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Report No. 1425

INTENSIVE CREEL CENSUS RESULTS, 1953 TROUT SEASON, HUNT CREEK FISHERIES EXPERIMENT STATION

By

Marvin J. Whalls and David S. Shetter

Abstract

The waters of the Hunt Creek Fisheries Experiment Station were creel-censused intensively during the 1953 brook trout season for the fifteenth consecutive year. The waters included in the creel census were: the experimental sections of Hunt Creek, Fuller Creek, East Fish Lake, and Fuller Creek Pond. An intensive census was feasible because all anglers using the area were required to report to a creel census clerk before and immediately after they fished.

In addition to native brook trout which inhabit the area waters, three other groups of trout were available to the area anglers. Three thousand sublegal rainbow trout were planted on the area on October 22, 1952. Nine hundred and sixteen sublegal brook trout were planted on the area on April 10, 1953. On August 26, 1953, a plant of 400 legal brook trout were put into Hunt Creek. These and another 650 put into East Fish Lake were test plantings by Psychological Research Services (P.R.S.). East Fish Lake anglers also had available to them brook trout from four other plants. Three of these plants consisted of wild trout removed from Hunt Creek and transferred to the lake, and one plant of untrained hatchery trout.

Nine hundred and fifty-eight permits were issued to anglers using the area waters in 1953. Licensees were issued 758 permits; licensees' wives, 95 permits; and minors under 17 years old, 105 permits. Nine "skips"--anglers who failed to report to the census clerk after fishing--occurred during the 1953 season.

Area anglers made 881 fishing trips to the combined sections of Hunt Creek in 1953 and were successful on 391 trips. They fished for a total of 2,153.25 hours to catch 1,309 legal trout plus 28 sublegal trout. The total weight of these fish was 233.55 pounds, divided as follows: 755 wild brook trout, 144.68 pounds; 299 P.R.S. hatchery brook trout, 49.16 pounds; 178 sublegal-plant hatchery brook trout, 28.90 pounds; and 77 hatchery rainbow trout, 10.81 pounds. The total number of sublegal trout reported hooked and released was 4,351.

The most productive fishing for wild brook trout occurred during the opening 14 days of the season when 132 trips involving 298.75 hours of angling were made. During this most lavish period, 195 wild brook trout were creeled to produce the largest catch-per-hour figure for all the two-week periods of the season, namely, one fish caught every 1.5 hours.

Hunt Creek was well populated with anglers during the first two-week period, a normal occurrence as the trout fishermen resume their favorite pastime. The area was also crowded with fishermen during the last two two-week periods.

A summation of the combined creel census records for legal size wild brook trout of all the Hunt Creek area waters from 1939 to 1953 is presented.

Area anglers made 86 fishing trips to Fuller Creek during the season and were successful on 32 trips. They fished for 211.75 hours to creel 88 trout. The total weight of these fish was 14.13 pounds, divided as follows:

84 wild brook trout, 13.58 pounds; one sublegal-plant hatchery brook trout, 0.13 pound; one P.R.S. hatchery brook trout, 0.15 pound; and two rainbow hatchery trout, 0.27 pound. Fuller Creek anglers creeled five sublegal trout, and reportedly released 731 sublegal trout.

Area anglers made 60 fishing trips to Fuller Creek Pond during the 1953 season and were successful on only 18 trips. They fished for 172.00 hours to creel 33 trout weighing 20.39 pounds for a catch-per-hour of 0.19. No sublegal trout were creeled from the pond. Anglers reported hooking and releasing 33 trout shorter than 10 inches.

East Fish Lake anglers made 125 fishing trips to the lake in 1953 and were successful on 26 trips. They fished for 446.00 hours to creel 49 trout, a catch-per-hour of 0.11. The total weight of these fish was 28.47 pounds, divided as follows: 16 native wild trout, 11.21 pounds; four hatchery brook trout, 1.43 pounds; and 29 wild brook trout transferred to the lake from Hunt Creek, 15.83 pounds. The lake anglers retained two sublegal trout. They reported hooking and releasing 150 trout. Rough fish continued to be taken by anglers during the 1953 season.

A summary of the total numbers and weights of trout removed from the area waters during 1953 is as follows: 888 wild brook trout, 189.86 pounds; 300 P.R.S. hatchery brook trout, 49.31 pounds; 179 sublegal-plant hatchery brook trout, 29.03 pounds; 29 wild brook trout transferred from Hunt Creek to East Fish Lake, 15.83 pounds; and 79 hatchery rainbow trout, 11.08 pounds. Area anglers removed the following trout (less than the legal length): 27 wild brook trout, 3.28 pounds; six hatchery rainbow trout, 0.64 pound; and two sublegal-plant hatchery brook trout, 0.23 pound. In addition, Dr. La Verne Curry removed 350 sublegal trout weighing approximately 14 pounds from Hunt Creek. A total number of 1,860 trout weighing 313.26 pounds were

removed from the experimental waters of the Hunt Creek Fisheries Experiment Station during 1953.

Again in 1953, the flies vs. bait angling success was compared. In group 1 waters (streams), fly fishermen were significantly more successful than bait fishermen or anglers who used a combination of lures. In group 2 waters (ponds and the lake), there was no significant difference between the success of anglers using flies, bait, or a combination of flies and bait. In both waters the fly fishermen had more successful trips than the fishermen using other lures.

Worms continued to be the favorite lure of bait fishermen. Of the various baits, worms were used on 82.4 percent of the trips.

For all waters of the area, fly fishermen gave top preference to a size 12 hook; followed by sizes 14, 10, 16, 8, 18, and sizes 6 and 4.

A size 6 hook got top preference from the bait anglers. Following in preference were: sizes 4, 8, 10, 2, and size 12.

The systematic removal of rough fish from East Fish Lake, begun in 1952, was continued in the spring of 1953. During the 77 days that the nets were in operation on the lake, 2,165 white suckers weighing 342.1 pounds were captured and destroyed. Also, 386 northern creek chubs weighing 21.3 pounds were netted and killed. It is still too early to determine whether the removal of rough fish has been beneficial to the trout, but, if so, evidence in the way of an increased trout population should appear during the 1954 season.

Recommendations for future management of East Fish Lake are included in the 1953 report.

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Introduction

The experimental waters of Hunt Creek, Montmorency County, Michigan, were under an intensive creel census for the fifteenth consecutive year during 1953. Angling records were obtained from 2.31 miles of Hunt Creek, 1.87 miles of Fuller Creek, from Fuller Creek Pond, and East Fish Lake. Dimensions are listed in Table 1.

Method of collecting creel census data

Begun in 1949 and continued during 1953, angling on the Hunt Creek experimental waters was controlled by the permit system. All access points on the area were posted prior to the opening of the season with Department signs stating the area regulations, boundaries of the various stream divisions, open or closed areas, and other information which enabled the anglers to report their angling results accurately.

Anglers who used the area waters first stopped at the centrally-located checking station where, after displaying the required license and trout stamp, they were issued a permit for that day and orally briefed on the angling regulations and the information desired from them on the conclusion

of their fishing. As stated on the permits, each angler was required to return to the checking station upon terminating his fishing and report the following information: angler's name, county of residence--state only if angler was not a resident of Michigan, section(s) fished, number, length, weight, sex, and marks (if any) of all fish taken, and the time spent angling. Scale and stomach samples were collected.

