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RESULTS OF INVESTIGATIONS AT GUILEY POND, IOSCO COUNTY, INCLUDING A SUMMARY OF THE INTENSIVE CREEL CENSUS, AND A SUMMARY OF MARKING ACTIVITIES, FOR THE YEARS 1942 AND 1943

by

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No reports concerning the research activities carried on at Guiley Pond have been made since the close of the 1941 trout season, although the angling features of the pond, and the cooperation between the Guiley Pond Sportsmen's Improvement Association and the Institute for Fisheries Research continued to function throughout 1942 and 1943. The earlier history of this project has been outlined in previous reports of the Institute (Nos. 639, 734). The purpose of this report will be to present the findings from 1942 and 1943 research activities, so that a more or less continous recording of the results will be available to future investigators. The work prosecuted at Guiley Pond will be discussed in two sections--one for 1942 and one for 1943.

1942 ACTIVITIES

At the suggestion of the Institute for Fisheries Research, Mr. Parker and the Sportsmen's Improvement Association installed a small fish-trap below the dam on Guiley Creek, and operated it through most of the 1942 rainbow run, except at times when high water matted the slats with excessive

debris. Bar spacing on the fish trap and also on the overflow cleats in the dam spill were set at 1 1/2 inches, which permits the free movement of small brook and rainbow trout up to about 13 inches in size. The fish ladder has been maintained in continual operation.

During the spring migration, Mr. Lawrence Bush, Fisheries Research Technician, assisted Parker in the measuring, weighing, tagging, and removal of scale samples from the adult rainbow trout which came up to the dam. Bush also made a brief reconnaissance of the spawning grounds in the Guiley, Smith and Pickett creeks above the dam on Guiley Creek. Adequate spawning territory appears to be present for the run of rainbow trout put over the dam.

The 1942 spawning run

The data on the 1942 spawning run are presented in Tables 1 and 2. Table 1 shows the average weekly air and water temperatures, the average water level (in inches above normal flow), the average numbers of hours of sun per day for the week, and the number of rainbow running (separated into males and females, and unmarked and marked fish). In Table 2 will be found the average sizes of the rainbow trout in the various weeks of the run.

In 1942, the first adult fish came to the dam on February 24. During that week (Feb. 19-25) the average temperatures were as follows: maximum air --19.1°, minimum air --0.4°, water --32.8°. The stream was normal in flow, and there was an average of 5.4 hours of sun per day in that week. The peak of the run occurred during the three-week period March 19 - April 8, when the weekly runs were 45, 44, and 37 adults respectively. During that time the average temperatures varied as follows: maximum air --31.7° to 37.1°, minimum air --21.6° to 25.3°, water --35.7° to 37.6°. The water

level averaged from 4.1 to 6.7 inches above normal, and the average hours of sun per day varied from 4.4 to 5.7 hours. The last spawning adult was put over the dam during the week of June 4-10. By this time air and water temperatures of summer-time ranges were beginning to be registered.

The average size of the males and females of the spawning run, given by weekly periods, will be found in Table 2. Male fish varied in size from 11 7/8 inches and 9 ounces to 27 1/4 inches and 7.88 pounds, averaging 19 3/4 inches and 3.29 pounds. Female rainbow trout measuring 8 inches and 2 3/4 ounces to 27 5/8 inches and 8.93 pounds were handled, and the average size of all females handled was 22 1/2 inches and 4.70 pounds. The smallest fish of both sexes ran earliest (Feb. 19-25) and the largest fish appeared to run during the week of March 12-18, just before the peak of the run.

A total of 310 rainbow trout made up the spawning run of 1942 that came to Guiley Pond, consisting of 152 females and 158 males, or a sex ratio of 1.04 males to 1 female.

The remaining 7 females, 30 males, and 7 with no sex given, and which were tagged after Aug. 1, 1942, were marked as they left the pond, mostly in mid-September.

The total weight of the females was 714.00 pounds, of the males, 519.29 pounds, making a grand total of 1233.29 pounds of rainbow trout in the 1942 spawning run which entered Guiley Pond.

Recaptures of tagged trout in the 1942 spawning run

During the preceding year (1941) Mr. Parker tagged all rainbow trout put over into Guiley Pond, weighing them and measuring them before release into the pond. In 1941, a total of 343 (351 less 8 mortalities) rainbow trout were marked in this manner, and during the 1941 trout season, anglers

captured a total of 72 tagged fish[1], despite the fact that an unknown number of tagged fish escaped from the pond during high water in May of 1941. Theoretically then, a total of 271 rainbow trout tagged in 1941 might have returned in the spawning run of 1942, assuming there was no mortality, straying, or capture by anglers before returning. From Table 1 it can be noted that of 310 adult rainbow trout in the 1942 run, 71, or 22.9 per cent, were tagged fish from the previous year's marking (34 of 158 males, and 37 of 152 females).

Growth of Rainbow trout from 1941 to 1942

The tagged fish of both sexes were of a greater average size than the untagged fish of the spawning run, as can be noted in Table 2. The reason for this probably lies in the fact that many of the untagged fish were one or more years younger than the tagged fish. Data concerning the weight increases are presented for the 71 tagged fish recovered from the 1942 run. The average number of days free varied around 365. The recoveries were separated by sexes and by month of tagging in 1941 and month of recovery in 1942, and these data are presented in Table 3 and 3a. From a scientific standpoint, the escape of the rainbow through the broken retaining gate in May, 1941, was very fortunate since it provided information that we otherwise would not have obtained.

Several items of interest are contained in these tables. The data indicate that the fish which were smallest at the time of tagging made the greatest gains in weight from one year to the next, and in general, the larger the fish at the time of tagging the less the gain from one spring to the next. The two fish which were tagged in October 1941, and recovered in April of 1942 both had lost weight. Either these fish spent the winter in the Au Gres drainage, or had partially or completely spawned before

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[1] One recovery in 1942 was from a fish tagged earlier in the 1942 run which left the pond and returned again to the dam.

arriving at Guiley Pond.

The other 69 recoveries showed very considerable increases in weight. These weight increases averaged from 0.02 per cent to 5.88 and 6.91 per cent per day[2] (the latter increases were noted for a marked male fish which grew from 2.00 to 51.00 ounces in 417 days, and a female fish which grew from 1.00 to 31 ounces in 434 days).

Creel census results, 1942

The creel census data for the 1942 trout season at Guiley Pond are presented in Table 4. A total of 1,369 angling days was recorded, of which 1,125 (or 82 per cent) were shown as taking no fish. A total of 3,839.00 hours of fishing were expended on this 1 1/4 acre pond, or a pressure for the season of 3,071 man hours per acre. This is about 20 times the average fishing pressure on trout streams as determined by other intensive creel censuses.

A total of 361 trout was captured, of which 195 were rainbow trout, and 166 were brook trout. Of the rainbow trout, 178 were large adults weighing 481 pounds, 9 3/4 ounces, and 17 smaller, unmarked rainbow trout which weighed 9 lbs., 9 3/4 oz. Among the brook trout captured, 155 were unmarked fish weighing 39 pounds, 9 1/2 ounces and 11 were recoveries of tagged brook trout marked in 1941 which weighed 2 pounds, 14 1/4 ounces. The total weight of fish removed by angling during 1942 was 533 pounds, 10 1/2 ounces. This latter figure includes the weights of three brown trout also captured (7 1/4 ounces, 7 3/4 ounces, and 2 lbs., 1/2 ounce). This 1 1/4 acre pond yielded, therefore, 426.90 pounds per acre of sport fish.

For the entire season the catch per hour was 0.09 fish, and the number of pounds of fish caught per hour of angling was 0.14 pounds. The catch

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[2] The average percentage change in weight per day has been calculated by dividing the increase in weight by the weight recorded at the time of tagging, and then dividing the latter results by the number of days between measurements.

per hour varied in the several months of the season between 0.08 and 0.20 fish, increasing in July and August when brook trout made up the bulk of the catch. Judged on the basis of pounds of fish caught per hour, the best fishing was enjoyed during the period April 25-30 (0.20 pounds per hour), followed by the month of May (0.16 pounds per hour), when the rainbow trout was the dominant species in the catch.

Although the angling quality for Guiley Pond is low in terms of numbers of fish when compared with other trout streams, it should be pointed out that it is considerably higher if compared on the basis of pounds of fish caught per hour. For example, the number of fish caught per hour on the experimental stream sections at Hunt Creek has varied between 0.43 and 0.70 fish; at Guiley Pond the number of fish caught per hour has ranged between 0.09 and 0.26. In terms of pounds of fish caught per hour Guiley Pond has been consistently better than Hunt Creek. The two sites have varied in this item as follows: Hunt Creek, 0.086 to 0.110 pounds per hour of angling; Guiley Pond, 0.107 to 0.288 pounds per hour of angling.

As was noted in past years, before mid-June the bulk of the catch was made up of rainbow trout, and after mid-June, brook trout furnished the bulk of the catch.

Fishing pressure at Guiley Pond was heavier in 1942 than in any preceding year of operation, and the catch of rainbow trout, both in numbers and in weight, was larger than any preceding year. The catch of brook trout fell to about half of the 1941 catch, probably because no brook trout were transferred into the pond at the instruction of the Institute. The brook trout entering the anglers' catch were therefore either residents of the pond, or moved into the pond of their own volition.

Mortalities in the pond and observations at the close of the 1942 season

A number of large adult fish died after transfer into the pond. Certain

of them were obviously injured by poachers with spears or gaffs, but the majority died apparently from the rigors of spawning. As individual fish, they were lost to the anglers, although post-mortem examination indicated that most of such fish had spawned before death.

Mortality from one cause or another during 1942 amounted to 10 males and 13 females, or about 7.4 per cent of the total run, and the weight of these 23 fish amounted to approximately 110 pounds.

After the close of the 1942 trout season, about 5 days were spent in attempting to induce the fish which had survived the angling to leave the pond, since it is certain that any survivors would be of larger size when they returned to the pond rather than if they passed the winter in the confines of the pond. The cleated gates and some of the slash boards were removed on September 9, and the pond was drawn down considerably below normal, but rainstorms occuring during the time of the draw-down did not permit lowering the level to the absolute minimum. Nevertheless 35 rainbow trout (of which 31 were tagged recoveries) and 25 brook trout were captured by seining and dipnetting between the fish ladder and the bars of the weir. All untagged fish were measured and tagged and placed in Guiley Creek below the dam. The recoveries on the tagged rainbow trout made rather interesting data available on the effect of confinement on these large fish in a stream pond during an entire fishing season, and these data are presented in Table 5.

