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Miscellaneous Research Report No. 2
Forestry

RECOMMENDATIONS FOR
WEED CONTROL IN FOREST PLANTATIONS
for the
1961 GROWING SEASON

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Wisconsin Conservation Department
Division of Research and Planning

April 1, 1961

NOTE: The following suggestions are based, in part, on experimental results of tests¹ conducted by the University of Wisconsin and the Wisconsin Conservation Department², as well as on manufacturer's recommendations. Growers who wish to evaluate these weed control measures under their own local conditions do so at their own risk. Final recommendations must await further research.

NEW PLANTINGS

Treatment 1: Simazine alone (preferably on freshly scalped or prepared planting strips)

- A. Apply 3 to 6 lbs. (active ingredient) of simazine in 50 to 100 gal. of water per acre (of area actually sprayed).

Calculating: Simazine is available at most local pesticide dealers either as 50W (50% active ingredient) or as 80W (80% active ingredient) wettable powders. In calculating correct amount of material, for example, use 6 lbs. of simazine 50W to provide 3 lbs. of active ingredient. Similarly, use 5 lbs. of simazine 80W to provide 4 lbs. of active ingredient.

Mixing: In using wettable powders it is better to prepare a slurry (a liquid paste) by mixing thoroughly the measured amount of chemical in a small volume of water in a bucket or drum. Then add the mixed slurry to the spray tank during or after filling with the required amount of water. Provide gentle agitation during mixing and spraying.

Applying: Apply the simazine suspension with coarse, fan-type, spray nozzles at low pressure in 24 to 36 inch bands ahead of the planting shoe. If scalpers are used, apply after scalping. Simazine is absorbed mainly through the roots. In several experiments, simazine has caused no injury to red or jack pine through foliage contact. Hence, it does not appear necessary to avoid spraying the tree foliage. Spray with enough water to distribute the simazine uniformly on the soil.

Some difficulty can be expected with strainer or nozzle clogging when spraying suspensions of wettable powders. It may be necessary to replace the standard strainer (usually 50 mesh) with a coarser screen (20 mesh) as well as the nozzles with others having a larger orifice.

¹For experimental purposes, simazine was supplied by the Geigy Chemical Corp., Yonkers, N. Y.; dalapon by the Dow Chemical Co., Midland, Mich.; and amitrole by Amchem Products, Inc., Ambler, Pa.

²For further information see T. T. Kozlowski and J. E. Kuntz, University of Wisconsin, or H. J. Hovind or T. W. Blomquist of the Wisconsin Conservation Dept.

Do not cultivate or otherwise disturb the soil surface following treatment.

The lower rates of application generally will suffice on light sand soils whereas the higher rates will be required on heavy, organic soils. One application usually will control weeds for one season; the higher rates may show effects the second year.

Treatment 2: Simazine in combination with dalapon or amitrole (where planting strips are not scalped or otherwise prepared and where weeds are well established).

- A. Where grasses predominate, apply a mixture of 3 to 6 lbs. (active ingredient) of simazine and 6 lbs. (active ingredient) of dalapon in 50 to 100 gal. of water per acre (of area actually sprayed).

- or -

- B. Where broadleaf weeds predominate, apply a mixture of 3 to 6 lbs. (active ingredient) of simazine and 4 lbs. (active ingredient) of amitrole in 50 to 100 gal. of water per acre (of area actually sprayed).

Calculating: Simazine is calculated as above.

Dalapon is formulated as a soluble powder containing 85% active ingredient. With this formulation, for example, 7 lbs. of material provide about 6 lbs. of active ingredient.

Amitrole is commonly formulated as a 50% wettable powder. With this formulation, for example, 8 lbs. of material provides 4 lbs. of active ingredient.

All of these materials are available at local pesticide dealers.

Mixing: As above.

Applying: As above, except that both dalapon and amitrole should not touch the tree foliage. Both chemicals are absorbed mainly through the foliage and may cause severe injury to trees, especially if the trees are actively growing. Therefore, apply ahead of the planting shoe or as directed sprays--on the weeds but off the trees. Cover weed foliage thoroughly and uniformly.

Both dalapon and amitrole are most effective when weeds are young, succulent, and actively growing. Either in combination with simazine will provide an "early knock-down" which the simazine will maintain.

ESTABLISHED PLANTINGS

Treatment 1: Simazine alone.

- A. Apply 4 to 6 lbs. (active ingredient) of simazine in at least 100 gal. of water per acre (of area actually sprayed).

For directions as to mixing and applying, see Treatment 1 - A, above.

Treatment 2: Simazine in combination with dalapon or amitrole.

Apply a mixture of 4 to 6 lbs. (active ingredient) of simazine with either 6 lbs. (active ingredient) of dalapon or 4 lbs. (active ingredient) of amitrole.

For directions as to mixing and applying, see Treatment 2 - A or B, above.
KEEP SPRAY OFF TREE FOLIAGE.

PRECAUTIONS

1. Read and follow carefully directions on label.
2. Clean sprayer and put in good working condition well in advance of treatment.
3. Calibrate your sprayer accurately so that the correct amount of herbicide will be applied to a known sprayed area. One method is to spray with water a known area (convenient length X known width of sprayed strip). Use a standard pressure and speed. Then measure the volume of water used. Next, calculate this rate of application on a per acre basis (1 acre = 43,560 sq. ft.). If this trial rate is not satisfactory, changes in the rate of application can be made by changing the pressure, nozzle size, or speed. Recalibrate once more and recalculate the rate of application. Repeat this procedure until the correct rate of application is attained.
4. Wash sprayer thoroughly with clean water after each use.
5. Store herbicides in a clean, dry place away from fertilizers, feeds, seeds, and plant materials. Keep labels intact so as not to confuse with other pesticides.

METHODS

Most of the early studies on stocked hatchery-reared trout were conducted in other states, and the primary method for evaluation of survival of these trout was the creel census. In recent years, electro-fishing has replaced creel census as the primary method of determining survival of trout in other states as well as Wisconsin. The electro-fishing gear is powered by either AC or DC generators of varying voltage and amperage. The most common units are powered by 115-volt, 8.7-ampere AC or 230-volt, 11.6-ampere DC generators.

Generally, the earlier studies in Wisconsin were confined to "opening week-end" creel censuses to determine relative survival and yield of fall- and spring-stocked trout, or relative catchability of stocked brown, brook, and rainbow trout. Later these investigations included sampling of the trout populations with electric shocker units, although generally only one run was made and only limited sections of the streams were covered.

In recent years, the procedures for study of stocked hatchery-reared trout have been refined. The most reliable estimates of trout populations in streams are now made by employing the mark and recapture method. A recent innovation is the employment of two shocker units to minimize the effect of possible mortality and known movement of trout between the first and second runs. The second unit is operated 0.5- mile or more behind the first, depending upon the degree of turbidity created by the first crew. Study areas in the streams are from 1 to 12 miles in length and usually end at the upper sections of the streams where they are too small to be worked with the electrical gear now employed. Sampling is continuous from the lower to the upper end of the study areas.

Seines were employed to conduct a trout population estimate on Rock Lake, Kenosha County, in April, 1960.

Creel censuses approximately 80 per cent complete have been conducted during the trout fishing season on streams where trout habitat development is being evaluated (Black Earth, Mt. Vernon, Big Roche-a-Cri, and McKenzie Creeks).

Before trout that were to be studied for growth characteristics were stocked, total lengths to the nearest 0.1 inch and weights in grams were taken on 100 or more trout, depending upon extent of variability of each group stocked. Standard lengths in millimeters were also taken on some of the groups stocked in order to calculate the coefficient of condition (K) in addition to the coefficient of condition (R) which is calculated on the basis of total length in inches and weight in grams. During the electro-fishing operations, lengths and weights were again taken on all or a representative sample of the various trout groups. All references to lengths of trout that follow are total length.

SURVIVAL

Studies on the survival of stocked trout in Wisconsin have been virtually confined to near legal- or legal-sized trout (6 inches) stocked in streams. Population estimates of some of these individual stocks have been made over periods of years after their release. Most of these have been made in conjunction with studies of trout habitat development, mainly on southern and central Wisconsin streams. In some instances, fall- and spring-stocked trout from the same hatchery lots have been released in the same stream and survival of these stocks has been compared within the limits of the study areas.

Survival as Determined by Population Estimates

The estimated number of trout, as determined by the mark and recapture method, was probably in most instances close to the actual numbers of trout present at a given time in the areas studied because the efficiency of the electrical gear in the relatively small streams was high. However, because movement of stocked trout out of the study areas has been demonstrated in some investigations, the survival rates presented must be considered minimum figures. Movement downstream of fall-stocked trout was less apparent than that of trout released in the spring; hence, survival figures on fall-stocked trout appear to be more reliable.

All references to trout survival and mortality in this section of the paper refer to estimates within the study areas, based on the mark and recapture method of estimating populations.

Fall- and Winter-Stocked Trout (Table 1)

Brown Trout. Population estimates in March and April demonstrated that in Wisconsin streams 9- to 11-month-old brown trout stocked as 5- to 8-inch fish the previous fall generally had, when compared to earlier published information, high survival. The number in spring varied from 27 to 74 per cent of the number originally released. However, brown trout stocked as 2- to 3-inch fingerlings in August and September in the Lower Willow River, St. Croix County (Frankenberger, 1959, 1960) had only an 18 to 25 per cent survival to April of the following year.

The highest overwinter survival of fall-stocked brown trout was 74 per cent in Milner ranch, Grant County, (C. Brynildson, 1956) and 71 per cent in Mt. Vernon Creek, Dane County (O. Brynildson, 1959a). Both of these southern Wisconsin streams had moderate winter water temperatures, numerous deep pools, and relatively low populations of resident trout, but contained large populations of the white sucker (Catostomus c. commersonii). Overwinter survival of fall-stocked brown trout was approximately 57 per cent in Brewer Creek, Juneau County (Klick, 1959), Big Roche-a-Cri Creek, Adams County (White, 1959b), and McKenzie Creek, Polk County (White, 1959a). The sections where the trout were released in these streams contained deep pools that were ice-covered during the cold days of winter, but here stocks of resident trout and white suckers were comparatively low. Survival of fall-stocked brown trout to the following spring in Peterson Creek, Waupaca County, was 27 per cent and in Willow Creek, Waushara County, 33 per cent (Primising, 1960a, b). In both Peterson and Willow Creeks, populations of wild brown trout were high in the sections where the stocked trout were released. Ice-free Peterson Creek has less deep pools than is partly ice-bound Willow Creek.

With the exception of Big Roche-a-Cri Creek, Adams-Waushara Counties, only a small percentage of the originally stocked brown trout was present in the study areas after the first fishing season.

Survival of the original stock of 9-month-old brown trout was 65 and 66 per cent in Mt. Vernon and Black Earth Creeks, respectively, 3 weeks after the release date (O. Brynildson, 1959a).

Brook Trout. Of the brook trout stocked at the age of 10 months in Dent Creek, Shawano County, early in October, 25 per cent survived to April (Klingbiel and Jones, 1955), whereas 39 and 57 per cent of two lots of brook trout of the same age released in Big Roche-a-Cri Creek in October survived to April. Dent and Big Roche-a-Cri Creeks were ice-covered in various sections during these investigations. In Big Roche-a-Cri Creek, two sections contained different densities of wild brook trout. In the Adams County section of the study area, where survival was 57 per cent over the winter of 1958-59, the deep-running water was covered with ice and populations of wild trout and other fish species were low. In the Waushara County section, where overwinter survival was 39 per cent, the water was free of ice during most of the winters of 1957-1959 and the wild brook trout population was dense and deep water was relatively scarce.

In both Dent and Big Roche-a-Cri Creeks, only a small percentage of the original stocks were present in the study area after the first fishing season, even less than that of the stocked brown trout discussed earlier.

Fish population estimates conducted in Mt. Vernon Creek in late September and early October, 1959, showed that survival of two lots of 10-month-old brook trout from two different hatcheries was 50 and 63 per cent (Mason, 1959b) after 3 weeks in the stream. These two lots were stocked at the same point approximately 5 miles above the lower end and 1 mile below the upper end of the study area. Only a negligible number of these trout were collected more than 0.5 mile below and above the stocking sites during the electro-fishing operations. Migration of these trout, therefore, cannot account for their loss from the 6.4-mile study area within the 3-week period. Fish population estimates conducted on Mt. Vernon Creek in April, 1960, revealed that only 16 and 17 per cent of these two lots of brook trout were present in the study area. During the April electro-fishing operations, these trout were uniformly scattered throughout the lower two-thirds of the study area (none was collected in the upper one-third of the study area) which indicated that some fish from these lots were present below the study area as well. Thus, downstream movement may account for part of the loss from the study area between dates of the October and April estimates. After the close of the 1960 trout fishing season, none of one lot and only four fish from the other lot were collected during a population estimate made in September, 1960. At least 50 per cent of the estimated April, 1960, stock comprising these two lots was creelied by July, 1960 (Table 4).

Rainbow Trout. There have been three studies of overwinter survival of fall-stocked rainbow trout in Wisconsin streams. In addition, three studies on rainbow trout stocked in Wisconsin lakes in the fall or winter have been reported.