Legal-size trout available to the anglers during the 1953 season in addition to native brook trout

Three thousand sublegal rainbow trout (Salmo gairdneri), range 2.8"-5.0," were planted in sections Z, A, B, and C of Hunt Creek on October 22, 1952. These rainbow trout were planted for the purpose of determining the relative survival of jaw-tagged, fin-clipped, and normal fish of similar size under the same habitat conditions. By employing the data obtained from the fall population study and the creel census records, it is estimated that 144 legal size rainbow trout remained in the stream at the close of the 1953 season; and it is known that anglers removed an additional 79 legal size rainbow trout during the season, therefore, approximately 223 rainbow trout were available to the area anglers during the season. The fish resulting from this plant were the only rainbow trout on the area.

Nine hundred and sixteen sublegal brook trout (Salvelinus fontinalis), range 4.7"-6.5" and 6.1" average length, were planted in the open water of the area on April 10, 1953, four hundred and sixty-five in section D of Hunt Creek and 451 in Fuller Creek. These trout were planted to determine the length of time required for sublegal trout of known average size to reach the legal size limit of 7 inches and to determine the relative effect of jaw-tags and fin-clips upon growth. Population estimates and the creel records show that 115 legal size trout remained in section D at the end of

the season and that anglers removed 178 legal size trout during the season, therefore, approximately 293 sublegal-plant brook trout were available to the anglers in section D during the season. The figure for available trout must be considered only a rough estimate as population estimates of section D were fruitful only on beaver pond number three, the largest pond. No population study was made of Fuller Creek so availability of the planted brook trout during the season is unknown. Only one of these fish was recovered by an angler. An indication of the availability of these fish was obtained from data collected on October 13, 1953 by electrofishing. On that date, five emaciated sublegal-plant trout were recovered from Fuller Creek. Their average length was 6.2 inches and their average weight, 0.06 pound. Because of their inability to adjust to the habitat conditions in Fuller Creek, possibly, the majority of this plant did not grow enough to reach legal size during the 1953 season. It is doubtful if many have survived or will survive to enter the 1954 catch. It is possible that some fish from this plant moved upstream into Fuller Creek Pond. Any such movement would be limited.

A plant of 400 legal brook trout were put into sections Z, A, and C. of Hunt Creek on August 26, 1953. These trout were a part of the experimental work being done for the Department by the Psychological Research Services (P.R.S.). The approximate number of these trout available to the area anglers was 368; sixty-eight were present in the stream at the end of the trout angling season plus 300 removed by anglers during the season. In addition to these, 650 P.R.S. trout were planted in East Fish Lake. These fish were unavailable to the lake anglers because they did not attain the legal length of 10 inches during the season.

The native trout population in East Fish Lake has been supplemented for the benefit of the anglers since 1950. During November of 1950, five

hundred adipose-marked fingerlings were planted in the lake; during November and December of 1951, one thousand left-pectoral-marked fingerlings were planted in the lake; and during September and November of 1952, two thousand and thirty fingerlings were planted in the lake--1,023 right-pectoral-marked and 1,007 right-pelvic-marked. All of the above fish planted in the lake, except the right-pelvic-marked hatchery trout, were wild fish obtained from Hunt Creek and transferred to the lake. In 1953, approximately 108 fish from all lake plants were available to the anglers fishing on the lake.

Availability estimates for each of the individual plants in East Fish Lake listed above were not made because too few of these planted trout were taken during the fall population study to make a good estimate. From a total of 514 trout marked in the study, 41 were over 10 inches. Of these, 34 were recoveries of planted trout--excluding P.R.S. trout. Trout from the 1950 plant numbered 4; the 1951 plant, 23; and the 1952 plant, 7. Because of their low individual return, a collective estimate was made.

Angling results

Nine hundred and fifty-eight permits were issued to anglers using the area waters in 1953. Licensees were issued 758 permits (80 percent of the total number); licensees' wives, 95 permits (10 percent); and minors under 17 years old, 105 permits (10 percent). Nine "skips"--anglers who failed to return to the checking station upon terminating their fishing--occurred during the 1953 season. The error introduced into the data by the skips was not of sufficient magnitude to be significant. Less than one percent of the anglers failed to return. Five persons who skipped were later interviewed by their local conservation officers and a report of their angling on the area was sent to the Hunt Creek Station for inclusion in the 1953 creel census records. It was not possible to contact four of the persons who

skipped, so the results of their angling are unknown and are not included in this report.

Angling results, experimental sections of Hunt Creek

The dimensions of the various water divisions of the area and the regulations in force in 1953 are listed in Table 1. Creel census statistics are summarized in Table 2.

Section Z, the lowermost section of the experimental water of Hunt Creek, flows through a partially-open meadow and is well suited for fly-fishing. Shrubbery encroaching upon the banks of the section must be controlled if it is to remain suitable for fly-fishing in future years. The lower quarter of the section now has a luxuriant growth of willow on either bank.

Hunt Creek anglers made 225 fishing trips to section Z in 1953. They were successful on 105 trips or 45 percent. They fished for 566.25 hours to creel 355 legal trout. Their catch consisted of 183 wild brook trout weighing 26.5 pounds, 127 P.R.S. hatchery brook trout weighing 21.0 pounds, and 45 hatchery rainbow trout weighing 6.5 pounds. The catch-per-hour figure for all trout was 0.63; for wild brook trout, 0.32; for P.R.S. hatchery brook trout, 1.05; and for hatchery rainbow trout, 0.08. The average sizes of the anglers' catch in section Z were: wild brook trout, 7.6 inches and 0.15 pound; P.R.S. hatchery brook trout, 7.8 inches and 0.17 pound; and the hatchery rainbow trout, 7.6 inches and 0.14 pound.

Anglers creeled 15 sublegal trout: 12 wild brook trout whose average size was 6.8 inches and 0.10 pound and 3 hatchery rainbow trout whose average size was 6.8 inches and 0.11 pound. Anglers fishing in section Z reported hooking and releasing 1,373 sublegal trout during the season.

Page 5a follows

Section A, located immediately upstream from section Z, flows through an open marsh. It is excellent fly-fishing water. A beaver family moved into section A during the 1953 season. They built their lodge under the east bank in the upper part of the section, but put no dam across the stream. Any influence that this beaver activity might have had upon the angling in section A was not noticeable in the creel census records.

Hunt Creek anglers made 101 fishing trips to section A in 1953. They were successful on 49 trips or 49 percent. They fished for 260.75 hours to creel 195 legal trout. Their catch consisted of 126 wild brook trout weighing 18.58 pounds, 61 P.R.S. hatchery brook trout weighing 9.71 pounds, and 8 hatchery rainbow trout weighing 1.05 pounds. The catch-per-hour figure for the combined groups of trout was 0.75; for the wild trout, 0.48; for the P.R.S. hatchery brook trout, 0.78; and for the hatchery rainbow trout, 0.03. The average sizes of the trout removed from section A were: wild trout, 7.7 inches and 0.15 pound; P.R.S. hatchery brook trout, 7.8 inches and 0.16 pound; and the hatchery rainbow trout, 7.4 inches and 0.13 pound.

In addition to the above legal-size trout, section A anglers creeled three sublegal trout: two wild brook trout whose average size was 6.9 inches and 0.10 pound and one hatchery rainbow trout 6.9 inches that weighed 0.10 pound. Anglers fishing in section A reported hooking, then releasing, 879 sublegal trout during the season.

Section B, located immediately upstream from section A, flows through a dense cedar swamp. It is fishable with a fly, but the denseness of the bank vegetation provides a setting most favorable for the bait drifter.

Hunt Creek anglers made only 28 fishing trips to section B in 1953 and were successful on nine trips or 32 percent. They fished for 39.25 hours to creel 18 trout. Their catch consisted of 16 wild brook trout weighing 2.19 pounds and two hatchery rainbow trout weighing 0.24 pound. No P.R.S. hatchery brook trout were taken by angling in section B. The catch-per-hour index for the section--all fish--was 0.46: for wild brook trout, 0.41; and for hatchery rainbow trout, 0.05. The average sizes of the trout taken in section B were: wild trout, 7.5 inches and 0.14 pound and hatchery rainbow trout, 7.1 inches and 0.12 pound. No sublegal trout were creeled from section B. Anglers on this section reported hooking and releasing 265 sublegal trout during the season.