Twelve male fish were recovered which had spent from 133 to 198 days in the pond. These fish ranged in size from 316 mm. and 21.50 ounces to 688 mm. and 109.00 ounces (or 653 mm. and 114.0 ounces). Changes in length varied from + 6 mm. to -33 mm. Changes in weight ranged from -7.0 ounces to -49.0 ounces. The percentage changes per day in length varied from

+0.01 per cent to -0.03 per cent, while the percentage changes in weight varied between -0.16 and -0.25 per cent. When grouped together by months of tagging (Table 5) the males which were in the pond for the shortest time (6 fish tagged in April, 1942) were found to have suffered slightly greater percentage losses per day in weight and length.

Nineteen tagged female fish survived the angler's skill during 1942 and were captured during the draw-down. They ranged in size from 454 mm. and 35.0 ounces to 670 mm. and 116.0 ounces. They had been in the pond for periods ranging from 115 to 194 days. Percentage changes per day in length varied between +0.01 per cent to -0.02 per cent; in weight between -0.13 and -0.34 per cent. Among the females, the April-tagged fish showed the greatest average percentage loss per day, although it was only slightly greater than that shown by the March-tagged fish. When the recoveries were averaged together by sexes, the males were found to have a slightly larger average percentage loss per day than the females, but for practical purposes the losses may be considered identical.

Changes in length varied from +6 mm. to -39 mm. in the males, and among the females from +8 mm. to -100 mm. However in both sexes this amounted to only a minor percentage change per day (+0.01 to -0.02 per cent).

Changes in size as determined from recoveries of tagged rainbow trout by anglers in different months during 1942 (Table 6, Figure 1)

The tagged fish which were captured by angling in the 1942 season have been grouped by month of tagging and month of recovery and then separated by sexes. With the exception of six fish put over in December, 1941, all were tagged and recovered during the calendar year 1942. All data pertaining to each recovery were listed, and the average figures obtained by totalling the data and dividing by the number of recoveries in each group, first, for each tagging and recovery period, then second, for each period of recovery

(i.e. - all April recoveries, all May recoveries, etc., regardless of month of tagging). Data are available on 83 males and 91 female fish, but were incomplete for the four remaining tag recoveries.

Gains or losses in length were slight in comparison to the size of the fish of both sexes. Among both males and females, the majority of the fish lost in total length between time of tagging (before spawning) and time of recovery (after spawning). Among the males, the average percentage change in length per day varied between +0.14 per cent to -0.03 per cent; among the females from +0.08 per cent to -0.08 per cent. This loss in length is probably brought about by the following factors: (1) abrasion of caudal fin and snout in the spawning act; (2) actual shrinkage of the skeleton due to a lack of normal food supply. It is also not impossible that slight errors in measurement are responsible for some of the apparent losses in length. (The fish were measured alive when tagged, and as soon after death as possible on recovery). There was noted a possible tendency for male fish between 300 and 400 mm. to continue to grow in length after release in the pond, even though they would lose weight.

Losses in weight were noted for all tagged fish recovered, both male and female. These weight losses varied from 3.9 per cent to 79.0 per cent of the weight at tagging in the males, and from 1.8 per cent to 56.0 per cent among the females.

In general it may be said that the fish which were tagged and recovered close to the spawning season showed the greatest percentage loss per day of freedom, both among the males and females. Among the April recoveries, both for males and females, April-tagged fish had higher average percentage losses per day; for the May recoveries, the April-tagged females and the May-tagged males had the highest losses. The average percentage weight loss per day among the June recoveries was greatest for the April-tagged

males and the May-tagged females; for July recoveries, the largest loss was in the February-tagged male, and the May-tagged females; for August recoveries, March-tagged fish of both sexes showed the highest average daily loss; among the September recoveries the female fish tagged in March and April showed the same average daily percentage loss in weight.

Now if we disregard the month of tagging, and assemble the recoveries only by month of recovery and calculate the averages for this grouping, it will be noted that the average percentage loss in weight per day among the males becomes progressively smaller as the season progresses; among the females, the situation is similar until the month of September, when there is slight increase from the low point reached among the August recoveries. (See also Figure 1)

It would appear that the weight loss is almost entirely caused by the spawning act, since if any weight were lost thereafter we should note either an increase in the percentage loss in weight per day, or the percentage loss in weight per day would remain the same as the season progressed. The data at hand indicates that there is a weight loss incurred at spawning time, and that in general, little if any weight is lost during confinement in the pond. However there is evidently very slight if any recovery of condition of the trout while retained in the pond. They apparently secure enough food to keep alive but not to regain weight lost in spawning.

Combining all data from recoveries of males made in 1942 by anglers, and all 1942 females, the average percentage loss in weight of males was found to be 16.9 per cent, of females, 19.9 per cent. In 1941, the average percentage loss in weight was calculated to be 10.3 per cent for males, 19.2 per cent for females.

Weight increases and losses over 20 months of 1941 and 1942

It is possible, by combining recovery data from 43 fish tagged in

February, March, April, May and October of 1941, and recovered as they returned on the spawning run of 1942, and then recovered again by Guiley Pond anglers at a later date in 1942, to gain further insight on the fluctuation in body weight which is undergone by these adult rainbow trout. The data are presented tabularly in Table 7, where averages are given for the different periods of tagging and recovery for both sexes.

It is to be surmised that the fish which demonstrate the large increases between tagging in 1941 and first recovery in 1942 returned to Lake Huron shortly after the cleated gates broke through in May, 1941. The few fish which showed weight losses between 1941 and 1942 probably stayed in the Au Gres Drainage. Varying weight losses as the result of spawning in 1942 are portrayed.

Despite the variance in average weight of these fish, there is considerable similarity to be noted in the growth and loss trends of fish of all sizes. In other words their growth curves and loss curves over comparable periods of time are quite generally parallel. From this one might infer that their growth history, after they have reached maturity, is one of steady increase in length and weight during their life in the lake, followed by a period of weight loss during the spawning season in the streams. In all probability they don't begin to regain weight lost during spawning until they return to the lake.

By assembling the recovery data on the fish just discussed (except for the one fish tagged in October, 1941) by size groups of 16 ounces (Table 8) and calculating the percentage increase in weight over the weight at tagging, it can be shown that fish weighing up to 2 pounds increase their weight at tagging anywhere from 139 to 3,000 per cent; 2 to 4 pounds, from 47 to 96 per cent; 4 to 6 pounds, from 15 to 29 per cent; 6 to 8 pounds, loss of 5 per cent to a gain of 12 per cent; over 8 pounds, 3 per cent increase (Table 8).

The data on these same specimens indicated that the smaller fish had lost a greater percentage of their weight at tagging as a result of spawning activity. Fish which had weighed 2 pounds or less in 1941 had lost 55 to 600 per cent of their initial weight at tagging during the spawning process; from 2 to 4 pounds, 44 to 65 per cent; 4 to 6 pounds, 23 to 55 per cent; 6 to 8 pounds, 32 to 43 per cent; over 8 pounds, 13 per cent.

In general, it might be stated as follows, the smaller, younger fish grow rapidly between spawning seasons and lose a greater proportion of their body wieght at the next spawning, while the older, larger fish take on less weight between spawning seasons, and lose a smaller proportion of their body weight at the next spawning. It would appear that the proportion of gonadal weight to total body weight might be greater in the smaller size groups of fish, and influence this relationship.

Data on brook trout growth and movement as determined from recovery of tagged brook trout in 1942

In the 1942 season a total of 36 tagged brook trout was recaptured by Parker below the dam or by anglers in the Au Gres drainage. The data concerning 32 of these fish have been sorted and analyzed in a manner similar to that used on the rainbow trout. The data on the other four fish were not complete for growth analysis, but could be used for migration study.

It should be pointed out that with the exception of four of the recoveries, all other fish were placed in Guiley Pond after tagging in 1941. They were able to migrate wherever they chose after the close of the 1941 fishing season, as the retaining gates were removed during the winter, and the 1 1/2 inch spaced gates not installed until April, 1942. It is also possible that some of these fish dropped back out of the pond after the 1 1/2 inch gates were installed in the over flow gate in the spring of 1942.

The distribution of these recoveries was as follows:

East Branch of the Au Gres, 5-20 miles downstream-- 7 fish;

Hale Creek, 7-10 miles upstream-- 2 fish;

Hale Creek, no migration-- 1 fish;[3]

Smith Creek, no migration-- 1 fish;[3]

Guiley Creek between East Branch of Au Gres and Guiley Pond, 0 - 1/4 miles downstream-- 24 fish;

Prickett Creek, 3 miles upstream-- 1 fish.

This distribution of recoveries would seem to indicate that, while the brook trout apparently has a preference for the Guiley Creek watershed, about one-fourth of the population marked in 1941 left the Guiley Creek area for more remote parts of the Au Gres drainage. Since the installation of the 1 1/2 inch gates on the overflow chute and fish ladder, the brook trout up to about 13 inches in size undoubtedly can move in any direction at any time they are so inclined.

The growth data are presented in Table 9, and except for 9 of the specimens where no weight at recovery was given, are complete. The average number of days free varied between 210 and 386; the majority were free close to a year. All showed good growth in length, from an average of 19 mm. to an average of 69.5 mm. Growth in weight varied from 2.31 to 6.50 ounces. Recoveries in June, 1942 appear to have grown the most, both in length and weight, judged on the basis of the percentage increase per day in length and weight.

1943 ACTIVITIES

The 1943 spawning run

During the period between September, 1942 and February, 1943 no fish were handled. Temperature records were kept except for a short period in

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[3] These fish were tagged at Guiley Pond, and transported to these localities, and later recovered at the indicated localities.

January and February, 1943. The 1943 spawning run started on February 20. During the period February 20 - February 25, there was an exceptionally large run of small fish consisting of 64 males and 38 females. These were fish of slightly over a pound in average weight. During the week of Feb. 19-Feb. 25 the average water temperature had risen from 32.5 to 34.7 (See Table 10) and the average water level had increased from normal to 2.1 inches above normal. Between Feb. 26 and March 11, the average water temperature dropped back to 32.3 and the water level receded.

