | 75 | 3.75 | 377 | 75.40 | 2.67 | 0.042 | 204.4 |
| July 8-July 21 | 7 | 3 | 42.85 | 7.50 | 8 | 1.07 | 52 | 6.93 | 516 | 64.50 | 2.28 | 0.152 | 189.4 |
| July 22-Aug. 4 | 10 | 4 | 40.00 | 15.50 | 17 (1✓) | 1.10 | 115 | 7.42 | 1,134 | 70.87 | 2.50 | 0.161 | 195.1 |
| Aug. 5-Aug. 18 | 10 | 2 | 20.00 | 14.50 | 23 | 1.59 | 59 | 4.07 | 1,644 | 71.47 | 2.52 | 0.250 | 196.1 |
| Aug. 19-Sept. 4 | 11 | 6 | 54.54 | 11.00 | 7 | 0.64 | 22 | 2.00 | 408 | 58.28 | 2.06 | 0.082 | 185.1 |
| Totals and Averages | 85 | 36 | 42.35 | 151.50 | 156 (20✓) | 1.02 | 756 | 4.99 | 9,124 | 67.09 | 2.37 | 0.133 | 192.1 |

✓ Number in caret shows number of legal fish captured and released.

Table 2

Angling results for Section "B," Hunt Creek, 1944 trout season

| Period | No. of anglers | Number taking no fish | Per cent taking no fish | Total hours angling | Legal brook trout | | Sublegal brook trout | | Total wt. legal trout | Average weight legal trout | | Wt. legal trout/hour (pounds) | Average length legal trout |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Number caught | Catch per hour | Number returned | Catch per hour | | Grams | Ounces | | |
| April 29-May 12 | 17 | 12 | 70.59 | 25.50 | 13 | 0.51 | 114 | 4.47 | 714 | 54.92 | 1.94 | 0.062 | 183.5 |
| May 13-May 26 | 6 | 2 | 30.00 | 6.25 | 6(1) | 0.96 | 42 | 6.72 | 430 | 86.00 | 3.03 | 0.152 | 205.5 |
| May 27-June 9 | 3 | 0 | 00.00 | 5.00 | 6(2) | 1.20 | 49 | 9.80 | 286 | 71.50 | 2.52 | 0.126 | 198.8 |
| June 10-June 23 | 1 | 1 | 100.00 | 2.00 | 0 | 0.00 | 7 | 3.50 | ... | ... | ... | ... | ... |
| June 24-July 7 | 13 | 6 | 46.15 | 30.50 | 15(1) | 0.49 | 121 | 3.97 | 1,157 | 82.64 | 2.91 | 0.084 | 199.3 |
| July 8-July 21 | 6 | 1 | 16.67 | 12.75 | 5 | 0.39 | 85 | 6.67 | 342 | 68.50 | 2.42 | 0.059 | 193.0 |
| July 22-Aug. 4 | 5 | 2 | 40.00 | 5.50 | 4 | 0.73 | 32 | 5.82 | 364 | 91.00 | 3.21 | 0.149 | 212.7 |
| Aug. 5-Aug. 18 | 6 | 1 | 16.67 | 13.00 | 15 | 1.15 | 45 | 3.46 | 1,103 | 73.53 | 2.59 | 0.187 | 198.9 |
| Aug. 19-Sept. 4 | 11 | 4 | 36.36 | 23.00 | 13 | 0.57 | 65 | 2.83 | 962 | 74.00 | 2.61 | 0.092 | 197.6 |
| Totals and Averages | 68 | 29 | 42.65 | 123.50 | 77(4) | 0.62 | 560 | 4.53 | 5,358 | 72.40 | 2.55 | 0.096 | 193.7 |

(✓) Number in caret shows number of legal fish captured and released.