Of the rainbow trout stocked at the age of 10 months during September in Milner Branch, 62 per cent survived to March (C. Brynildson, 1957a). The two lots of 10-month-old rainbow trout stocked in Black Earth Creek in September had a survival of 59 and 76 per cent through the first 4 weeks and 42 and 60 per cent to the following April (Mason, 1959b). The survival through the 3-week period following an October release of 11-month-old rainbow trout in the Little Brule River fish refuge was 80 per cent; however, survival to April was only 10 per cent (Mason, 1959a).

This great range in overwinter survival of rainbow trout in Milner Branch, Black Earth Creek, and the Little Brule fish refuge probably reflects differences in extent of competition and, possibly, predation. Although the three streams remained virtually ice-free during most of the winter where the trout were stocked, competition from wild trout was much higher in the Little Brule River fish refuge than it was in Milner Branch and Black Earth Creek. Moreover, the abundance of fish-eating birds (mainly great blue herons) was considerably higher in the wild and forested watershed of the Little Brule River than in the grazed, agricultural watershed of Milner Branch and Black Earth Creek.

None of the fall-stocked rainbow trout was found in the study area of Milner Branch and less than one per cent was found in the study area of Black Earth Creek after the first fishing season.

Schmitz (1956) reported that rainbow trout fingerlings (average length of 4.1 inches) stocked during early November, 1954, in Cather Lake, Chippewa County, suffered nearly 100 per cent natural mortality by the following summer. Cather Lake at the time the fingerling trout were stocked contained approximately 30 adult rainbow trout per acre and a standing crop of largemouth bass in excess of 45 pounds per acre. A similar stock of fingerling rainbow trout released in early November, 1955, suffered over 95 per cent natural mortality from time of release to May, 1956. Rainbow trout fingerlings (average length of 4.1 inches) stocked in Turk Lake, Chippewa County, during early November, 1954, had a survival of 62 per cent from time of release to April, 1955. Turk Lake at the time of stocking contained a resident population of approximately 85 two-year-old rainbow trout per acre but no other predator fishes (Schmitz, 1956).

Rainbow trout yearlings (8 to 10 inches) stocked in Rock Lake, Kenosha County, in February, 1960, had a survival of approximately 92 per cent to late April, 1960 (O. Brynildson, 1960d). Rock Lake contained a resident population of largemouth bass and panfish plus approximately three 2-year-old rainbow trout per acre (carry-over from 1959) when this study was conducted.

Spring- and Summer-Stocked Trout (Table 2)

Brown Trout. Population estimates were made on several streams in March and April from one to four weeks after the release of legal-sized (6 to 9 inches) 15- to 16-month-old brown trout. The results indicated that there were, in most cases, losses of these fish from the study areas. Some of the losses were due partly to movement out of the study area, chiefly downstream drift, as shown by electro-fishing (McKenzie and Big Roche-a-Cri Creeks) and creel censuses (Black Earth Creek) below the study areas, soon after the trout were stocked in early spring when the water was still cold in most streams. However, movement out of the study area could not account for the loss in the Little Brule River fish refuge where passage of fish was blocked by a grate at the lower end and by the Brule hatchery at the upper end. Degurse and Mason (1958) reported a 60 per cent loss of 7- to 10-inch brown trout (15-month-old) in the refuge within 2 months of the April release. This refuge contained a large population of wild brown trout as well as small populations of wild brook and rainbow trout. Observations indicated that predation by herons may have contributed significantly to the loss.

Like the fall-stocked brown trout only a small percentage of the spring-stocked brown trout was present in the study areas of the streams after the first fishing season, but the survival of such fish through the following winter was high.

Fingerling brown trout (2 to 3 inches in length) stocked in Trout Creek, Iowa County, in June, 1960, had a survival of 22 per cent to September, 1960. The population of resident brown trout during September in this stream was relatively high for a southern Wisconsin stream (O. Brynildson, 1960g).

Brook Trout. Information on survival of spring-stocked brook trout is extremely limited. In Big Roche-a-Cri Creek, White (1959b) reported a 56 per cent survival of legal-sized, 16-month-old brook trout over a 2-week period following a March release. This particular 1959 spring stock was superimposed upon a group of fingerlings stocked the previous fall (Table 1) and upon a dense wild yearling brook trout population. Less than 3 per cent of the original stock was present in the 11.6-mile study area after the trout fishing season closed.

Rainbow Trout. Population estimates in March and April demonstrated that spring-stocked rainbow trout, 16 months of age and 6 to 10 inches in length, suffered mortality

within one to four weeks after release in three of the four Wisconsin streams investigated. In Milner Branch, however, there was no evidence that a group of rainbow trout stocked in March had suffered any mortality after three weeks in this stream (C. Brynildson, 1956). Survival through periods of 1 to 4 weeks after release was 70 per cent in Mt. Vernon Creek and 95 per cent in Black Earth Creek (O. Brynildson, 1957). In Elk Creek, Chippewa County, apparent survival was only 26 per cent within the 3-week period following release (Dunham, 1955). However, a high percentage of the loss may have been due to movement out of the relatively short 1-mile study area in Elk Creek before the population estimate began.

After the close of first fishing season, only a negligible number of rainbow trout from a particular stock was found in the study areas of Mt. Vernon and Black Earth Creeks and Milner Branch.

Results of Single-Run Electro-Fishing

Single runs with an electric shocker unit were made in many of the earlier studies to estimate survival, especially relative survival of trout stocked in the fall and spring. In the latter case, a particular stream was stocked with legal- or near legal-sized trout in the fall and again in the spring with legal-sized trout. Single-run electro-fishing was conducted prior to the opening of the trout fishing season, and the relative number of fall- and spring-stocked trout collected was assumed to be the relative survival of the original stocks to the dates sampling was conducted.

Brown Trout. Whenever the original stocks had not been exposed to fishing pressure, more spring-stocked than fall-stocked trout were recovered during electro-fishing operations, with the exception of the brown trout stocked during the fall of 1954 and spring of 1955 in Brewer Creek, Juneau County (Table 3). Part of the 1955 spring-stock in Brewer Creek was known to have moved downstream, since trout of this release were observed below the study area during the sampling period (Klick, 1959).

The ratio of fall- to spring-stocked brown trout in April or early May was approximately 1:2 in Sawyer Creek, Washburn County (Brasch and Niemuth, 1951), Willow Creek, Waushara County (Hacker, 1954), and Rocky Run Creek, Columbia County (O. Brynildson, 1954b). The ratio of fall- to spring-stocked trout was approximately 1:1 in Brewer Creek in both 1955 and 1956 (Klick, 1959). After the trout in Rocky Run Creek had been exposed to a season of fishing, the ratio of fall- to spring-stocked fish was approximately 1:1.

An estimate of the relative survival of these fall- and spring-stocked brown trout by an "opening week-end" creel census did not give the same results as electro-fishing. The ratio of recorded returns to the anglers of fall- and spring-stocked brown trout was 1:7 on Willow Creek and 1:5 on Rocky Run Creek. It is apparent that the fall-stocked brown trout were not caught in proportion to their pre-season abundance.

Brook Trout. When sampling fall and spring releases of brook trout in Tank Creek and the North Branch of the Trempealeau River, Jackson County, a substantially higher percentage of the spring-stocked trout was collected (Table 3). In Tank Creek, Jackson County, the ratio of fall- to spring-stocked trout collected was 1:13, while in the North Branch of the Trempealeau River the ratio was 1:4 (Christenson, Hacker, and Brynildson, 1954; Klick, 1956a, 1956b). Tank Creek is a comparatively small, shallow stream and winter mortality was probably higher there than in the larger North Branch of the Trempealeau River in the same watershed.

An estimate of the comparative survival of these fall- and spring-stocked brook trout by an "opening week-end" creel census did not give the same results as electro-fishing. The ratio of recorded returns to the angler of fall- and spring-stocked brook trout was 1:9 on Tank Creek and 1:3 on the North Branch of the Trempealeau River.

Rainbow Trout. No information available.

Results From Other States

The early attempts at making estimates on survival of stocked trout in other states were based on yield to the angler from a particular stock. To determine the relative survival of a fall- and spring-stock or a stock of legal-sized trout and fingerling trout, relative yield figures were used. It was assumed that the higher the yield the higher was the apparent survival. Studies cited in the previous section indicate that this assumption is not valid when only a short-term census is conducted. Most of the investigators concluded from their studies that higher yields (reflecting higher survival) were attained whenever legal-sized (usually a minimum of 6 to 7 inches in length) trout were stocked in streams just prior to and during the trout fishing season. Further, because the yield to the angler was low, fingerling trout (1 to 5 inches in length) stocked in streams had low survival rates regardless of the season stocked (Shetter, 1939, 1950; Holloway and Chamberlain, 1942; Chamberlain, 1943; and Needham and Slater, 1944).

Shetter (1947) wrote an extensive review of the findings of other investigators regarding the yield and apparent survival of trout stocked (based on the yield) at various times of the year. The results regarding trout survival obtained by these investigators were varied, and depended on the spring-water supply of a particular stream and the populations of wild trout it contained.

Because these survival rates were estimated from subsequent yield figures they will be discussed further in this report in the section on "Yield".

By employing electro-fishing gear to estimate fish populations and survival, Minnesota researchers estimated that brown trout (ranging in total length from 5 to 13 inches) stocked in Watson Creek during September had an overwinter survival of 43 per cent (Hale and Smith, 1955). Schumacher (1958) estimated that 70 and 44 per cent of the brown and rainbow trout, respectively, (20 months of age and weighing approximately 4 per pound) stocked during September in Duschee Creek survived the first winter.

Discussion

From the results of the studies conducted in Wisconsin and other states pertaining to survival of stocked hatchery-reared trout, certain environmental characteristics of streams appear to indicate whether survival of trout stocked in a particular stream will be high or low.

Streams in Wisconsin that carried fall stocks of trout through the winter with the highest survival (above 60 per cent) had moderate to high winter water temperatures, numerous deep pools, and low populations of wild trout (Mt. Vernon Creek and Milner Branch). Those streams in which overwinter survival was relatively high (approximately 45 to 55 per cent) were characterized by the presence of limited sections with moderate to high winter water temperatures, but contained numerous deep pools, and low populations of resident trout (Black Earth, Harker Lee, Brewer, Big Roche-a-Cri, Adams County section, and McKenzie Creeks). The major characteristic of the streams in which the lowest overwinter survival occurred (less than 40 per cent) (Big Roche-a-Cri Creek,

Waushara County section, Little Brule River fish refuge, Peterson Creek, Willow Creek, and Dent Creek) was the presence of high populations of wild trout. In the sections of the Big Roche-a-Cri and the Little Brule River where the trout were stocked, open water prevailed throughout the winter of the investigation and yet survival of the stocked trout was low. These observations lend support to the contention that competition from resident trout is the major factor contributing to mortality of stocked trout. Moreover, deep water undoubtedly is an important obstacle to fish-eating birds and mammals and may also be conducive to high survival of stocked trout.

Miller (1958) concluded that competition from resident wild trout played an important role in the early mortality of stocked hatchery-reared trout in streams. This competition was mainly for space, and when this was occupied by resident trout the stocked trout exhausted themselves in searching for escape cover.

Competition for space probably caused most of the heavy early mortality on spring-stocked (1958) brown trout in the Little Brule River fish refuge and spring-stocked (1959) brook trout in Big Roche-a-Cri Creek, Waushara County. There was also evidence of predation by great blue herons during this period in both streams. While the extent of this predation is unknown, it is undoubtedly greater in streams where escape cover is held by resident trout or where such cover is lacking.

Competition for fish food in the Wisconsin streams studied did not appear to be an important factor in the survival of the stocked trout. Results of studies on the growth and the coefficient of condition of the wild and stocked trout, to be presented in another section of this report, demonstrated that the condition factor (R) was maintained at a relatively high level and that growth in length was evident even in winter; hence mortalities of the various lots studied could not be attributed to lack of food.

Perhaps the major factor responsible for higher survival rates of fall-stocked trout in recent years, compared to those demonstrated in early studies, is the improved hatchery product itself. Within the past 10 to 15 years, trout diets and feeding procedures have been greatly modified and production of fingerling trout of much larger size by the fall of the year is now generally achieved. Expanded research efforts on many phases of trout culture and on trout habitat requirements to provide even better quality trout and to permit better utilization of the hatchery product, respectively, are now in progress.

Hatchery-reared trout are not uniform in vigor and growth. That is probably the main reason why survival of the stocked trout varies between lots the same year and from year to year in the same body of water. Miller, Sinclair, and Hochachka (1959) concluded that diets can materially affect the ability of the fish to survive. Research personnel in Wisconsin are studying the effects of various diets and rearing procedures on the survival of trout in the wild environment.

Movement of stocked trout out of the study areas has been frequently demonstrated. Fall-stocked brown trout have often been observed to move upstream, while those stocked in the spring when the water temperature was low moved downstream. Less information on movement of stocked brook and rainbow trout is available. Both fall- and spring-stocked brook trout in Big Roche-a-Cri Creek showed a tendency to stay near the stocking sites. Fall- and spring-stocked rainbow trout in Milner Branch and spring-stocked rainbow trout in Black Earth and Mt. Vernon Creeks were found mainly near the stocking sites when the electro-fishing was conducted. More recent information also indicated that movement patterns differed between lots of brook trout of the same origin and between lots of rainbow trout of the same origin, 9 and 10 months of age, respectively, that had been reared at different hatcheries under different conditions (indoor and outdoor concrete raceways and outdoor dirt ponds) but stocked together at the same sites.