Beginning with March 12, average water temperatures and water levels increased and so did the number of spawners (See Table 10) until the peak number was captured during the week of March 26 - April 1 (41 adults) when the average water temperature was 35.5° F. and the average water level was 14.8 inches above normal. From the last mentioned date until June 20 there were at least three adults taken each week. With the exception of the early run of 102 "small" fish, the bulk of the run came between April 2 and May 13, when the weekly catches ran as follows: 18, 29, 26, 21, 18, 19.

During the 1943 run, a total of 195 males weighing 446.71 pounds, and 134 females weighing 515.12 pounds were transferred over the dam into Guiley Pond, or a total weight of 961.83 pounds (Table 11). As Parker was handling the spawning run alone, he was instructed to count and to take weights only on the unmarked fish, and to measure, obtain scale samples, and weigh only the marked fish recovered. Therefore average weights only of the fish in the run, and not average lengths, can be given here. Sixteen other rainbows were tagged after Labor Day when the pond was opened, also 19 brook trout which came out at that time.

The average weight of the males on the spawning run was found to be 2.29 pounds; range (0.75 lbs. to 10.88 lbs.) of the females, 3.84 pounds (range 0.75 lbs. to 12.19 lbs.).

The sex ratio, as determined from the data available, was found to be 1.45 males to 1 female.

Recaptures of marked fish during the 1943 run

As no fish escaped from the pond during 1942, and also because a large number of the fish marked in 1942 were captured in that year, the number of recoveries to be expected in the spawning run was comparatively small. Eight recoveries were made during the spawning run, six of which had been free since tagging in 1941, two since tagging in 1942 (Table 12).

The fish tagged in 1941 and recovered in 1943 (4 females, 2 males) had been free from 715 to 741 days. The size at tagging of the females varied between 532 and 620 mm. and their weights ranged from 56.50 to 104 ounces. They showed increases in length ranging from 9.1 per cent to 21.2 per cent of their length at tagging; weight increases ranged between 19.0 per cent and 87.6 per cent of their weight at tagging.

The two male fish were 172 mm. and 446 mm. respectively at the time of tagging in 1941. The small male gained 243 per cent of his length at tagging and increased 6,540 per cent of his weight at tagging in a period of 716 days (or a weight increase of 9.1 per cent per day). The larger male showed an increase in length of 53.3 per cent of his original length, and an increase in weight of 279 per cent of his weight at tagging in a period of 741 days.

The two fish which were free from the spring of 1942 to the spring of 1943 were a male and a female. The female had (a) possibly spawned before coming to Guiley Pond, as she was slightly shorter, and weighed 18 ounces less than she had weighed the previous spring; or (b) she had remained in the Au Gres drainage over the winter. The male fish had increased 26.5 per cent in length over his length at tagging, and had gained in weight 119 per cent over his weight at tagging in a 373-day period. (See Table 12)

Creel census results, 1943 (Table 13)

During the 1943 fishing season, anglers fishing on 785 angling-days expended 1,765.50 hours of fishing effort on the 1.25 acres of Guiley Pond (or an angling pressure of 1,412 hours per acre for the season, less than half that in 1943). Seventy and four tenths per cent of the angling-days were unsuccessful in terms of legal trout caught. (The Guiley Pond size limit is 8 inches.)

Altogether 195 rainbow trout and 180 brook trout were captured by the 1943 anglers. The total weight of the rainbow trout taken was 460.44 pounds; of the brook trout, 47.52 pounds, or a combined catch of 507.96 pounds for the season. For the entire season, the catch per hour of legal fish amounted to 0.21 fish, higher than in 1942. The pounds of fish removed per hour of angling amounted to 0.29, more than twice as high as in 1942. This increase in the quality of the angling appears to be related to the angling pressure, since more brook trout and the same number of rainbow trout were taken in 1943 as in 1942 with more than a 50 per cent decline in angling.

Rainbow trout predominated in the catch from the opening of the season on April 24 until June 18. After that time brook trout outnumbered the rainbow trout.

Judged on the basis of the number of legal fish caught per hour, the best fishing came during the two-week period July 17-July 30, when 78.50 hours of angling yielded 4 rainbow trout and 33 brook trout, or 0.47 fish per hour. However, if quality of angling is judged on the pounds of fish removed per hour of angling, the periods April 24-May 7, May 8-21, and Aug. 28-Sept. 6 and several others all provided better fishing.

The number of rainbow trout caught per hour of angling ranged from 0.05 to 0.18 in the various two-week periods; brook trout caught per hour

of angling varied from 0.00+ to 0.42 in the various two week-periods.

It is not unlikely that if the angling pressure had been somewhat more nearly comparable to that of 1942 an even greater number of fish and pounds of fish might have been removed in 1943; even so, only about 26 pounds less were removed. The number of pounds of fish per acre removed by angling amounted to 406.36 pounds.

Recoveries of marked fish in the 1943 anglers' catch

Among the anglers' catch in 1943, only 12 tagged fish were recorded. Four of these fish were tagged individuals trapped on the 1943 spawning run and later recovered by the anglers, while eight were tagged fish which had been marked on the 1942 spawning run, escaped the 1942 anglers, and had remained in the pond (or in Guiley Creek above the dam) over the winter of 1942-1943, despite the fact that the pond gates had been opened after Labor Day and efforts were made to draw the pond down as low as possible.

The changes in length and weight of four tagged fish recovered both by trap and by the anglers in 1943 again demonstrated growth in the lake is tremendous, and loss of weight incurred at spawning time can be equally as great within a short time period.

The data on the 8 tagged fish (Table 12) which remained in the pond over the winter give an indication as to the effect of confinement in a small water area on a species which normally feeds and ranges over a much larger range. The growth data from these 8 fish further substantiate the conclusion that the confinement in the pond is not responsible for the weight loss, since the average percentage loss in weight per day became less for both sexes the longer they were in the pond. The 1943 data has been utilized in plotting the general trends of the time-weight loss relationship in Figure 1, and it will be noted that the average percentage loss per day decreases with an increase in length of confinement. Confinement

in the pond may not be responsible for the weight loss but is probably responsible for failure to recover weight after spawning.

Mortalities, observations at close of 1943 season

During 1943, a total of 16 spawners died from various causes. Two females and seven males died as the result of spawning injuries, one female was apparently egg-bound, one male apparently died as the result of a hooking injury and three females and two males gave no indication as to the cause of death. The total weight of the fish mortalities was 68 lbs., 7 oz. (24 lbs., 5 oz. of females, 44 lbs., 2 oz. of males).

At the close of the 1943 season the cleated gates were removed by Parker and the fishway left open until about January 1, 1944. During this period (Labor Day, 1943-January, 1944) he marked by jaw-tagging 19 legal brook trout, 15 legal rainbow trout and recovered two tagged rainbow trout which came down out of the pond. All of these fish left the pond and were caught between the dam and the trap on September 7. Despite the fact that the gate was removed on the dam, a number of large rainbow trout apparently preferred to stay in the pond, and were observed to remain there all winter.

Decline in number of tagged fish captured in years following tagging

A brief summary of the progressive decline in numbers of the rainbow trout tagged in 1941 and 1942 is presented in Table 14. Of 351 fish tagged in 1941 at Guiley Pond, a total of 141 had been accounted for up to the end of 1943, or 40.2 per cent of the 351 originally tagged in 1941. Anglers had captured 126 (or 35.9 per cent), and known mortality in the pond accounted for 15 (or 4.3 per cent). Of the 279 fish tagged on the 1942 spawning run, 145 (or 52.2 per cent) have been recaptured by anglers up to the close of the 1943 season, and the known mortality on the 1942 tagged fish has been 16 (or 5.8 per cent).

A comparison of the number theoretically available at the beginning of each season is as follows (assuming of course that no mortality took place in the Great Lakes or on the spawning run, and that all fish returned each year to Guiley Creek): 1941- 351; 1942- 271; 1943- 215; 1944- 210. The number known to have been taken plus those which were observed to die each year of the 1941 tagging was as follows: 1941- 80; 1942- 56; 1943- 5. From the 1942 tagging the following numbers of tagged fish were theoretically available at the start of each season (under the same assumptions as previously outlined): 1942- 278; 1943- 128; 1944- 118. Actually taken by anglers or observed to die were the following numbers in each season: 1942- 151; 1943- 10. The great difference between the recoveries made in the second year of the two taggings was probably the result of the escape of a large number of 1941-tagged fish from Guiley Pond in May, 1941.

It will be of interest to see how long tagged fish from these 1941 and 1942 markings continue to appear in the anglers' catches at Guiley Pond or elsewhere in the Great Lakes drainage.

RESULTS FROM FIN-CLIPPING EXPERIMENTS AT GUILEY POND

During most of each year from February to October, large numbers of young rainbow trout up to 8 inches in size are present in the vicinity of the dam on Guiley Creek. These immature fish appear to run particularly at the time the mature adults run. Brook trout of all sizes also move up Guiley Creek as the water temperatures rise in late May and June.

In the course of the 1941 marking, a number of these immature trout were marked by removal of the adipose fin. These fish were not measured individually, but ranged in size from 4-6½ inches. They were clipped, and then weighed by species. The number and weight of each species marked in 1941 is given in Table 15, along with the number of adipose-clipped recoveries which have been recaptured at the dam in subsequent years.

From 299 rainbow trout fingerlings weighing 149 ounces which were marked in 1941, a total of 10 adults had returned to Guiley Pond during the 1943 season. These fish weighed 549 ounces. They constituted 3.3 per cent of the total number marked.

Three hundred and fifty-two (352) immature brook trout were clipped in 1941. In the 1942 operations, 14 fish weighing 64.25 ounces were taken at the dam; in 1943, 2 fish weighing 19.50 ounces were captured. The 16 brook trout recovered up until the end of the 1943 season constitute a recovery percentage of 4.5 per cent of the total originally marked.

None of the 5 fin-clipped brown trout have been recaptured.

RECOVERIES OF TAGGED RAINBOW TROUT FROM GUILEY POND IN OTHER LOCALITIES

1942

During 1942, six recoveries were reported from points outside of Guiley Creek. Three of these recoveries were effected by anglers in the Au Gres drainage. One tagged fish was reported from each of the following localities: Glen Dam (8 miles downstream); 1/2 mile south of McIvor Bridge (18 miles downstream on the East Branch of the Au Gres); and from the Whitney Drain (approximately 20 miles downstream). All of these fish were mature adults which had been tagged in March or April, 1942, and apparently had been captured after spawning in the lower East Branch of the Au Gres River in 1942.

