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**HANDBOOK**  
**of**  
**FRESH WATER FISHERY BIOLOGY**

by  
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## PREFACE

As the title implies, this handbook is primarily a source book for quick reference to data on freshwater fishes. An attempt has been made to include all tabular material for which conservationists and biologists have frequent need. Research workers will probably find it most valuable as a bibliographical guide to the original investigations.

Although the book is copyrighted, permission is hereby granted for the use of any tables or portions thereof when needed for comparison with other data.

The author wishes to express his appreciation to Dr. Samuel Eddy, Department of Zoology, University of Minnesota, who guided him into fisheries research and directed his first investigations on fish growth; to Dr. Lloyd L. Smith, Jr. and others of the Research Unit of the Minnesota Department of Conservation when the author worked with them from 1938 to 1944; and to his students and colleagues at Iowa State College; for their stimulation and encouragement.

The Iowa Cooperative Fisheries Research Unit and those from the Iowa State Conservation Commission and Iowa State College who have been associated with it have contributed a great deal to make this project a reality.

Many individuals and organizations permitted the use of unpublished data in his compilation: Minnesota Department of Conservation, Iowa Cooperative Fisheries Research Unit, Upper Mississippi River Conservation Committee, Donald Hansen, Carl Riggs, William Lewis, Irene Evans, John Parsons, Kenneth M. Mackenthun, and Hubert C. Ward. Thanks are also due Charles K. Phenicie and Clinton G. Bishop for the use of their alinement charts.



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Finally I wish to thank my parents and my wife for their encouragement through the years during which this compilation has grown.

--Kenneth D. Carlander  
Iowa State College, Ames,  
July 29, 1950

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## INTRODUCTION AND INSTRUCTIONS FOR READING THE TABLES

Fishery literature is widely scattered, and much important information is in bulletins and miscellaneous publications which are not generally available, even in many of the larger libraries. It is not merely this inaccessibility of fishery literature that prompts the publication of these summaries, however. Frequently, data for comparative purposes are needed in too short a time to permit an investigation of the literature.

These summaries will not serve as a substitute for reference to the original papers in any detailed life history study. In making the summaries, much information has been combined with the result that interrelationships and differences which are apparent in the original data may be masked. Although every effort has been made to eliminate errors, it is certain that some errors in calculation, copying, and omission have been included. The author will appreciate having these called to his attention.

The data on growth rates are more complete than those on creel census, population density, annual yield, egg counts, etc. The latter data were accumulated in connection with the other bibliographical work, with no particular effort at complete coverage. They are included here to serve as a ready reference for comparative purposes.

An effort has been made to cover as completely as possible all data on the growth, length, weight, and various length relationships on all species of fresh water fishes found in the United States and Canada. In general, anadromous fishes have not been included unless they have at one time or another become established in fresh water. No data have been included on the Pacific Salmon, Oncorhynchus spp., although



some data are given for the Atlantic Salmo salar. The species are listed in the order and with the nomenclature given in A list of common and scientific names of the better known fishes of the United States and Canada (A-13). References to the bibliography are made by a code system; each citation consists of a letter (the first letter of the author's name) and a number. The use of a code system was necessitated by the space requirements of the tabular material.

Not all of the data in the tables are of equal value. Some represent careful, detailed studies and others are mere chance observations. Although it might be desirable to rule out certain data thought to be less accurate, it was almost impossible to draw any lines representing what might be considered sufficient accuracy. Inaccuracies may be present even in some of the most carefully executed studies.

Much valuable information on the growth and life history of the various fishes remains in the files of biological laboratories throughout the country and probably never will be published. For the use of unpublished data, the writer wishes to express his appreciation to the Fishery Research Unit of the Minnesota Department of Conservation, the Iowa Cooperative Fishery Research Unit, and to several other individuals and organizations. It is hoped that this compilation may point out the data that are lacking for many species, and may stimulate the publication of such data when available.

Fish show tremendous variations in growth, length-weight relationships, condition, and other measurements. Even within a given population or single age class in a lake the variation may be large. For this reason, the application of the data from one body of water to conditions in another body of water should be made with great care and with a full recognition of the possible variation and probable errors. A sample of five or ten fish may give an erroneous picture of the growth or length-weight relationship in a body



of water. The size of sample needed depends upon the degree of accuracy desired and the variation within the sample. One study (C-32) indicated that samples of about 240 fish were needed to bring the calculated growth from the sample within 1 percent of the growth in the population and that about 70 fish were needed to keep the error to less than 2 percent. Selective sampling methods may cause errors even though the number of fish in the sample is large.

As a measure of the variation in the various relationship, ranges are given wherever possible. In some cases, the ranges as given are merely the ranges of means from various lakes, ponds, year classes, etc., and do not accurately depict the entire range shown in the sample. Range is not an entirely satisfactory measure of variation. Standard deviation, (as used in S-65, L-30, E-3 and others) and the analysis of variance (as used in M-77, M-78, R-74, S-20 and others) give a better measure of variation and also permit statistical treatment to determine the significance of differences between sets of data (S-125 and other statistical texts).

Under each species the data are arranged in the following order:

1. Conversion factors for standard to fork length.
2. Conversion factors for standard to total length.
3. Standard length-weight relationship.
4. Fork length-weight relationship.
5. Total length-weight relationship.
6. Condition indexes.
7. Size at capture, by age groups.
8. Calculated standard lengths at each annulus.
9. Calculated fork lengths at each annulus.
10. Calculated total lengths at each annulus.
11. Egg counts.

In each table the data are arranged from smallest to largest so that the relative position of new data may be readily determined.



The discussions of the tables on creel census, standing crop, yield etc. are given at the beginning of the section in which these tables are located.

### Lengths

Unfortunately there is no generally accepted method of measuring fish, despite several recent papers on the subject (R-74, R-31, R-41, C-37, and H-68). At least eight standard lengths, one fork length, and two total lengths have been used in fishery work. In addition, many investigators have recorded their data as total length, measured to the center of the fork of the tail, which is more precisely stated, the fork length. In many cases, no indication of the length measurement used is given in the original papers and it has been necessary to arbitrarily assign the data to one of the lengths. When an author, or group of workers in a given research unit, has used a given method of measurement in one paper, the same method is applied to other papers which do not indicate the length used.

Standard length (S.L.) has been variously defined, but is essentially the length of a fish from the tip of the snout to the end of the vertebral column. Fork length (F.L.) is from the tip of the snout to the end of the rays in the center of the caudal fin. Total length (T.L.) as defined by Hile (H-68) is "the distance from the tip of the head (jaws closed) to the tip of the tail with the lobes compressed so as to give the maximum possible measurement." Total length to the tip of the tail in its "natural position" should be dropped from usage.

In the tables which follow, standard length is always recorded in millimeters and fork and total lengths in inches and tenths of inches. A table for the conversion of inches to millimeters is given for ready use.

Factors for converting one type of length measurement to another are given at the start of each species



when such data are available. Additional clues as to the relationship between various lengths can be sometimes secured from the tabulated growth data. In most cases the conversion factors have been determined by dividing the total length (or fork length) by the standard length. Where the relationship varies as the size of the fish increases, separate conversion factors have often been determined for fish of various size groups. Better statistical methods of determining the relationships between standard and fork or total length are available but present evidence indicates that differences in the ways that various workers measure fish are more significant in causing errors of conversion than are the methods of calculating the conversion factors (C-32).

In the tables on size at capture by age groups, the type of length measurement used for the ranges is indicated by an x under the appropriate length type, whenever data are given for more than a single type of measurement.

### Ages

Throughout the compilations the ages are indicated by Roman numerals. A numeral III indicates that the fish has passed through three winters. In some of the reviewed literature such a fish would be referred to as being in its fourth summer. In accordance with a suggestion by Hile (H-68), the first of January is taken as the birthday of all fish, and fish taken in the early part of the year are therefore credited with an annulus at the edge of the scale even though such annulus was not yet completed.