Section C, located immediately upstream from section B, is characterized by its long, rapid riffles which flow over a channel sheltered on either side by high wooded slopes. It is best suited for fishing with bait.

Hunt Creek anglers made 210 fishing trips to section C in 1953, they were successful on 73 trips or 35 percent. They fished for 437.75 hours to catch 222 trout. Their catch consisted of 93 wild brook trout weighing 15.14 pounds, 107 P.R.S. hatchery brook trout weighing 17.89 pounds, and 22 hatchery rainbow trout weighing 3.02 pounds. The catch-per-hour figure for all trout was 0.48; for wild brook trout, 0.21; for P.R.S. hatchery brook trout, 1.22;

and for hatchery rainbow trout, 0.05. The average sizes of the trout removed from section C were: wild brook trout, 7.9 inches and 0.16 pound; P.R.S. hatchery brook trout, 7.8 inches and 0.17 pound; and hatchery rainbow trout, 7.4 inches and 0.14 pound.

Five sublegal trout were removed from section C by the anglers; four wild brook trout whose average size was 6.9 inches and 0.11 pound, also, one hatchery rainbow trout that was 6.9 inches long and weighed 0.10 pound. Section C anglers reported hooking and releasing 1,064 sublegal trout during the season.

Section D, the uppermost section of the experimental stream area, lies immediately above section C. Section D is typified by the series of beaver ponds it contains. The beaver-built structures have continued to cause a variation of trout habitat since the 1952 creel census report was written. On February 26, 1953, number two beaver dam (built in October, 1952, and described in the 1952 creel census report) washed out at the bottom. The dam did not break, but settled into the washout hole. The water level in pond two, that, during November of 1952, was five feet above the water level in pond one, dropped to the level of pond number one. Eighteen trout stranded by the sudden drop in the water level were salvaged from small pools left on shore and returned to the stream. On March 3, it was noticed that drifting sticks, or beaver, had plugged the hole under the number two dam and that the water level had risen in pond number two to two feet above the water level in pond number one. On March 6, the dam washed out from below again. On March 12, the water again rose in pond two to two feet above the level in pond one and began to flow over the top of the dam. On March 17, it was noted that the beaver had been working on the dam and the water level in pond two was rising. On March 29, the dam washed out from below again. A dead beaver with a trap on its front foot was found above the number three dam.

Beaver trapping is not legal in section D. On April 9, it was noted that the main beaver lodge was damaged and that no maintenance work was being done by the beavers--there were no signs of beaver activity or of their presence in section D--and that the water levels in all ponds were receding. On June 11, freshly cut sticks were found on the number three dam--the beavers had returned, probably immigrant individuals. But they made no attempt to repair the number two dam. By this time, pond number one was filled with sand and ceased to be a good trout hole. The large number of trout remaining in pond number two at the opening of the 1953 season became easy prey to anglers because of decreased water volume, decreased cover, and increased competition for food in the overcrowded pond, then reverted to its stream condition.

Hunt Creek anglers made 317 fishing trips to section D in 1953; they were successful on 155 trips or 49 percent. They fished for 849.25 hours to capture 519 trout. Their catch consisted of 337 wild brook trout weighing 82.27 pounds, 4 P.R.S. hatchery brook trout weighing 0.56 pound, and 178 sublegal-plant hatchery brook trout weighing 28.90 pounds. The P.R.S. trout were not planted in section D, but were introduced there by anglers who lost them off their hooks as they heaved the fish out of section C while fishing from the concrete barrier which separates the two sections. The P.R.S. trout dropped off the hooks and fell in the section D water. One angler reported transferring "several" trout into section D by this method. Because the water level was normal at this time, it would have been impossible for the trout to pass over the fish-tight barrier without some outside assistance.

The catch-per-hour figure for all trout from the section was 0.61; for wild brook trout, 0.40; for P.R.S. hatchery brook trout, 0.42; and for sub-legal-plant hatchery brook trout, 0.21. The average sizes of the trout taken in section D were: wild brook trout, 8.8 inches and 0.24 pound; P.R.S.

hatchery brook trout, 7.4 inches and 0.14 pound; and, sublegal-plant hatchery brook trout, 7.6 inches and 0.16 pound.

In addition to the above legal trout, five sublegal trout were creeled from section D: three wild brook trout whose average size was 6.9 inches and 0.11 pound; one sublegal-plant hatchery brook trout whose length was 6.9 inches and 0.13 pound; and one hatchery rainbow trout whose length and weight were 6.8 inches and 0.10 pound. Anglers fishing in section D in 1953 reported hooking and releasing 770 sublegal trout.

Combining the 1953 creel census records from all sections of Hunt Creek into a semi-monthly tabulation produced Table 3. This tabulation provides the best over-all picture of the Hunt Creek angling for the season. The wild trout only are included in the 14-day periods to make comparisons with past years possible. Sublegal trout are excluded.

Area anglers made 881 fishing trips to the combined sections of Hunt Creek in 1953, they were successful on 391 trips or 44 percent. They fished for 2,153.25 hours to catch 1,309 legal trout. Their catch consisted of 755 wild brook trout weighing 144.68 pounds, 299 P.R.S. hatchery brook trout weighing 49.16 pounds, 77 hatchery rainbow trout weighing 10.81 pounds, and 178 sublegal-plant hatchery trout weighing 28.90 pounds. The average sizes of these fish were: wild brook trout, 8.2 inches and 0.19 pound; P.R.S. hatchery brook trout, 7.8 inches and 0.16 pound; hatchery rainbow trout, 7.5 inches and 0.14 pound; and sublegal-plant hatchery brook trout, 7.6 inches and 0.16 pound. The total number of trout, including sublegal fish, removed by anglers from Hunt Creek during the 1953 season was 1,338 and their total weight, 236.42 pounds. The total number of sublegal trout reported hooked and released was 4,351.

In addition to the angler-caught trout, 350 brook and rainbow trout less than 7 inches were taken from sections Z and C of Hunt Creek by Dr.

La Verne Curry during 1953. The approximate total weight of these trout was 14 pounds. Dr. Curry collected these trout from Hunt Creek to facilitate his study of chironomids; he collected fish for stomach samples, and stream bottom samples, simultaneously.

The most productive fishing for wild brook trout occurred during the opening 14 days of the season when 132 trips involving 298.75 hours of angling were made; 43 percent of these trips were successful. During this most lavish period, 195 wild brook trout (26% of the total for the season) were creeled to produce the largest catch-per-hour-figure for all the two week periods of the season, namely, one fish caught every 1.5 hours. This catch represented 30 percent of the weight of the entire season's catch. The opening two-week period also led all the other periods in the number and weight of wild trout creeled.

Angling was most productive at the opening of the season mainly because the trout in the section D beaver ponds were highly vulnerable to angling due to the reduced water levels of the ponds caused by the absence of the beavers. Of the 139 wild brook trout creeled during the opening two-week period, 91 of them were caught in section D. The effect of 65 percent of the first-period catch originating in section D upon the period can be seen by glancing at Table 3. The average size of the catch during this period was 8.5 inches and 0.22 pound--this average was most typical of section D trout. The relatively high yield of wild brook trout from section D throughout the season biased the average size figures for all ten two-week periods.