Table 3

Angling results for Section "C," Hunt Creek, 1944 trout season

| Period | No. of anglers | Number taking no fish | Per cent taking no fish | Total hours angling | Legal brook trout | | Sublegal brook trout | | Total wt. legal trout | Average weight legal trout | | Wt. legal trout/hour (pounds) | Average length legal trout |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Number caught | Catch per hour | Number returned | Catch per hour | | Grams | Ounces | | |
| April 29-May 12 | 17 | 11 | 64.71 | 45.75 | 11 | 0.24 | 101 | 2.21 | 944 | 85.82 | 3.03 | 0.045 | 210.5 |
| May 13-May 26 | 16 | 12 | 75.00 | 30.75 | 6 | 0.20 | 143 | 4.65 | 434 | 72.33 | 2.55 | 0.031 | 198.3 |
| May 27-June 9 | 5 | 2 | 40.00 | 5.50 | 4 | 0.73 | 40 | 7.27 | 299 | 74.75 | 2.64 | 0.120 | 195.8 |
| June 10-June 23 | 5 | 5 | 100.00 | 7.75 | 0 | 0.00 | 83 | 10.71 | ... | ... | ... | ... | ... |
| June 24-July 7 | 16 | 10 | 62.50 | 23.00 | 14 | 0.61 | 127 | 5.52 | 994 | 71.00 | 2.50 | 0.095 | 194.4 |
| July 8-July 21 | 1 | 1 | 100.00 | 2.50 | 0 | 0.00 | 12 | 4.80 | ... | ... | ... | ... | ... |
| July 22-Aug. 4 | 4 | 2 | 50.00 | 5.50 | 2 | 0.36 | 13 | 2.36 | 165 | 82.50 | 2.91 | 0.066 | 208.5 |
| Aug. 5-Aug. 18 | 2 | 1 | 50.00 | 5.50 | 5 | 0.91 | 24 | 4.80 | 362 | 72.40 | 2.55 | 0.145 | 197.0 |
| Aug. 19-Sept. 4 | 21 | 10 | 47.62 | 37.50 | 20 | 0.53 | 100 | 2.67 | 1,477 | 73.85 | 2.60 | 0.087 | 197.5 |
| Totals and Averages | 87 | 54 | 62.06 | 163.75 | 62 | 0.38 | 643 | 3.93 | 4,675 | 75.40 | 2.66 | 0.063 | 199.4 |

Table 4

Angling results for Section "D," Hunt Creek, 1944 Trout Season

| Period | No. of anglers | Number taking no fish | Per cent taking no fish | Total hours angling | Legal brook trout: Number caught | Legal brook trout: Catch per hour | Sublegal brook trout: Number returned | Sublegal brook trout: Catch per hour | Total wt. legal trout | Average weight legal trout: Grams | Average weight legal trout: Ounces | Wt. legal trout/hour (pounds) | Average length legal trout |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| April 29-May 12 | 12 | 10 | 83.33 | 19.00 | 4 | 0.21 | 49 | 2.58 | 203 | 50.75 | 1.79 | 0.024 | 181.3 |
| May 13-May 26 | 15 | 11 | 73.33 | 22.50 | 6 | 0.27 | 116 | 5.16 | 463 | 77.16 | 2.72 | 0.045 | 195.3 |
| May 27-June 9 | 8 | 3 | 37.50 | 14.00 | 9 | 0.64 | 83 | 5.93 | 580 | 64.44 | 2.27 | 0.091 | 190.9 |
| June 10-June 23 | 16 | 8 | 50.00 | 38.75 | 17 | 0.44 | 239 | 6.17 | 1,507 | 88.64 | 3.13 | 0.086 | 225.1 |
| June 24-July 7 | 14 | 6 | 42.86 | 29.00 | 15 | 0.52 | 135 | 4.66 | 988 | 65.87 | 2.32 | 0.075 | 190.0 |
| July 8-July 21 | 4 | 4 | 100.00 | 14.75 | 0 | 0.00 | 5 | 0.34 | ... | ... | ... | ... | ... |
| July 22-Aug. 4 | 5 | 4 | 80.00 | 6.00 | 2 | 0.33 | 14 | 2.33 | 136 | 68.00 | 2.40 | 0.050 | 183.0 |
| Aug. 5-Aug. 18 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Aug. 19-Sept. 4 | 18 | 11 | 61.11 | 37.75 | 11 | 0.29 | 85 | 2.25 | 841[1] | 76.44 | 2.70 | 0.042 | 195.3 |
| Totals and Averages | 92 | 57 | 61.96 | 181.75 | 64 | 0.35 | 726 | 3.99 | 4,718 | 73.62 | 2.60 | 0.056 | 200.3 |

[1] Length and weight of 9 fish. Two fish neither weighed nor measured were assigned the average weight for the period to arrive at the total weight removed.

Table 5

Angling results for Section "E," Hunt Creek, 1944 trout season

| Period | No. of anglers | Number taking no fish | Per cent taking no fish | Total hours angling | Legal brook trout | | Sublegal brook trout | | Total wt. legal trout | Average weight legal trout | | Wt. legal trout/hour (pounds) | Average length legal trout |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Number caught | Catch per hour | Number returned | Catch per hour | | Grams | Ounces | | |
| April 29-May 12 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| May 13-May 26 | 2 | 1 | 50.00 | 1.00 | 1 | 1.00 | 7 | 7.00 | 70 | 70.00 | 2.47 | 0.154 | 193.0 |
| May 27-June 9 | 1 | 1 | 100.00 | 1.50 | 0 | 0.00 | 10 | 6.67 | ... | ... | ... | ... | ... |
| June 10-June 23 | 2 | 2 | 100.00 | 5.50 | 0 | 0.00 | 70 | 12.73 | ... | ... | ... | ... | ... |
| June 24-July 7 | 1 | 0 | 00.00 | 5.00 | 1 | 0.20 | 30 | 6.00 | 53 | 53.00 | 1.87 | 0.023 | 180.0 |
| July 8-July 21 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| July 22-Aug. 4 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Aug. 5-Aug. 18 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Aug. 19-Sept. 4 | 2 | 1 | 50.00 | 6.50 | 3 | 0.46 | 10 | 1.54 | 223 [1] | 74.33 | 2.62 | 0.076 | 196.3 |
| Totals and Averages | 8 | 5 | 62.50 | 19.50 | 5 | 0.26 | 127 | 6.51 | 346 | 69.20 | 2.44 | 0.039 | 192.4 |