The ages of the fish were determined by one of the following methods:

- K. rearing fish of known age.
- T. tagging fish of known age.
- I. introducing fish of known age into waters in which the species does not occur naturally.
- P. length-frequency or Petersen method.



S. scale method.

O. otoliths, bones, spines, or fin rays.

The letters listed above are used in the compilations to indicate the method used in securing ages for the data quoted.

### Calculated lengths

It is possible to calculate the size of a fish at given periods earlier in life from measurements on scales taken from the fish. The scale measurements to the various year marks or annuli are taken as indications of the size of the fish at the end of each year's growth. In most scale studies the growth has been calculated on the assumption that the growth of the scale and the growth of the body are directly proportional. It has been found that the growth of body and scales is not directly proportional in all species and that more accurate calculations can be made using other formulae. The methods of calculating growth may be classed as follows and are indicated in the compilations by the letters here indicated:

- L. The direct proportion or Dahl-Lea formula.
- F. The Lee method, or Frazer modification, in which the body-scale relationship is a straight line with an intercept at some place other than zero on the ordinate or abscissa. The correction is made to the direct proportion calculations by adding a constant value.
- E. The empirical body-scale relationship method in which the growth is calculated on the basis of the observed body-scale relationship determined by examination of a sample of fish. In this category several other methods are included, in each of which a curve is fitted to body-scale measurements by one of various formulae. (See L-1).



## Length-weight relationship

Since it is frequently necessary to estimate the weights of fish from their lengths, data have been compiled on the length-weight relationships of many of the species. In combining the information from various sources, it was sometimes necessary to re-group the data. In most of the tables in the present compilation, the length classes were set at full inches (e.g. 7.0-7.9), but in the various papers summarized other length classes were used. The data were then considered as if all the fish were at the center of their class. For example, data from length classes 6.75-7.50 and 7.4-8.3 and 6-8, as well as data listed for mean lengths of 7.0, 7.83, etc., would be grouped into length class 7.0-7.9 in the present compilation. Some error is thereby introduced but it is believed that the general trend is not greatly altered by this treatment.

Several authors have determined the mathematical relationships between length and weight for various populations using the formula:

$$W = cl^n$$

W = weight

L = length

c and n = constants

The value of the constant n will usually be near 3.0 since the weight of an object will vary as the cube of its length if shape and specific gravity remain the same. Since this formula must be calculated in the logarithmic form and is most usable in this form, the length-weight relationships in these compilations are given in the logarithmic form:

$$\text{Log } W = \text{Log } c + n \text{ Log } L$$

The type of length is indicated by the letters S.L., F.L., and T.L., for standard, fork, and total lengths, respectively.



### Condition index

Since the weight of a fish varies with the cube of its length provided the shape and specific gravity remain the same, any change in the shape or relative plumpness of a fish will cause a change in the value of  $c$  in the formula:

$$W = cL^3$$

Fishery biologists have used this fact in describing the condition, plumpness, or well-being of a fish. The coefficient of condition,  $K$ , has been widely used.

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

where  $W$  = weight in grams

$L$  = standard length in millimeters

and  $10^5$  is a factor to bring the value of  $K$  near unity

In a few studies, fork or total lengths have been used in calculating  $K$  and in these cases the data are indicated as  $K(\text{FL})$  or  $K(\text{TL})$ . The same formula, using the English rather than the metric system, has been used in calculating  $C$ . The value of  $C$  is usually calculated from lengths in inches and tenths and weights in pounds and hundredths and is usually adjusted so that there are two digits in front of the decimal point, instead of one as in  $K$ . Although this has not always been done in the original work, all data here recorded are so adjusted. Throughout this report the type of measurement used in calculating  $C$  is given in parentheses, as  $C(\text{SL})$ ,  $C(\text{FL})$ , or  $C(\text{TL})$ . Methods for converting  $K$  to  $C$  have been presented by K-16 and B-30:

$$C = 3.61 r^3 K$$

where  $r$  = ratio of standard to total  
or fork length

These condition indexes have been variously referred to as coefficients of condition, condition factors, and ponderal indexes. (For a discussion of their use



see H-64, C-46, K-14, M-77). Where the length-weight relationships have been studied, better comparisons can often be made without the use of condition indexes. The condition index, however, is a sensitive measure of change and differences in body form.

Condition varies with the season and with sexual maturity, size, age, and sex of the individuals. In some populations there appears to be a gradual increase in condition with age, in others a gradual decrease, and in still others no consistent change with age. The data in these compilations have often been combined in such a way that the trends are no longer discernable. For more detailed analysis one should refer to the original papers.

### Fecundity

Some data on the numbers of eggs per female are also included for several species. In the tabulation, the following marks are used to indicate the method by which the counts were derived.

- D. direct count of the eggs in the ovaries of a gravid female.
  - H. count or estimate of eggs per female secured by stripping for hatcheries.
  - V. estimate of total number of eggs from actual count of the number of eggs in a given volume or weight and multiplied by the total volume or weight of the ovaries, (V-28).
  - U. number of eggs per female given without indication of method of deriving estimate.
- Some of these data may be rather inaccurate.



## SUGGESTIONS FOR CONDUCTING A SIMPLE AGE AND GROWTH STUDY

As an aid in interpreting conditions, field biologists and fishery management agents frequently need information on the age and growth rate of fish in certain lakes or streams. The fish are small in lakes that are very heavily overfished and also in lakes that are overcrowded with fish. In the overfished lake, the average fish are caught before they can grow and are therefore young; in the crowded lakes, the fish are stunted and small even though quite old (B-86). A check of scales may quickly reveal which is the case.

Field biologists usually do not have the facilities and often do not have the specialized training necessary to carry on detailed growth studies, but that need not prevent them from using the scale method as a tool in solving practical problems. The marks on some fish scales baffle the most experienced biologists, but the ages of most fish can be determined from the scale markings quite simply by biologists with comparatively little experience in scale techniques.

The age is determined from the arrangement of the more or less circular ridges (known as circuli) on the surface of the scale. (Fig. 1). Several of these circuli are formed each year. The circuli formed when the fish is growing slowly are closer together than are the circuli formed when the fish (and the scale) grows more rapidly. Furthermore, the part of the scale which is toward the head of the fish and is usually covered by other scales continues to grow after the rest of the scale has stopped growing. Therefore, this anterior part of the scale may have several incomplete circuli which do not extend down the sides or to the posterior part of the scale. When rapid growth starts again, a complete circulus