Hunt Creek was well populated with anglers during the first two-week period, a normal occurrence as the trout fishermen resume their favorite pastime. The area also was crowded with fishermen during the last two two-week periods. Many anglers came to the area during these last two periods for the sole purpose of fishing over the 400 P.R.S. hatchery brook trout

planted on August 26. The presence of these presumably unusual brook trout was well known by the area anglers.

A summation of the combined creel census records for legal size wild brook trout of the Hunt Creek waters from 1939 to 1953 is presented in Tables 4 and 4a. The average number of fishing trips made to sections of Hunt Creek over the 15-year period was 602. There have been three periods of great variation from the mean number of trips: the first, an upward swing occurred in 1941 and 1942 with 1941 the peak year: the second, a downward variation, occurred during 1943, 1944, and 1945 with 1943 at the bottom of the curve; and the third, an upward swing, occurred during 1946 and 1947 with 1946 the top year. The first variation was due to several factors, the most important of which were: the angling public had vacation money for the first time in many years, enabling them to travel to their favorite trout waters; and the Hunt Creek Station was open to the public and becoming known to the angling fraternity; the second variation, a difference of 704 trips between 1941 and 1943, was undoubtedly brought on by loss of anglers to the armed forces and to civilian defense work and wartime traveling restrictions; the third variation, the upsurge in fishing trips in 1946 was caused by the removal of the restrictions that caused the 1943 decline. A graph of the fishing trips and seasons for the entire water area of the experiment station differed very little from one constructed for the combined sections of Hunt Creek.

The fluctuation of total hours angled over the 15-year period follows the fluctuation in fishing trips very much as the tail follows the dog. The total number and weight of trout harvested varied not so much with the number of anglers nor the hours angled but with variations in habitat conditions, angling regulations, anglers' skill, the first inclusion of section Z in the 1949 census, and the presence of hatchery fish in the stream. This, too, applies to the catch-per-hour indices and average sizes of the trout.

Angling results, Fuller Creek and East Fish Lake outlet

That portion of Fuller Creek that flows through the experimental area originates as the outlet of Fuller Creek Pond, flows approximately 812 feet in a south-easterly direction, is joined by the East Fish Lake outlet, then travels to the east, mostly through swamp cover, until it joins Hunt Creek at the upper end of section B. Angling on Fuller Creek is difficult because of the dense swamp vegetation along the banks and the many snags under the water. Most of the fishing trips made on Fuller Creek occurred downstream from the old rotary screen located approximately 800 feet above the junction of Fuller Creek with Hunt Creek. This area is not so tangled with swamp vegetation.

Area anglers made 86 fishing trips to Fuller Creek during the 1953 season, they were successful on 32 trips or 37 percent. They fished for 211.75 hours to creel 88 trout consisting of 84 wild brook trout weighing 13.58 pounds, one P.R.S. hatchery brook trout weighing 0.15 pound, one sub-legal-plant hatchery brook trout weighing 0.13 pound, and two hatchery rainbow trout weighing 0.27 pound. The catch-per-hour for wild trout in Fuller Creek was 0.40. The average wild trout was 7.8 inches long and weighed 0.16 pound.

Fuller Creek anglers also caught and creeled five sublegal trout: four wild brook trout whose average size was 6.8 inches and 0.13 pound, and one sublegal-plant hatchery trout that was 6.9 inches long and weighed 0.11 pound. Anglers fishing on Fuller Creek reported hooking and releasing 731 sublegal trout. Creel records have been maintained for this area for the past 14 years. A summation is presented in Table 4.

Angling results, Fuller Creek Pond

Fuller Creek Pond is an artifically-maintained beaver pond located at the upper end of Fuller Creek. It is no longer inhabited by beaver. Area

anglers made 60 fishing trips to Fuller Creek Pond during the 1953 season, they were successful on only 18 trips (30 percent). They fished for 172.00 hours to creel 33 wild brook trout weighing 20.39 pounds. The angling indices were 0.19 trout per hour and 0.12 pound per hour. The anglers' average trout was 11.6 inches long and weighed 0.62 pound. No sublegal trout were creeled by anglers. They reported hooking and releasing 33 trout smaller than 10 inches.

Table 4b presents a summary of the history of Fuller Creek Pond for the past 15 years. Since the completion of the earth fill dam, which replaced the abandoned beaver structure in 1949, the catch-per-hour index has declined from 0.81 in 1950 to 0.19 in 1953. The decline is partially due to the 10-inch minimum size limit put into effect on the pond in 1951. However, the data contained in Table 4b indicate that the reduced take in numbers is being partially balanced by the increasing length and weight of the average trout creeled. Fuller Creek Pond was a good angling spot for those persons who desired large fish and who had the patience to fish around and through the tangle of dead trees present everywhere in the pond.

Angling results, Fuller Creek Pond, 1952

The results of angling on Fuller Creek Pond in 1952 were omitted from the final copy of the creel census report for 1952. For the sake of continuity they are presented in this report.

Anglers made 88 fishing trips to Fuller Creek Pond in 1952, they were successful on 19 trips (22 percent). They fished for 239.25 hours to creel 43 brook trout weighing 24.162 pounds. Their average trout was 11.3 inches long and weighed 0.652 pound. They caught 0.18 fish per hour, 0.101 pound per hour, or 1.66 pounds per acre.

Angling Results, East Fish Lake

East Fish Lake, a temperate lake of the second order, continued to provide few fish to the anglers in 1953. The lake anglers took 12 more fish in 1953 than they did in 1952, but the majority of the catch were planted fish. Area anglers made 125 fishing trips to East Fish Lake during the 1953 season, they were successful on 26 trips or 21 percent. They fished for 446.00 hours to creel 49 trout. Their catch consisted of 16 native wild brook trout weighing 11.21 pounds, 29 wild brook trout weighing 15.83 pounds that were transferred to the lake from Hunt Creek, and 4 hatchery brook trout planted in the lake in the fall of 1952. The catch-per-hour index for all trout was 0.11; for native wild trout, 0.04; for non-native wild brook trout, 0.07; and for hatchery trout, 0.01. Average sizes of these trout are listed in Table 2. The lake anglers retained two sublegal trout whose average size was 9.8 inches and 0.32 pound. They reported hooking and releasing 150 sublegal trout. A summary of angling results for the past 15 years is given in Table 4b.

Rough fish continued to be taken by anglers during the 1953 season. Anglers reported catching 71 northern creek chubs and 3 white suckers. This, by no means, is a true picture of the number of rough fish caught by anglers. Few of the lake fishermen bring their catch of rough fish to the checking station. Few of them bother to keep the rough fish, they just toss them back into the water. The rough fish population in the lake is best measured by the data given elsewhere in this report on rough fish removal.

Flies vs. bait angling success

The creel records were divided into group 1 waters and group 2 waters for the second year in 1953 to compare the angling success of fly fishermen vs. bait fishermen. Group 1 waters included Hunt Creek (except section D)

and Fuller Creek. Group 2 waters included section D of Hunt Creek, Fuller Creek Pond, and East Fish Lake. Section D was included in group 2 waters because approximately 90 percent of its water area was composed of beaver ponds. It was more closely related to standing water than to a stream.

Statistics of the fly vs. bait comparison are listed in Table 5. The column divisions under lure in Table 5 are: flies, statistics of anglers who used the various artificial insect reproductions; bait, statistics of the anglers who used worms, minnows, insects, and other lures excluding artificial flies (see Table 6); and flies-bait, including statistics of all anglers who combined fly and bait fishing on the same trip.

The anglers who fished with fly lures in group 1 waters made 106 trips to the area. They fished for 271.50 hours to creel 169 trout; their catch-per-hour-per-trip was 0.991. Forty-five percent of the fly fishermen were successful. The anglers who fished with bait in group 1 waters made 517 trips to the area. They fished for 1,173.50 hours to creel 679 trout; their catch-per-hour-per-trip was 0.541. Forty-one percent of the bait fishermen were successful. The anglers who used both fly and bait lures made 27 trips to the area. They fished for 70.50 hours to creel 28 trout; their catch-per-hour-per-trip was 0.530. Thirty-seven percent of the flies-bait fishermen were successful.