The other three reports were of considerable interest, since they had been marked in 1941, and they proved again that the rainbow trout is a fish which will wander far from its natal waters. One fish, #50372, was caught 2 1/2 miles north of St. Clair City on the St. Clair River. It had been free from April 17, 1941 to June 18, 1942 (437 days) and had grown from 670 to 686 mm., but had lost 20 ounces (116 to 96), probably as a result of spawning

activities before capture in 1942. It was 150 miles from the point of marking at Guiley Pond.

Rainbow trout #13805, which was tagged on January 13, 1941, was recovered 505 days later on June 2, 1942, 25 miles NE. of Point Pelee in Lake Erie in the pound nets of a Canadian commercial fisherman. According to the recovery data furnished, this fish grew from a size of 8 inches and a weight of 3 ounces to about 22 inches and about 4 pounds, or a gain of about 14 inches and 3 pounds, 13 ounces. It had traveled at least 289 miles from Guiley Pond.

Three weeks later on June 23, 1942, rainbow trout #13865 was reported captured in the pound nets of a commercial fisherman 15 miles off Long Point on the Canadian shore of Lake Erie, 430 miles from Guiley Pond. This fish weighed 5 pounds at capture and was 18 inches long. It had been tagged on February 19, 1941 at a length of 7 1/2 inches and a weight of 2 1/4 ounces, so it had grown 10 1/2 inches and 4 pounds, 13 1/2 ounces. This is the longest known migration of any species of trout tagged and released in Michigan waters.

1943

In April of 1943, a third recovery of a rainbow trout tagged at Guiley Pond was reported from the north shore of Lake Erie. This was an adult female, #50445, tagged on April 15, 1941. At tagging this fish had measured 22 1/4 inches in length and weighed 4 pounds, 15 ounces. At the time of capture off Kingsville, Ontario, it was reported to weigh 9 3/4 pounds and was 26 inches long. It had gained 3 3/4 inches in length and 4 pounds, 11 ounces in weight and had moved about 250 miles from Guiley Pond.

Two other recoveries of tagged rainbow trout were reported from the Whitney Drain. One of them was from the group of small rainbow tagged early in 1941, Rainbow trout #13808 was tagged on January 13, 1941, at a length of 7 1/2 inches and a weight of 2 ounces. It was recaptured in the Whitney Drain during the 3rd. week in May, 1943, at a length of 23 1/2 inches and

3 1/2 pounds. It had gained 16 inches in length and 3 pounds, 6 ounces in weight. At the time of capture it was probably either through spawning or on its way to the spawning grounds.

The other recovery from the Whitney Drain was an adult rainbow trout tagged on September 10, 1942, at Guiley Pond at a length of 19 1/4 inches and a weight of 2 pounds, 6 ounces. At recovery in the third week in May, 1943, it was reported to be 1/2 inch longer, and was at least 6 ounces heavier. (The weight given was the dressed weight of 2 lb., 12 oz.)

The three fish recaptured in Lake Erie and the single recapture taken in the St. Clair River would indicate that for at least a part of each year suitable rainbow trout habitat exists in the St. Clair River and Lake Erie. These four fish were probably "strays" in other words they were not following the generally-accepted "parent stream theory", and failed to return to the Au Gres drainage for some unknown reason. They represent 1.5 per cent of 271 tagged fish which theoretically might have returned to Guiley Pond in 1942.

Although the growth data available from these recoveries is not as exact as might be desired, the information provided furnishes additional evidence of the tremendous growth made by the rainbow trout during that portion of their life which is spent in the Great Lakes. The data also emphasize the migratory habits of the species.

TRENDS IN THE SPAWNING RUNS AND THE FISHING AT GUILEY POND 1940-1943

The general trend of the number of rainbow trout handled during the past three years of the investigations at Guiley Pond and the resulting fishing are portrayed in Table 16. It would appear that between 250 and 350 adult rainbow trout might be expected to run Guiley Creek each year. Fluctuations

in the spring weather, the condition of obstructions downstream in the East Branch of the Au Gres, and poaching activities further downstream all are factors which will influence the number of large adults coming to Guiley Pond. On the basis of the observed weights the total weight of the fish arriving will be between 950 and 1,250 pounds.

Angling pressure on the pond increased steadily up to 1943 when it dropped off sharply because of general wartime conditions. A similar drop in pressure was noted for Hunt Creek.

From 150 to 195 rainbows have been taken by angling every year since 1940, except in 1941, (104) when the retaining gates broke in May allowing an unknown number of the larger fish to escape and return to Lake Huron. The total weight of rainbow trout removed by angling has varied between 193.6 pounds in 1941 to 491.2 pounds in 1942. The quality of the fishing for rainbow trout has varied as follows: number caught per hour of angling - 0.04 to 0.11 fish; pounds of fish caught per hour - 0.079 to 0.261 pounds. For brook trout the quality of the fishing has varied in this manner: number caught per hour 0.04 to 0.16 fish; pounds of fish caught per hour - 0.011 to 0.035 pounds. It should be mentioned here that in 1940 and 1941 brook trout were also transferred into the pond, and this influenced the catch in those years. In 1942 and 1943 the brook trout taken by angling were those which preferred to move into or stay in the pond, since no brook trout were transferred to the pond from below the dam in these years and since the majority of the brook trout in the pond could have left through the 1 1/2 inch bar spacing had they desired.

A comparison of the number of large rainbow trout placed in the pond with the number removed by angling shows that, in the past three years, anglers have removed between 41.2 and 62.9 per cent of the total number transferred to the pond and between 18.8 and 47.9 per cent of the total weight transferred.

The size of the largest rainbow trout taken by angling has increased each year, and has varied between 5 lbs., 12 oz. and 9 lbs., 11 oz. The size of individual fish in the run determines the size of the record breaking fish to a certain extent. A few brook trout of one pound and slightly heavier have also been taken from the pond within the last three years.

CONCLUSIONS

The 1943 season marked the fourth season of operation of Guiley Pond as a cooperative project between the Fish Division of the Department of Conservation and the Sportsmens' Improvement Association. In that time, an increasing number of non-members have enjoyed the angling facilities of the pond, and also the paid-up membership of the Association has increased to over 100 (June, 1944). The appeal of this type of fishing apparently has not worn off, as most of the original members still maintain their membership.

Judging by the records secured during the last three years of the number of spawning rainbow trout transferred into Guiley Pond, their confinement and the subsequent capture after spawning have not diminished the proportions of the "runs" in following years. The confinement of such fish has made possible an increased amount of angling enjoyment which might not have been obtained had these fish been allowed to return downstream on completion of spawning, since in many years a large percentage of the spawners has returned to Lake Huron before the fishing season opens.

Through the cooperative efforts of Parker, the anglers, and the Institute for Fisheries Research, interesting data (described elsewhere in this and previous reports) on the weight changes and movements of the rainbow and brook trout have been obtained as well as information pertaining to the angling.

An excellent series of scale samples from rainbow and brook trout of all sizes has been collected, as well as a large series of scales from tagged fish taken at two or more times in its life history. During 1942, almost all stomachs from the rainbow trout taken in the pond were preserved to determine their feeding habits in the pond. Both the scale and stomach collections will be worked up and reported on as fast as time and personnel are available.

INSTITUTE FOR FISHERIES RESEARCH

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Figure 1

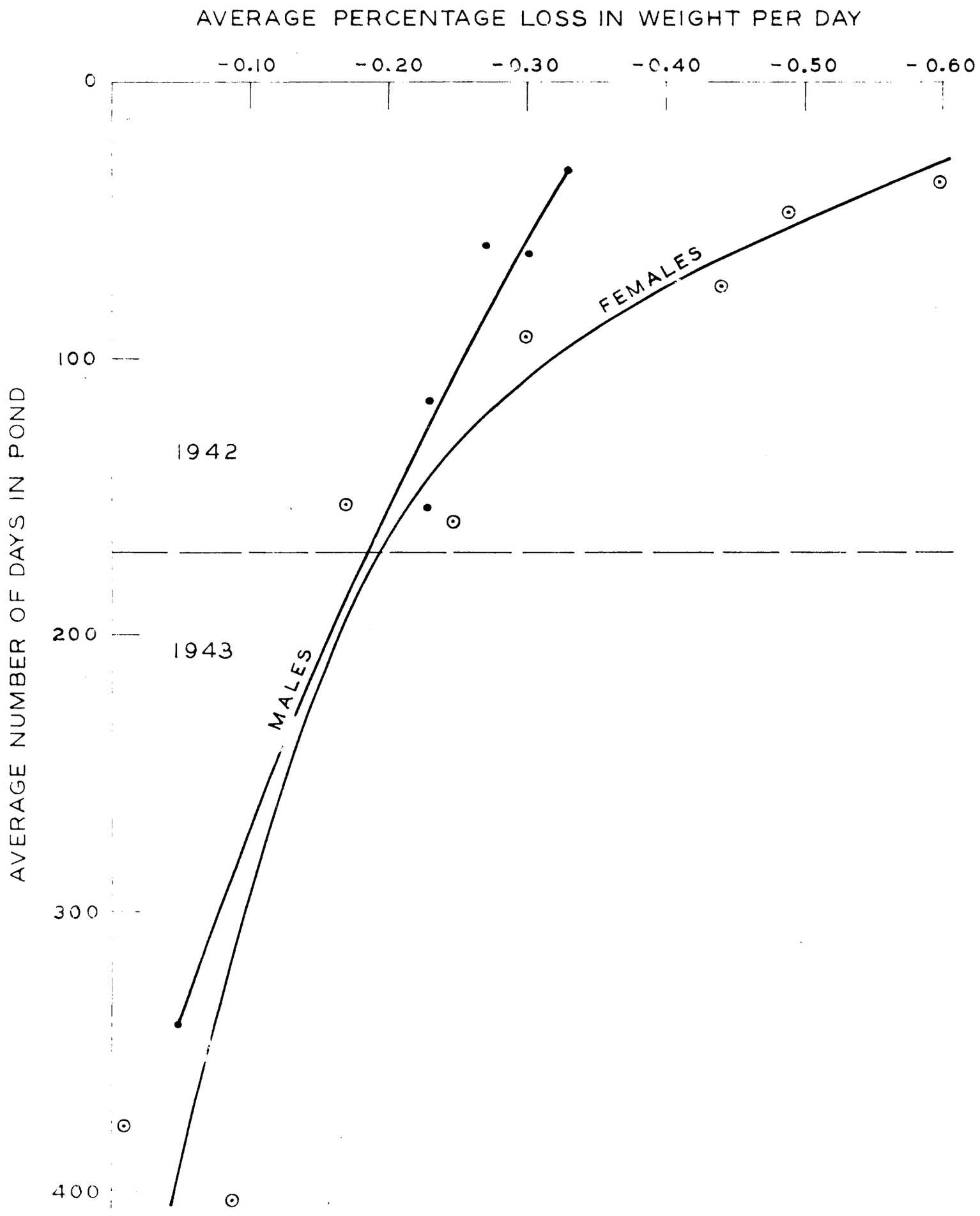
AVERAGE PERCENTAGE LOSS IN WEIGHT PER DAY
-0.10
-0.20
-0.30
-0.40
-0.50
-0.60
0
100
200
300
400
AVERAGE NUMBER OF DAYS IN POND
1942
1943
MALES
FEMALES