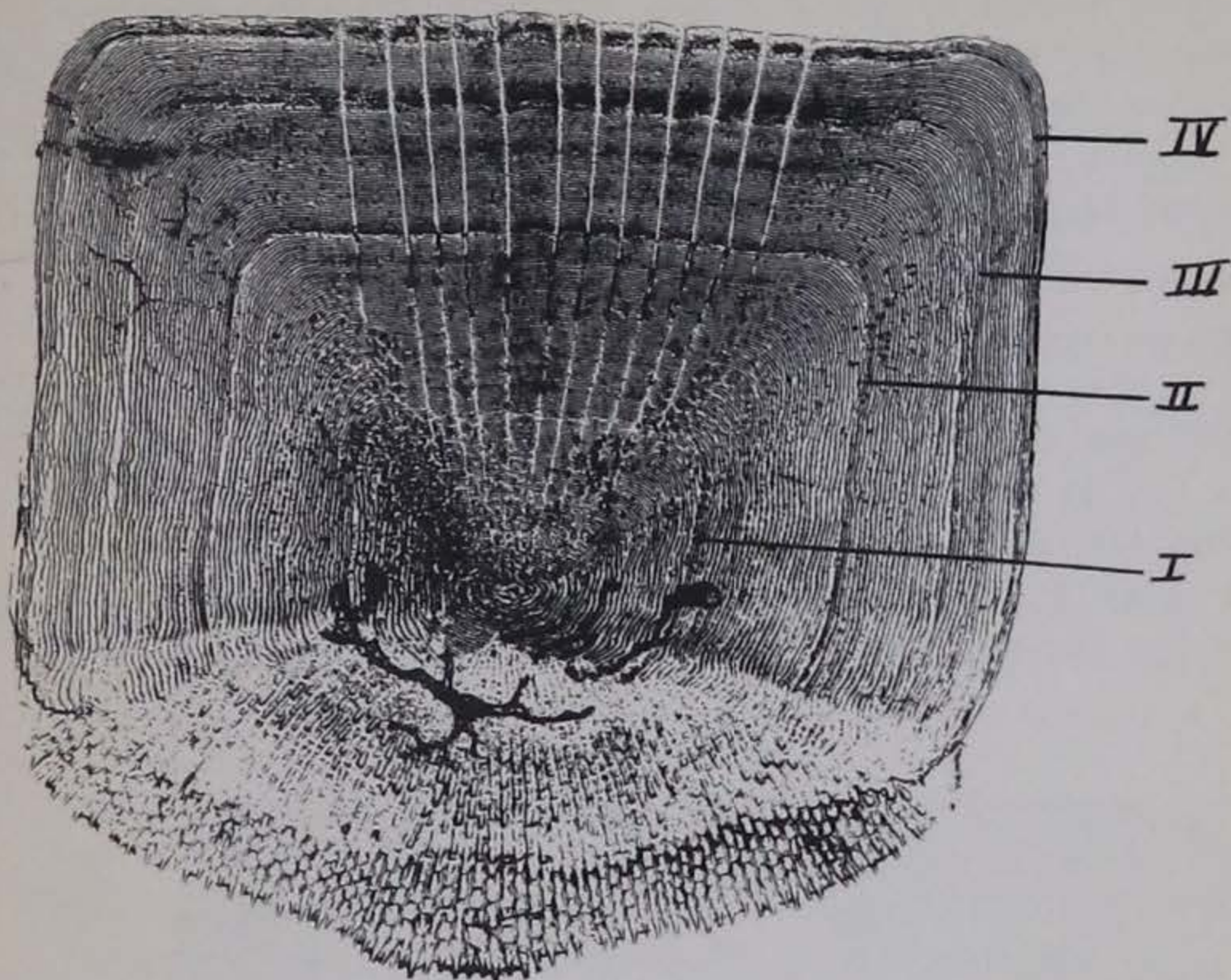


Fig. 1. Scale of white bass with four annuli. Anterior field of the scale to the top of the picture. (Photograph by Photoservice of Iowa State College, S-45).

is formed which joins the ends of the incomplete circuli along the sides of the scale. Periods during which the fish grew very slowly or stopped growing altogether are therefore indicated on the scale by a series of crowded circuli, with several incomplete circuli which are surrounded and joined at their ends by a more complete circulus. Since, in the temperate zone the winter is usually the only period of the year when fish stop growing or grow very slowly, the age of the fish can be determined by counting the number of breaks in growth (annuli). Occasionally a "false annulus" occurs when the growth of a fish is stopped for some period in addition to the usual winter break.



Often these false annuli may be distinguished from the true annuli by their appearance or position, but sometimes there is no way of knowing whether a break on the scale is a true or a false annulus, with the result that it may be impossible to accurately determine the age of the fish.

Most scales grow with the fish throughout life, but occasionally scales are lost and are replaced by new scales. These scales are known as "regenerative" and can be distinguished by a pebbly area near the center of the scale. (Fig. 2). Regenerative scales should not be used to determine the age of a fish since they tell nothing of the age of the fish up until the time the original scale was lost.

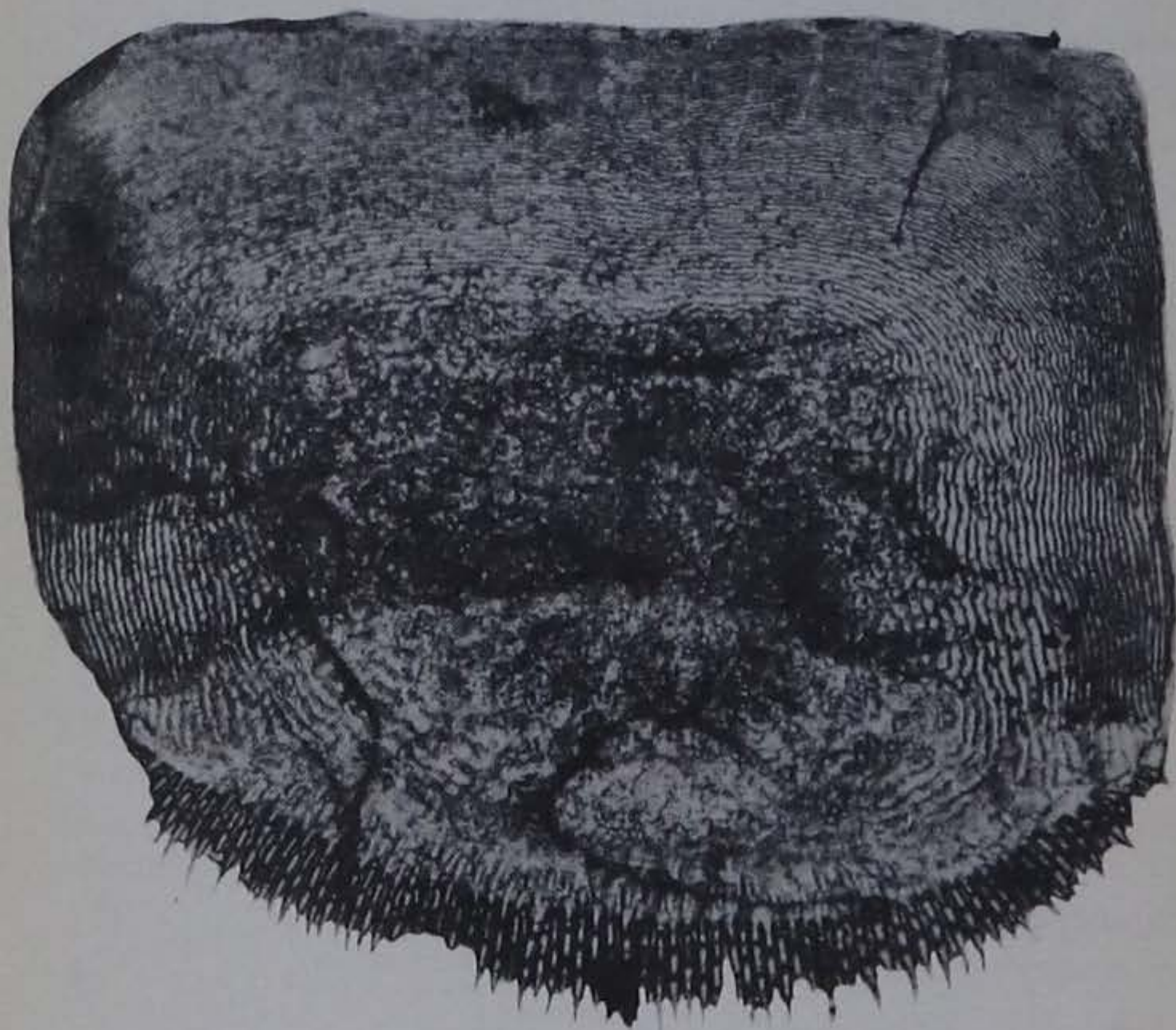


Fig. 2. Regenerative scale from a yellow bass. (Photoservice of Iowa State College).



In collecting fish for an age and growth study, it is well to collect scales from several specimens of as many sizes as possible. Scales from a few young-of-the-year and one year old fish will often help in deciding what the annulus looks like in the particular population. The age of these younger fish can usually be determined merely from their size distribution.