[1] Curve weights

Table 6

Angling results for All Sections (A,B,C,D,E) Combined, Hunt Creek, 1944 trout season

| Period | No. of anglers | Number taking no fish | Per cent taking no fish | Total hours angling | Legal brook trout: Number caught | Legal brook trout: Catch per hour | Sublegal brook trout: Number returned | Sublegal brook trout: Catch per hour | Total wt. legal trout | Average weight legal trout: Grams | Average weight legal trout: Ounces | Wt. legal trout/hour (pounds) | Total length legal trout | Average length legal trout |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| April 29-May 12 | 63 | 39 | 61.90 | 130.25 | 64 (3) | 0.48 | 422 | 3.24 | 3,990 | 65.40 | 2.31 | 0.068 | 11,744 | 192.5 |
| May 13-May 26 | 45 | 29 | 64.44 | 73.00 | 41 (4) | 0.56 | 397 | 5.44 | 2,685 | 71.38 | 2.52 | 0.073 | 6,665 | 196.0 |
| May 27-June 9 | 26 | 10 | 38.46 | 41.00 | 48 (9) | 1.17 | 298 | 7.27 | 2,581 | 66.18 | 2.33 | 0.139 | 7,358 | 188.7 |
| June 10-June 23 | 29 | 18 | 62.06 | 69.50 | 26 (6) | 0.37 | 469 | 6.75 | 1,719 | 85.95 | 3.03 | 0.055 | 4,415 | 220.8 |
| June 24-July 7 | 54 | 28 | 51.85 | 107.50 | 50 (1) | 0.47 | 488 | 4.54 | 3,569 | 72.84 | 2.57 | 0.073 | 9,563 | 195.2 |
| July 8-July 21 | 18 | 9 | 50.00 | 37.50 | 13 | 0.35 | 154 | 4.11 | 858 | 66.00 | 2.33 | 0.050 | 2,480 | 190.8 |
| July 22-Aug. 4 | 24 | 12 | 50.00 | 32.50 | 25 (1) | 0.77 | 174 | 5.35 | 1,799 | 74.96 | 2.64 | 0.122 | 4,756 | 198.2 |
| Aug. 5-Aug. 18 | 18 | 4 | 22.22 | 33.00 | 43 | 1.30 | 128 | 3.88 | 3,109 | 72.30 | 2.55 | 0.208 | 8,478 | 197.2 |
| Aug. 19-Sept. 4 | 63 | 32 | 50.79 | 115.75 | 54 | 0.47 | 282 | 2.44 | 3,911 | 72.27 | 2.55 | 0.072 | 10,161 | 195.4 |
| Totals and Averages | 340 | 181 | 53.24 | 640.00 | 364 (24) | 0.57 | 2,812 | 4.42 | 24,221 | 71.07 | 2.51 | 0.083 | 65,620 | 195.9 |

✓ Number in caret indicates number of legal fish caught and returned.

Table 7

Comparison of 1944 yield of experimental sections, Hunt Creek, with 1939-1944 average yields. (Actual numbers and pounds of legal brook trout taken are given in parentheses.)

| Stream section | Dimensions (in feet) Length | Average width | Area (in acres) | Yield per acre, 1944, in Pounds | Numbers | Average yield per acre, 1939-1944 in Pounds | Numbers |
|---|---|---|---|---|---|---|---|
| A | 2,577 | 24.3 | 1.44 | 13.9 (20.12) | 108 (156) | 13.9 (120.16) | 98 (847) |
| B | 1,605 | 17.5 | 0.64 | 18.5 (11.81) | 120 (77) | 12.2 (46.89) | 77 (297) |
| C | 3,970 | 11.8 | 1.07 or 0.71 | 14.5 (10.31) | 87 (62) | 25.4 (108.14) | 158 (674) |
| D | 2,386 | 21.5 | 1.18 | 8.8 (10.40) | 54 (64) | 19.2 (135.66) | 127 (901) |
| E | 1,250 | 11.8 | 0.36 | 2.1 (0.76) | 14 (5) | 15.7 (28.22) | 101 (182) |
| Totals, Averages | 11,788 | 17.4 | 4.33 or 4.69 | 12.3 (53.39) | 84 (364) | 16.7 (439.07) | 110 (2,903) |