Table 1

Average Daily Temperatures, Water Level, Hours of Sunlight and Number of Rainbow Trout Moved Upstream into Guiley Pond Given by Weekly Periods for the Year 1942

Weekly period 1942	Average temperature		Average water temp.	Rainbow trout				Total Rainbow	Water level	Hours of sun
				All fish by sex		Tagged fish by sex				
	Maximum air	Minimum air		M	F	M	F			
Jan. 1-7	23.8	6.0	33.2	...	...	...	...	...	3.3	2.8
Jan. 8-14	19.8	1.7	32.8	...	...	...	...	...	N.	4.0
Jan. 15-21	31.8	18.0	33.9	...	...	...	...	...	N.	2.0
Jan. 22-28	33.6	22.9	37.3	...	...	...	...	...	N.	2.8
Jan. 29-Feb. 4	22.3	7.6	33.4	...	...	...	...	...	N.	2.0
Feb. 5-11	27.4	11.6	33.9	...	...	...	...	...	N.	3.4
Feb. 12-18	30.3	11.6	34.9	...	...	...	...	...	N.	4.7
Feb. 19-25	19.1	+0.4	32.8	5	4	...	...	9	N.	5.4
Feb. 26-Mar. 4	10.1	7.3	36.5	17	4	6	...	21	N.	3.8
Mar. 5-11	27.3	21.1	34.9	23	8	7	1	31	0.4	2.7
Mar. 12-18	26.6	21.7	33.5	21	16	4	3	37	3.8	2.7
Mar. 19-25	31.7	21.7	35.7	28	17	6	3	45	4.2	4.4
Mar. 26-April 1	36.1	23.1	35.8	26	18	4	6	44	4.1	4.2
April 2-8	37.1	25.3	37.6	11	26	4	9	37	6.7	5.7
April 9-15	46.6	29.5	39.6	11	18	3	6	29	3.1	5.8
April 16-22	42.9	27.8	46.3	9	26	...	8	35	1.2	8.1
April 23-29	64.4	35.8	48.4	1	3	...	...	4	.24	9.0
April 30-May 6	66.4	42.1	48.6	2	6	1	...	8	1.7	4.0
May 7-13	57.1	38.1	44.8	...	3	...	...	3	3.5	3.0
May 14-20	53.4	39.6	47.8	1	2	...	1	3	8.0	5.0
May 21-27	56.7	37.4	47.0	1	1	...	...	2	1.5	4.0
May 28-June 3	65.9	43.1	50.4	1	...	...	...	1	6.0	3.1
June 4-10	73.4	46.3	52.6	1	...	...	...	1	2.4	7.2
June 11-17	74.0	49.7	54.9	...	...	...	...	...	4.8	6.2
June 18-24	70.1	47.2	53.5	...	...	...	...	...	2.2	7.5
June 25-July 1	75.1	47.6	51.7	...	...	...	...	...	0.9	10.5
July 2-8	72.0	44.0	52.1	...	...	...	...	...	N.	6.5
July 9-15	78.2	49.1	53.1	...	...	...	...	...	N.	9.1
July 16-22	78.1	55.6	55.9	...	...	...	...	...	N.	3.6
July 23-29	76.9	57.5	56.6	...	...	...	...	...	2.8	5
July 30-Aug. 5	73.7	46.7	54.7	...	...	...	...	...	1.3	8.4
Aug. 6-12	67.8	48.2	53.1	...	1	...	...	1	2.9	2.2
Aug. 13-19	73.4	49.4	53.7	...	...	...	...	...	7.2	5.2
Aug. 20-26	73.1	47.6	50.4	...	...	...	...	...	N.	7.7
Aug. 27-Sept. 2	73.3	52.6	55.0	...	...	...	...	...	3.7	5
Sept. 3-9	67.0	41.1	51.2	...	...	...	...	...	N+50	5.1
Sept. 10-16	73.7	49.3	53.3	36✓	...	...	...	36	3.8	5.1
Sept. 17-23	66.4	38.9	49.6	...	...	...	...	...	.50	4.5
Sept. 24-30	47.6	32.6	44.0	...	...	...	...	...	.64	5.7
Oct. 1-7	57.0	34.8	46.7	...	...	...	...	...	N.	6.5
Oct. 8-14	55.4	28.7	44.3	...	...	...	...	...	N.	9.7
Oct. 15-21	52.5	36.7	46.0	...	...	...	...	...	2.2	4
Oct. 22-28	42.7	24.2	41.6	1	6	...	...	7	N.	2.1
Oct. 29-Nov. 4	46.0	27.7	42.5	...	...	...	...	...	.57	3.1
Nov. 5-11	37.7	23.1	40.7	...	...	...	...	...	N.	4.1
Nov. 12-18	32.6	21.8	38.0	...	...	...	...	...	8	.5
Totals				191✓	159	35	37	350	...	...

✓ - No sex given.

Table 2

Average Size of Rainbow Trout in the 1942 Spawning Run at Guiley Pond

(Lengths are given in millimeters-- 25.4 millimeters = 1 inch. Number of fish in parenthesis)

Time period 1942	Average size of rainbow trout in 1942 run								Total weight of males	Total weight of females
	All males		Tagged males		All females		Tagged females			
	Length	Weight	Length	Weight	Length	Weight	Length	Weight		
Jan. 1-Feb. 18	No fish ran in this period.									
Feb. 19-25	409 (5)	1.86	...	...	410 (4)	2.35	...	...	9.31 (5)	9.41 (4)
Feb. 26-Mar. 4	524 (17)	3.47	585 (6)	5.07	503 (4)	3.72	...	...	71.93 (17)	8.28 (4)
March 5-11	512 (23)	3.52	601 (7)	5.41	612 (8)	6.17	637 (1)	7.34	81.09 (23)	49.40 (8)
March 12-18	528 (21)	3.97	593 (4)	4.84	665 (16)	5.00	632 (3)	6.97	83.53 (21)	80.03 (16)
March 19-25	492 (28)	3.17	536 (6)	3.63	592 (17)	5.30	589 (3)	4.64	88.84 (28)	90.18 (17)
March 26-Apr. 1	489 (26)	3.21	607 (4)	5.48	573 (18)	4.98	639 (6)	6.81	67.34 (26)	89.81 (18)
Apr. 2-8	461 (11)	2.43	524 (4)	3.52	568 (26)	4.63	613 (9)	5.63	26.75 (11)	120.47 (26)
Apr. 9-15	514 (11)	3.45	567 (3)	4.33	589 (18)	5.35	624 (6)	6.16	37.91 (11)	96.28 (18)
Apr. 16-22	505 (9)	3.28	...	...	546 (26)	4.33	593 (8)	5.28	29.53 (9)	112.53 (26)
Apr. 23-29	519 (1)	3.00	...	...	583 (3)	5.17	...	...	3.00 (1)	15.53 (3)
Apr. 30-May 6	580 (2)	4.64	642 (1)	6.46	555 (6)	3.99	...	...	9.28 (2)	23.97 (6)
May 7-13	...	...	...	...	444 (3)	2.13	...	...	...	6.40 (3)
May 14-20	449 (1)	1.93	...	...	551 (2)	4.61	432 (1)	1.97	1.93 (1)	9.21 (2)
May 21-27	428 (1)	1.59	...	...	458 (1)	2.50	...	...	1.59 (1)	2.5 (1)
May 28-June 3	463 (1)	1.88	...	...	...	...	...	...	1.88 (1)	...
June 4-10	650 (1)	5.38	...	...	...	...	...	...	5.38 (1)	...

Table 3

Increase in Size of Rainbow Trout Tagged at Guiley Pond Which Escaped Capture by Angling in 1941 and Were Recovered on the 1942 Spawning Run at Guiley Pond. Figures in Parenthesis Indicate Numbers of Fish in Each Group Upon Which the Averages Are Based. (Length in millimeters; weight in ounces)

Month tagged 1941	Month recovered 1942	Male Fish					Female Fish				
		Av. days free	Av. size at tagging		Av. gain		Av. days free	Av. size at tagging		Av. gain	
			Length	Weight	Length	Weight		Length	Weight	Length	Weight
Jan.	March	417 (1)	186	2.00	326	49.00	...	...	...	...	...
Feb.	March	405 (3)	294	11.00	198	33.00	...	...	...	...	...
March	March	369 (12)	463	47.02	98	23.81	371 (3)	581	95.92	38	8.25
March	April	...	...	...	...	...	371 (1)	454	35.00	107	28.00
March	May	...	...	...	...	...	434 (1)	160	1.00	272	30.00
April	March	347 (11)	531	59.88	99	37.38	348 (10)	576	79.13	52	22.58
April	April	362 (5)	495	51.45	87	23.55	359 (21)	536	67.25	77	25.39
May	May	364 (1)	595	79.00	47	24.50	...	...	...	...	...
Oct.	April	164 (1)	462	37.50	3	-1.50	163 (1)	578	76.00	0	-6.00

Table 3a

Analysis of Growth of 71 Recoveries of Rainbow Trout Tagged on the Spawning Run of 1941 and Recaptured on the Spawning Run of 1942 at Guiley Pond