The most satisfactory area for taking scales from most species of fishes is immediately above or below the lateral line, even with the anterior part of the dorsal fin. Lateral line scales are unsatisfactory because of the pore through the center. The scales should be collected from the same prescribed area on all the fish in each study. Scales from each fish may be kept in a small coin envelope. On the envelope should be recorded the species of fish, its length, weight, sex (if determinable), the location at which it was taken, the date, and the collector's name. Any additional notes on the stomach contents, parasites, etc. may also be recorded on the envelope. The scales need no other preservation.

To prepare the scales for observation, it may be necessary to soak them for a few moments in water and scrub them with a small brush, but most scales are clean enough without any treatment other than rubbing them between the finger and thumb. Scales are often mounted on microscope slides in glycerin-gelatin (V-5) or some other mounting medium. In the last few years, many laboratories have made impressions of the scale markings in clear plastic, using special presses. In smaller laboratories, the simplest and most satisfactory technique is to place the dry scales between two glass slides, held together at the ends with waterproof adhesive tape (L-49). If the scales are opaque, the scale markings can be more easily seen if the scales are soaked in water a short time by placing the slides on edge in hot water.

The larger laboratories usually have special microprojection apparatus for examining scales



(V-32), but satisfactory results may be secured with a regular microscope or with an ordinary slide projector for 35 mm. slides. A suitable projector can be quite easily built from odds and ends for approximately \$15 (J-20).

After the ages have been determined from the scales, the sizes of the fish in each age class may be compared with the data in the following tables to determine how the growth rate compares with growth in other waters. Slight differences in growth rates should not be considered important since there is often a great deal of variation in growth rate even within a single lake.

For more detailed studies of growth from scales one should be thoroughly familiar with the literature and the methods used by various workers (particularly V-5, H-65). Vertebral bones (L-27; H-80), opercular bones (L-50), dentary bones (A-3), fin rays (B-88), and otoliths (A-3, T-38, and many others) may also be used in studying age and growth of fish.



SEA LAMPREY, Petromyzon marinus

A-15 Mich. 20.75 inch female with 78,762 eggs; N.Y. 236,00 eggs per female.  
 L-1 62,400 eggs per female; one 11 oz. female with 107,138 eggs.

Note: The age groups in all of the studies on lampreys were determined by the Petersen frequency method. Schultz (S-24) questions the accuracy of this method in aging lampreys beyond age group I.

MICHIGAN BROOK LAMPREY, Ichthyomyzon fossor

				Length in mm.						Length in mm.		
				No.	Mean	Range				No.	Mean	Range
Age group 0, 3 months							Age group II					
0-12	Mich.	Gilchrist Cr.	-	20	10-30	H-89	Mich.	Thunder Bay	-	55	-	
0-12	Mich.	Thunder Bay R.	-	20	-	L-21	Ind.	Tippecanoe R.	10	56	54-61	
Age group 0, July							H-89	Mich.	Rifle R.	-	60	-
C-48	Wisc.	Brule R.	-	27	-	0-12	Mich.	Thunder Bay	-	60	-	
Age Group 0, Sept.							H-89	0-12 Mich.	Gilchrist	-	65	-
C-48	Wisc.	Brule R.	-	-	38-42	Age group III						
Age group 0, Nov.							H-89; 0-12	Mich.	Thunder	-	70	-
C-48	Wisc.	Brule R.	-	-	36-48	L-21	Ind.	Tippecanoe R.	13	73	70-78	
Age group 0							H-89; 0-12	Mich.	Gilchrist	-	75	-
H-89	Mich.	Gilchrist Cr.	-	20	-	H-89	Mich.	Rifle R.	-	75	-	
H-89	Mich.	Thunder Bay R.	-	25	-	Age group IV						
H-89	Mich.	Rifle R.	-	25	-	H-89; 0-12	Mich.	Thunder	-	80	-	
Age group I							H-89; 0-12	Mich.	Gilchrist	-	85	-
L-21	Ind.	Tippecanoe R.	12	38	36-42	L-21	Ind.	Tippecanoe R.	22	105	102-112	
H-89	Mich.	Thunder Bay R.	-	40	-	Age group V						
H-89	Mich.	Rifle R.	-	45	-	H-89; 0-12	Mich.	Thunder	-	90	-	
0-12	Mich.	Thunder Bay R.	-	-	47-50	H-89; 0-12	Mich.	Gilchrist	-	95	-	
H-89; 0-12	Mich.	Gilchrist	-	50	35-60	L-21	Ind.	Tippecanoe R.	16	125	122-135	
							Age group VI					
							0-12	Mich.	Thunder Bay	-	105	-
							0-12	Mich.	Gilchrist Cr.	-	110	-
							H-89	Mich.		-	115	-

ALLEGHENY BROOK LAMPREY, Ichthyomyzon greeleyi

R-2 Pen. Age group 0, fall 28-33 mm.

SILVER LAMPREY, Ichthyomyzon unicuspis

G-1 N.Y. at one month 12-15 mm.; 65,000 eggs per female

AMERICAN BROOK LAMPREY, Entosphenus lamottenii

				Length in mm.						Length in mm.			
				Mean	Range				Mean	Range			
Age group 0, August							Age group III						
0-11	Mich.			20	-	H-89	Mich.	Maple Cr.	110	-			
H-89	Mich.	Honey Cr.		25	-	H-89	Mich.	Honey Cr.	-	105-120			
H-89	Mich.	Maple Cr.		35	-	0-11	Mich.		120	-			
Age group I							S-1	Mich.		-	170-200		
0-11	Mich.			40	-	Age group IV							
H-89	Mich.	Honey Cr.		-	45-50	0-11	Mich.		-	145-160			
H-89	Mich.	Maple Cr.		65	-	H-89	Mich.	Honey Cr.	-	148-180			
S-1	Mich.			-	30-60	Age group V							
Age group II							0-11	Mich.		170	-		
0-11	Mich.			90	-	H-89	Mich.	Honey Cr.	-	125-200			
H-89	Mich.	Honey Cr.		-	75-80								
H-89	Mich.	Maple Cr.		95	-								
S-1	Mich.			-	90-110								



PACIFIC LAMPREY, Entosphenus tridentatus

	Age group	No.	Length in mm.	
			Mean	Range
H-89 Cal.	O, May	158	14	9-21
	O, Oct.	90	37	21-50
	I	1	75	-
	II	1	141	-

WESTERN BROOK LAMPREY, Lampetra planeri

## Length-weight relationship, Great Britain, H-11

Larvae			Adults					
Length in mm.	No.	Weight in oz.	Length in mm.	No.	Weight in oz.	Length in mm.	No.	Weight in oz.
21-30	28	0.042	101-110	32	1.52	106-115	2	2.45
31-40	55	0.085	111-120	33	1.95	116-125	3	3.01
41-50	80	0.17	121-130	18	2.46	126-135	18	4.24
51-60	190	0.26	131-140	13	3.19	136-145	42	5.14
61-70	182	0.41	141-150	12	4.26	146-155	49	6.03
71-80	134	0.58	151-160	3	5.22	156-165	29	7.30
81-90	81	0.83	171-180	1	8.40	166-175	9	8.50
91-100	59	1.16				186-195	2	11.39

H-11 Great Britain. In larvae, weight increases as 2.6 power of length up to 75 mm., as 2.9 power of length from 76-120 mm., and as 3.7 power of length over 120 mm. In adults, weight increases as 2.8 power of length. For larvae, C(T.L.) is from 12 to 20; for adults, 16 to 19.