Table 8

Summary of marked wild and hatchery-reared fingerling brook trout released in Section C in 1939 and 1940 and recovered in the experimental sections as legal trout in subsequent years

| Section where caught | 1939 experiment Left pectoral 1,000 wild fish | Right pectoral 1,000 hatchery fish | 1940 experiment Left pectoral 500 wild fish | Right pectoral 464 hatchery fish |
|---|---|---|---|---|
| A | ... | 2 | ... | ... |
| B | ... | ... | ... | ... |
| C | ... | ... | 1 | ... |
| D | ... | ... | ... | ... |
| E | ... | ... | ... | ... |
| Totals 1944 | 0 | 2 | 1 | 0 |
| Totals '40, '41, '42, '43 | 26 $\checkmark^{3}$ | 3 | 23 $\checkmark^{1}$ | 6 $\checkmark^{4}$ |
| Grand totals | 26 | 5 | 24 | 6 |
| Per cent recovered as legal fish to date | 2.6 | 0.5 | 4.8 | 1.3 |

$\checkmark$ Number in caret indicates number of fish recovered outside the experimental sections.

Table 9

Recovery by angling of marked sublegal trout recovered as legal trout during the 1944 fishing season. (Percentage of recovery given in parentheses.)

| Size group | Number of fish at tagging | | | | | Number of fish recovered as legal | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | Totals | A | B | C | D | Totals |
| 125-134 | 2 | 10 | 11 | 2 | 25 | 1 (50.00) | 0 | 0 | 0 | 1 (4.00) |
| 135-144 | 10 | 17 | 19 | 4 | 50 | 0 | 0 | 1 (5.26) | 0 | 1 (2.00) |
| 145-154 | 13 | 10 | 8 | 2 | 33 | 0 | 0 | 1 (12.50) | 0 | 1 (3.03) |
| 155-164 | 8 | 6 | 4 | 1 | 19 | 1[1] (12.50) | 1 (16.67) | 2[1] (33.33) | 0 | 4 (21.05) |
| 165-174 | 9 | 5 | 8 | 1 | 23 | 1 (11.11) | 1 (20.00) | 4 (50.00) | 1 (100.00) | 7 (30.43) |
| 174 and over | 1 | 1 | ... | ... | 2 | 0 | 0 | 0 | 0 | 0 |
| ? | 1 | 1 | ... | ... | 2 | 0 | 0 | 0 | 0 | 0 |
| Totals | 44 | 50 | 50 | 10 | 154 | 3 (6.82) | 2 (4.00) | 8 (16.00) | 1 (10.00) | 14 (9.09) |
| Legal catch 1944 | ... | ... | ... | ... | ... | 156 | 77 | 62 | 64 | 364 |
| % of total catch made up of sublegal fish growing into legal class | ... | ... | ... | ... | ... | 1.9 | 2.6 | 12.9 | 1.5 | 3.5 |

[1] Fish actually recovered as sublegal fish (175 & 176 & 176) but which would easily reach legal size in a few days.

Table 10

The contribution of the tributaries to the legal trout catch of the anglers in and below the experimental sections of Hunt Creek in the 1942 and 1943 trout seasons.

| Item | Number of tagged brook trout moving from tributaries entering anglers' catches of main stream in various years | | | | | |
|---|---|---|---|---|---|---|
| | Experimental area | | | Below Section A | | |
| | 1942 | 1943 | 1944 | 1942 | 1943 | 1944 |
| Tributary 2 | 1 | 1 | 1 | 1 | 3 | ... |
| Tributary 3 | 3 | 7 | 6 | 2 | 3 | 2 |
| Tributary 4 | ... | 2 | 4 | ... | ... | ... |
| Tributary 5 | ... | ... | ... | ... | ... | ... |
| Totals | 4 | 10 | 11 | 3 | 6 | 2 |
| Anglers' catch | 543 | 379 | 364 | 352 | 233 | 333 |
| % of total catch originating in tributaries | 0.7 | 2.6 | 3.0 | 0.8 | 2.5 | 0.6 |

Table 10a

Number of marked brook trout caught by anglers in Hunt Creek in 1944 which originated in the tributaries, showing growth and movement

| Section of recovery | Tag number | Where tagged | When tagged | Size at tagging (mm.) | Size at recovery | Gain (mm.) | Days out |
|---|---|---|---|---|---|---|---|
| Below A | 18663 | Tributary 3 | 4/16/42 | 116 | 203 | 87 | 771 |
| " " | 36777 | Upper 3 | 5/27/44 | 187 | 192 | 5 | 2 |
| Section A | 39617 | Tributary 3 | 4/14/43 | 146 | 194 | 48 | 392 |
| " " | 18640 | " " | 4/15/42 | 123 | 195 | 72 | 763 |
| " " | 40255 | " " | 11/9/43 | 173 | 181 | 8 | 200 |
| " " | 36547 | " " | 10/30/42 | 113 | 190 | 77 | 581 |
| " " | 36663 | Tributary 2 | 7/7/43 | 179 | 245 | 66 | 401 |
| " " | 40222 | Tributary 3 | 10/18/43 | 124 | 200 | 76 | 303 |
| " " | 40267 | Tributary 4 | 11/15/43 | 115 | 183 | 68 | 375 |
| " " | 36762 | Tributary 3 | 11/14/43 | 175 | 193 | 18 | 282 |
| Section B | 39800 | Tributary 4 | 10/29/43 | 138 | 212 | 74 | 268 |
| Section C | 36749 | Tributary 4 | 10/28/42 | 99 | 191 | 92 | 650 |
| " " | 36668 | " " | 10/5/42 | 108 | 177 | 69 | 695 |
| Totals | ... | ... | ... | 1,796 | 2,556 | 760 | 5,683 |
| Averages | ... | ... | ... | 138.1 | 196.6 | 58.4 | 437.1 |