YIELD

Studies on the yield of stocked trout in Wisconsin have been made on trout released into lakes as well as streams. Most of these creel censuses have been incomplete and were conducted on opening week-ends of the trout fishing season. Some creel censuses have been conducted throughout the entire trout fishing season but, except for complete records of the catch on a few isolated lakes, they have not exceeded an estimated 80 per cent coverage. The yield of various stocks of trout are presented in Table 4.

Fall- and Winter-Stocked Trout (Table 4)

Brown Trout. The only waters in Wisconsin where an intensive (60 to 80 per cent complete) and extended creel census was conducted on fall-stocked brown trout were Big Roche-a-Cri Creek, Adams and Waushara Counties, and Black Earth and Mt. Vernon Creeks, Dane County. In 1959, the recorded catch (estimated 60 per cent census coverage) of the fingerling brown trout released in Big Roche-a-Cri Creek October, 1958, was 6 per cent of the number originally stocked and 11 per cent of the number surviving to April, 1959, (White, 1959c). There was an estimated 22 per cent of the available April stock remaining (White, 1959c) in the 11.6 mile study section after the close of the 1959 trout fishing season (Table 1). During May and June of 1960, the recorded catch (estimated 80 per cent census coverage) of the fingerling brown trout stocked in Black Earth and Mt. Vernon Creeks during September, 1959, was 15 and 21 per cent of the original numbers stocked and 34 and 43 per cent of the numbers surviving to April, 1960, respectively.

Brook Trout. Intensive and extended creel censuses concerning fall- or winter-stocked brook trout were conducted on three Wisconsin waters: Deerskin River, Vilas County, in 1943, Big Roche-a-Cri Creek, Adams and Waushara Counties, in 1958 and 1959, and Mt. Vernon Creek in 1960.

The creel census on the Deerskin River was conducted during the first 3 months of the trout fishing season and accounted for 28 per cent of 7- to 13-inch brook trout stocked during the previous December (Schneberger and Williamson, 1943).

In the Big Roche-a-Cri Creek, 17 per cent of the original lot of fall-stocked fingerlings and 40 per cent of this lot's estimated number surviving to April were recorded in the 1958 census (estimated 60 per cent coverage) (White, 1959a). In 1959, under the same degree of coverage, two lots of fall-stocked fingerling brook trout in Big Roche-a-Cri Creek yielded 14 and 18 per cent of the original numbers stocked and 32 and 36 per cent of the estimated numbers which survived the winter, respectively (White, 1959c). A negligible number of these trout remained in the 11.6-mile study area of Big Roche-a-Cri Creek after the trout fishing season closed in early September (Table 1).

On West Petenwell Ditch, Juneau County, 12 per cent of the original September stock of 9-month-old brook trout were recorded in the catch on the first day of the trout fishing season (Wis. Cons. Dept., 1957). Of the fingerling brook trout (5-7 inches) released in Mt. Vernon Creek in September, 1959, only 8 per cent of the original number stocked and 50 per cent of the number surviving to April, 1960, were recorded during the following May and June creel census (estimated 70 per cent coverage during the 2-month period) (White, 1960b).

Catch records of fall-stocked fingerling brook trout are available from three other streams in Wisconsin, but these records were obtained from census coverage on only 1 to 4 days during early May.

Rainbow Trout. Only on the Deerskin River, Vilas County, and Black Earth Creek, Dane County, have there been intensive and extended creel censuses on rainbow trout stocked in streams during the fall or winter.

The census on the Deerskin River was conducted during the first 3 months of the trout fishing season in 1943, during which period 48 per cent of the trout stocked in December, 1942, (7-15 inches) were recorded in the catch (Schneberger and Williamson, 1943).

Fingerling rainbow trout (6-9 inches) released in Black Earth Creek in September, 1959, yielded 28 per cent of the original stock and 54 per cent of the number surviving to April, 1960, during May and June of 1960 (estimated 90 per cent coverage). Approximately 67 per cent of this yield was recorded during May (White, 1960b).

On only two lakes in Wisconsin has an intensive creel census been conducted on rainbow trout stocked in the fall or winter. Rainbow trout fingerlings (6-8 inches) stocked in Pallette Lake, Vilas County, in October, 1959, yielded 40 per cent of the number stocked through August 18, 1960 (complete census coverage). Approximately 38 per cent of this yield was recorded from mid-February to mid-April (O. Brynildson, 1960f).

Rainbow trout yearlings (7-10 inches) stocked in Fish Lake, Dane County, in mid-February, 1960, yielded approximately 5 per cent (estimated 80 per cent coverage) of the original stock from May 1, 1960, through July 9, 1960 (O. Brynildson, 1960e).

Spring- and Summer-Stocked Trout

Brown Trout. The yield (estimated 80 per cent coverage) of yearling brown trout released during March in Mt. Vernon and Black Earth Creeks, Dane County, was 42 per cent during the following trout fishing season (Brynildson and Snow, 1957a). With approximately 80 per cent census coverage, 18 and 44 per cent of the yearling brown trout stocked in March and May, respectively, were recorded in the catch within 6 months after their release in McKenzie Creek, Polk County (White, Brynildson, and Skowronski, 1958). Of the 2,871 yearling brown trout stocked in Mt. Vernon Creek during March, 1955, only 65 were estimated to be present in April, 1956; during the 1956 trout fishing season, 55 per cent of these trout were recorded creeled under an estimated 80 per cent census coverage. Under an estimated 60 per cent creel census coverage, 17 per cent of a group of spring-stocked brown trout were recorded creeled on Big Roche-a-Cri Creek during 1959 (White, 1959c).

Brook Trout. The creel census on the Deerskin River, which was referred to under fall-stocked brook trout, also covered May-stocked brook trout (7 to 13 inches in length). The yield to anglers from these trout during the first 3 months of the trout fishing season was 82 per cent (Schneberger and Williamson, 1943). Other intensive creel censuses for extended periods showed that 43 per cent (White *et al.*, 1958) and 55 per cent (Christenson, 1955b) of the spring-stocked yearling brook trout were recorded in the catch from Big Roche-a-Cri Creek, Waushara County, and Sabin Pond, Richland County, respectively.

Rainbow Trout. In a 3-month creel census on the Deerskin River, 30 per cent of the rainbow trout stocked in May (7 to 15 inches in length) were recorded in the catch (Schneberger and Williamson, 1943). Yearling rainbow trout stocked during March in Mt. Vernon and Black Earth Creeks each yielded (80 per cent census coverage) from 34 to 47 per cent of the original stock to anglers the following fishing season (O. Brynildson and Snow, 1957a).

TABLE 1

Population Estimates of Fall- and Winter-stocked
Hatchery-reared Trout in Various Wisconsin Waters

Streams Stocked	County	Length of Study Area (Miles)	Number Stocked	Length (TL Inches) Range of Trout When Stocked	Date Stocked	Date of Estimate	Estimated Population in Percentage of Original Stock
BROWN TROUT							
Dell	Sauk	8.0	1,000	5-7	Oct. 15, 1958	Apr. 4-8, 1960	11.5
Dell	Sauk	8.0	4,500	4-6	Sep. 9, 1959	Apr. 4-8, 1960	36.3
Mt. Vernon	Dane	3.1	400 ^{a/}	6-8	Jan. 27, 1955	Apr. 4-13, 1955	60.2
Mt. Vernon	Dane	6.3	400 ^{a/}	5-7	Oct. 11, 1955	Apr. 4-19, 1956	68.0
Mt. Vernon	Dane	6.4	1,000	5-7	Sep. 27, 1957	Apr. 7-15, 1959	2.6
		6.4				Sep. 25--Oct. 6, 1959	0.2
		6.4				Apr. 18-22, 1960	0.0
Mt. Vernon	Dane	6.4	1,000	5-7	Oct. 24, 1958	Apr. 7-15, 1959	71.3
		6.4				Sep. 25--Oct. 6, 1959	7.1
		6.4				Apr. 18-22, 1960	5.0
Mt. Vernon	Dane	6.4	1,371	4-6	Sep. 8, 1959	Sep. 25--Oct. 6, 1959	66.0
		6.4				Apr. 18-22, 1960	49.2

Table 1. Population Estimates ... continued

Streams Stocked	County	Length of Study Area (Miles)	Number Stocked	Length (TL Inches) Range of Trout When Stocked	Date Stocked	Date of Estimate	Estimated Population in Percentage of Original Stock
Black Earth	Dane	4.3	400 ^{a/}	6-8	Jan. 25, 1955	Apr. 14-28, 1955	67.5
Black Earth	Dane	4.3	400 ^{a/}	5-7	Oct. 11, 1955	Mar. 19--Apr. 3, 1956	58.3
Black Earth	Dane	4.7	1,000	6-8	Oct. 23, 1956	Apr. 22-29, 1957	40.1
Black Earth	Dane	4.7	1,000	5-7	Sep. 14, 1957	Apr. 14-20, 1959	1.1
		4.7				Sep. 28--Oct. 8, 1959	0.1
Black Earth	Dane	4.7	1,000	5-7	Oct. 24, 1958	Apr. 14-20, 1959	56.2
		4.7				Sep. 28--Oct. 8, 1959	7.2
		5.4				Apr. 11-15, 1960	6.1
Black Earth	Dane	4.7	1,125	4-6	Sep. 8, 1959	Sep. 28--Oct. 8, 1959	63.0
		5.4				Apr. 11-15, 1960	54.2
Harker-Lee	Iowa	2.0	618	6-8	Oct. 31, 1956	Mar. 27--Apr. 1, 1957	52.4
		2.0				Sep. 10-13, 1957	4.0
Milner	Grant	2.8	300	5-7	Sep. 21, 1955	Mar. 20-24, 1956	73.7
		2.8				Sep. 10-14, 1956	7.7
Citron	Crawford	0.3	500	5-7	Nov. 20, 1957	Mar. 25-27, 1958	40.2
Camp	Richland	2.0	500	5-6	Oct. 31, 1958	Apr. 21-23, 1959	38.4

Table 1. Population Estimates ... continued

Streams Stocked	County	Length of Study Area (Miles)	Number Stocked	Length (TL Inches) Range of Trout When Stocked	Date Stocked	Date of Estimate	Estimated Population in Percentage of Original Stock
Brewer	Juneau	4.0	1,092	3-6	Oct. 11, 1955	Apr. 8-18, 1957	3.5
Brewer	Juneau	4.0	1,163	5-7	Oct. 3, 1956	Apr. 8-18, 1957	57.2
Big Roche-a-Cri	Adams- ^{b/}	11.6	500	4-6	Oct. 16, 1958	Mar. 26--Apr. 3, 1959	55.6
	Waushara	11.6				Sep. 19--Oct. 1, 1959	21.4
Willow	Waushara	11.8	3,000	4-6	Sep. 9, 1959	Sep. 14--Oct. 13, 1960	60.9
						Apr. 4-13, 1960	32.9
Peterson	Waupaca	3.7	2,080	4-6	Sep. 9, 1959	Sep. 21--Oct. 2, 1960	55.5
						Mar. 21-25, 1960	26.9
McKenzie	Polk	3.4	1,125	6-7	Oct. 14, 1957	Mar. 24-29, 1958	57.2
		3.4				Oct. 6-16, 1958	3.3
		3.6				Oct. 5-9, 1959	0.8
Lower Willow	St. Croix	4.0	77,000	2-3	Aug.--Sep., 1957	Apr., 1958	18.2
Lower Willow	St. Croix	4.0	60,157	2-3	Aug.--Sep., 1959	Apr., 1960	24.9

Table 1. Population Estimates ... continued

Streams Stocked	County	Length of Study Area (Miles)	Number Stocked	Length (TL Inches) Range of Trout When Stocked	Date Stocked	Date of Estimate	Estimated Population in Percentage of Original Stock
BROOK TROUT							
Mt. Vernon	Dane	6.4 6.4 6.4	660	4-6	Sep. 9, 1959	Sep. 25--Oct. 6, 1959 Apr. 18-22, 1960 Sep. 28--Oct. 4, 1960	63.2 15.8 0.0
Mt. Vernon	Dane	6.4 6.4 6.4	660	5-7	Sep. 9, 1959	Sep. 25--Oct. 6, 1959 Apr. 18-22, 1960 Sep. 28--Oct. 4, 1960	50.3 17.1 0.6
Dent	Shawano	3.0 3.0	1,400	5-6	Oct. 1, 1953	Apr. 22-23, 1954 Sep. 16-17, 1954	25.4 0.9
Big Roche-a-Cri	Adams-Waushara <u>c/</u>	11.6 11.6 11.6 11.6	1,200	5-7	Sep. 26, 1957	Mar. 31--Apr. 24, 1958 Sep. 16-30, 1958 Mar. 26--Apr. 3, 1959 Sep. 19--Oct. 1, 1959	41.7 0.7 0.2 0.3
Big Roche-a-Cri	Adams-Waushara <u>c/</u>	11.6 11.6	500	5-7	Oct. 13, 1958	Mar. 26--Apr. 3, 1959 Sep. 19--Oct. 1, 1959	39.4 0.0
Big Roche-a-Cri	Adams-Waushara <u>b/</u>	11.6 11.6	500	5-7	Oct. 14, 1958	Mar. 26--Apr. 3, 1959 Sep. 19--Oct. 1, 1959	56.8 0.4

Table 1. Population Estimates ... continued

Streams Stocked	County	Length of Study Area (Miles)	Number Stocked	Length (TL Inches) Range of Trout When Stocked	Date Stocked	Date of Estimate	Estimated Population in Percentage of Original Stock
RAINEOW TROUT							
Black Earth	Dane	4.7 5.4 5.0	750	7-9	Sep. 10, 1959	Sep. 28--Oct. 8, 1959 Apr. 11-15, 1960 Sep. 20-27, 1960	75.9 60.3 0.3
Black Earth	Dane	4.7 5.4 5.0	750	6-8	Sep. 10, 1959	Sep. 28--Oct. 8, 1959 Apr. 11-15, 1960 Sep. 20-27, 1960	58.9 42.3 1.1
Milner	Grant	2.8 2.8	300	5-8	Sep. 21, 1955	Mar. 20-24, 1956 Sep. 10-14, 1956	61.7 0.0
Little Brule (Fish Refuge)	Douglas	1.2 1.2	500	5-7	Oct. 22, 1958	Nov. 11-13, 1958 Apr. 21-22, 1959	86.6 10.4
<u>Lake Stocked</u>							
Rock Lake (46 acres)	Kenosha	--	3,050	8-10	Feb. 17, 1960	Apr. 23, 1960	92.5

a/ These trout were stocked and subsequently removed for food habits studies.

b/ These groups of trout were stocked in Adams County.

c/ These groups of trout were stocked in Waushara County.