	Length in mm.			Length in mm.	
	Mean	Range		Mean	Range
Age group O			Age group II		
S-24 Wash.	-	5-20	H-89 Holland	80	-
H-89 Cal. May	-	10-20	H-11 Great Britain	-	40-104
H-89 Holland	-	10-27			
H-11 Great Britain	34	-	Age group III		
H-89 Cal. Oct.	-	34-74	H-89 Holland	113	-
			H-11 Great Britain	145	-
Age group I			I-1 Finland, additional growth data.		
S-24 Wash. Newauken Cr.	-	25-45			
S-24 Wash. Evans Cr.	-	30-50			
H-11 Great Britain	-	37-76			
H-89 Holland	54	50-100			

WHITE STURGEON, Acipenser transmontanus

	Total length in feet	No.	Weight in pounds		Age group	Code	Length in feet	
			Mean	Range				
J-13	2.92	1	7.5	-	0-15 Ore	XXXIX	B	8.50
G-33	10.50	1	1015.0	-		XLII	B	7.75
G-33	11.50	2	830.5	826-835		XLVI to L	B	10.00
G-33	12.00	1	800.0	-				
G-33	12.50	1	1285.0	-				

ATLANTIC STURGEON, Acipenser oxyrinchus

	Age Group	Code	Total length in inches			Weight in pounds		
			No.	Mean	Range	No.	Mean	Range
S-5 Germany	0	0	-	6.1	-	-	-	-
S-5 Germany	I	0	-	11.0	-	-	-	-
G-22 N.Y. Hudson R.	II	0	3	11.8	11.3-12.0	3	0.31	0.19-0.50
G-22 N.Y. Hudson R.	III	0	13	18.1	15.9-20.9	13	0.90	0.59-1.25
G-22 N.Y. Hudson R.	IV	0	4	23.9	22.8-24.4	4	2.26	2.00-2.50
G-22 N.Y. Hudson R.	V	0	4	26.4	24.4-28.3	4	2.89	2.50-3.75



## ATLANTIC STURGEON, (Continued)

	Age Group	Code	Total No.	length in inches		Weight in pounds		
				Mean	Range	No.	Mean	Range
G-22 N.Y. Hudson R.	VI	0	4	25.6	22.2-28.7	4	2.97	1.75-3.87
G-22 N.Y. Hudson R.	VII	0	14	28.2	25.5-30.7	14	3.37	2.25-4.25
G-22 N.Y. Hudson R.	VIII	0	3	32.7	32.1-33.5	3	6.63	4.88-8.50
G-22 N.Y. Hudson R.	X	0	1	74.5	-	1	80.00	-
G-22 N.Y. Hudson R.	XI	0	1	74.8	-	1	88.00	-
G-22 N.Y. Hudson R.	XII	0	2	94.0	88.0-100.0	2	188.00	176-200

R-75 length at hatching 11 mm.

B-73; H-61 1,000,000-2,500,000 eggs per female.

B-63; 500,000-2,500,000 eggs per female.

SHORTNOSE STURGEON, *Acipenser brevirostris*

G-22 N.Y. Hudson R.	Age Group	Code	No.	Total length in inches		No.	Weight in pounds	
				Mean	Range		Mean	Range
	III	0	3	18.9	17.2-21.9	3	1.69	0.94-2.94
	IV	0	5	21.1	18.9-23.3	5	1.78	1.38-1.94
	V	0	19	22.2	17.1-26.2	19	2.49	1.69-4.00
	VI	0	12	24.2	21.5-28.1	12	3.24	2.19-4.81
	VII	0	14	24.2	19.5-31.4	14	3.22	1.63-5.31
	VIII	0	8	25.7	22.6-29.6	8	3.67	2.75-4.88
	IX	0	4	31.3	27.8-33.6	4	6.83	5.00-7.63
	X	0	3	28.8	24.4-31.4	3	4.74	3.25-5.50
	XI	0	4	26.7	25.2-27.6	4	4.31	3.56-5.13
	XII	0	3	31.0	26.6-33.5	3	6.82	3.81-8.44
	XIII	0	4	26.2	22.2-34.8	4	4.28	2.25-8.94
	XIV	0	2	28.0	25.5-30.5	2	5.78	4.31-7.25

LAKE STURGEON, *Acipenser fulvescens*

Total length-weight relationship, Lake Winnebago, Wisc. S-9

Total length in inches	No.	Weight in pounds		Total length in inches	No.	Weight in pounds	
		Mean	Range			Mean	Range
40-44	3	20.3	19-22	55-59	7	41.9	30-50
45-49	11	29.3	19-45	60-64	8	67.4	54-82
50-54	12	35.4	20-45	65-69	3	76.7	74-78

	Age Group	Code	No.	Length in inches			Weight in pounds		
				Type	Mean	Range	No.	Mean	Range
H-13 Ontario	I	0	4	F.L.	9.5	7.7-11.1	4	0.15	0.1-0.2
H-13 Ontario	II	0	3	F.L.	11.8	-	3	0.3	-
H-13 Ontario	III	0	4	F.L.	13.6	13.0-14.4	4	0.38	0.3-0.4
H-13 Ontario	IV	0	5	F.L.	17.7	15.9-18.5	5	0.86	0.6-1.1
H-13 Ontario	V	0	3	F.L.	19.8	19.0-20.5	3	1.2	1.1-1.3
H-13 Ontario	VI	0	3	F.L.	21.4	21.2-21.7	3	1.58	1.5-1.7
H-13 Ontario	VII	0	5	F.L.	22.8	21.4-23.8	5	1.96	1.6-2.3
H-13 Ontario	VIII	0	2	F.L.	23.7	23.7-23.8	2	2.25	2.1-2.4
H-13 Ontario	IX	0	4	F.L.	23.6	22.1-24.8	4	2.18	1.7-2.7
H-13 Ontario	X	0	5	F.L.	26.2	23.9-29.4	5	3.06	2.7-4.1
C-93 Quebec	X	0	-	F.L.	30.0	-	-	8.0	-
H-13 Ontario	XII	0	1	F.L.	30.4	-	1	5.1	-
H-13 Ontario	XIII	0	1	F.L.	29.2	-	1	4.2	-
S-9 Wisc. Winnebago L.	XIV	0	1	T.L.	47.0	-	1	28.0	-
H-13 Ontario	XV	0	3	F.L.	30.7	30.1-31.4	3	4.9	4.0-5.7
S-9 Wisc. Winnebago L.	XV	0	2	T.L.	48.5	46.0-51.0	2	28.0	26.0-30.0



## LAKE STURGEON, (Continued)

	Age Group	Code	Length in inches				Weight in pounds		
			No.	Type	Mean	Range	No.	Mean	Range
S-9 Wisc. Winnebago L.	XVI	0	4	T.L.	46.8	42.0-56.0	4	27.5	19.0-40.0
H-13 Ontario	XVII	0	1	F.L.	34.6	-	1	6.5	-
H-13 Ontario	XVIII	0	1	F.L.	34.7	-	1	6.4	-
S-9 Wisc. Winnebago L.	XVIII	0	6	T.L.	51.5	47.0-58.0	7	37.0	23.0-46.0
H-13 Ontario	XIX	0	1	F.L.	35.7	-	1	9.8	-
S-9 Wisc. Winnebago L.	XIX	0	4	T.L.	49.0	45.0-52.0	4	29.8	19.0-38.0
B-12 Man. L. Winnipeg	XX	0	1	F.L.	40.0	-	-	-	-
C-93 Quebec	XX	0	-	F.L.	40.0	-	-	19.0	-
S-9 Wisc. Winnebago L.	XX	0	1	T.L.	49.0	-	-	31.0	-
S-9 Wisc. Winnebago L.	XXI	0	5	T.L.	52.6	46.0-59.0	5	39.0	20.0-50.0
H-13 Ontario	XXII	0	1	F.L.	35.1	-	1	8.4	-
C-93 Quebec	XXII	0	1	F.L.	45.5	-	1	25.0	-
S-9 Wisc. Winnebago L.	XXII	0	4	T.L.	59.5	54.0-66.0	4	55.0	29.0-78.0
S-9 Wisc. Winnebago L.	XXIII	0	1	T.L.	57.0	-	1	48.0	-
S-9 Wisc. Winnebago L.	XXIV	0	4	T.L.	60.3	56.0-65.0	4	60.5	30.0-74.0
H-13 Ontario	XXV	0	1	F.L.	39.4	-	1	12.0	-
S-9 Wisc. Winnebago L.	XXV	0	1	T.L.	60.0	-	1	58.0	-
S-88 Iowa	XXV	?	-	T.L.	-	-	1	60.0	-
S-9 Wisc. Winnebago L.	XXVI	0	2	T.L.	56.0	49.0-63.0	2	43.5	32.0-55.0
S-9 Wisc. Winnebago L.	XXVII	0	1	T.L.	54.0	-	1	45.0	-
C-93 Quebec	XXX	0	-	F.L.	50.0	-	-	34.0	-
B-12 Man. L. Winnipeg	XXXI	0	2	F.L.	61.5	60.0-63.0	2	68.0	54.0-82.0
H-13 Ontario	XXXVII	0	1	F.L.	53.8	-	1	42.0	-
H-13 Ontario	XXXVIII	0	1	F.L.	58.5	-	1	45.0	-
H-13 Ontario	XL	0	1	F.L.	52.3	-	1	29.0	-
C-93 Quebec	XL	0	-	F.L.	58.0	-	-	62.0	-
B-12 Man. L. Winnipeg	XL	0	1	F.L.	62.0	-	1	81.0	-
S-88 Iowa	XLI	?	-	-	-	-	1	90.0	-
S-88 Iowa	XLVI	?	-	-	-	-	1	110.0	-
H-13 Ontario	XLVII	0	1	F.L.	63.2	-	1	64.0	-
H-13 Ontario	L	0	1	F.L.	61.5	-	1	50.0	-
C-93 Quebec	L	0	-	F.L.	66.0	-	-	100.0	-