Month of tagging, 1941	Month of recovery, 1942	Av. weight at tagging (ounces)	Av. change in weight (ounces)	Average % change in weight	Av. no. of days free	Av. % change in weight per day	Number of Specimens
			MALES				
Jan.	March	2.00	+49.00	+2450	417	+5.88	1
Feb.	March	11.00	+33.00	+300	405	+0.74	3
March	March	47.02	+23.81	+ 51	369	+0.14	12
April	March	59.88	+37.38	+ 62	347	+0.18	11
April	April	51.45	+23.55	+46	362	+0.13	5
May	May	79.00	+24.50	+31	364	+0.09	1
Oct.	April	37.50	- 1.50	- 4	164	-0.02	1
			FEMALES				
March	March	95.92	+ 8.25	+ 9	371	+0.02	3
March	April	35.00	+28.00	+ 80	371	+0.22	1
March	May	1.00	+30.00	+3000	434	+6.91	1
April	March	79.13	+22.58	+29	348	+0.08	10
April	April	67.25	+25.39	+38	359	+0.11	21
Oct.	April	76.00	- 6.00	- 8	163	-0.05	1

Table 4

Angling Statistics on Guiley Pond for the 1942 Season

Item	Month - 1942 April 25-30	May	June	July	August	Sept. 1-7	1942 Total	1941 Total	1940 Total
Number of anglers	148	460	331	250	125	55	1,369	937	666
Number taking no fish	120 (82%)	376 (82%)	280 (85%)	205 (82%)	95 (76%)	49 (88%)	1,125 (82%)	704 (75%)	482 (72%)
Hours of angling	509.50	1,568.00	897.25	504.75	230.75	128.75	3,839.00	2,440.25	1,452.50
Total rainbow trout	41	94	34	11	11	4	195	104	150
Marked	37	89	30	10	8	4	178		
Unmarked	4	5	4	1	3	0	17		
Total weight rainbow	98-6½	240-15 3/4	96-11 1/4	18-4	25-9 1/4	11-4	491-2 3/4	193-9½	244-6
Marked	95-8½	238-9½	93-12½	17-9	24-14 1/4	11-4	481-9 3/4		
Unmarked	2-14	2-6 1/4	2-14 3/4	-11	-11	-0	9-9 3/4		
Total brook trout	4	27	44	49	35	7	166	299	235
Marked	...	3	1	2	4	1	11		
Unmarked	4	24	43	47	31	6	155		
Total weight brook	1-9	6-0½	11-7	13-7 1/4	8-7½	1-8½	42-7 3/4	68-9	51-2
Marked	...	-9	-6½	-7 3/4	1-3	-4	2-14 1/4		
Unmarked	1-9	5-7½	11-0½	12-15½	7-4½	1-4½	39-9½		
Total weight of all fish	101-8½	253-0 3/4	119-9 1/4*	33-11 3/4** (+3 Brooks released)	34-0 3/4*** (+2 Brooks released)	12-12½	533-10½	262-2½	295-8
Catch - No. fish per hr.	0.09	0.08	0.08	0.12	0.20	0.09	0.09	0.16	0.26
Pounds per hr.	0.20	0.16	0.13	0.07	0.15	0.09	0.14	0.15	0.17

* Includes one 7 3/4 oz. brown trout taken in June.

** Includes one 2# ½ oz. brown trout taken in July.

*** Includes one 7 1/4 oz. brown trout taken in August.

Table 5

Growth Data on 31 Tagged Rainbow Trout Recovered in Guiley Pond in September, 1942,

After varying Periods of Residence in the Pond. (Lengths are given in millimeters and weights are in ounces.)

Month tagged 1942	Number of recoveries Sept. 1942	Average size at tagging		Average change in size		Average days free	Average percentage change		Average percentage change per day	
		Length	Weight	Length	Weight		Length	Weight	Length	Weight
				MALES						
Feb.	1	316	21.50	+ 6.00	- 6.50	198	+1.9	-30.2	+0.01	-0.16
March	5	552	71.20	-17.20	-24.30	175	-2.9	-32.9	-0.01	-0.19
April	6	556	67.91	-19.00	-24.08	149	-3.2	-35.0	-0.02	-0.23
				FEMALES						
March	6	597	86.08	-17.3	-31.49	177	-2.9	-36.1	-0.01	-0.20
April	11	557	69.18	-17.1	-22.86	151	-2.5	-31.6	-0.01	-0.21
May	2	582	80.50	- 8.0	-17.25	118	-1.2	-20.5	-0.01	-0.17
Totals, averages for										
MALES	12	534	65.42	-16.2	-22.71	164	-2.7	-33.7	-0.02	-0.21
FEMALES	19	572	75.71	-15.3	-25.00	155	-2.5	-31.9	-0.01	-0.20

Table 6

Growth Data on Tagged Rainbow Trout Removed from Guiley Pond

by Anglers During Different Months of 1942

Date tagged	Date recovered	MALE FISH: Av. size at tagging L	Av. size at tagging W	Av. change in size L	Av. change in size W	Av. % change in size L	Av. % change in size W	Av. days free	Av. % change per day L	Av. % change per day W	# of fish	FEMALE: Av. size at tagging L	Av. size at tagging W	Av. change in size L	Av. change in size W	Av. % change in size L	Av. % change in size W	Av. days free	Av. % change per day L	Av. % change per day W	# of fish
Dec., '41	Apr., '42	...	...	...	...	...	...	...	...	...	...	456	38.50	- 2.0	-8.50	-0.4	-22.1	126	-0.03	-0.18	1
Feb., '42	Apr., '42	...	...	...	...	...	...	...	...	...	...	628	102.50	+14.0	-27.50	+2.2	-26.8	68	+0.02	-0.39	1
March, '42	Apr., '42	432	30.79	0	-4.00	0.0	-6.3	42	0.0	-0.23	7	553	71.50	+ 3.9	-14.77	+0.6	-17.2	38	+0.01	-0.53	9
April, '42	Apr., '42	415	26.69	+ 1.9	-2.38	+0.5	-7.7	21	+0.04	-0.42	8	578	76.75	+ 1.4	-12.13	+0.3	-15.1	18	+0.04	-0.83	8
Average for month		423	28.60	+ 1.0	-3.13	+0.2	-7.1	31	+0.02	-0.33	15	562	73.61	+ 3.0	-14.00	+0.5	-16.1	36	+0.02	-0.60	19
Dec., '41	May, '42	450	41.33	- 2.5	-8.83	-0.5	-22.2	139	0.00	-0.16	3	527	62.00	0	-10.50	0.0	-16.9	128	0.00	-0.13	1
Feb., '42	May, '42	366	20.00	- 1.5	-2.83	-0.4	-21.8	73	-0.00	-0.30	2	...	...	...	...	...	...	...	...	...	...
March, '42	May, '42	473	44.89	- 1.6	-9.39	-0.2	-18.8	61	-0.01	-0.31	35	579	79.50	- 2.9	-19.00	-0.5	-23.1	61	-0.01	-0.39	12
Apr., '42	May, '42	448	33.67	+ 2.4	-4.50	+0.5	-13.7	42	+0.01	-0.32	9	540	67.48	- 3.1	-14.65	-0.6	-20.2	38	-0.02	-0.56	26
May, '42	May, '42	642	103.50	- 7.0	-6.00	-1.1	- 5.6	15	-0.07	-0.37	1	...	...	...	...	...	...	...	...	...	...
Average for month		466	42.80	- 1.0	-8.20	-0.9	-17.7	62	-0.02	-0.30	50	552	71.03	- 2.9	-15.88	-0.5	-21.0	47	-0.01	-0.49	39
Dec., '41	June, '42	412	28.50	+ 1.0	-7.00	+0.2	-24.5	168	+0.00	-0.15	1										
Feb., '42	June, '42	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
March, '42	June, '42	439	32.50	- 5.0	-7.50	-1.2	-22.7	77	-0.01	-0.30	2	351	18.50	+27.0	- 0.75	+8.0	- 4.7	115	+0.08	-0.06	2
April, '42	June, '42	556	65.83	- 0.7	-12.00	-1.2	-18.1	55	-0.01	-0.33	3	599	93.56	-13.2	-26.06	-2.2	-27.5	85	-0.01	-0.32	8
May, '42	June, '42	439	28.25	- 1.5	- 1.25	-0.4	- 4.3	19	-0.02	-0.24	2	581	81.94	- 5.6	-21.00	-0.9	-24.5	66	-0.01	-0.38	8
June, '42	June, '42	463	30.00	+ 5.0	-0.50	+1.1	- 1.7	8	+0.01	-0.21	1	445	35.50	+ 1.0	- 7.50	+0.2	-20.9	16	-0.03	-1.51	2
Average for month		477	41.94	- 1.0	-6.77	-0.4	-14.9	59	-0.01	-0.27	9	...	...	...	...	...	...	...	...	...	...
												552	75.57	- 6.1	-19.65	-0.5	-14.5	73	+0.00	-0.44	20
Feb., '42	July, '42	476	43.00	- 1.0	-34.00	-0.2	-79.0	131	-0.00	-0.60	1										
March, '42	July, '42	404	24.25	- 2.0	- 4.13	-0.4	-17.3	115	-0.00	-0.15	4	...	...	...	...	...	...	...	...	...	...
April, '42	July, '42	410	24.50	+ 6.0	- 5.00	+1.5	-20.4	107	+0.14	-0.19	1	428	32.00	- 6.0	- 7.00	-1.4	-21.9	135	-0.01	-0.16	1
May, '42	July, '42	...	...	...	...	...	...	...	...	...	...	549	72.25	- 7.5	-19.50	-1.6	-27.8	90	-0.02	-0.33	2
Average for month		417	27.41	- 0.5	- 9.25	-0.1	-28.1	116	+0.02	-0.23	6	462	38.00	+ 3.0	- 6.50	+0.7	-17.1	50	+0.01	-0.34	1
												447	53.83	- 4.8	-13.13	-0.9	-23.7	91	-0.01	-0.29	4
March, '42	Aug., '42	596	74.50	-28.0	-28.0	-3.9	-35.9	152	-0.03	-0.23	3	578	84.50	-11.0	-24.38	-1.9	-29.4	154	-0.01	-0.19	4
April, '42	Aug., '42	...	...	...	...	...	...	...	...	...	...	589	73.50	- 3.0	-12.50	-0.5	-17.0	148	-0.00	-0.11	1
Average for month		596	74.50	-28.0	-28.0	-3.9	-35.9	152	-0.03	-0.23	3	580	82.30	- 9.4	-22.20	-1.6	-26.9	153	-0.01	-0.17	5
March, '42	Sept., '42	...	...	...	...	...	...	...	...	...	...	591	78.75	-68.0	-31.50	-12.6	-44.3	173	-0.08	-0.25	2
April, '42	Sept., '42	...	...	...	...	...	...	...	...	...	...	577	68.25	-13.5	-25.50	- 2.3	-37.7	147	-0.02	-0.25	2
Average for month		...	...	...	...	...	...	...	...	...	...	584	73.50	-40.9	-28.50	- 7.4	-40.9	159	-0.04	-0.25	4

Table 7

Changes in Average Weights of 15 Male and 28 Female Rainbow Trout Tagged in 1941 at Guiley Pond and Recovered in 1942. Weight is Given in Ounces.