TABLE 2

Population Estimates of Spring- and Summer-stocked
Hatchery-reared Trout in Various Wisconsin Waters

Streams Stocked	County	Length of Study Area (Miles)	Number Stocked	Length (TL Inches) Range of Trout When Stocked	Date Stocked	Date of Estimate	Estimated Population in Percentage of Original Stock
BROWN TROUT							
Mt. Vernon	Dane	3.1	2,871	6-9	Apr. 5, 1954	Apr. 19-28, 1954	68.4
		3.1				Sep. 15-20, 1954	2.8
		3.1				Apr. 4-13, 1955	2.3
		3.1				Sep. 8-16, 1955	0.5
		6.1				Apr. 4-19, 1956	0.2
		3.1				Sep. 8-14, 1956	0.0
Mt. Vernon	Dane	3.1	2,871	6-9	Mar. 15, 1955	Apr. 4-13, 1955	46.4
		3.1				Sep. 8-16, 1955	2.4
		6.1				Apr. 4-19, 1956	2.2
		3.1				Sep. 8-14, 1956	0.1
Mt. Vernon	Dane	6.1	1,436	6-9	Mar. 15, 1956	Apr. 4-19, 1956	82.0
		3.1				Sep. 8-14, 1956	2.7
Mt. Vernon	Dane	6.4	1,872	6-9	Mar. 28, 1958	Apr. 7-15, 1959	2.0
		6.4				Sep. 25--Oct. 6, 1959	0.2

Table 2. Population Estimates ... continued

Streams Stocked	County	Length of Study Area (Miles)	Number Stocked	Length (TL Inches) Range of Trout When Stocked	Date Stocked	Date of Estimate	Estimated Population in Percentage of Original Stock
Mt. Vernon	Dane	6.4	1,872	7-9	Apr. 17, 1959	Sep. 25--Oct. 6, 1959	1.9
		6.4				Apr. 18-22, 1960	1.4
Black Earth	Dane	4.3	2,625	6-9	Apr. 20, 1953	Apr. 6-16, 1954	2.6
		4.3				Sep. 21--Oct. 5, 1954	0.3
		4.3				Apr. 14-28, 1955	0.1
Black Earth	Dane	4.3	2,625	7-9	Apr. 1, 1954	Apr. 6-16, 1954	68.4
		4.3				Sep. 21--Oct. 5, 1954	3.6
		4.3				Apr. 14-28, 1955	3.0
		4.3				Sep. 19-28, 1955	0.6
		4.3				Mar. 19--Apr. 3, 1956	0.2
Black Earth	Dane	4.3	2,625	6-9	Mar. 16, 1955	Apr. 14-28, 1955	65.8
		4.3				Sep. 19-28, 1955	2.9
		4.3				Mar. 19--Apr. 3, 1956	2.7
		4.3				Sep. 15-21, 1956	0.2
		4.7				Apr. 22-29, 1957	0.4
		4.7				Sep. 28--Oct. 8, 1959	(one fish)
		5.4				Apr. 11-15, 1960	0.0
Black Earth	Dane	4.3	1,312	6-9	Mar. 15, 1956	Mar. 19--Apr. 3, 1956	97.4
		4.3				Sep. 15-21, 1956	3.4
		4.7				Apr. 22-29, 1957	1.3
		4.7				Sep. 28--Oct. 8, 1959	0.2
		5.4				Apr. 11-15, 1960	0.0

Table 2. Population Estimates ... continued

Streams Stocked	County	Length of Study Area (Miles)	Number Stocked	Length (TL Inches) Range of Trout When Stocked	Date Stocked	Date of Estimate	Estimated Population in Percentage of Original Stock
Black Earth	Dane	4.7	1,628	6-9	Mar. 28, 1958	Apr. 14-20, 1959	1.1
Black Earth	Dane	4.7 5.4	1,225	7-9	Apr. 27, 1959	Sep. 28--Oct. 8, 1959 Apr. 11-15, 1960	2.0 2.0
Harker-Lee	Iowa	2.0	716	7-11	Apr. 22, 1957	Sep. 10-13, 1957	3.1
Trout	Iowa	5.5	12,440	2-3	Jun. 16, 1960	Sep. 12-17, 1960	22.1
Milner	Grant	2.8 2.8 2.8 2.8	500	5-8	Mar. 16, 1955	Mar. 29--Apr. 6, 1955 Sep. 12-15, 1955 Mar. 20-24, 1956 Sep. 10-14, 1956	49.4 11.2 4.6 0.4
Citron	Crawford	0.3	250	6-8	Mar. 10, 1958	Mar. 25-27, 1958	79.2
Brewer	Juneau	4.0	1,092	6-10	Apr. 13, 1956	Apr. 8-18, 1957	5.7
Brewer	Juneau	4.0	1,160	5-8	Apr. 4, 1957	Apr. 8-18, 1957	68.3
Big Roche-a-Cri	Adams-Waushara	11.6	500	6-9	Mar. 23, 1959	Sep. 19--Oct. 1, 1959	18.2
Clam	Burnett	1.0	800	6-8	Apr. 2, 1954	Apr. 22-23, 1954	48.3

Table 2. Population Estimates ... continued

Streams Stocked	County	Length of Study Area (Miles)	Number Stocked	Length (TL Inches) Range of Trout When Stocked	Date Stocked	Date of Estimate	Estimated Population in Percentage of Original Stock
McKenzie	Polk	3.4	4,500	6-9	Apr.--Jun. 1956	Mar. 26-30, 1957	2.7
McKenzie	Polk	3.4	1,000	6-8	Mar. 19, 1957	Mar. 26-30, 1957	72.7
		3.4				Oct. 7-11, 1957	2.8
		3.4				Mar. 24-29, 1958	5.2
		3.4				Oct. 6-16, 1958	1.2
		3.6				Oct. 5-9, 1959	0.0
McKenzie	Polk	3.4	2,250	7-8	May 28, 1957	Oct. 7-11, 1957	7.4
		3.4				Mar. 24-29, 1958	7.6
		3.4				Oct. 6-16, 1958	0.4
		3.6				Oct. 5-9, 1959	0.0
McKenzie	Polk	3.4	2,500	6-8	Mar. 20, 1958	Mar. 24-29, 1958	100.0
		3.4				Oct. 6-16, 1958	3.2
		3.6				Oct. 5-9, 1959	0.4
McKenzie	Polk	3.4	3,500	6-10	Apr. 15, 1959	Oct. 5-9, 1959	3.6
Little Brule (Fish Refuge)	Douglas	1.2	800	7-10	Apr. 17, 1958	May 20-21, 1958	39.5
						Oct. 1-2, 1958	1.8

Table 2. Population Estimates ... continued

Streams Stocked	County	Length of Study Area (Miles)	Number Stocked	Length (TL Inches) Range of Trout When Stocked	Date Stocked	Date of Estimate	Estimated Population in Percentage of Original Stock
BROOK TROUT							
Mt. Vernon	Dane	3.1	1,700	4-8	Jul. 21, 1953	Apr. 19-28, 1954	9.5
Big Roche-a-Cri	Adams-Waushara ^{a/}	6.1	1,000	6-8	May 3, 1957	Sep. 9-23, 1957	0.2
		11.6				Mar. 31--Apr. 24, 1958	0.0
Big Roche-a-Cri	Adams-Waushara ^{a/}	11.6	500	7-10	Mar. 18, 1959	Mar. 26--Apr. 3, 1959	56.2
		11.6				Sep. 19--Oct. 1, 1959	0.1
RAINBOW TROUT							
Mt. Vernon	Dane	6.3	1,436	7-10	Mar. 15, 1956	Apr. 4-19, 1956	70.1
		3.1				Sep. 8-14, 1956	0.3
Black Earth	Dane	4.3	1,312	7-10	Mar. 15, 1956	Mar. 19--Apr. 3, 1956	94.6
		4.3				Sep. 15-21, 1956	0.1
		4.7				Apr. 22-29, 1957	0.0
Milner	Grant	2.8	500	6-10	Mar. 16, 1955	Mar. 29--Apr. 6, 1955	100.0
		2.8				Sep. 12-15, 1955	0.4
Elk	Chippewa	1.0	1,000	7-11	Apr. 6, 1954	Apr. 29-30, 1954	25.7

^{a/} These groups of trout were stocked in Waushara County.

TABLE 3

Relative Number of Fall- and Spring-stocked Hatchery-reared
Trout Collected during Single Run through Study Areas

Streams Stocked	County	Length of Study Area (Miles)	Number Stocked	Length (TL Inches) Range of Trout When Stocked	Date Stocked	Date of Collection	Percentage of the Original Stocks Collected	Relative Number of the Original Stocks Collected	
								Fall	Spring
BROWN TROUT									
Sawyer	Washburn	2.2	690	6-7	Oct. 31, 1950	Apr. 20-21, 1951	9	1	2.0
			690	6-7	Mar. 27, 1951	Apr. 20-21, 1951	18		
Sawyer	Washburn	2.2	195	6-7	Oct. 1, 1951	Apr. 16-17, 1952	15	1	1.9
			780	6-7	Apr. 8, 1952	Apr. 16-17, 1952	29		
Willow	Waushara	4.0	4,500	5-6	Oct. 16, 1952	May 6-7, 1953	2	1	2.0
			4,500	6-8	Apr. 29, 1953	May 6-7, 1953	4		
Rocky Run	Columbia	5.0	2,887	6-7	Nov. 10, 1952	Apr. 14-29, 1953	22	1	2.0
				7-8	Apr. 9, 1953	Apr. 14-29, 1953	44		
				Nov. 10, 1952	Aug. 24--Sep. 5, 1953	9	1	1.1	
				Apr. 9, 1953	Aug. 24--Sep. 5, 1953	10			
				Nov. 10, 1952	Jun. 8-23, 1954	2	1	0.5	
				Apr. 9, 1953	Jun. 8-23, 1954	1			

Table 3. Relative Number ... continued

Streams Stocked	County	Length of Study Area (Miles)	Number Stocked	Length (TL Inches) Range of Trout When Stocked	Date Stocked	Date of Collection	Percentage of the Original Stocks Collected	Relative Number of the Original Stocks Collected	
								Fall	Spring
Brewer	Juneau	3.7	1,178	6-8	Dec. 3, 1954	Apr. 11-16, 1955	42	1 : 0.9	
			1,167	5-9	Apr. 7, 1955	Apr. 11-16, 1955	38		
		4.0		Dec. 3, 1954	Apr. 17-20, 1956	3	1 : 0.7		
		Apr. 7, 1955	Apr. 17-20, 1956	2					
Brewer	Juneau	4.0	1,092	3-6	Oct. 11, 1955	Apr. 17-20, 1956	9	1 : 1.1	
			1,092	6-10	Apr. 13, 1956	Apr. 17-20, 1956	10		
BROOK TROUT									
Tank	Jackson	3.8	640	6-8	Oct. 2, 1952	May 7--Jun. 2, 1953	2	1 : 13.0	
			663	6-8	Apr. 29, 1953	May 7--Jun. 2, 1953	26		
N. Branch Trempealeau	Jackson	4.3	681	6-8	Oct. 2, 1952	May 11-20, 1953	4	1 : 3.8	
			684	6-8	Apr. 29, 1953	May 11-20, 1953	15		