S-76 Lake Michigan; a tagged sturgeon 21" T.L. (2 pounds) grew to 24" (5 pounds) in 3 years and 5 months; another, 14 pounds increased to 75 pounds in 28 years.

D-12 200,000 eggs per female

SHOVELNOSE STURGEON, *Scaphirhynchus platyrhynchus*

J-13 Illinois. 28 inch sturgeon weighed 4.25 pounds

PADDLEFISH, *Polyodon spathula*

## Standard Length-Weight Relationship Illinois, A-3

Standard Length in inches	No.	Weight in pounds	Standard Length in inches	No.	Weight in pounds
7.0-7.9	1	0.12	39.0-39.9	4	12.2
12.0-12.9	1	0.22	40.0-40.9	1	13.8
21.0-21.0	2	2.05	41.0-41.9	1	15.2
24.0-24.9	1	4.2	42.0-42.9	1	19.7
25.0-25.9	2	3.2	43.0-43.9	2	14.9
26.0-26.9	1	2.5	44.0-44.9	1	15.3
27.0-27.9	1	3.6	45.0-45.9	1	22.0
29.0-29.9	2	5.1	46.0-46.9	1	16.0
30.0-30.9	3	4.3	47.0-47.9	1	23.0
33.0-33.9	2	7.0	50.0-50.9	1	25.0
37.0-37.9	1	7.3	74.0-74.9	2	156.5



## PADDLEFISH (Continued)

	Total length in inches	No.	Weight in pounds
J-13	53	1	18.0
J-13	70	1	79.0
J-13	74	1	123.5
F-10 Ill.	74	1	150.0

	Age Group	Code	Standard length in mm.			Weight in pounds		
			No.	Mean	Range	No.	Mean	Range
T-11 Ill.	O-May	P	7	-	17-20	-	-	-
T-11 Mo.	O-Sept.	P	-	-	37-93	-	-	-
A-3 Ill.	I	O	2	250	197-305	2	0.17	0.12-0.22
T-11 Ill.	I	P	-	254	-	-	-	-
A-3 Ill.	II	O	8	604	533-686	7	2.97	2.0-4.2
T-11 Ill.	II	P	-	686	-	-	-	-
A-3 Ill.	III	O	6	762	737-812	5	4.64	3.6-5.2
T-11 Ill.	III	P	-	1220	-	-	-	-
A-3 Ill.	IV	O	2	838	-	2	7.0	-
A-3 Ill.	V	O	1	940	-	1	7.3	-
A-2 Ill.	V	O	1	762	-	1	5.0	-
A-3 Ill.	VI	O	1	966	-	-	-	-
A-3 Ill.	VII	O	3	998	990-1016	3	12.03	11.0-13.8
A-3 Ill.	IX	O	1	1066	-	1	19.7	-
A-3 Ill.	X	O	4	1118	1092-1168	4	15.25	13.5-16.2
A-3 Ill.	XII	O	1	1194	-	1	23.0	-
A-3 Ill.	XIV	O	1	1283	-	1	25.0	-

LONGNOSE GAR, Lepisosteus osseus

C-30 Iowa. Total length equals 1.15 standard lengths, based upon 6 fish.

C-36 Iowa. 6 fish (630-757 mm. S.L.) average K 0.40, Range 0.35-0.48.

Relationship between standard length and weight of 6 gar, Iowa, C-30

S.L. in mm.	630	670	683	695	720	757
Weight in gm.	936	1184	1134	1446	1474	2077

Approximate relationship between weight and total length, Ohio, R-63

Weight in pounds	1	2	3	4	5	6	7	8	9	10
T.L. in inches	20	25	28	31	33	34	36	37	38	39

	Age Group	Code	Total length in inches		
			No.	Mean	Range
A-5 Va. Potomac R.	0- 2weeks	K	-	0.75	-
A-5 Va. Potomac R.	0 5weeks	K	-	0.92	-
F-5 N.Y. L. Erie	0 July	P	1	1.6	-
T-33 N.Y.	0 June	K	6	2.2	1.6-2.8
T-33 N.Y.	0 Sept.	K	5	9.2	8.0-11.0
R-63 Ohio	I	A	-	6.5	-
R-63 Ohio	II	A	-	12.5	-
R-63 Ohio	III	A	-	18.5	-
A-2 Ill.	XI	O	1	41.0	-

H-86, Portage Lake, Mich. reports 2.33 mm. growth per day for month early first summer.

F-6 reports one alive in captivity 20 years. B-69 reports one kept 30 years.



SHORTNOSE GAR, Lepisosteus platostomus

- C-30 Iowa. T.L. = 1.15 S.L. based upon 2 fish.  
 H-7 Fla. T.L. = 1.4884 mm. + 1.1245 S.L., based upon 225 fish, 350-1160 mm. S.L.  
 C-30 Iowa 500 mm. S.L. gar weighed 865 grams. 632 mm. S.L. gar weighed 573 grams.  
 C-36 Iowa. Average K 0.66, range 0.62-0.69. (2 fish, 500-632 mm. S.L.).

	Age Group	Code	Total length in inches		
			No.	Mean	Range
R-27 Ill. Illinois R.	O May	P	-	-	0.6-2.5
R-27 Ill. Illinois R.	O June	P	1	1.75	-
R-27 Ill. Illinois R.	O July	P	1	3.5	-
P-13 Iowa. L. Okoboji	O Aug.	P	-	-	2.5-5.0
P-13 Iowa Lake Okoboji	O Oct.	P	-	-	4.0-6.0

F-6 reports a shortnose gar kept 20 years in captivity

ALLIGATOR GAR, Lepisosteus spatula

## Length-Weight Relationships of 6 large alligator gars, G-33

T.L. in inches	88	89	90	92	110	116.5
Weight in pounds	154	163	186	178	232	302

BOWFIN, Amia calva

- C-24 Minn. Total length equals 1.162 standard lengths. (24 fish, 100-599 mm.).  
 C-30 Iowa Total length equals 1.17 standard lengths. (1 fish, 588 mm.).  
 C-23 Minn. Average K 1.38 for 16 fish 300-650 mm.  
 C-36 Iowa Average K 1.36 for 1 fish 688 mm.