The percent of probability that the catch-per-hour-per-trip was different when different lures were employed is presented in Table 5. Fly fishermen were significantly more successful in group 1 waters than were either the bait or flies-bait fishermen. In 1952, fly fishermen were also significantly more successful in group 1 waters than the non-fly fishermen.

The 1953 distribution of the success of fly vs. bait fishermen was relatively constant throughout the season. The one plant of hatchery fish in the area waters late in August did not cause a significant fluctuation

in the catch in favor of either fly or bait fishermen. In addition, the number of individual fly and bait fishermen using the area during the 1953 season did not vary greatly from past years. The fact that fly fishermen were more successful than the bait fishermen on the Hunt Creek Station group 1 waters is probably attributable to the superior skill of the individual, angling over a habitat that is suited to fly fishing.

The anglers who fished in group 2 waters with fly lures made 58 trips to the area. They fished for 167.25 hours to creel 99 trout. Their catch-per-hour-per-trip was 0.451. Fifty percent of the fly fishermen were successful. The anglers who fished with bait lures made 408 trips to the area. They fished for 1,180.00 hours to creel 431 trout. Their catch-per-hour-per-trip was 0.389. Thirty-eight percent of the bait fishermen were successful. The anglers who fished with both fly and bait lures made 36 trips to the area. They fished for 120.00 hours to creel 71 trout. Their catch-per-hour-per-trip was 0.513. Forty-two percent of the flies-bait trips were successful. In group 2 waters there was no significant difference between the success of anglers using the three classification of lures.

In both groups of water the fly fishermen had more successful trips than did the fishermen using other lures.

Bait continued to be the favorite lure of the fishermen at the Hunt Creek Station in 1953. Of the total number of 1,152 angling trips made on the area waters, bait-only was used on 80.29 percent of the trips, flies-only was used on 14.24 percent of the trips, and flies-bait was used on 5.47 percent of the total trips. Worms continued to be the favorite lure of bait fishermen. Of the various baits listed in Table 6, worms were used on 82.4 percent of the trips.

Hook sizes used with various lures and the number of sublegal trout taken

Measurement of the hook sizes used by anglers on the area waters began in 1953. This information was collected to supplement work being done on the relationship of the mortality of sublegal trout released by anglers with various lures and hook sizes. Hook measurements were made by slipping the anglers' hooks into holes of known diameter cut in hard plastic. The outside diameter of the hooks at the gap was the measurement made. All measurements were based on Allcock's hooks, sizes 2 to 16.

The information on hooks and sublegal trout obtained from group 1 and group 2 waters were quite similar. Table 7 presents information on hook sizes 2 to 18.

Fly fishermen angling on group 1 waters preferred using size 12 hooks over all others. Size 12 hooks were used on 38 percent of the 249 fishing trips on which flies served as lures. They were successful on 39 percent of the 249 trips. Users of this hook size captured, then released, 610 sublegal trout, an average of 2.4 trout per trip.

Worm fishermen angling on both water groups used more size 6 hooks than any other size. Size 6 hooks were used on 38 percent of the 858 fishing trips on which worms served as lures. These anglers succeeded in creeling at least one trout on 45 percent of the trips. Users of this size hook captured and released 944 sublegal trout, an average of 3.3 trout per trip.

Minnow fishermen angling on the streams, group 1 waters, also preferred using a size 6 hook. Eleven trips were made with the size 6 hook, four were successful; 39 percent of all trips made to the streams using minnows as lures. Anglers using this size hook captured and released 41 sublegal trout, an average of 3.7 trout per trip. Minnow fishermen angling in the ponds and lake, group 2 waters, preferred a size 4 hook. The large fish in group

2 waters probably caused the preference of size 4 hooks over the smaller size 6. Thirteen trips were made to group 2 waters with size 4 hooks, 11 were successful; 46 percent of all trips made to group 2 waters on which minnows were used as lures. Anglers using this size hook captured and released 22 sublegal trout, an average of 1.6 trout per trip.

The heading Others in Table 7 and 7a includes worms and spinners, grasshoppers and spinners, plugs, insects, and unknown lures.

For the combined waters of the area, fly fishermen gave top preference to a size 12 hook, used on 98 trips; and followed by: size 14, 46 trips; size 10, 39 trips; size 16, 22 trips; size 8, 17 trips; size 18, 5 trips; and sizes 6 and 4, each used on 3 trips. A size 6 hook got top preference from the bait anglers, they were used on 339 trips. Following in preference were: size 4, 184 trips; size 8, 182 trips; size 10, 166 trips; size 2, 51 trips; and size 12, 37 trips.

It would appear from the data contained in Tables 7 and 7a that more sublegal trout were caught by anglers using small hooks. Anglers who used worms as bait and hooks ranging from size 14 to size 8 made 305 fishing trips to the area and caught 1,655 small trout--5.4 sublegals per trip. The anglers who fished with worms and hooks from size 6 to size 4 made 478 trips to the area and caught 1,689 small trout--3.5 sublegals per trip.

The contrast was more apparent when the number of sublegal trout caught by fly fishermen was compared. Fly fishermen angling with hook sizes 14 to 12 made 168 trips to the area waters and caught 1,290 small trout--7.7 per trip. Those using hook sizes 10 to 4 made 62 trips and caught only 200 small trout--3.2 per trip. It is evident that the angler fishing with a relatively large hook handled fewer small trout than the one who used a small hook.

Rough fish removal from East Fish Lake

The systematic removal of rough fish from East Fish Lake, begun in 1952, was continued in 1953. The task of attempting to reduce the rough fish population in the lake was pursued during two periods, during the spring spawning season and the fall trout population study. The fyke nets and netting procedures employed during the 1952 removal were again used in 1953 (See I.F.R. Report No. 1382).

The ice went out of East Fish Lake by April 2. The nets were in place and operating on April 13. Whereas the 1952 spring netting produced from 2 to 129 suckers each day for the 60 days netted, the 1953 season opened with 80 percent of the entire sucker harvest being reaped the first 12 days. This difference in harvest was due to differences between the two years in the size of the nettable population and to water temperature at the time the nets were placed in operation.

During the 77 days from April 13 to June 30 that the fyke nets were in operation on the lake, 2,165 white suckers weighing 342.1 pounds were captured and destroyed, 1,057 more than were taken in the 1952 spring netting (See Table 8). Our netting averaged 28.1 suckers per day for a total of 342.1 pounds for the entire period. We reaped 21.4 pounds for each surface acre of the lake, or 0.28 pound for each acre of the lake for each day netted (lbs./acre/day). The average sucker was 7.1 inches long and weighed 0.16 pound.

In the 1952 report we said, "Whether we materially reduced the sucker population in the spring of 1952, as would seem to be the case from the results of the fall netting, or whether a reduction is falsely indicated by our sampling of two size groups (the large spawners in the spring and the general population in the fall) will not be known until the spring netting of 1953." Now that the 1953 netting has been completed we can see that the

supposition of the existence of two nettable groups of suckers in the lake was accurate. The information recorded from the 1953 spring netting points out the fallacy of accepting, as comparable, the results of netting sessions carried on at two widely-spaced periods of a year.