Table 11

Percentage of the total catch of certain stream sections from special pools, 1940-1943. (Figures in parentheses give actual numbers of fish and pounds of fish from the pool/from the section.)

| Pool and Section | % of total area of section in pool | % of total catch of section in 1940 in | | % of total catch of section in 1941 in | | % of total catch of section in 1942 in | | % of total catch of section in 1943 in | | % of total catch of section in 1944 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Number | Pounds | Number | Pounds | Number | Pounds | Number | Pounds | Number | Pounds |
| Pool 1 Section A | 2.6 | 1.3 (2/152) | 1.3 (0.28/20.75) | 17.4 (22/126) | 16.4 (2.9/17.61) | 18.3 (25/136) | 12.2 (4.51/21.29) | 7.4 (10/136) | 6.9 (1.4/20.37) | 3.2 (5/154) | 3.6 (0.734/20.12) |
| Pool 2 Section A | 2.8 | 2.0 (3/152) | 2.4 (0.5/20.75) | 11.1 (14/126) | 11.8 (2.1/17.61) | 5.8 (8/136) | 5.2 (1.12/21.29) | 4.4 (6/136) | 4.4 (0.9/20.37) | 2.6 (4/154) | 4.0 (0.798/20.12) |
| Beaver Dam [1] | 18.6 | 18.7 (17/91) | 17.6 (2.4/13.62) | 16.2 (41/252) | 14.6 (5.9/40.49) | 12.8 (25/196) | 12.5 (3.53/28.26) | 0 | 0 | 0 | 0 |

[1] Not fished by any anglers in 1943 and 1944.

Table 11a

Average length and weight of brook trout taken in Pools 1 and 2 during the 1944 trout season. (Lengths in mm., weights in grams)

| Item | Pool 1 | | Pool 2 | |
|---|---|---|---|---|
| | Length | Weight | Length | Weight |
| ... | 185 | 60 | 179 | 50 |
| ... | 200 | 70 | 201 | 64 |
| ... | 201 | 78 | 245 | 138 |
| ... | 206 | 72 | 200 | 80 |
| ... | 183 | 53 | ... | ... |
| Totals | 975 | 333 | 825 | 332 |
| Averages | 195 | 66.6 | 206 | 83.0 |

Table 12

The average size of brook trout caught by anglers from the experimental waters of Hunt Creek in the 1944 trout season, given in millimeters and grams. Season averages also are given in inches and ounces. (Figures in parentheses indicate numbers of specimens from which the averages were determined.)

| Period | Section A | | Section B | | Section C | | Section D | | Section E | | Totals | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Length | Weight | Length | Weight | Length | Weight | Length | Weight | Length | Weight | Length | Weight |
| April 29-May 12 | 191.5 (33) | 64.51 | 183.5 (13) | 54.92 | 210.5 (11) | 85.82 | 181.3 (4) | 50.75 | ... | ... | 192.5 (61) | 65.40 |
| May 13-May 26 | 194.7 (19) | 67.78 | 205.5 (2) | 86.00 | 198.3 (6) | 72.33 | 195.3 (6) | 77.16 | 193.0 (1) | 70.00 | 196.0 (34) | 71.38 |
| May 27-June 9 | 184.6 (22) | 64.36 | 198.8 (4) | 71.50 | 195.8 (4) | 74.75 | 190.9 (9) | 64.44 | ... | ... | 188.7 (39) | 66.18 |
| June 10-June 23 | 195.7 (3) | 70.66 | ... | ... | ... | ... | 225.1 (17) | 88.64 | ... | ... | 220.8 (20) | 85.95 |
| June 24-July 7 | 204.4 (5) | 75.40 | 199.3 (14) | 82.64 | 194.4 (14) | 71.00 | 190.0 (15) | 65.87 | 180.0 (1) | 53.00 | 195.2 (49) | 72.84 |
| July 8-July 21 | 189.4 (8) | 64.50 | 193.0 (5) | 68.50 | ... | ... | ... | ... | ... | ... | 190.8 (13) | 66.00 |
| July 22-Aug. 4 | 195.1 (16) | 70.87 | 212.7 (4) | 91.00 | 208.5 (2) | 82.50 | 183.0 (2) | 68.00 | ... | ... | 198.2 (24) | 74.96 |
| Aug. 5-Aug. 18 | 196.1 (23) | 71.47 | 198.9 (15) | 73.53 | 197.0 (5) | 72.40 | ... | ... | ... | ... | 197.2 (43) | 72.30 |
| Aug. 19-Sept. 4 | 185.1 (7) | 58.28 | 197.6 (13) | 74.00 | 197.5 (20) | 73.85 | 195.3 (9) | 76.44 | 196.3 (3) | 74.33 | 195.4 (52) | 72.27 |
| Averages | 192.1 (136) | 67.09 | 193.7 (70) | 72.86 | 199.4 (62) | 75.40 | 200.3 (62) | 73.62 | 192.4 (5) | 69.20 | 195.9 (335) | 71.07 |
| Averages inches and ounces | 7.6 | 2.37 | 7.6 | 2.57 | 7.9 | 2.66 | 7.9 | 2.60 | 7.6 | 2.62 | 7.7 | 2.51 |