	Age Group	Code	Total length in inches			Weight in pounds
			No.	Mean	Range	
R-27 Ill. Illinois R.	O May	P	-	-	0.4-2.3	-
S-8 Wisc.	O July	P	-	-	1.7-2.8	0.005
R-72 Ohio	VII	S	1	28.0	-	8.75

F-6 reported a bowfin kept in captivity 20 years; F-7, for 24 years; and B-69 for 30 years.

	Size of female	Number of eggs
L-14 Ohio	19.25 " T.L.	30,170
V-21; E-4 Minn.	19.0 " T.L. or 5 pounds	23,600
	21.0 " T.L.	64,000
R-72 Ohio	28 " T.L., 8.75 pounds	55,244

MOONEYE, Hiodon tergisus

	Total length in inches	Number	Weight in ounces	
			Mean	Range
C-30 Iowa	11.0-11.9	2	8.7	8.0-9.5
C-30 Iowa	12.0-12.9	4	11.5	10.2-12.8
C-30 Iowa	13.0-13.9	1	13.8	-

E-28 Tenn. Chickamauga L. Average K for 17 fish (Age Group II) 1.5

F-5 N.Y. L. Erie Age Group O, June 0-50.6 inches, total length

E-28 Tenn. Chickamauga L. Age Group II 17 fish, 199 mm. S.L., 9.6 inches T.L.

	No.		mm.	S.L.
	1	2		
E-28 Tenn. Chickamauga L.	17	91	176	S.L.
	17	4.4	8.4	In. T.L.



GOLDEYE, *Amphiodon alasoides*

C-22 Minn.	Lake of Woods	Fork length equals 1.10 standard lengths.	(5 fish)
		Total length in inches	No. Weight in ounces
C-30 Iowa		15.0-15.9	2 21.6 20.3-23.0
C-30 Iowa		18.0	1 33.8
V-20 Minn.	Red Lake	Average K of 10 fish (252-342 mm. S.L.)	1.73
C-22 Minn.	Lake of Woods	Average K of 3 fish	2.24

		No.	Average calculated length at each annulus							
			1	2	3	4	5	6	7	
		Standard lengths in millimeters								
E-3 Minn.		625	60	137	202	237	268	291		
B-12 Manitoba		-	100	150	205	230	290	330	345	
V-20 Minn.	Red Lake	10	66	168	234	263	287	307		
		Total length in inches								
V-20 Minn.	Red Lake	10	3.1	7.9	11.0	12.4	13.5	14.4		

ALEWIFE, *Pomolobus pseudoharengus*

0-1 N.Y. Seneca L. Weight in grams equals 0.055 times the 2.51 power of S.L.

		Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
								No.	Mean	Range
Age Group O-June										
H-61	Md. Chesapeake	K	26	-	-	X	1.2-2.3	-	-	-
Age Group O-July										
H-61	Md. Chesapeake	K	79	-	-	X	1.8-2.9	-	-	-
Age Group O-August										
H-61	Md. Chesapeake	K	80	-	-	X	2.0-3.2	-	-	-
Age Group O-September										
H-61	Md. Chesapeake	K	134	-	-	X	2.0-3.1	-	-	-
Age Group O-Summer										
0-1	N.Y. Seneca L.	P	108	24	-	-	21-31	-	-	-
P-19	Ont. L. Ontario	P	28	-	0.8	-	-	-	-	-
S-69	Prince Edward I.	P	-	X	-	-	55-69	-	-	-
Age Group O-Fall										
B-71	N.Y. Kensico L.	P	364	40	-	-	26-63	-	-	-
S-57	N.C.	K	-	-	-	X	2.0-3.0	-	-	-
H-61	Md. Chesapeake	K	352	-	-	X	2.2-3.7	-	-	-
B-32	Mass.	K	-	-	-	X	2.0-4.0	-	-	-
Age Group I										
0-1	N.Y. Seneca L.	S	113	55	-	-	30-70	-	-	-
B-71	N.Y. Kensico L.	S	-	55	-	-	34-82	-	-	-
P-19	Ont. L. Ontario	S	36	-	3.3	-	-	25	0.2	-
G-25	N.Y. L. Ontario	S	5	-	-	3.5	2.7-4.3	-	-	-
B-32	Mass.	S	-	-	-	6.0	-	-	-	-
H-61	Md. Chesapeake	-	-	-	-	X	2.6-8.8	-	-	-
Age Group II										
0-1	N.Y. Seneca L.	S	89	116	-	-	100-130	-	-	-
P-19	Ont. L. Ontario	S	6	-	5.1	-	-	5	0.6	-
G-25	N.Y. L. Ontario	S	4	-	-	5.3	5.2-5.4	-	-	-
Age Group III										
0-1	N.Y. Seneca L.	S	284	123	-	-	104-148	-	-	-
G-22	N.Y. Kensico L.	S	48	-	-	5.6	5.0-6.4	48	0.9	0.7-1.4
P-19	Ont. L. Ontario	S	13	-	5.6	-	-	11	1.3	-
G-25	N.Y. R. Ontario	S	4	-	-	6.4	6.1-6.7	-	-	-
G-22	N.Y. Hudson R.	S	2	-	-	10.8	10.6-11.0	2	6.8	6.5-8.0
Age Group IV										
0-1	N.Y. Seneca L.	S	49	137	-	-	119-158	-	-	-
P-19	Ont. Lake Ontario	S	48	-	6.0	-	-	48	1.4	-
G-22	N.Y. Kensico L.	S	24	-	-	6.4	5.8-9.5	24	1.2	0.9-2.8
G-25	N.Y. L. Ontario	S	14	-	-	6.7	6.2-7.5	-	-	-
G-22	N.Y. Hudson R.	S	10	-	-	11.5	10.9-12.0	8	7.6	7.0-9.0



## ALEWIFE, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces					
							No.	Mean	Range			
Age Group V												
0-1			N.Y. Seneca L.	S	25	139	-	-	129-150	-	-	-
P-19			Ont. L. Ontario	S	52	-	6.3	-	-	52	1.5	-
G-22			N.Y. Kensico L.	S	14	-	-	6.5	6.3-6.9	14	1.3	1.1-1.6
G-25			N.Y. L. Ontario	S	7	-	-	7.2	6.6-8.0	-	-	-
G-22			N.Y. Hudson R.	S	7	-	-	11.6	11.0-12.3	7	8.2	6.5-12.0
Age Group VI												
G-22			N.Y. Kensico L.	S	2	-	-	6.6	6.5-6.7	2	1.4	1.4-1.5
P-19			Ont. L. Ontario	S	12	-	7.1	-	-	12	2.2	-
G-25			N.Y. L. Ontario	S	3	-	-	8.5	6.8-10.2	-	-	-
G-22			N.Y. Hudson R.	S	5	-	-	11.8	10.9-12.8	4	7.9	7.5-8.5
Age Group VII												
G-22			N.Y. Kensico L.	S	1	-	-	6.3	-	1	1.2	-
P-19			Ont. L. Ontario	S	1	-	7.4	-	-	1	3.0	-
V-6			Mich. L. Haron	S	1	188	-	8.5	-	-	-	-

Calculated standard lengths in mm. at each annulus									
	No.	1	2	3	4	5	6	7	
B-71 N.Y. Kensico L.	8	44	68	80	91	107	111	120	
O-1 N.Y. Seneca L.	668	55	111	126	137	144			

B-23 60,000 to 100,000 eggs per female.

B-73; H-61; S-57; Average of 102,800 eggs per female, based upon 644 females stripped.