This is what happened at the lake as the result of netting in the spring for the two years: We took 0.498 pound of suckers per acre per day in 1952 and 0.278 pound per acre per day in 1953--44 percent less suckers by weight in the latter year. We took 18.5 suckers per day netted in 1952 and 28.1 per day netted in 1953--34 percent more suckers by number in the latter year. The average size of the suckers taken in 1953 dropped greatly from the 1952 average--0.44 pound to 0.16 pound and from 9.2 inches to 7.1 inches. Scale samples collected from these spring-netted suckers demonstrate that we cropped the large old fish, thereby increased the percentage of the population in the younger age groups. The removal of the large suckers reduced competition for food and space among those remaining, and thus may have increased their chances for survival (See Table 9).

Harvesting the suckers from the lake during the fall probably had little effect on the total population. The removal of suckers should be continued during this period, of course, as long as the trout population studies are continued.

Last year, 1952, we compared the spring harvest of chubs with the fall harvest and came up with this conclusion, "...the number of chubs taken per day netted changed little, yet the average length and weight of the fall catch were greater than those for the spring-netted chubs. The data may be weighed (should read biased) by the possibility that we sampled different size groups ... our partial cropping of the population was beneficial to the chubs which escaped capture." This year, 1953, we can see

that our netting activities were instrumental in causing a small decline in the chub population. Our activities in the spring of 1953 produced 33 percent less pounds-per-acre-per-day netted than in 1952; also, 33 percent fewer chubs numerically per day in the latter year. The average size of the netted chubs dropped from 0.07 pound to 0.06 pound and from 5.5 inches to 4.9 inches.

The removal of a part of the rough fish from the lake is probably beneficial to the escapees, as was demonstrated by the increased survival of young suckers due to removing the old large nettable suckers. The chub population is probably not affected by the small number removed during the fall netting.

We now have information gathered over a period of two years on which to base our plan of action on the lake. It is still too early to determine whether the removal of rough fish has been beneficial to the trout. If other factors remain normal, then 1954 should show an increase in the trout creeled from the lake. Many trout of the 1952 year class will have reached the minimum length of 10 inches in 1954.

On the other hand, the removal of the rough fish may not have the desired effect on the brook trout. If the suppression of the trout is due to factors other than the competition from rough fish, then their elimination will have little effect on increasing the native brook trout population. One such cause might be the extensive reduction of spawning areas that may have been caused by raising the lake level in 1941. Visual observations and angling experiences suggest that there is a lack of spawning facilities in East Fish Lake.

The following recommendations for future activities on the lake are:

1) Continue removing the rough fish until the completion of the spring netting of 1955.

2) If, by 1955, the native brook trout have increased in number, as determined from creel census and the fall population studies, then, the value of removing the rough fish having been demonstrated, poison the lake to eliminate the rough fish--this is cheaper than a long term netting program.

3) If removal of the rough fish does not cause an increase in the native trout population of the lake, then efforts to extend spawning grounds by making a portion of the outlet stream available to the lake spawners should be undertaken.

4) If the above management procedures fail, then East Fish Lake should be planted each fall with hatchery brook trout fingerlings. This would be cheaper than planting wild fish from the stream, and by experimenting with the number of these fish planted the anglers would be assured of a maximum catchable population of trout each year.

INSTITUTE FOR FISHERIES RESEARCH

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Table 1.--Dimensions of the various experimental waters on the Hunt Creek drainage, with the angling regulations in force, 1953 season (mileage is listed in parentheses)

Experimental water	Dimensions: Length (feet)	Dimensions: Average width (feet)	Area (acres)	1953 angling regulations
Section Z	2,397 (0.45)	20.3	1.12	7-inch minimum size, 10 per day
Section A	2,577 (0.49)	24.3	1.44	Same
Section B	1,605 (0.30)	17.5	0.64	Same
Section C[1]	2,700 (0.51)	11.8	0.71	Same
Section D[2]	2,896 (0.55)	50.0	3.11	Same
Totals: Hunt Creek	12,175 (2.31)	25.1	7.03	7-inch minimum size, 10 per day
Fuller Creek below Fuller Creek Pond and including East Fish Lake outlet	9,875 (1.87)	15.7	3.57	7-inch minimum size, 10 per day
Fuller Creek Pond	...	...	14.58	10-inch minimum size, 5 per day
East Fish Lake	...	...	16.00	Same

[1] Excluding 1,270 feet of section C around experimental diversions which are closed to fishing.

[2] The data given are from a 1949 survey. Beaver activities have altered the average width and the area.

Table 2.--Summary of angling statistics, experimental waters of the Hunt Creek drainage, 1953 season. Figures in parentheses represent the numbers of unsuccessful fishing trips

Experimental water	Total number of		Anglers' catch				Angling quality		Average size	
	Fishing trips	Hours of angling	Species	Origin	Number	Total pounds	Catch per hour	Pounds per hour	Length (inches)	Weight (pounds)
Hunt Creek, Sec. Z	225 (120	566.25	Brook	Wild	183	26.502	0.32	0.047	7.6	0.145
			Brook	Hatchery[1]	127	21.004	1.05	0.174	7.8	0.165
			Rainbow	Hatchery	45	6.499	0.08	0.012	7.6	0.144
Sec. A	101 (52)	260.75	Brook	Wild	126	18.577	0.48	0.071	7.7	0.147
			Brook	Hatchery[2]	61	9.710	0.78	0.124	7.8	0.159
			Rainbow	Hatchery	8	1.051	0.03	0.004	7.4	0.131
Sec. B	28 (19)	39.25	Brook	Wild	16	2.192	0.41	0.056	7.5	0.137
			Brook	Hatchery	...	...	...	...	...	...
			Rainbow	Hatchery	2	0.236	0.05	0.006	7.1	0.118
Sec. C	210 (137)	437.75	Brook	Wild	93	15.140	0.21	0.035	7.9	0.163
			Brook	Hatchery[3]	107	17.886	1.22	0.204	7.8	0.167
			Rainbow	Hatchery	22	3.022	0.05	0.007	7.4	0.137
Sec. D	317 (162)	849.25	Brook	Wild	337	82.269	0.40	0.098	8.8	0.244
			Brook	Hatchery[4]	4	0.560	0.42	0.059	7.4	0.140
			Brook	Hatchery[5]	178	28.900	0.21	0.034	7.6	0.161
Totals, averages, Hunt Creek	881 (490)	2,153.25	Brook	Wild	755	144.680	0.36	0.067	8.2	0.192
			Brook	Hatchery[6]	299	49.160	1.01	0.166	7.8	0.164
			Brook	Hatchery[7]	178	28.900	0.21	0.034	7.6	0.161
			Rainbow	Hatchery	77	10.808	0.04	0.005	7.5	0.140
Fuller Creek	86 (54)	211.75	Brook	Wild	84	13.576	0.40	0.064	7.8	0.162
			Brook	Hatchery[5]	1	0.125	...	...	7.2	0.125
			Brook	Hatchery[8]	1	0.150	...	...	7.9	0.150
			Rainbow	Hatchery	2	0.265	0.01	0.001	7.6	0.133
Fuller Creek Pond	60 (42)	172.00	Brook	Wild	33	20.390	0.19	0.119	11.6	0.618

(See page 24a)

Table 2. - Cont'd.