Table 13a

Summary of the average pressure, yield, and angling quality for the various experimental sections of Hunt Creek, and the percentage variation of each from the 1939-1944 average.

| Section | Area in acres | Av. pressure per acre 1939-1944 | Percentage variation in pressure per acre from 6 year average for season of 1939 | 1940 | 1941 | 1942 | 1943 | 1944 |
|---|---|---|---|---|---|---|---|---|
| A | 1.44 | 152 | -9.21 | +35.2 | +44.1 | -13.2 | -25.7 | -30.9 |
| B | 0.64 | 135 | -61.50 | 00.0 | -13.3 | +46.7 | -13.6 | +43.0 |
| C | 1.07 or 0.71 | 348 | -29.30 | -30.2 | +79.3 | +58.3 | -45.4 | -33.6 |
| D | 1.18 | 274 | -18.60 | -22.3 | +76.3 | +58.8 | -50.0 | -43.8 |
| E | 0.36 | 124 | ... | -82.3 | +218.5 | +3.2 | -82.3 | -56.5 |
| Totals and averages | 4.33 or 4.69 | 224 | -19.60 | -7.1 | +74.1 | +30.8 | -44.2 | -34.4 |

| Section | Area in acres | Av. yield per acre 1939-1944 | Percentage variation in yield per acre from the 6 year average for the season of: 1939 | 1940 | 1941 | 1942 | 1943 | 1944 |
|---|---|---|---|---|---|---|---|---|
| A | 1.44 | 13.9 | 00.0 | +3.6 | -12.2 | +6.5 | +1.4 | +0.7 |
| B | 0.64 | 12.2 | -86.1 | -13.9 | -33.6 | +41.8 | +40.1 | +51.6 |
| C | 1.07 or 0.71 | 25.4 | -41.3 | -33.9 | +76.0 | -3.9 | -24.0 | -42.9 |
| D | 1.18 | 19.2 | +31.8 | -40.1 | +78.6 | -24.5 | -41.1 | -55.2 |
| E | 0.36 | 15.7 | ... | -76.4 | +273.9 | -32.5 | -79.0 | -86.6 |
| Totals and averages | 4.33 or 4.69 | 16.7 | -7.8 | -23.4 | +60.5 | +14.9 | -18.0 | -26.5 |

| Section | Area in acres | Av. lbs. per hour 1939-1944 | Percentage variation in pounds of fish caught per hour from 6 year average for season of: 1939 | 1940 | 1941 | 1942 | 1943 | 1944 |
|---|---|---|---|---|---|---|---|---|
| A | 1.44 | 0.092 | +9.8 | -23.9 | -39.1 | +21.7 | +35.9 | +47.8 |
| B | 0.64 | 0.090 | -63.4 | -14.6 | -22.2 | -3.4 | +67.8 | +6.6 |
| C | 1.07 or 0.71 | 0.065 | -6.2 | +6.2 | +10.8 | -26.2 | +53.8 | -3.1 |
| D | 1.18 | 0.070 | +62.9 | -22.9 | +1.4 | -21.4 | +18.5 | -21.4 |
| E | 0.36 | 0.126 | ... | +32.5 | +18.3 | -34.1 | +15.9 | -69.0 |
| Totals and averages | 4.33 or 4.69 | 0.077 | +10.4 | -13.0 | -2.6 | -14.3 | +42.9 | +7.8 |