TABLE 4

Yield to Anglers from Stocked Hatchery-reared Trout in Wisconsin Waters

Waters Stocked	Original		Date Creeled	Estimated Number ^{a/} of Orig- inal Stock Available in April	Percentage of Original Stock Recorded in Catch	Percentage of Estimated Available April Stock Recorded in Catch	Length Range (TL Inches)	
	Number Stocked	Date Stocked					Stocked	Creeled
BROWN TROUT								
Willow Creek	4,500	Oct. 16, 1952	May 2-3, 1953	--	0.2	--	6-7	6-8
Waushara County	4,500	Apr. 29, 1953	May 2-3, 1953	--	2.3	--	6-8	6-8
Rocky Run Creek	2,887	Nov. 10, 1952	May 2-3, 1953	--	0.2	--	6-7	7-8
Columbia County	2,887	Apr. 9, 1953	May 2-3, 1953	--	1.1	--	7-8	7-8
Dell Creek	4,500	Nov. 7, 1952	May 2-3, 1953	--	0.9	--	6-7	7-9
Sauk County								
Citron Creek	500	Nov. 20, 1957	May 1, 1958	201	5.4	13.4	6-7	7-9
Crawford County	500	Mar. 10, 1958	May 1, 1958	410	8.2	20.2	7-9	7-10
Mt. Vernon Creek	2,871	Apr. 5, 1954	May 1-2, 1954	1,965	5.5	8.0	6-9	7-9
Dane County			Apr. 30--May 1, 1955	65	0.2	7.7		12-15
			Apr. 28--Sep. 7, 1956	i	--	57.1		16-18
Mt. Vernon Creek	400	Jan. 27, 1955	Apr. 30--May 1, 1955	241	3.5	5.8	6-8	7-9
Mt. Vernon Creek	2,871	Mar. 15, 1955	Apr. 30--May 1, 1955	1,333	5.5	11.9	6-9	7-9
			May 1--Sep. 7, 1956	62	1.2	54.8		10-15

le 4. Yield to Anglers ... continued

Creeks Stocked	Original Number Stocked	Date Stocked	Date Creeled	Estimated Number ^{a/} of Original Stock Available in April	Percentage of Original Stock Recorded in Catch	Percentage of Estimated Available April Stock Recorded in Catch	Length Range (TL Inches)	
							Stocked	Creeled
Vernon Creek	1,436	Mar. 15, 1956	Apr. 28--Jun. 30, 1956 Jul. 1--Sep. 7, 1956	1,183 --	36.2 5.6	43.9 6.9	6-9	7-11
Vernon Creek	1,371	Sep. 8, 1959	May 1-28, 1960 May 28--Jun. 30, 1960	675 --	18.2 3.0	37.0 6.1	4-6	7-12 7-12
Black Earth Creek Deer County	2,625	Apr. 20, 1953	May 2-3, 1953 May 1-2, 1954 Apr. 30--May 1, 1955	-- 68 3	2.0 0.5 0.0	-- 20.6 0.0	6-8	7-8 12-15 --
Black Earth Creek	2,625	Apr. 1, 1954	May 1-2, 1954 Apr. 30--May 1, 1955	1,796 78	6.9 0.2	10.1 6.4	7-9	7-9 12-15
Black Earth Creek	400	Jan. 25, 1955	Apr. 30--May 1, 1955	270	6.5	9.6	6-8	7-9
Black Earth Creek	2,625	Mar. 16, 1955	Apr. 30--May 1, 1955 Apr. 28--Sep. 7, 1956	1,727 72	8.2 0.8	12.5 27.8	6-9	7-9 12-17
Black Earth Creek	1,312	Mar. 15, 1956	Apr. 28--Jun. 30, 1956 Jul. 1--Sep. 7, 1956	1,278 --	33.4 8.6	34.8 8.3	6-9	7-10 9-11
Black Earth Creek	1,125	Sep. 8, 1959	May 1-28, 1960 May 28--Jun. 30, 1960	610 --	12.6 5.9	23.3 10.8	4-6	7-12 7-12

Table 4. Yield to Anglers ... continued

Waters Stocked	Original Number Stocked	Date Stocked	Date Creeled	Estimated Number ^{a/} of Orig- inal Stock Available in April	Percentage of Original Stock Recorded in Catch	Percentage of Estimated Available April Stock Recorded in Catch	Length Range (TL Inches)	
							Stocked	Creeled
Milner Branch Grant County	500	Mar. 16, 1955	Apr. 30--May 1, 1955	198	5.6	14.2	5-8	6-8
Big Roche-a-Cri Creek Adams County	700 ^{b/}	Apr. 22, 1958	May 1--Sep. 7, 1958	--	5.7	--	6-9	7-10
Big Roche-a-Cri Creek Adams County	500	Oct. 16, 1958	May 1--Sep. 7, 1959	286	6.2	10.8	4-6	6-11
	500	Mar. 23, 1959	May 1--Sep. 7, 1959	500	17.4	17.4	6-9	6-12
South Fork of Willow River St. Croix County	492	Apr. 2, 1953	May 2-3, 1953	--	3.0	--	6-8	6-8
			May 9-10, 1953	--	1.4	--	6-8	6-8
			May 15-17, 1953	--	1.6	--	6-8	6-9
South Fork of Willow River	500	May 15, 1953	May 15-17, 1953	--	0.8	--	6-8	6-8
McKenzie Creek Polk County	4,500	Apr.--Jun., 1956	May 1--Sep. 7, 1957	117	1.2	47.9	6-9	9-13
McKenzie Creek	1,000	Mar. 19, 1957	May 1--Jul. 2, 1957	727	16.5	22.7	6-8	7-10
			Jul. 2--Sep. 7, 1957	--	1.3	1.8		

Table 4. Yield to Anglers ... continued

Waters Stocked	Original Number Stocked	Date Stocked	Date Creeled	Estimated Number ^{a/} of Orig- inal Stock Available in April	Percentage of Original Stock Recorded in Catch	Percentage of Estimated Available April Stock Recorded in Catch	Length Range (TL Inches)	
							Stocked	Creeled
McKenzie Creek	2,250	May 28, 1957	May 28--Jul. 2, 1957 Jul. 3--Sep. 7, 1957	-- --	28.2 5.1	-- --	7-8	8-10
Turk Lake Chippewa County	400	Apr. 16, 1948	Jun. 1--Oct. 31, 1948	--	5.0	--	5-7	7-11
Timber Coulee Pond Vernon County	750	Oct. 3, 1956	May 1-4, 1957	--	12.0	--	5-6	6-9
BROOK TROUT								
Tank Creek Jackson County	640 663	Oct. 2, 1952 Apr. 29, 1953	May 2-3, 9-10, 1953 May 2-3, 9-10, 1953	-- --	1.6 10.4	-- --	6-8 6-8	-- --
N. Branch Trempealeau Jackson County	681 684	Oct. 2, 1952 Apr. 29, 1953	May 2-3, 9-10, 1953 May 2-3, 9-10, 1953	-- --	5.4 15.5	-- --	6-8 6-8	-- --
Petenwell Ditch Juneau County	2,000	Sep. 20, 1956	May 1, 1957	--	11.9	--	4-7	8-12

Table 4. Yield to Anglers ... continued

Waters Stocked	Original Number Stocked	Date Stocked	Date Creeled	Estimated Number ^{a/} of Orig- inal Stock Available in April	Percentage of Original Stock Recorded in Catch	Percentage of Estimated Available April Stock Recorded in Catch	Length Range (TL Inches)	
							Stocked	Creeled
Big Roche-a-Cri Creek Waushara County	1,200	Sep. 26, 1957	May 1--Jun. 30, 1958	500	15.8	36.7	5-7	7-10
			Jul. 1--Sep. 7, 1958	--	0.3	0.8		
Waushara County	1,000	May 3, 1957	May 3--Jul. 2, 1957	--	40.2	--	6-8	6-9
			Jul. 3--Sep. 7, 1957	--	2.7	--		
Big Roche-a-Cri Creek Waushara County	500	Oct. 13, 1958	May 1--Sep. 7, 1959	197	14.2	36.0	5-7	6-8
			Mar. 18, 1959	May 1--Sep. 7, 1959	281	13.8	24.6	7-10
Big Roche-a-Cri Creek Adams County	500	Oct. 14, 1958	May 1--Sep. 7, 1959	284	18.0	31.7	5-7	6-8
Mt. Vernon Creek Dane County	1,700	Jul. 21, 1953	May 1-2, 1954	162	1.7	17.9	4-8	9-12
Mt. Vernon Creek	1,320	Sep. 9, 1959	May 1-28, 1960	217	7.0	42.3	5-7	7-11
			May 28--Jun. 30, 1960	--	1.2	7.5		7-12
Token Creek Pond (0.4 acre) Dane County	175	Apr. 14, 1954	May 1-2, 1954	--	13.0	--	7-8	7-8

Table 4. Yield to Anglers ... continued

Waters Stocked	Original Number Stocked	Date Stocked	Date Creeled	Estimated Number ^a / of Orig- inal Stock Available in April	Percentage of Original Stock Recorded in Catch	Percentage of Estimated Available April Stock Recorded in Catch	Length Range (TL Inches)	
							Stocked	Creeled
Sabin Pond (1 acre)	705	Jun. 21, 1955						
Richland County	800	Jul. 1, 1955						
	420	Jul. 15, 1955	Jun. 22--Sep. 7, 1955	--	55.1	--	7-8	--
Cataract Pond (3 acres)	300	May 3, 1956	May 5-6, 1956	--	16.3	--	7-8	7-8
Monroe County								
Risk Creek Pond (3.5 acres)	955	Sep. 1, 1956	May 1, 1957	--	17.2	--	3-7	6-10
Adams County								
RAINBOW TROUT								
Mt. Vernon Creek Dane County	1,436	Mar. 15, 1956	Apr. 28--Jun. 30, 1956 Jul. 1--Sep. 7, 1956	1,007 --	30.2 4.2	43.7 6.1	7-10	7-11
Black Earth Creek Dane County	200	Apr. 14, 1954	May 1-2, 1954	--	11.5	--	9-11	9-11
Black Earth Creek	1,312	Mar. 15, 1956	Apr. 28--Jun. 30, 1956 Jul. 1--Sep. 7, 1956	1,241 --	43.1 3.7	45.5 4.0	7-10	7-11
Black Earth Creek	1,500	Sep. 10, 1959	May 1-28, 1960 May 28--Jun. 30, 1960	770 --	23.1 4.9	44.9 9.6	6-9	9-15 11-16

Table 4. Yield to Anglers ... continued

Waters Stocked	Original Number Stocked	Date Stocked	Date Creeled	Estimated Number ^{a/} of Orig- inal Stock Available in April	Percentage of Original Stock Recorded in Catch	Percentage of Estimated Available April Stock Recorded in Catch	Length Range (TL Inches)	
							Stocked	Creeled
Cather Lake	1,260	May 7, 1952	May 7--Oct. 31, 1952	--	11.0	--	6-8	7-11
Riley Lake (17 acres) Chippewa County	600	May 4, 1951	May 4--Oct. 31, 1951 May 1--Oct. 31, 1952	-- --	27.0 8.7	-- --	6-8	8-12 12-15
Riley Lake	600	May 7, 1952	Aug. 1--Oct. 31, 1952	--	5.6	--	6-8	10-11
Timber Coulee Pond (2 acres) Vernon County	750	Oct. 3, 1956	May 1-4, 1957	--	1.2	--	4-7	6-8
Cataract Pond (3 acres) Monroe County	2,000	Sep. 16, 1955	Apr. 28-29--May 5-6, 1957	--	3.9	--	--	6-8
Cataract Pond	1,135	Sep. 21, 1956	May 1, 1957	--	7.7	--	2-4	6-10
Token Creek Pond (0.4 acre) Dane County	825	Apr. 14, 1954	May 1-2, 1954	--	37.0	--	7-9	7-9
Rock Lake (45 acres) Kenosha County	4,600 2,110	Feb. 26, 1959 Apr. 2, 1959	May 1--Jun. 30, 1959 May 1--Jun. 30, 1959	-- --	6.1 3.8	-- --	7-10 7-10	8-12 8-12

Table 4. Yield to Anglers ... continued

Waters Stocked	Original Number Stocked	Date Stocked	Date Creeled	Estimated Number ^{a/} of Orig- inal Stock Available in April	Percentage of Original Stock Recorded in Catch	Percentage of Estimated Available April Stock Recorded in Catch	Length Range (TL Inches)	
							Stocked	Creeled
Milner Branch Grant County	500	Mar. 16, 1955	Apr. 30--May 1, 1955	500	19.8	--	6-10	7-11
South Fork of Willow River St. Croix County	486	Apr. 1, 1953	May 2-3, 1953	--	19.3	--	7-10	7-10
			May 9-10, 1953	--	2.5	--	7-10	7-10
			May 15-17, 1953	--	1.2	--	7-10	7-10
South Fork of Willow River	496	May 15, 1953	May 15-17, 1953	--	10.5	--	7-9	7-9
Turk Lake (11 acres) Chippewa County	400	Apr. 16, 1948	Jun. 1--Oct. 31, 1948	--	16.2	--	5-7	8-11
Turk Lake	880	May 4, 1951	May 4--Oct. 31, 1951	--	46.5	--	6-8	8-11
Turk Lake	352	May 4, 1951	May 4--Oct. 31, 1951	--	70.3	--	10-12	11-13
Turk Lake	2,180	May 7, 1952	May 7--Oct. 31, 1952	--	24.8	--	6-8	7-11
Cather Lake (10 acres) Chippewa County	840	May 4, 1951	May 4--Oct. 31, 1951	--	57.9	--	6-8	8-11
Cather Lake	50	May 4, 1951	May 4--Oct. 31, 1951	--	70.0	--	10-12	11-14

Table 4. Yield to Anglers ... continued

Waters Stocked	Original Number Stocked	Date Stocked	Date Creeled	Estimated Number ^{a/} of Orig- inal Stock Available in April	Percentage of Original Stock Recorded in Catch	Percentage of Estimated Available April Stock Recorded in Catch	Length Range (TL Inches)	
							Stocked	Creeled
Moose Lake (74 acres) Waukesha County	9,792	Apr. 1, 1959	May 1--Jun. 30, 1959	--	9.2	--	7-10	7-11
Fish Lake (252 acres) Dane County	10,000	Feb. 16, 1960	May 1--Jul. 9, 1960	--	5.4	--	7-10	7-12
	10,000	Apr. 22, 1960	May 1--Jul. 9, 1960	--	14.4	--	8-11	8-13
Pallette Lake (169 acres) Vilas County	8,550	Oct. 6, 1959	Oct. 6--Feb. 16, 1960	--	0.7	--	6-8	6-9
			Feb. 16--Apr. 15, 1960	--	38.4	--		7-9
	8,550	Feb. 16, 1960	Apr. 15--Aug. 18, 1960	--	1.3	--	6-9	7-10
			Feb. 16--Apr. 15, 1960	--	31.2	--		6-9
			Apr. 15--Aug. 18, 1960	--	3.9	--	7-11	

^{a/} Where no population estimate of the original stock was made, the number of trout available to anglers at the onset of the trout fishing season was unknown, and the corresponding place in the table has been left vacant.