	Number of specimens	Average weight when tagged in 1941					Average weight when recovered in 1942 at trap, then by angling						
		Feb.	March	April	May	Oct.	March	April	May	June	July	Aug.	Sept.
Males	1	10.25					53.00		47.00				
	1		2.50				25.50	21.00					
	2		34.25				59.00		47.75				
	2		53.00				90.25					54.50	
	3			59.41			98.67		67.67				
	1			15.50			63.00					40.50	
	1			45.50			90.00						57.00
	2			70.13				81.75					48.00
	1				79.00				103.50 to 97.50				
	1					37.50		36.00 to 32.50					
Females	1	96.75					107.75					84.00	
	1	89.50					87.50						58.50
	1	35.00						63.00					37.00
	1	1.00							31.00	25.00			
	2			61.50			87.75	67.25					
	2			79.63			103.75		76.25				
	2			89.00			109.50			71.75			
	3			72.83				95.50 to 82.00					
	5			56.60				84.50	64.50				
	2			78.00				104.00		78.50			
	1			64.00			75.50					55.00	
	1			79.50				73.50				61.00	
	1			64.50			83.50						55.00
	5			47.90				78.90					50.50

Table 8

Relationship Between Weight of Rainbow Trout at Time of Tagging and Increases in Weight During 1941-1942, and loss of Weight Incurred in the 1942 Spawning

Size range (ounces)	Number of recoveries	Average weight (ounces)	Total wt. at tagging 1941	Total gains or losses, 1942		% increase in weight		% of original body wt. lost from spawning	
				Up to spawning time	Up to final capture	Up to spawning time	Up to final capture		
0-16	3	9.42	28.25	113.25	80.25	+401	+284	-117	
17-32	3	26.55	79.75	111.25	58.75	+139	+ 74	- 65	
33-48	3	41.25	123.75	118.25	37.75	+ 96	+ 31	- 65	
49-64	...	...	...	...	...	...	...	...	- Males
65-80	3	72.25	217.25	63.75	13.75	+ 29	+ 6	- 23	
81-96	1	93.50	93.50	26.50	-25.00	+ 28	- 27	- 55	
97-112	...	...	...	...	...	...	...	...	
113-128	1	113.25	113.25	- 5.75	-54.75	- 5	- 48	- 43	
0-16	1	1.00	1.00	30.00	+24.00	+3000	+2400	-600	
17-32	2	27.50	55.00	106.50	+76.50	+194	+139	- 55	
33-48	6	36.50	219.50	170.50	+53.00	+ 78	+ 24	- 54	
49-64	6	55.75	334.50	156.00	+ 9.00	+ 47	+ 3	- 44	
65-80	4	70.38	281.50	41.00	-46.50	+ 15	- 17	- 32	- Females
81-96	5	89.30	446.50	103.50	-52.50	+ 23	- 12	- 35	
97-112	3	106.33	319.00	36.75	-64.00	+ 12	- 20	- 32	
113-128	...	...	...	...	...	...	...	...	
128-144	1	130.50	130.50	3.50	-13.00	+ 3	- 10	- 13	

Table 9

Growth of Tagged Brook Trout Recovered in the Vicinity of Guiley Pond by Angling and Netting in 1942 After Tagging in 1941. (Number of specimens are shown in parenthesis.)

Month tagged 1941	Month recovered 1942		Average size at tagging		Average change in size		Average percentage change in size		Average days free	Average percentage change per day in size	
			Length	Weight	Length	Weight	Length	Weight		Length	Weight
April	April	(1)	159	1.50	+19.0	?	+11.9	?	363	+0.03	?
May	April	(2)	280	9.00	+69.5	?	+24.8	?	332	+0.08	?
June	April	(2)	186	1.88	+22.5	?	+12.1	?	317	+0.04	?
April	May [1]	(2)	301	11.25	+57.0	+6.50	+18.9	+57.8	383	+0.05	+0.15
May	May [2]	(9)	195	2.53	+41.1	+2.31	+21.0	+89.8	356	+0.06	+0.25
June	May	(1)	176	1.50	+21.0	?	+11.9	?	339	+0.04	?
October	May	(2)	196	2.50	+61.5	?	+32.4	?	210	+0.16	?
May	June	(4)	229	3.94	+58.0	+4.44	+25.5	+112.6	386	+0.07	+0.29
June	June	(4)	206	2.81	+59.0	+5.06	+28.7	+188.9	370	+0.08	+0.51
July	June	(2)	211	3.50	+48.0	+4.13	+23.1	+129.6	344	+0.07	+0.37
October	June	(2)	230	5.38	+58.5	+4.75	+30.3	+177.1	243	+0.13	+0.71
June	July	(1)	198	2.25	+50.0	+2.75	+25.3	+122.2	388	+0.07	+0.31

[1] - Only one recovery had adequate length and weight data.

[2] - Two of these recoveries had no weight data.

Table 10

Average Daily Temperatures, Water Level, Hours of Sun and Number of Rainbow Trout Moved upstream into Guiley Pond, Given by Weekly Periods for 1943

Weekly period 1943	Average temperature		Av. water temp.	Rainbow trout				Total rainbow	Water level	Hrs. of Sun
				All fish by sex		Tag recoveries by sex				
	Max. Air	Min. Air		M	F	M	F			
Jan. 1-7	21.2	6.4	33.3	...	...	...	...	...	N+0.21	3.29
Jan. 8-14	24.0	8.5	32.5	...	...	...	...	...	0	2.
Feb. 12-18	20.5	6	32.5	...	...	...	...	...	0	3.0
Feb. 19-25	32.4	19.8	34.7	64	38	1	1	102	+2.1	5.9
Feb. 26-Mar. 4	19.8	2.4	32.3	...	...	...	...	...	1.3	3.9
Mar. 5-11	22.7	1.1	32.3	...	...	...	...	...	+0.1	5.1
Mar. 12-18	33.4	7.8	33.9	5	2	...	...	7	4.6	2.9
Mar. 19-25	33.9	13.7	34.7	5	...	...	...	5	5.1	7.1
Mar. 26-Apr. 1	41.1	25.0	35.5	29	12	...	1	41	14.8	5.6
Apr. 2-8	32.6	18.4	36.0	13	5	...	...	18	10.4	3.9
Apr. 9-15	37.6	18.7	38.3	18	11	1	2	29	7.6	5.7
Apr. 16-22	37.3	22.6	37.7	13	13	2	1	26	6.4	5.5
Apr. 23-29	48.0	25.8	42.2	6	15	1	3	21	7.5	8.6
Apr. 30-May 6	46.6	27.8	42.1	8	10	...	1	18	12.5	3.8
May 7-13	52.8	35.7	46.6	12	7	...	...	19	7.7	6.0
May 14-20	52.6	32.7	46.3	4	3	1	...	7	8.2	4.9
May 21-27	61.2	40.8	49.2	7	5	...	1	12	.74	3.4
May 28-June 3	66.5	47.6	53.7	2	2	...	...	4	12	4.0
June 4-10	66.4	48.4	55.0	5	4	...	...	9	13.5	5.2
June 11-17	73.1	50.7	54.7	3	5	...	...	8	3.7	6.2
June 18-24	78	54.6	56.9	1	2	...	...	3	1.3	9.5
June 25-July 1	81.3	55.3	58.2	...	...	...	...	...	1.2	7.8
July 2-8	70.1	47.7	53.1	...	...	...	...	...	2.6	7.4
July 9-15	76.2	51.7	56.1	...	...	...	...	...	0.3	7.0
July 16-22	77.5	53.8	56.2	...	...	...	...	...	1.8	6.0

July 23-29	75.7	49	56.2	...	...	...	...	...	N.	4.9
July 30-Aug. 6	77.3	55.9	57.2	...	...	...	...	...	2.7	4.1
Aug. 7-10	75.0	50.6	55.9	...	...	...	...	...	2.9	5.2
Aug. 11-31	...	...	...	...	...	...	...	...	...	...
Sept. 1-7	75.7	51.4	55.4	...	...	...	...	...	1.6	4.7
Sept. 8-14	69.3	41.0	52.0	6	3	...	2	16	N.	2.8
Sept. 15-21	68.1	39.7	51.1	...	...	...	...	...	N.	5.7
Sept. 22-28	62.5	38.1	48.7	...	...	...	...	...	N.	5.7
Sept. 29-Oct. 5	64.7	43.2	48.9	...	...	...	...	...	N.	7.9
Oct. 6-12	66.1	36.4	47.1	...	...	...	...	...	N.	9.1
Oct. 13-19	51.1	36.7	44.7	...	...	...	...	...	0.1	1.9
Oct. 20-26	49.4	35.3	44.8	...	...	...	...	...	N.	3.6
Oct. 27-Nov. 2	49.5	32.7	44.4	...	...	...	...	...	0.8	1.4
Nov. 3-9	46.8	35.6	44.5	...	...	...	...	...	4.6	.2
Nov. 10-16	36.4	23.6	40.3	...	...	...	...	...	1.4	2.0
Nov. 17-23	33.2	23.3	38.5	...	...	...	...	...	N.	1.4
Nov. 24-30	30.1	21.9	37.8	...	...	...	...	...	N.	3.1
Dec. 1-7	33.5	22.4	38.9	...	...	...	...	...	0.6	2.3
Dec. 8-14	28.6	17.2	35.6	...	...	...	...	...	0.1	2.5
Dec. 15-21	26.7	14.5	33.3	...	...	...	...	...	N.	3.0
Dec. 22-28	27.1	14.1	33.3	...	...	...	...	...	N.	2.5
Dec. 29-31	28.1	14.6	33.5	...	...	...	...	...	N.	2.0
Totals				201	137	6✓4	11✓6	338	...	...