East Fish Lake	125 (99)	446.00	Brook	Native	16	11.213	0.04	0.025	12.6	0.701
			Brook	Hatchery[9]	4	1.430	0.01	0.003	10.4	0.356
			Brook	Hunt Creek[10]	29	15.828	0.07	0.035	11.4	0.546

[1] P.R.S. trout subjected to 58 angling trips, 120.50 angling hours
[2] P.R.S. trout subjected to 30 angling trips, 78.00 angling hours
[3] P.R.S. trout subjected to 48 angling trips, 87.75 angling hours
[4] P.R.S. trout subjected to 10 angling trips, 9.50 angling hours
[5] Hatchery trout of sublegal size planted on April 9, 1953
[6] P.R.S. total
[7] Hatchery trout of sublegal size total
[8] Total hours P.R.S. trout angled over in Fuller Creek unknown
[9] Hatchery trout from a plant of 1,000 sublegal fish in the fall of 1952
[10] Catch from 1,000 sublegal brook trout taken by electrofishing from Hunt Creek and planted in the lake

Table 3.--Angling statistics, all experimental sections combined, Hunt Creek, 1953 season. Figures in parentheses represent the numbers of unsuccessful fishing trips

Date	Total		Native trout		Angling quality		Average	
	Fishing trips	Hours of angling	Number	Weight (pounds)	Catch per hour	Pounds per hour	Weight (pounds)	Length (inches)
April 25-May 8	132 (75)	298.75	195	43.334	0.65	0.145	0.222	8.5
May 9-May 22	84 (47)	215.25	107	17.815	0.50	0.083	0.166	8.5
May 23-June 5	70 (45)	130.75	58	10.110	0.44	0.077	0.174	7.9
June 6-June 19	77 (44)	214.50	58	9.901	0.27	0.046	0.171	7.9
June 20-July 3	71 (33)	193.50	84	14.769	0.43	0.076	0.176	7.8
July 4-July 17	58 (26)	187.00	58	9.084	0.31	0.049	0.157	7.6
July 18-July 31	73 (48)	184.25	31	7.546	0.17	0.041	0.243	8.7
Aug. 1-Aug. 14	61 (42)	175.50	42	8.213	0.24	0.047	0.196	8.1
Aug. 15-Aug. 28	120 (68)	257.00	46	8.460	0.18	0.033	0.184	8.0
Aug. 29-Sept. 13	135 (62)	296.75	76	15.448	0.26	0.052	0.203	8.2
Totals, averages	881 (490)	2,153.25	755	144.680	0.36	0.067	0.192	8.2
Rainbow totals, averages	564 (328)[1]	1,302.25	77	10.808	0.04	0.005	0.140	7.5
P.R.S. hatchery brook trout totals, averages	146 (66)	295.75	299	49.160	1.01	0.166	0.164	7.8
Sublegal plant brook trout, totals, averages	317 (162)[2]	843.75	178	28.900	0.21	0.034	0.161	7.6

[1] Excludes section D

[2] Section D only

Table 4.--Summary of the Hunt Creek experimental water angling results from 1939 to 1953, 7-inch wild brook trout

Experimental area and year	Total		Total catch		Catch per hour		Average	
	Fishing trips	Hours of angling	Number	Pounds	Number	Pounds	Length (inches)	Weight (pounds)
Hunt Creek, Secs. A, B, C, and D								
1939	438	780.50	492	67.81	0.63	0.09	7.5	0.15
1940	505	901.25	406	61.10	0.45	0.07	7.6	0.15
1941	1,015	1,546.00	722	108.92	0.47	0.07	7.7	0.16
1942	808	1,267.25	543	83.13	0.43	0.07	7.6	0.16
1943	311	540.00	378	60.11	0.70	0.11	7.5	0.16
1944	340	640.00	364	53.39	0.57	0.08	7.7	0.16
1945	375	637.00	315	51.74	0.49	0.08	7.9	0.17
1946	753	1,206.25	439	67.60	0.36	0.06	7.6	0.16
1947	607	871.50	187	26.31	0.21	0.03	7.6	0.14
1948	504	869.00	492	78.27	0.57	0.09	7.7	0.16
1949	432	1,032.25	527 (10)✓	87.33	0.51	0.08	7.8	0.17
1950	369	915.25	417 (7)✓	75.14	0.46	0.08	8.0	0.18
1951	552	1,066.00	431	76.35	0.40	0.07	8.0	0.18
1952	488	1,194.50	556	103.07	0.47	0.09	8.0	0.19
1953	656	1,587.00	572	118.18	0.36	0.07	8.4	0.21
Averages	544	1,003.58	456	74.56	0.45	0.07	...	...
Fuller Creek								
1940	20	36.25	16	2.80	0.44	0.08	...	...
1941	59	96.50	33	4.77	0.34	0.05	...	...
1942	31	39.25	11	2.02	0.28	0.05	8.3	0.18
1943	19	25.00	19	2.61	0.76	0.10	7.6	0.14
1944	96	144.75	61	8.34	0.42	0.06	7.6	0.15
1945*	102	159.25	64	9.09	0.40	0.06	7.5	0.14
1946	223	277.75	56	7.74	0.20	0.03	7.4	0.14
1947	212	219.00	27	3.84	0.12	0.02	7.5	0.14
1948	190	195.00	31	4.95	0.16	0.03	7.7	0.16
1949	115	296.00	50	7.59	0.17	0.03	7.6	0.15
1950	107	184.50	12	1.90	0.07	0.01	7.6	0.16
1951	110	246.25	59	9.27	0.24	0.04	7.6	0.16
1952	85	220.75	64	9.89	0.29	0.05	7.6	0.15
1953	86	211.75	84	13.58	0.40	0.06	7.8	0.16
Averages	104	168.00	42	6.31	0.25	0.04	...	...

✓Number of fish for which weights and lengths were not recorded.

*The period from 1945 to 1948 includes the results of angling on Fuller Creek Pond, which at this time had reverted from its beaver pond condition to its stream condition.

Table 4a--Summary of Hunt Creek experimental water angling results from 1939 to 1953, 7-inch wild brook trout

Experimental area and year	Total		Total catch		Catch per hour		Average	
	Fishing trips	Hours of angling	Number	Pounds	Number	Pounds	Length (inches)	Weight (pounds
Hunt Creek, Sec. Z only								
1949	165	374.75	186	28.09	0.50	0.08	7.6	0.15
1950	164	473.25	161[1]	21.36	0.34	0.05	7.4	0.13
1951	129	322.00	124	17.54	0.39	0.05	7.5	0.14
1952	188	570.25	222	34.14	0.39	0.06	7.7	0.15
1953	225	566.25	183	26.50	0.32	0.05	7.6	0.15

[1] Number of fish for which weights and lengths were not recorded.

Table 4b--Summary of Hunt Creek experimental water angling results from 1939 to 1953, 7-inch wild brook trout

Experimental area and year	Total Fishing trips	Total Hours of angling	Total catch Number	Total catch Pounds	Catch per hour Number	Catch per hour Pounds	Average Length (inches)	Average Weight (pounds)
Fuller Creek Pond								
1939	112	249.50	164	87.95	0.66	0.35	10.6	0.54
1940	65	144.25	88	37.27	0.61	0.26	9.7	0.42
1941	26	50.25	57	14.22	1.13	0.28	8.6	0.25
1942	10	11.75	6	1.27	0.51	0.11	8.5	0.21
1943	4	7.75	14	1.98	1.81	0.14	7.6	0.13
1944	4	5.50	36	4.67	6.55	0.85	7.5	0.14
1945	Pond reverted to stream condition. New dam completed in May of 1949.							
1949	2	16.00	5	1.52	0.31	0.10	9.1	0.30
1950	136	429.75	347	109.43	0.81	0.26	9.3	0.32
1951 1/	65	165.25	22	11.77	0.13	0.07	11.0	0.53
1952	88	239.25	43	24.16	0.18	0.10	11.3	0.56
1953	60	172.00	33	20.39	0.19	0.12	11.6	0.62
Averages	52	135.57	74	28.60	0.55	0.21	...	...
East Fish Lake								
1939	63	125.50	51	...	0.41	...	...	...
1940	111	308.00	172	29.72	0.56	0.10	8.0	0.18
1941	156	385.50	71	10.79	0.18	0.03	7.4	0.15
1942	159	289.25	34	9.68	0.12	0.03	9.1	0.28
1943	121	199.50	69	26.04	0.29	0.13	9.3	0.37
1944	311	651.00	108	79.05	0.17	0.12	11.2	0.75
1945	436	927.75	169	130.62	0.18	0.14	11.9	0.83
1946	430	935.25	93	69.39	0.10	0.07	11.5	0.76
1947	344	711.25	89	54.39	0.13	0.08	11.1	0.61
1948	287	853.25	117	55.92	0.14	0.07	10.4	0.49
1949	287	1,039.75	93	70.66	0.09	0.07	11.5	0.76
1950	218	613.25	50	38.50	0.08	0.06	12.3	0.82
1951 1/	200	732.00	56	36.09	0.08	0.05	11.9	0.64
1952	174	596.00	24	15.57	0.04	0.03	12.3	0.65
1953	125	446.00	16	11.21	0.04	0.03	12.6	0.70
Averages	228	587.55	81	45.55	0.14	0.07	...	...