^{b/} These trout were stocked directly below the 11.7 mile census area.

TABLE 5

Relative Catchability of Legal-sized Yearling Brown,
Rainbow, and Brook Trout in Various Wisconsin Waters ^{a/}

Species, Waters, and Period of Creel Census	Date Stocked	Estimated Number ^{b/} of Original Stock Available	Percentage of Original or Estimated Stock Recorded in Catch	Relative Catchability
BROWN TO RAINBOW				
<u>Turk Lake (11 acres), Chippewa County</u>				
Creel census Jun. 15--Oct. 31, 1948				
Brown trout (400)	Apr. 16, 1948	--	5 ^{c/}	1:3.2
Rainbow trout (400)	Apr. 16, 1948	--	16	
<u>South Fork of Willow River, St. Croix County</u>				
Creel census May 2-3, 9-10, 1953				
Brown trout (492)	Apr. 2, 1953	--	4	1:5.5
Rainbow trout (486)	Apr. 1, 1953	--	22	

Table 5. Relative Catchability ... continued

Species, Waters, and Period of Creel Census	Date Stocked	Estimated Number ^{b/} of Original Stock Available	Percentage of Original or Estimated Stock Recorded in Catch	Relative Catchability
Creel census May 15-17, 1953				
Brown trout (500)	May 15, 1953	--	1	1:10.0
Rainbow trout (496)	May 15, 1953	--	10	
<u>Lower Willow River and Race, St. Croix County</u>				
Creel census Apr. 30--May 8, 1955				
Brown trout (700)	Apr. 1955	--	8	1:2.6
Rainbow trout (700)	Apr. 1955	--	21	
<u>Ten Mile Creek, Wood County</u>				
Creel census Apr. 30--May 8, 1955				
Brown trout (1,006)	Apr. 1955	--	17	1:0.6
Rainbow trout (991)	Apr. 1955	--	10	

Table 5. Relative Catchability ... continued

Species, Waters, and Period of Creel Census	Date Stocked	Estimated Number ^{b/} of Original Stock Available	Percentage of Original or Estimated Stock Recorded in Catch	Relative Catchability
<u>Stockwell Creek</u> <u>Jackson County</u>				
Creel census Apr. 30--May 8, 1955				
Brown trout (401)	Apr. 1955	--	6	1:2.3
Rainbow trout (400)	Apr. 1955	--	14	
<u>Bohemian Valley Creek,</u> <u>La Crosse County</u>				
Creel census Apr. 30--May 8, 1955				
Brown trout (609)	Apr. 1955	--	28	1:0.9
Rainbow trout (617)	Apr. 1955	--	25	

Table 5. Relative Catchability ... continued

Species, Waters, and Period of Creel Census	Date Stocked	Estimated Number ^{b/} of Original Stock Available	Percentage of Original or Estimated Stock Recorded in Catch	Relative Catchability
<u>Germantown Creek, Richland County</u>				
Creel census Apr. 30--May 8, 1955				
Brown trout (501)	Apr. 1955	--	9	1:2.0
Rainbow trout (503)	Apr. 1955	--	18	
<u>Black Earth Creek, Dane County</u>				
Creel census May 1-2, 1954				
Brown trout (2,625)	Apr. 1, 1954	1,796	10	1:1.2
Rainbow trout (200)	Apr. 14, 1954	--	12	

Table 5. Relative Catchability ... continued

Species, Waters, and Period of Creel Census	Date Stocked	Estimated Number ^{b/} of Original Stock Available	Percentage of Original or Estimated Stock Recorded in Catch	Relative Catchability
<u>Black Earth Creek Dane County</u>				
Creel census Apr. 28--Sep. 7, 1956				
Brown trout (1,312)	Mar. 15, 1956	1,266	43	1:1.2
Rainbow trout (1,312)	Mar. 15, 1956	1,228	50	
<u>Black Earth Creek, Dane County</u>				
Creel census May 1--Jun. 30, 1960				
Brown trout (1,125)	Sep. 8, 1959	610	34	1:1.6
Rainbow trout (1,500)	Sep. 10, 1959	770	54	

Table 5. Relative Catchability ... continued

Species, Waters, and Period of Creel Census	Date Stocked	Estimated Number ^{b/} of Original Stock Available	Percentage of Original or Estimated Stock Recorded in Catch	Relative Catchability
<u>Mt. Vernon Creek, Dane County</u>				
Creel census Apr. 28--Sep. 7, 1956				
Brown trout (1,436)	Mar. 15, 1956	1,188	51	1:1.0
Rainbow trout (1,436)	Mar. 15, 1956	970	50	
<u>Milner Branch, Grant County</u>				
Creel census Apr. 30--May 1, 1955				
Brown trout (500)	Mar. 16, 1955	247	14	1:4.3
Rainbow trout (500)	Mar. 16, 1955	500	20	

Table 5. Relative Catchability ... continued

Species, Waters, and Period of Creel Census	Date Stocked	Estimated Number ^{b/} of Original Stock Available	Percentage of Original or Estimated Stock Recorded in Catch	Relative Catchability
BROWN TO BROOK				
<u>Lower Willow River and Race, St. Croix County</u>				
Creel census Apr. 30--May 8, 1955				
Brown trout (700)	Apr. 1955	--	8	1:3.8
Brook trout (700)	Apr. 1955	--	43	
<u>Gilbert Creek, Dunn County</u>				
Creel census Apr. 30--May 8, 1955				
Brown trout (500)	Apr. 1955	--	10	1:2.4
Brook trout (500)	Apr. 1955	--	24	

Table 5. Relative Catchability ... continued

Species, Waters, and Period of Creel Census	Date Stocked	Estimated Number ^{b/} of Original Stock Available	Percentage of Original or Estimated Stock Recorded in Catch	Relative Catchability
<u>Mt. Vernon Creek, Dane County</u>				
Creel census May 1-2, 1954				
Brown trout (2,871)	Apr. 5, 1954	1,965	8	1:2.2
Brook trout (1,700)	Jul. 21, 1953	162	18	
<u>Mt. Vernon Creek, Dane County</u>				
Creel census May 1--Jun. 30, 1960				
Brown trout (1,371)	Sep. 8, 1959	675	43	1:1.2
Brook trout (1,320)	Sep. 9, 1959	217	50	

Table 5. Relative Catchability ... continued

Species, Waters, and Period of Creel Census	Date Stocked	Estimated Number ^{b/} of Original Stock Available	Percentage of Original or Estimated Stock Recorded in Catch	Relative Catchability
BROOK TO RAINBOW				
<u>Lower Willow River and Race, St. Croix County</u>				
Creel census Apr. 30--May 8, 1955				
Brook trout (700)	Apr. 1955	--	43	1:0.5
Rainbow trout (700)	Apr. 1955	--	21	
<u>Stockwell Creek Jackson County</u>				
Creel census Apr. 30--May 8, 1955				
Brook trout (400)	Apr. 1955	--	14	1:0.7
Rainbow trout (400)	Apr. 1955	--	21	

Table 5. Relative Catchability ... continued

Species, Waters, and Period of Creel Census	Date Stocked	Estimated Number ^{b/} of Original Stock Available	Percentage of Original or Estimated Stock Recorded in Catch	Relative Catchability
<u>Bohemian Valley Creek, La Crosse County</u>				
Creel census Apr. 30--May 8, 1955				
Brook trout (529)	Apr. 1955	--	34	1:0.7
Rainbow trout (617)	Apr. 1955	--	25	
<u>Token Creek Pond (0.4 a.) Dane County</u>				
Creel census May 1-2, 1954				
Brook trout (175)	Apr. 14, 1954	--	13	1:2.8
Rainbow trout (825)	Apr. 14, 1954	--	37	

^{a/} Number stocked shown in parentheses.

^{b/} Where no pre-fishing season population estimate of the original stock was made, the number of trout available to anglers was assumed to be equal to the original stock for calculation purposes, and the corresponding place in the table has been left vacant.

^{c/} Post-fishing season recovery ratio with Fishtox was 3 brown to 1 rainbow trout.

TABLE 6

Growth and Coefficient of Condition $\frac{a}{}$ (K) or (R) of Fall- and Winter-Stocked
Hatchery-reared Trout in Various Wisconsin Waters

Waters Stocked	Number Stocked	Length (TL Inches) When Stocked		Av. R When Stocked	Date Stocked	Date of Collection	Number Measured and Weighed	Length (TL Inches) When Collected		Av. K or R When Collected	
		Range	Av.					Range	Av.	K	R
BROWN TROUT											
Rocky Run Creek Columbia County	2,887	6-7	--	--	Nov. 10, 1952	Apr. 14-29, 1953	638	6-9	7.1	1.73	1.67
						May 24, 1953	15	6-9	7.2	1.86	1.77
						Aug. 24--Sep. 5, 1953	223	6-10	8.1	1.72	1.61
						Jun. 8-23, 1954	43	8-12	10.6	--	--
Dell Creek Sauk County	4,500	6-7	--	--	Nov. 7, 1952	Sep. 28--Oct. 13, 1953	142	8-13	9.7	1.75	1.71
Mt. Vernon Creek Dane County	400	6-8	7.1	1.65	Jan. 27, 1955	Apr. 4-13, 1955	191	6-9	7.8	--	1.57
						Sep. 8-16, 1955	12	9-12	10.6	--	1.69
Mt. Vernon Creek	400	5-7	6.1	--	Oct. 11, 1955	Dec. 22, 1955	53	6-8	6.7	--	1.60
						Feb. 20, 1956	50	6-9	7.3	--	1.77
						Apr. 4-19, 1956	132	7-10	7.6	--	1.59
						Sep. 8-14, 1956	9	9-11	9.7	--	1.71
Mt. Vernon Creek	1,000	5-7	5.7	--	Sep. 9, 1957	Apr. 7-15, 1959	25	11-17	13.0	--	1.78

Table 6. Growth and Coefficient of Condition ... continued

Waters Stocked	Number Stocked	Length (TL Inches) When Stocked		Av. R When Stocked	Date Stocked	Date of Collection	Number Measured and Weighed	Length (TL Inches) When Collected		Av. K or R When Collected	
		Range	Av.					Range	Av.	K	R
Mt. Vernon Creek	1,000	5-7	--	--	Oct. 24, 1958	Apr. 7-15, 1959	523	6-9	7.7	--	1.69
						Sep. 25--Oct. 6, 1959	53	9-14	11.0	--	1.76
						Apr. 18-22, 1960	46	9-15	12.8	--	1.92
Mt. Vernon Creek	1,371	4-6	5.3	1.82	Sep. 8, 1959	Sep. 25--Oct. 6, 1959	476	4-7	5.6	--	1.65
						Apr. 18-22, 1960	346	6-9	7.9	--	1.85
Black Earth Creek Dane County	400	6-8	6.9	1.61	Jan. 25, 1955	Apr. 14-25, 1955	240	6-9	7.6	--	1.57
						Sep. 19-28, 1955	9	9-12	10.4	--	1.70
Black Earth Creek	400	5-7	6.1	--	Oct. 11, 1955	Dec. 20, 1955	55	5-7	6.3	--	1.70
						Feb. 21, 1956	51	5-8	6.4	--	1.65
						Mar. 19--Apr. 3, 1956	123	6-8	6.7	--	1.64
						Sep. 15-21, 1956	13	9-11	9.9	--	1.74
Black Earth Creek	1,000	5-7	5.7	--	Sep. 14, 1957	Apr. 14-20, 1959	10	11-14	13.3	--	2.01
Black Earth Creek	1,000	5-7	--	--	Oct. 24, 1958	Apr. 14-20, 1959	398	6-9	7.2	--	1.77
						Sep. 28--Oct. 8, 1959	58	9-14	11.1	--	1.81
						Apr. 11-15, 1960	59	9-15	12.5	--	1.95