✓* No record taken from Jan. 13-Feb. 17, 1943.

✓ Indicates number of fin-clipped fish among recoveries.

Table 11

Average Weight of Rainbow Trout in the 1942 Spawning Run

at Guiley Pond. (Weights are given in pounds)

Time period 1943	Average weight of 1943 run				Total weight of males	Total weight of females	Total weight of all fish
	All males	Marked males	All females	Marked females			
Jan. 1-Feb. 18	No fish running						
Feb. 19-25	1.41 (64)	2.06 (1)	1.09 (38)	1.30 (1)	90.25	41.37	131.62 (102)
Feb. 26-Mar. 11	No fish running						
March 12-18	1.66 (5)	...	6.03 (2)	...	8.31	12.06	20.37 (7)
March 19-25	1.42 (5)	...	...	...	7.13	...	7.13 (5)
March 26-Apr. 1	2.49 (29)	...	6.61 (12)	7.25 (1)	72.08	79.42	151.50 (41)
April 2-8	2.06 (13)	...	4.60 (5)	...	26.75	23.00	49.75 (18)
April 9-15	2.23 (18)	4.88 (1)	5.45 (11)	7.46 (2)	40.06	59.93	99.99 (29)
April 16-22	3.23 (13)	6.62 (2)	4.58 (13)	5.00 (1)	41.93	59.56	101.49 (26)
April 23-29	2.31 (6)	4.18 (1)	4.34 (15)	5.06 (3)	13.88	65.09	78.97 (21)
April 30-May 6	3.81 (8)	...	6.35 (10)	2.93 (2)	30.50	63.56	94.06 (18)
May 7-13	3.09 (12)	...	3.86 (7)	...	37.13	27.00	64.13 (19)
May 14-20	2.87 (4)	4.75 (1)	4.41 (3)	...	11.50	13.25	24.75 (7)
May 21-27	3.86 (7)	...	4.58 (5)	4.43 (1)	27.00	22.94	49.94 (12)
May 28-June 3	4.61 (2)	...	5.28 (2)	...	9.25	10.56	19.81 (4)
June 4-10	3.80 (5)	...	2.86 (4)	...	19.50	11.44	30.94 (9)
June 11-17	3.06 (3)	...	4.26 (5)	...	8.56	21.31	29.87 (8)
June 18-24	2.88 (1)	...	2.31 (2)	...	2.88	4.63	7.51 (3)
Totals					446.71 (195)	515.12 (134)	961.83 (329)
Average					2.29	3.84	2.92

Table 12

Growth Data on Recoveries of Tagged Rainbow Trout at Guiley Pond by Trapping (top 7 lines), and Angling (bottom 8 lines) during 1943. (Number of specimens are given in parenthesis.)

Month tagged	Month recovered		Av. size at tagging		Av. gain		Av. % increase		Av. days free	Av. % increase	
			Length	Weight	Length	Weight	Length	Weight		Length	Weight
					FEMALES						
April, 1941	March, 1943	(1)	614	97.50	+ 56.0	+18.50	+ 9.1	+19.0	712	+0.01	+0.03
April, 1941	April, 1943	(3)	574	80.00	+112.0	+51.33	+19.5	+67.9	728	+0.03	+0.09
					MALES						
April, 1941	April, 1943	(1)	446	34.00	+238.0	+95.00	+53.5	+279.4	741	+0.07	+0.38
May, 1941	April, 1943	(1)	172	1.25	+418.0	+81.75	+243.0	+6,540.0	716	+0.34	+9.13
Av. for month		(5)	309	17.62	+328.0	+88.38	+148.3	+3,409.7	730	+0.20	+4.75
					FEMALES						
April, 1942	May, 1943	(1)	567	62.00	-7	-18.00	- 1.2	-26.9	381	-0.00	-0.07
					MALES						
April, 1942	April, 1943	(1)	467	35.50	+124.0	+42.50	+26.5	+119.7	373	+0.07	+0.32
					FEMALES						
March, 1942	May, 1943	(2)	566	100.25	- 14.5	-30.75	- 2.4	- 46.5	420	-0.00	-0.09
April, 1942	May, 1943	(2)	550	72.25	- 5.0	-30.00	- 0.8	- 39.9	394	-0.00	-0.10
Av. for month		(4)	557	73.75	-10.0	-30.38	- 1.6	-38.2	407	-0.00	-0.09
April, 1942	April, 1943	(1)	407	25.50	+21.0	- 0.50	+ 5.2	- 2.0	377	+0.01	-0.01
					MALES						
March, 1942	May, 1943	(1)	398	23.00	+ 2.0	- 5.00	+ 0.5	-21.7	417	+0.00	-0.05
April, 1942	May, 1943	(1)	431	24.50	- 4.0	- 1.50	- 0.9	- 6.1	394	-0.00	-0.02
Oct., 1942	May, 1943	(1)	327	15.00	+13.0	- 2.50	+ 4.0	-16.7	209	+0.02	-0.08
Av. for month		(3)	385	20.83	- 3.6	- 3.00	+ 1.2	-14.8	340	+0.01	-0.05

Table 13

Guiley Pond, 1943

Period	Number anglers	Anglers taking no fish	% of anglers taking no fish	Total hours fished	Legal fish taken		Total fish taken	Catch per hour of legal fish			Total wt. of legal fish taken	Pounds of fish per hour angling
					Rainbow	Brook		Rainbow	Brook	Total		
Apr. 24-May 7	110	83	75.4	278.0	49	1	50	0.18	0.00	0.18	102.52	0.37
May 8-May 21	123	76	61.8	328.0	53	5	58	0.16	0.02	0.18	144.01	0.44
May 22-June 4	130	101	77.6	334.5	28	11	39	0.08	0.03	0.12	78.89	0.24
June 5-June 18	111	85	76.6	242.5	22	21	43	0.09	0.09	0.18	62.11	0.26
June 19-July 2	76	58	76.3	146.0	7	26	33	0.05	0.18	0.23	29.47	0.20
July 3-July 16	89	57	64.0	178.0	15	47	62	0.09	0.26	0.35	42.81	0.24
July 17-July 31	46	28	60.8	78.5	4	33	37	0.05	0.42	0.47	14.16	0.18
July 31-Aug. 13	33	24	72.7	60.5	3	13	16	0.05	0.21	0.26	6.33	0.10
Aug. 14-Aug. 27	36	27	75.0	58.5	4	9	13	0.07	0.15	0.22	8.08	0.14
Aug. 28-Sept. 6	31	14	45.1	61.0	10	14	24	0.16	0.23	0.39	19.58	0.32
Totals and averages 1943	785	553	70.4	1,765.5	195	180	375	0.11	0.10	0.21	507.96	0.29

Table 14

Summary of the Progressive Decline in Numbers and Percentages of Two Markings of Adult Rainbow Trout Spawning in Guiley Creek and Taken by Guiley Creek Anglers.

(Percentages are given in parenthesis.)

Upstream run of 1941- No. tagged	No. of tagged fish recovered by anglers, 1941	Known mortality 1941	Theoretical escapement left for 1942	1941-tagged fish running in 1942	No. of 1941-tagged fish recovered by anglers in 1942	Known mortality of 1941-tagged fish in 1942	Theoretical escapement of 1941-tagged fish left for 1943	1941-tagged fish running in 1943	No. of 1941-tagged fish recovered by angling in 1943	Known mortality of 1941-tagged fish in 1943
351	72/351 (20.5) ^7	8/351 (2.3)	271/351 (77.2)	71/271 (26.2)	49/271 (18.1) ^6	7/271 (2.6)	215/351 (61.3)	6/215 (2.8)	5/215 (2.3) ^2	0 (0.0)

Upstream run of 1942- No. tagged	No. of 1942 tagged fish taken by anglers in 1942	Known mortality 1942	Theoretical escapement left for 1943	1942-tagged fish running in 1943	No. of 1942-tagged fish taken by anglers in 1943	Known mortality of 1942-tagged fish in 1943
279	135/279 (48.4)	16/279 (5.7)	128/279 (45.9)	2/128 (1.6)	10/128 (7.8) ^1 *	0

^ - Numbers in carets indicate the number of recoveries made elsewhere than Guiley Pond, and in the Great Lakes.

* - More tagged fish were captured by angling than were in the spawning run because an unknown number did not leave the pond during the winter of 1942-1943.

Table 15

Results of Fin-Clipping Experiment at Guiley Pond

Species of Trout	Adipose fin clipped, 1941		1942 recoveries		1943 recoveries		% of recovery	
	Number	Weight	Number	Weight	Number	Weight	Number	Weight
Rainbow	299	149.00	...	...	10	549.0	3.01	368.4
Brook	352	279.25	14	64.25	2	19.50	4.54	29.9
Brown	5	3.25	...	...	...	...	0.00	0.00

Table 16

General Summary of Number of Adult Rainbow Trout Transferred into Guiley Pond

and the Resulting Catch During the Seasons 1940-1943 Inclusive.

(Average weights of fish are given in pounds in parenthesis.)

Year	Rainbow running		Hours of angling	Rainbow caught		Brook trout caught		Catch per hour				% of run taken by anglers		Largest rainbow taken by angleas at pond
								Rainbow		Brook				
	Number	Weight (lb.)		Number	Weight	Number	Weight	Number	Pounds	Number	Pounds	Number	Weight	
1940	Not known		1,452.50	150	244.4 (1.6)	235	51.1 (0.21)	0.10	0.168	0.16	0.035	Not known		5 lb. 12 oz.
1941	252	1,031.2 (4.11)	2,440.25	104	193.6 (1.9)	299	68.7 (0.22)	0.04	0.079	0.12	0.028	41.2	18.8	6 lb. 7 oz.
1942	310	1,233.3 (4.0)	3,839.00	195	491.2 (2.5)	166	42.5 (0.25)	0.05	0.128	0.04	0.011	62.9	39.8	7 lb. 5 oz.
1943	329	961.8 (2.9)	1,765.50	195	460.2 (2.4)	180	47.5 (0.26)	0.11	0.261	0.10	0.027	59.2	47.9	9 lb. 11 oz.