Table 14

Intensive creel census data for Below "A," Hunt Creek, 1944 trout season

| Period | No. of anglers | Number taking no fish | Per cent taking no fish | Total hours angling | Legal brook trout: Number caught | Legal brook trout: Catch per hour | Sublegal brook trout: Number returned | Sublegal brook trout: Catch per hour | Total wt. legal trout | Average weight legal trout: Grams | Average weight legal trout: Ounces | Wt. legal trout/hour: Grams | Wt. legal trout/hour: Pounds | Average length legal trout |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| April 29-May 12 | 37 | 17 | 45.94 | 88.00 | 67 (4) | 0.76 | 313 | 3.56 | 4,093 | 65.0 | 2.29 | 46.51 | 0.103 | 189.5 |
| May 13-May 26 | 13 | 2 | 15.38 | 37.75 | 84 (23) | 2.23 | 277 | 7.34 | 3,996 | 65.5 | 2.31 | 105.85 | 0.233 | 192.2 |
| May 27-June 9 | 24 | 13 | 54.17 | 50.50 | 43 (4) | 0.85 | 255 | 5.05 | 2,758 | 70.7 | 2.49 | 54.61 | 0.120 | 194.1 |
| June 10-June 23 | 11 | 6 | 54.55 | 20.75 | 28 (7) | 1.35 | 110 | 5.30 | 1,679 | 80.0 | 2.82 | 80.91 | 0.178 | 193.3 |
| June 24-July 7 | 34 | 19 | 55.88 | 94.00 | 43 (1) | 0.46 | 337 | 3.59 | 2,921 | 69.5 | 2.45 | 31.07 | 0.069 | 190.7 |
| July 8-July 21 | 11 | 4 | 36.36 | 20.50 | 14 | 0.68 | 74 | 3.61 | 1,030 | 73.6 | 2.60 | 50.24 | 0.111 | 199.2 |
| July 22-Aug. 4 | 18 | 9 | 50.00 | 54.00 | 24 (3) | 0.44 | 313 | 5.80 | 1,857 | 77.4 | 2.73 | 34.39 | 0.076 | 198.0 |
| Aug. 5-Aug. 18 | 26 | 16 | 61.54 | 62.25 | 19 | 0.31 | 174 | 2.80 | 1,210 | 75.6 | 2.68 | 19.44 | 0.043 | 194.5 |
| Aug. 19-Sept. 4 | 23 | 18 | 78.26 | 67.00 | 11 | 0.16 | 128 | 1.91 | 799 | 72.6 | 2.56 | 11.93 | 0.026 | 195.9 |
| Totals and Averages | 197 | 104 | 52.79 | 494.75 | 333 (42) | 0.67 | 1,981 | 4.00 | 20,343 | 69.9 | 2.47 | | 0.091 | 192.8 |

(✓) Number in caret indicates number of legal trout caught and returned.

Table 15

Intensive creel census data for Fuller Creek and East Fish Lake Outlet, 1944 trout season.

| Period | No. of anglers | Number taking no fish | Per cent taking no fish | Total hours angling | Legal brook trout | | Sublegal brook trout | | Total wt. legal trout | Average weight legal trout | | Wt. legal trout/hour (pounds) | Average length legal trout |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Number caught | Catch per hour | Number returned | Catch per hour | | Grams | Ounces | | |
| April 29-May 12 | 16 | 10 | 62.50 | 21.25 | 17 | 0.80 | 140 | 6.59 | 1,039 | 61.11 | 2.16 | 0.11 | 189.5 |
| May 13-May 26 | 9 | 3 | 33.33 | 14.25 | 8 | 0.56 | 114 | 8.00 | 279[1] | 69.75 | 2.46 | 0.04 | 198.5 |
| May 27-June 9 | 1 | 0 | 00.00 | 2.00 | 2 | 1.00 | 15 | 7.50 | 153 | 76.50 | 2.70 | 0.17 | 195.5 |
| June 10-June 23 | 4 | 1 | 25.00 | 4.75 | 6 | 1.26 | 26 | 5.47 | 450 | 75.00 | 2.65 | 0.21 | 195.7 |
| June 24-July 7 | 32 | 21 | 65.63 | 50.75 | 16 | 0.32 | 222 | 4.37 | 1,163 | 72.69 | 2.56 | 0.05 | 192.6 |
| July 8-July 21 | 19 | 18 | 94.74 | 29.00 | 4 | 0.14 | 122 | 4.21 | 233 | 58.25 | 2.05 | 0.02 | 190.5 |
| July 22-Aug. 4 | 8 | 6 | 75.00 | 12.00 | 4 | 0.33 | 32 | 2.67 | 215 | 53.75 | 1.90 | 0.04 | 182.8 |
| Aug. 5-Aug. 18 | 3 | 2 | 66.67 | 6.75 | 1 | 0.15 | 40 | 5.93 | 55 | 55.00 | 1.94 | 0.02 | 179.0 |
| Aug. 19-Sept. 4 | 4 | 3 | 75.00 | 4.00 | 3 | 0.75 | 6 | 1.50 | 198 | 66.00 | 2.33 | 0.11 | 187.7 |
| Totals and Averages | 96 | 64 | 66.67 | 144.75 | 61 | 0.42 | 717 | 4.95 | 3,785 | 66.40 | 2.34 | 0.058 | 191.1 |

[1] Total weight of 4 fish.