Table 6. Growth and Coefficient of Condition ... continued

Waters Stocked	Number Stocked	Length (TL Inches)		Av. R When Stocked	Date Stocked	Date of Collection	Number Measured and Weighed	Length (TL Inches)		Av. K or R When Collected	
		When Stocked Range	Av.					When Collected Range	Av.	K	R
Black Earth Creek	1,125	4-6	5.3	1.82	Sep. 8, 1959	Sep. 28--Oct. 8, 1959	304	4-7	5.7	--	1.69
						Apr. 11-15, 1960	497	6-9	7.7	--	1.77
Harker-Lee Creek Iowa County	618	6-8	7.3	1.87	Oct. 31, 1956	Mar. 27--Apr. 1, 1957	39	7-9	7.8	--	1.97
						Sep. 10-13, 1957	18	9-11	9.7	--	1.66
Milner Branch Grant County	300	5-7	--	--	Sep. 21, 1955	Mar. 20-24, 1956	50	5-9	6.8	--	2.13
						Sep. 10-14, 1956	3	9-11	9.7	--	2.09
Citron Creek Crawford County	500	5-7	6.8	2.04	Nov. 20, 1957	Mar. 25-27, 1958	51	7-9	8.0	--	1.77
Camp Creek Richland County	500	5-6	5.8	1.95	Oct. 31, 1958	Apr. 21-23, 1959	62	5-8	6.5	--	1.77
Brewer Creek Juneau County	1,178	6-8	6.7	--	Dec. 3, 1954	Apr. 11-16, 1955	90	7-9	7.6	--	--
						Apr. 17-20, 1956	39	11-14	12.8	--	--
						Apr. 8-18, 1957	1	--	14.2	--	--
Brewer Creek	1,092	3-6	4.0	--	Oct. 11, 1955	Apr. 17-20, 1956	97	4-7	5.2	--	--
						Apr. 8-18, 1957	27	9-11	10.4	--	--
Brewer Creek	1,163	5-7	5.6	--	Oct. 3, 1956	Apr. 8-18, 1957	58	6-9	7.4	--	--

Table 6. Growth and Coefficient of Condition ... continued

Waters Stocked	Number Stocked	Length (TL Inches)		Av. R When Stocked	Date Stocked	Date of Collection	Number Measured and Weighed	Length (TL Inches)		Av. K or R When Collected	
		When Stocked Range	Av.					When Collected Range	Av.	K	R
Big Roche-a-Cri Creek Adams County	500	4-6	5.4	1.84	Oct. 16, 1958	Mar. 26--Apr. 3, 1959	175	5-7	5.9	--	1.55
						May 11-15, 1959	127	5-8	6.5	--	1.77
						Sep. 19--Oct. 1, 1959	99	7-12	9.5	--	1.68
Willow Creek Waushara County	3,000	4-6	5.1	--	Sep. 9, 1959	Apr. 4-13, 1960	381	4-7	5.9	--	--
Peterson Creek Waupaca County	2,080	4-6	5.2	--	Sep. 9, 1959	Mar. 21-25, 1960	470	4-7	5.5	--	--
McKenzie Creek Polk County	2,250	6-7	--	--	Oct. 14, 1957	Mar. 24-29, 1958	496	7-9	7.7	--	1.77
						Oct. 6-16, 1958	49	9-12	10.3	--	1.67
						Oct. 5-9, 1959	5	10-14	12.2	--	1.67
Timber Coulee Pond (2 acres) Vernon County	750	5-6	5.5	--	Oct. 3, 1956	May 1-4, 1957	90	6-9	7.3	--	--
BROOK TROUT											
Mt. Vernon Creek Dane County	660	4-6	5.4	1.56	Sep. 9, 1959	Sep. 25--Oct. 6, 1959	229	4-7	5.5	--	1.46
						Apr. 18-22, 1960	95	7-10	8.0	--	1.74

Table 6. Growth and Coefficient of Condition ... continued

Waters Stocked	Number Stocked	Length (TL Inches)		Av. R When Stocked	Date Stocked	Date of Collection	Number Measured and Weighed	Length (TL Inches)		Av. K or R When Collected	
		When Stocked Range	Av.					When Collected Range	Av.	K	R
Mt. Vernon Creek	660	5-7	5.8	1.76	Sep. 9, 1959	Sep. 25--Oct. 6, 1959	292	5-7	5.9	--	1.49
						Apr. 18-22, 1960	102	7-10	8.4	--	1.79
Petenwell Ditch Juneau County	2,000	4-7	5.4	--	Sep. 20, 1956	May 1, 1957	238	8-12	9.3	--	--
Big Roche-a- Cri Creek Waushara County	1,200	5-7	5.8	--	Sep. 26, 1957	Mar. 31--Apr. 24, 1958	426	6-9	7.1	--	1.65
						Sep. 16-30, 1958	5	7-9	8.2	--	1.63
Big Roche-a- Cri Creek Waushara County	500	5-7	5.8	1.72	Oct. 13, 1958	Mar. 26--Apr. 3, 1959	153	5-8	7.2	--	1.48
						May 11-15, 1959	28	7-9	7.8	--	1.72
Big Roche-a- Cri Creek Adams County	500	5-7	5.7	1.76	Oct. 14, 1958	Mar. 26--Apr. 3, 1959	223	6-8	6.8	--	1.45
						May 11-15, 1959	52	7-9	7.6	--	1.83
Risk Creek Pond (3.5 acres) Adams County	955	3-7	5.5	--	Sep. 21, 1956	May 1, 1957	164	6-10	8.2	--	--
Valley Lake (22 acres) Forest County	22,000	5-8	--	--	Sep. 11-12, 1958	Nov. 12, 1958	150	6-9	7.1	--	1.75
						Feb. 20-22, 1959	145	6-10	7.8	--	1.50
						May 1, 1959	101	7-10	8.0	--	1.41
						Apr. 23, 1960	49	9-13	11.0	--	--

Table 6. Growth and Coefficient of Condition ... continued

Waters Stocked	Number Stocked	Length (TL Inches)		Av. R When Stocked	Date Stocked	Date of Collection	Number Measured and Weighed	Length (TL Inches)		Av. K or R When Collected	
		When Stocked Range	Av.					When Collected Range	Av.	K	R
RAINBOW TROUT											
Black Earth Creek Dane County	750	7-9	8.5	1.77	Sep. 10, 1959	Sep. 28--Oct. 8, 1959	256	7-10	8.6	--	1.71
						Apr. 11-15, 1960	366	9-14	11.3	--	1.98
Black Earth Creek	750	6-8	6.7	1.76	Sep. 10, 1959	Sep. 28--Oct. 8, 1959	189	6-8	7.1	--	1.73
						Apr. 11-15, 1960	265	8-13	10.1	--	1.97
Milner Branch Grant County	300	5-8	---	--	Sep. 21, 1955	Mar. 20-24, 1956	56	6-10	7.4	--	1.93
Little Brule River (Fish Refuge) Douglas County	500	5-7	6.3	1.87	Oct. 22, 1958	Nov. 11-13, 1958 Apr. 21-22, 1959	50 39	5-8 6-8	6.6 6.9	-- --	1.52 1.54
Timber Coulee Pond (2 acres) Vernon County	750	4-7	5.3	--	Oct. 3, 1956	May 1-4, 1957	16	6-8	6.4	--	--
Cataract Pond (3 acres) Monroe County	2,000	--	4.3	--	Sep. 16, 1955	Apr. 28--May 6, 1956 May 1, 1957	78 7	6-8 9-14	6.8 12.0	-- --	-- --

Table 6. Growth and Coefficient of Condition ... continued

Waters Stocked	Number Stocked	Length (TL Inches)		Av. R When Stocked	Date Stocked	Date of Collection	Number Measured and Weighed	Length (TL Inches)		Av. K or R When Collected	
		When Stocked	Av.					When Collected	Av.	K	R
Cataract Pond	1,135	2-4	2.8	--	Sep. 21, 1956	May 1, 1957	87	6-10	8.5	--	--
Sabin Pond (1 acre) Richland County	1,000	6-8	7.4	1.85	Nov. 26, 1958	Apr. 3-4, 1959	69	7-9	8.0	--	1.59
Rock Lake (46 acres) Kenosha County	4,600	7-10	8.6	1.73	Feb. 26, 1959	Apr. 18, 1959 May 1-9, 1959 May 15-31, 1959 Jun. 1-13, 1959	64 56 144 79	8-11 9-11 9-12 9-12	9.6 10.0 10.5 10.6	-- -- -- --	1.72 -- 1.76 1.78
Rock Lake	3,050	8-10	9.6	1.76	Feb. 17, 1960	Apr. 23, 1960	46	9-11	10.0	--	1.62
Fish Lake (252 acres) Dane County	10,000	7-10	9.0	1.68	Feb. 16, 1960	May 1, 1960	92	8-11	9.3	--	1.37

$$a/ K = \frac{W 10^5}{L^3}$$

where W equals weight in grams and L equals standard length in millimeters.

$$R = \frac{W \times 10}{L^3}$$

where R equals weight in grams and L equals total length in inches.

TABLE 7

Growth and Coefficient of Condition ^{a/} (K) or (R) of Spring- and Summer-
Stocked Hatchery-reared Trout in Various Wisconsin Waters

Waters Stocked	Number Stocked	Length (TL Inches)		Av. R When Stocked	Date Stocked	Date Growth Data Were Collected	Number Measured and Weighed	Length (TL Inches)		Av. K or R When Collected	
		When Stocked Range	Av.					When Collected Range	Av.	K	R
BROWN TROUT											
Rocky Run Creek Columbia County	2,887	7-8	--	--	Apr. 9, 1953	Apr. 14-29, 1953	1,275	6-9	7.5	1.68	1.64
						May 24, 1953	19	7-10	8.0	1.79	1.73
						Aug. 24--Sep. 5, 1953	246	7-11	8.5	1.71	1.64
						Jun. 8-23, 1954	39	8-12	11.1	--	--
Mt. Vernon Creek Dane County	2,871	6-9	7.7	1.58	Apr. 5, 1954	Apr. 19-28, 1954	75	7-9	8.0	1.78	1.81
						Sep. 15-20, 1954	34	9-12	10.8	1.74	1.78
						Apr. 4-13, 1955	64	11-16	12.8	--	1.84
						Sep. 8-16, 1955	8	12-17	14.8	--	1.75
						Apr. 4-19, 1956	7	13-18	16.2	--	1.72
Mt. Vernon Creek	2,871	6-9	6.9	1.68	Mar. 15, 1955	Apr. 4-13, 1955	662	6-9	7.2	--	1.64
						Sep. 8-16, 1955	66	9-12	9.9	--	1.63
						Apr. 4-19, 1956	50	10-15	12.5	--	1.79
						Sep. 8-14, 1956	2	12-13	12.6	--	1.79
Mt. Vernon Creek	1,436	6-9	7.6	1.93	Mar. 15, 1956	Apr. 4-19, 1956	660	6-9	8.1	--	1.70
						Sep. 8-14, 1956	35	9-12	10.8	--	1.83
Mt. Vernon Creek	1,872	6-9	--	--	Mar. 28, 1958	Apr. 7-15, 1959	37	12-16	13.6	--	1.88

Table 7. Growth and Coefficient of Condition ... continued

Waters Stocked	Number Stocked	Length (TL Inches) When Stocked		Av. R When Stocked	Date Stocked	Date Growth Data Were Collected	Number Measured and Weighed	Length (TL Inches) When Collected		Av. K or R When Collected	
		Range	Av.					Range	Av.	K	R
Mt. Vernon Creek	1,872	7-9	7.6	1.76	Apr. 17, 1959	Sep. 25--Oct. 6, 1959	33	8-14	11.4	--	1.88
						Apr. 18-22, 1960	22	9-15	12.1	--	1.88
Black Earth Creek Dane County	2,625	6-9	--	--	Apr. 20, 1953	May 18-20, 1953	127	6-9	7.8	--	1.75
						Sep. 10-15, 1953	53	9-11	9.2	--	1.80
						Apr. 6-16, 1954	39	10-14	11.8	1.98	2.02
						Sep. 21--Oct. 5, 1954	5	13-18	14.6	--	1.80
						Apr. 14-28, 1955	3	15-18	16.4	--	1.91
Mar. 19--Apr. 3, 1956	2	16-19	17.8	--	1.69						
Black Earth Creek	2,625	7-9	7.7	1.58	Apr. 1, 1954	Apr. 6-16, 1954	98	7-9	8.0	1.66	1.69
						Sep. 21--Oct. 5, 1954	67	9-13	11.5	1.72	1.75
						Apr. 14-28, 1955	60	12-16	13.6	--	1.88
						Sep. 19-28, 1955	7	16-17	16.5	--	1.81
						Mar. 19--Apr. 3, 1956	4	16-18	17.0	--	1.75
Black Earth Creek	2,625	6-9	7.1	1.55	Mar. 16, 1955	Apr. 14-28, 1955	665	6-9	7.5	--	1.64
						Sep. 19-28, 1955	71	8-12	10.4	--	1.62
						Mar. 19--Apr. 3, 1956	57	10-14	11.4	--	1.66
						Sep. 15-21, 1956	5	13-16	14.5	--	1.84