1/ 10" size limit and 5-fish daily creel limit imposed, starting in 1951.

Table 5.--Flies vs. bait--relative angling quality for group 1 waters (Hunt Creek, except sec. D, and Fuller Creek) and group 2 waters (sec. D of Hunt Creek, Fuller Creek Pond, and East Fish Lake), 1953 season

Water group	Lure	Total		Total catch				Percent successful trips
		Fishing trips	Hours of angling	Number	Number per hour	Number per trip		
						Average	Standard error	
1	Flies	106	271.50	169	0.622	0.991	0.050	45
	Bait	517	1,173.50	679	0.579	0.541	0.046	41
	Flies-bait	27	70.50	28	0.397	0.530	0.263	37
	Totals	650	1,515.50	876	0.578	...	...	42
2	Flies	58	167.25	99	0.592	0.451	0.065	50
	Bait	408	1,180.00	431	0.365	0.389	0.046	38
	Flies-bait	36	120.00	71	0.592	0.513	0.130	42
	Totals	502	1,467.25	601	0.342	...	...	39

Percent of probability that catch per hour per fishing trip was different when different lures were employed

		Bait	Flies-bait
Group 1 waters	Flies	99.99+	91.44
	Bait	...	03.18

		Bait	Flies-bait
Group 2 waters	Flies	56.44	33.26
	Bait	...	63.18

Table 6.--Numerical relationship of types of bait employed by anglers, 1953 trout season. Calculated on total basis. Example: on group 1 waters worms were employed on 471 angling trips. These trips may also have involved the use of flies, plugs, or other lures

Bait employed	Group 1 waters		Group 2 waters		Combined groups	
	Fishing trips	Percent of total	Fishing trips	Percent of total	Fishing trips	Percent of total
Worms	471	85.5	366	78.7	837	82.4
Minnows	26	4.7	28	6.0	54	5.3
Insects	27	4.9	25	5.4	52	5.1
Spinner-worms	21	3.8	37	8.0	58	5.7
Spinner-grass-hoppers	1	0.2	...	...	1	0.1
Plugs	1	0.2	8	1.7	9	0.9
Unknown	4	0.7	1	0.2	5	0.5
Totals	551	100.0	465	100.0	1,016	100.0

Table 7.--The hook sizes used with various lures by Hunt Creek, group 1 waters, anglers and the numbers of sublegal trout hooked and released with the hook-lure combinations during the 1953 trout season. Figures in parentheses equal the number of successful trips

Hook size	Worms		Flies		Minnows		Others	
	Number of trips	Sublegal trout caught	Number of trips	Sublegal trout caught	Number of trips	Sublegal trout caught	Number of trips	Sublegal trout caught
No. 18	...	...	1 (0)	6	...	...	...	...
No. 16	...	...	10 (1)	116	...	...	...	...
No. 14	3 (2)	32	35 (16)	400	...	...	1 (1)	9
No. 12	10 (6)	98	62 (20)	489	2 (0)	4	6 (4)	29
No. 10	70 (17)	408	26 (11)	104	2 (1)	13	4 (0)	0
No. 8	105 (40)	872	8 (5)	43	3 (1)	16	7 (4)	66
No. 6	146 (71)	672	...	...	11 (4)	41	10 (5)	28
No. 4	97 (30)	539	2 (1)	1	3 (3)	27	5 (3)	20
No. 2	20 (11)	87	...	...	4 (3)	6	4 (0)	0
No. 14 treble	4 (0)	4	...	...	...	...	...	...
No. unknown	33 (14)	186	7 (4)	40	3 (3)	10	18 (8)	97
Totals	488 (191)	2,898	151 (58)	1,199	28 (15)	117	55 (25)	249
Sublegals per trip		6		8		4		5

Table 7a.--The hook sizes used with various lures by Hunt Creek, group 2 waters, anglers and the numbers of sublegal trout hooked with the hook-lure combinations during the 1953 brook trout season. Figures in parentheses equal the number of successful trips

Hook size	Worms		Flies		Minnows		Others	
	Number of trips	Sublegal trout caught	Number of trips	Sublegal trout caught	Number of trips	Sublegal trout caught	Number of trips	Sublegal trout caught
No. 18	...	...	4 (3)	22	...	...	...	...
No. 16	...	...	12 (10)	110	...	...	...	...
No. 14	...	...	11 (3)	26	...	...	1 (0)	0
No. 12	17 (8)	24	33 (17)	121	2 (1)	1	...	...
No. 10	42 (19)	107	13 (2)	20	1 (0)	0	3 (1)	2
No. 8	58 (25)	114	9 (6)	26	2 (0)	0	7 (3)	2
No. 6	142 (58)	272	3 (3)	6	3 (2)	3	27 (3)	7
No. 4	53 (16)	74	1 (0)	0	13 (11)	22	13 (2)	10
No. 2	20 (7)	42	...	...	1 (1)	1	2 (0)	0
No. 14 treble	2 (1)	0	...	...	...	...	...	...
No. unknown	36 (9)	28	12 (3)	7	6 (4)	3	14 (2)	15
Totals	370 (143)	661	98 (47)	338	28 (19)	30	67 (11)	36
Sublegals per trip		2		3		1		1

Table 8.--Summary of the suckers and chubs netted from East Fish Lake during the 1952 and 1953 netting periods. Figures in parentheses are sample sizes from which averages were determined for weight and length

Species and year netted	Period netted	Days netted	Fish caught	Fish per day	Pounds of fish		Average weight (pounds)	Average length (inches)	
					Total	Per acre			
Suckers									
1952	April 23 to June 22	60	1,108	18.5	479.0	29.9	0.44	9.2	(1,088)
1953	April 13 to June 30	77	2,165	28.1	342.1	21.4	0.16	7.1	(2,165)
1952	Oct. 19 to Nov. 5	17	184	10.8	21.6	1.4	0.12	6.6	(184)
1953	Oct. 14 to Oct. 30	16	171	10.7	24.7	1.5	0.14	7.0	(98)
Chubs									
1952	April 23 to June 22	60	448	7.5	32.2	2.0	0.07	5.5	(448)
1953	April 13 to June 30	77	386	5.0	21.3	1.3	0.06	4.9	(386)
1952	Oct. 19 to Nov. 5	17	121	7.1	12.2	0.8	0.10	6.6	(121)
1953	Oct. 14 to Oct. 30	16	71	4.4	11.0	0.7	0.15	6.1	(23)

Table 9.--The age composition of common white suckers caught in fyke nets in East Fish Lake in the spring of 1952 and 1953

	Percentage of catch in each age group				
	I	II	III	IV	V
1952	0.64	61.58	18.11	19.67	0.00
1953	5.77	58.94	34.23	0.92	0.14