Table 16

Summary of the angling results for the 1944 trout season on the Fuller Creek Beaver Pond.

| Item | Fuller Creek Beaver Pond |
|---|---|
| Number of anglers | 4 |
| Number unsuccessful | 0 |
| Per cent unsuccessful | 00.00 |
| Total hours angling | 5.5 |
| Number of legal trout caught | 36 3/ |
| Catch per hour | 6.54 |
| Number of sublegal trout caught | 31 |
| Catch per hour | 5.63 |
| Total weight of legal trout taken | 2,119 4/ |
| Weight of legal trout removed per hour | |
| Grams | 385.3 |
| Pounds | 0.849 |
| Total length of legal trout | 6,323 4/ |
| Average length of legal trout | 191.6 |
| Average weight of legal trout | |
| Grams | 64.2 |
| Ounces | 2.26 |

4/ Total weight and length of 33 legal trout

3/ 3 legal trout released

Table 17

Number and percentage of angling days recorded in the removal of various numbers of legal brook trout in the experimental sections of Hunt Creek.

| Section | Number and percentage ( ) of fisherman days in which various numbers of legal brook trout were caught | | | | | | | | | | | | | | | | Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | |
| A | 36 (42.4) | 18 (21.2) | 12 (14.1) | 1 (1.1) | 7 (8.3) | 3 (3.6) | 4 (4.7) | 2 (2.4) | 1 (1.1) | 1 (1.1) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 85 (100.00) |
| B | 29 (42.7) | 19 (27.9) | 7 (10.3) | 9 (13.2) | 3 (4.4) | 1 (1.5) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 68 (100.00) |
| C | 54 (62.1) | 17 (19.6) | 9 (10.4) | 3 (3.4) | 1 (1.1) | 3 (3.4) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 87 (100.00) |
| D | 57 (61.9) | 17 (18.5) | 9 (9.8) | 7 (7.6) | 0 (0.0) | 2 (2.2) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 92 (100.00) |
| E | 5 (62.5) | 2 (25.0) | 0 (0.0) | 1 (12.5) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 8 (100.00) |
| Totals | 181 (53.2) | 73 (21.5) | 37 (10.9) | 21 (6.2) | 11 (3.2) | 9 (2.6) | 4 (1.2) | 2 (0.6) | 1 (0.3) | 1 (0.3) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 340 (100.00) |

Table 18

Number of resident anglers by counties and number of non-resident anglers by states fishing in Hunt Creek Area, 1944

| County | Experimental sections | Below A | East Fish Lake | Other sections | Totals |
|---|---|---|---|---|---|
| Alpena | ... | 3 | ... | ... | 3 |
| Arenac | 2 | ... | ... | ... | 2 |
| Antrim | ... | 2 | ... | ... | 2 |
| Bay | 4 | 3 | ... | ... | 7 |
| Calhoun | ... | ... | 1 | ... | 1 |
| Cheboygan | ... | ... | 2 | ... | 2 |
| Clare | 7 | 1 | ... | ... | 8 |
| Clinton | 1 | ... | ... | 2 | 3 |
| Genesee | 32 | 21 | 10 | 9 | 72 |
| Gratiot | ... | ... | 2 | ... | 2 |
| Hillsdale | 2 | 2 | 3 | ... | 7 |
| Ingham | 6 | 13 | 5 | ... | 24 |
| Ionia | ... | 1 | ... | ... | 1 |
| Jackson | 4 | 6 | 14 | 2 | 26 |
| Kent | ... | 1 | ... | ... | 1 |
| Lapeer | 1 | ... | ... | 4 | 5 |
| Livingston | 1 | ... | ... | 1 | 2 |
| Macomb | ... | 4 | 7 | 2 | 13 |
| Midland | 1 | 4 | ... | ... | 5 |
| Montmorency | 96 | 45 | 134 | 39 | 314 |
| Montcalm | ... | ... | 1 | ... | 1 |
| Monroe | 2 | 2 | 1 | ... | 5 |
| Oakland | 21 | 16 | 15 | 4 | 56 |
| Ogemaw | 3 | ... | ... | ... | 3 |
| Oscoda | 10 | 4 | 8 | 1 | 23 |
| Otsego | ... | ... | 9 | ... | 9 |
| St. Clair | 13 | 1 | 7 | ... | 21 |
| Saginaw | 9 | 3 | 7 | ... | 19 |
| Sanilac | 1 | ... | ... | 1 | 2 |
| Shiawassee | 1 | 6 | ... | ... | 7 |
| Tuscola | 11 | ... | 1 | 2 | 14 |
| Washtenaw | 8 | 8 | 13 | 1 | 30 |
| Wayne | 90 | 42 | 55 | 28 | 215 |
| **States** | | | | | |
| Ohio | 14 | 8 | 14 | ... | 36 |
| North Dakota | ... | 1 | ... | ... | 1 |
| Totals | 340 | 197 | 309 | 96 | 942 |