Table 7. Growth and Coefficient of Condition ... continued

Waters Stocked	Number Stocked	Length (TL Inches) When Stocked		Av. R When Stocked	Date Stocked	Date Growth Data Were Collected	Number Measured and Weighed	Length (TL Inches) When Collected		Av. K or R When Collected	
		Range	Av.					Range	Av.	K	R
Black Earth Creek	1,312	6-9	7.6	1.92	Mar. 15, 1956	Mar. 19--Apr. 3, 1956	468	6-9	7.8	--	1.76
						Sep. 15-21, 1956	42	8-13	10.6	--	1.76
Black Earth Creek	1,628	6-9	--	--	Mar. 28, 1958	Apr. 14-20, 1959	16	12-15	12.9	--	1.92
Black Earth Creek	1,872	7-9	7.7	1.72	Apr. 27, 1959	Sep. 28--Oct. 8, 1959	31	8-13	10.4	--	1.68
	1,225					Apr. 18-22, 1960	24	9-15	12.8	--	1.92
Harker-Lee Creek Iowa County	716	7-11	8.1	--	Apr. 22, 1957	Sep. 10-13, 1957	21	8-12	9.6	--	1.59
Milner Branch Grant County	500	5-8	--	--	Mar. 16, 1955	Mar. 29--Apr. 6, 1955	97	6-8	6.4	--	2.00
						Sep. 9-12, 1955	17	7-11	9.3	--	1.72
						Mar. 20-24, 1956	4	10-11	10.4	--	2.20
						Sep. 10-14, 1956	2	13-15	14.1	--	--
Citron Creek Crawford County	250	6-8	8.1	--	Mar. 10, 1958	Mar. 25-27, 1958	23	7-10	8.3	--	1.81
						May 1, 1958	20	7-11	8.6	--	1.64
Brewer Creek Juneau County	1,167	5-9	7.0	--	Apr. 7, 1955	Apr. 11-16, 1955	87	6-9	7.1	--	--
						Apr. 17-20, 1956	26	10-13	11.6	--	--
Brewer Creek	1,092	6-10	7.8	--	Apr. 13, 1956	Apr. 8-18, 1957	44	9-11	10.4	--	--

Table 7. Growth and Coefficient of Condition ... continued

Waters Stocked	Number Stocked	Length (TL Inches)		Av. R When Stocked	Date Stocked	Date Growth Data Were Collected	Number Measured and Weighed	Length (TL Inches)		Av. K or R When Collected	
		When Stocked Range	Av.					When Collected Range	Av.	K	R
Big Roche-a- Cri Creek Adams County	700	6-9	--	--	Apr. 22, 1958	Sep. 16-18, 1958	22	9-13	11.1	--	1.82
						Mar. 26--Apr. 3, 1959	28	10-13	11.7	--	1.79
Big Roche-a- Cri Creek	500	6-9	7.8	1.78	Mar. 23, 1959	Mar. 26--Apr. 3, 1959	127	6-9	8.1	--	1.64
						May 11-13, 1959	74	7-10	8.5	--	1.87
						Sep. 19--Oct. 1, 1959	84	8-13	10.9	--	1.73
South Fork of Willow River St. Croix County	492	6-8	6.6	--	Apr. 2, 1953	Sep. 23-25, 1953	7	8-10	9.2	--	--
South Fork of Willow River	500	6-8	6.5	--	May 15, 1953	Sep. 23-25, 1953	28	8-10	8.7	--	--
McKenzie Creek Polk County	4,500	6-9	--	--	Apr. 24--Jun. 19, 1956	Mar. 26-30, 1957	76	9-11	9.5	--	1.57
						Oct. 7-11, 1957	2	12-13	12.7	--	1.54
McKenzie Creek	1,000	6-8	--	--	Mar. 19, 1957	Oct. 7-11, 1957	25	8-11	9.5	--	1.61
						Mar. 24-29, 1958	36	9-12	10.0	--	1.81
						Oct. 6-16, 1958	7	10-14	12.2	--	1.74
McKenzie Creek	2,250	7-8	7.6	1.94	May 28, 1957	Oct. 7-11, 1957	94	8-10	9.2	--	1.55
						Mar. 24-29, 1958	128	9-11	9.9	--	1.80
						Oct. 6-16, 1958	8	9-15	11.9	--	1.75

Table 7. Growth and Coefficient of Condition ... continued

Waters Stocked	Number Stocked	Length (TL Inches)		Av. R When Stocked	Date Stocked	Date Growth Data Were Collected	Number Measured and Weighed	Length (TL Inches)		Av. K or R When Collected	
		When Stocked Range	Av.					When Collected Range	Av.	K	R
McKenzie Creek	2,500	6-8	8.0	1.98	Mar. 20, 1958	Mar. 24-29, 1958	126	7-9	8.3	--	1.89
						Oct. 6-16, 1958	66	9-12	9.8	--	1.62
						Oct. 5-9, 1959	6	9-13	10.5	--	1.54
McKenzie Creek	3,500	6-10	7.5	--	Apr. 15, 1959	Oct. 5-9, 1959	94	8-11	9.3	--	1.46
Little Brule River (Fish Refuge) Douglas County	800	7-10	9.0	1.94	Apr. 17, 1958	May 20-21, 1958	121	7-10	9.1	--	1.77
						Oct. 1-2, 1958	14	8-11	9.8	--	1.64
Turk Lake (11 acres) Chippewa County	400	5-7	6.1	--	Apr. 16, 1948	Oct. 15-23, 1948	26	9-11	9.8	--	1.54
						Apr. 18, 1949	135	9-12	10.2	--	1.66
BROOK TROUT											
Mt. Vernon Creek Dane County	1,700	4-8	--	--	Jul. 21, 1953	Sep. 16-23, 1953	68	5-9	7.2	--	1.65
						Apr. 19-28, 1954	129	8-12	10.1	--	1.99
Big Roche-a-Cri Creek Waushara County	500	7-10	8.4	1.80	Mar. 18, 1959	Mar. 26--Apr. 3, 1959	121	7-10	8.6	--	1.82
						May 11-15, 1959	30	7-10	8.8	--	1.69

Table 7. Growth and Coefficient of Condition ... continued

Waters Stocked	Number Stocked	Length (TL Inches)		Av. R When Stocked	Date Stocked	Date Growth Data Were Collected	Number Measured and Weighed	Length (TL Inches)		Av. K or R When Collected	
		When Stocked Range	Av.					When Collected Range	Av.	K	R
RAINBOW TROUT											
Mt. Vernon Creek Dane County	1,436	7-10	8.3	1.81	Mar. 15, 1956	Apr. 4-19, 1956	616	7-10	8.8	--	1.53
Black Earth Creek Dane County	1,312	7-10	8.3	1.81	Mar. 15, 1956	Mar. 19--Apr. 3, 1956	260	7-10	8.6	--	1.65
Milner Branch Grant County	500	6-10	--	--	Mar. 16, 1955	Mar. 29--Apr. 6, 1955 Sep. 12-15, 1955	191 2	7-10 10-11	8.2 10.8	--	1.78 1.68
Big Roche-a- Cri Creek Adams County	2,000	5-7	5.8	1.66	Jun. 16, 1959	Sep. 19--Oct. 1, 1959	261	6-9	7.0	--	1.57
Turk Lake (11 acres) Chippewa County	400	5-7	5.9	--	Apr. 16, 1948	Oct. 15-23, 1948 Apr. 18, 1949	48 49	9-11 10-12	9.9 10.5	--	1.60 1.63
Turk Lake	880	5-7	5.9	--	May 13, 1949	Oct. 1-15, 1949 May 6, 1950	37 29	9-11 10-13	10.0 11.4	--	1.78 1.68

Table 7. Growth and Coefficient of Condition ... continued

Waters Stocked	Number Stocked	Length (TL Inches) When Stocked		Av. R When Stocked	Date Stocked	Date Growth Data Were Collected	Number Measured and Weighed	Length (TL Inches) When Collected		Av. K or R When Collected	
		Range	Av.					Range	Av.	K	R
Turk Lake	880	6-8	7.4	1.48	May 4, 1951	May 26-31, 1951	12	8-9	8.1	1.65	1.58
						Jun. 1-30, 1951	71	8-9	8.7	1.59	1.54
						Jul. 1-31, 1951	155	8-10	8.9	1.57	1.51
						Aug. 1-31, 1951	87	8-10	9.0	1.51	1.44
						Sep. 1-30, 1951	50	8-10	9.2	1.69	1.60
						Oct. 1-31, 1951	32	9-11	10.2	1.67	1.57
Turk Lake	352	10-12	10.7	1.63	May 4, 1951	May 26-31, 1951	27	11-12	11.3	--	1.49
						Jun. 1-30, 1951	63	11-13	11.4	1.48	1.44
						Jul. 1-31, 1951	66	11-13	11.5	1.40	1.43
						Aug. 1-31, 1951	55	11-13	11.5	1.36	1.32
						Sep. 1-30, 1951	27	11-13	11.6	1.41	1.37
						Oct. 1-31, 1951	9	11-13	12.0	1.51	1.49
Turk Lake	2,180	6-8	7.0	1.56	May 7, 1952	Jun. 1-30, 1952	31	7-9	7.9	1.62	1.57
						Jul. 1-31, 1952	197	7-10	8.2	1.52	1.47
						Aug. 1-31, 1952	97	7-10	8.3	1.53	1.43
						Sep. 1-30, 1952	130	7-11	8.6	1.64	1.53
						Oct. 1-31, 1952	98	8-11	9.0	1.75	1.61
						Nov. 1-30, 1952	17	8-11	9.4	1.68	1.52
						Dec. 1-31, 1952	11	8-11	9.4	1.61	1.42
						Feb. 1-14, 1953	60	8-11	9.5	1.65	1.51
						Mar. 3-21, 1953	47	8-12	9.7	1.69	1.55

Table 7. Growth and Coefficient of Condition ... continued

Waters Stocked	Number Stocked	Length (TL Inches)		Av. R When Stocked	Date Stocked	Date Growth Data Were Collected	Number Measured and Weighed	Length (TL Inches)		Av. K or R When Collected	
		When Stocked Range	Av.					When Collected Range	Av.	K	R
Cather Lake (10 acres) Chippewa County	840	6-8	7.4	1.48	May 4, 1951	Jun. 1-30, 1951	135	8-10	9.3	1.77	1.66
						Jul. 1-31, 1951	83	9-11	9.8	1.62	1.58
						Aug. 1-31, 1951	167	9-11	9.8	1.50	1.44
						Sep. 1-30, 1951	85	9-11	9.8	1.49	1.42
						Oct. 1-31, 1951	16	9-11	10.3	1.52	1.44
Cather Lake	1,260	6-8	7.0	1.56	May 7, 1952	Jun. 12-30, 1952	30	7-9	8.1	1.50	1.46
						Jul. 1-31, 1952	59	8-9	8.2	1.47	1.40
						Aug. 1-31, 1952	26	8-9	8.3	1.38	1.33
						Sep. 5-10, 1952	9	8-9	8.5	1.54	1.46
						Oct. 26, 1952	8	8-11	9.5	1.82	1.72
Mar. 3-21, 1953	6	10-12	10.9	--	1.52						
Riley Lake (17 acres) Chippewa County	600	6-8	7.4	1.48	May 4, 1951	Jun. 15-30, 1951	31	8-10	9.4	1.75	1.70
						Jul. 1-31, 1951	15	9-11	10.2	1.72	1.71
						Aug. 1-31, 1951	60	9-12	10.7	1.65	1.59
						Sep. 1-30, 1951	33	10-12	11.0	1.66	1.56
						Oct. 1-31, 1951	23	10-12	11.3	1.60	1.50
						May 1-31, 1952	24	12-14	13.0	1.80	1.73
						Jun. 1-15, 1952	8	12-14	13.4	1.78	1.77
						Sep. 1-30, 1952	21	12-15	13.7	1.77	1.59
Riley Lake	600	6-8	7.0	1.56	May 7, 1952	Aug. 1-31, 1952	8	10-11	10.5	1.60	1.50
						Sep. 1-30, 1952	23	10-11	10.5	1.69	1.53

Table 7. Growth and Coefficient of Condition ... continued

Waters Stocked	Number Stocked	Length (TL Inches)		Av. R When Stocked	Date Stocked	Date Growth Data Were Collected	Number Measured and Weighed	Length (TL Inches)		Av. K or R When Collected	
		When Stocked Range	Av.					When Collected Range	Av.	K	R
Rock Lake (46 acres) Kenosha County	2,110	7-10	--	--	Apr. 2, 1959	Apr. 18, 1959	26	8-11	8.6	--	1.70
						May 1-9, 1959	24	8-11	9.3	--	--
						May 15-31, 1959	24	8-11	9.5	--	1.72
						Jun. 1-13, 1959	33	9-12	10.0	--	1.75
Rock Lake	3,050	8-11	9.6	1.64	Apr. 8, 1960	Apr. 23, 1960	52	8-11	9.6	--	1.72
Moose Lake (74 acres) Waukesha County	9,792	7-10	8.7	1.65	Apr. 1, 1959	May 1-5, 1959	448	7-10	8.7	--	1.51
						May 16-31, 1959	157	8-11	9.2	--	1.51
						Jun. 1-26, 1959	293	8-11	9.8	--	1.48
Fish Lake (252 acres) Dane County	10,000	8-11	9.6	1.57	Apr. 22, 1960	May 1, 1960	167	8-11	9.8	--	1.50

$$a/ \quad K = \frac{W \cdot 10^5}{L^3}$$

where W equals weight in grams and L equals standard length in millimeters.

$$R = \frac{W \times 10}{L^3}$$

where R equals weight in grams and L equals total length in inches.

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