GLUT HERRING, Pomolobus aestivalis

	Code	Age Group	Total length in inches			Weight in ounces		
			No.	Mean	Range	No.	Mean	Range
H-61 Md. Chesapeake B.	P	O, June	27	-	0.8-1.5	-	-	-
H-61 Md. Chesapeake B.	P	O, July	31	-	1.2-2.3	-	-	-
H-61 Md. Chesapeake B.	P	O, Aug.	93	-	1.4-2.5	-	-	-
H-61 Md. Chesapeake B.	P	O, fall	514	-	1.6-2.9	-	-	-
H-61 Md. Chesapeake B.	P	I, spr.	1340	-	2.5-4.7	-	-	-
H-61 Md. Chesapeake B.	P	II	30	-	5.5-8.2	-	-	-
G-22 N.Y. Hudson R.	S	III	4	10.5	10.2-10.8	7.3	7.3	7.0-7.5
G-22 N.Y. Hudson R.	S	IV	16	11.5	10.8-11.9	9.2	9.2	7.5-12.0
G-22 N.Y. Hudson R.	S	V	15	11.7	10.9-12.8	15	9.7	7.5-12.0
G-22 N.Y. Hudson R.	S	VI	5	12.5	12.2-13.0	5	12.2	9.0-12.0

AMERICAN SHAD, Alosa sapidissima

H-61 Md. Chesapeake Bay.

Total length-weight relationship								
T.L. in inches	No.	Weight in pounds	T.L. in inches	No.	Weight in pounds	T.L. in inches	No.	Weight in pounds
14.0-14.9	2	2.25	18.0-18.9	13	3.06	22.0-22.9	4	5.50
15.0-15.9	2	2.25	19.0-19.9	8	3.31	23.0-23.9	14	5.80
16.0-16.9	13	2.19	20.0-20.9	4	4.56	24.0-24.9	5	6.56
17.0-17.9	12	2.31	21.0-21.9	8	4.75	25.0-25.9	3	7.88



## AMERICAN SHAD

		Code	No.	S.L.	F.L.	T.L.	Range	Weight in pounds		
								No.	Mean	Range
Age Group O, May										
S-57	N.C.	K	-	-	-	0.4	-	-	-	-
B-73	Cal.	K	-	-	-	X	0.4-0.6	-	-	-
H-37	Cal.	P	461	-	-	1.4	-	-	-	-
Age Group O, May										
L-23	Canada	P	90	-	X	-	0.3-0.6	-	-	-
H-61	Md. Chesapeake	P	128	-	-	X	0.8-2.6	-	-	-
H-37	Cal.	P	112	-	-	1.6	-	-	-	-
Age Group O, July										
L-23	Canada	P	399	-	X	-	0.3-2.3	-	-	-
H-61	Md. Chesapeake	P	138	-	-	X	1.2-2.9	-	-	-
H-37	Cal.	P	105	-	-	1.8	-	-	-	-
S-56	Va. Potomac R.	P	-	51	-	-	-	-	-	-
B-9	D.C.	K	-	X	-	-	50-60	-	-	-
B-21	D.C.	K	-	75	-	-	-	-	-	-
Age Group O, August										
L-23	Canada	P	2	-	X	-	1.6-2.0	-	-	-
B-73		K	-	-	-	X	2.0-2.3	-	-	-
H-61	Md. Chesapeake	P	67	-	-	X	1.8-3.1	-	-	-
H-37	Cal.	P	110	-	-	3.3	-	-	-	-
Age Group O, September										
C-45	Va. Potomac R.	P	-	X	-	-	25-76	-	-	-
H-61	Md. Chesapeake	P	84	-	-	X	2.0-3.6	-	-	-
B-73		K	84	-	-	X	3.0-4.0	-	-	-
H-37	Cal.	P	24	-	-	3.6	-	-	-	-
Age Group O, October										
H-6	Md. ponds	K	-	X	-	-	40-108	-	-	-
H-61	Md. Chesapeake	P	225	-	-	X	1.8-4.4	-	-	-
B-17	Conn.	P	-	-	-	X	2.7-3.6	-	-	-
H-37	Cal.	P	84	-	-	3.5	-	-	-	-
M-7-10	D.C.	K	-	X	-	-	60-130	-	-	-
T-25		K	-	95	-	-	-	-	-	-
B-73		K	-	-	-	X	4.0-4.5	-	-	-
B-9	D.C.	K	-	X	-	-	120-180	-	-	-
Age Group O, November - December										
H-61	Md. Chesapeake	P	139	-	-	X	2.4-4.7	-	-	-
B-73	Va. Potomac R.	P	-	-	-	X	3.0-4.0	-	-	-
S-56	Va. Potomac R.	P	-	X	-	-	85-100	-	-	-
H-37	Cal.	P	6	-	-	3.9	-	-	-	-
B-21	D.C.	K	-	X	-	-	100-150	-	-	-
B-23	D.C.	K	-	-	-	6.0	-	-	-	-
B-73		K	-	-	-	X	-	-	-	-
S-57	N.C.	K	-	-	-	X	7.0-9.0	-	-	-
B-73	N.C. ponds	K	-	-	-	X	8.0-9.0	-	-	-
Age Group O										
B-64	Conn.	O	26	X	-	-	58-113	-	-	-
Age Group I										
H-37	Cal.	P	5	-	-	4.7	-	-	-	-
H-61	Md. Chesapeake	P	23	-	-	X	3.4-6.0	-	-	-
B-17	Conn.	O	1	-	-	5.6	-	-	-	-
B-64	Conn.	S	4	-	-	X	5.7-7.1	-	-	-
Age Group II										
L-23	Canada	S	192	-	9.0	-	-	-	-	-
B-64	Conn.	S	7	X	-	-	210-290	-	-	-
S-55	Pacific Coast	I	-	-	-	17.0	-	-	-	-
Age Group III										
B-17	Conn.	O	1	-	-	11.6	-	-	-	-
L-23	Canada	S	29	-	12.0	-	-	-	-	-
B-64	Conn.	S	10	X	-	-	300-350	-	-	-
G-22	N.Y. Hudson R.	S	23	-	-	15.7	10.6-20.7	22	1.81	0.5-4.63



## AMERICAN SHAD, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in pounds			
							No.	Mean	Range	
Age Group IV										
B-17	Conn.	0	2	-	-	12.7	12.4-13.8	-	-	-
B-64	Conn.	S	22	X	-	-	360-390	-	-	-
L-23	Canada	S	14	-	17.0	-	-	-	-	-
G-22	N.Y. Hudson R.	S	44	-	-	19.0	14.0-22.2	43	4.07	1.00-5.25
Age Group V										
B-17	Conn.	0	6	-	-	13.8	12.8-15.4	-	-	-
L-23	Canada	S	46	-	19.2	-	-	-	-	-
G-22	N.Y. Hudson R.	S	61	-	-	20.1	15.8-23.0	61	3.78	1.50-5.56
Age Group VI										
B-17	Conn.	0	3	-	-	15.0	14.8-15.3	-	-	-
G-22	N.Y. Hudson R.	S	22	-	-	21.2	17.7-22.4	22	4.27	2.50-5.50
L-23	Canada	S	17	-	21.1	-	-	-	-	-
Age Group VII										
B-17	Conn.	0	25	-	-	18.5	17.7-20.3	-	-	-
G-22	N.Y. Hudson R.	S	9	-	-	19.8	16.3-23.5	9	4.25	2.13-5.75
L-23	Canada	S	8	-	21.1	-	-24.4	-	-	-
Age Group VIII										
B-17	Conn. males	0	7	-	-	18.8	18.1-20.3	-	-	-
B-17	Conn. Females	0	4	-	-	20.1	19.7-20.5	-	-	-
G-22	N.Y. Hudson R.	S	4	-	-	22.9	18.5-25.9	4	5.54	2.81-7.63
L-23	Canada	S	1	-	22.4	-	-	-	-	-
Age Group IX										
B-17	Conn. males	0	3	-	18.5	18.5	17.7-19.7	-	-	-
B-17	Conn. females	0	4	-	-	20.3	18.9-21.7	-	-	-
Calculated fork length at each annulus										
	Code	1	2	3	4	5	6	7	8	
L-23	Canada	L	5.1	9.3	13.0	15.9	18.3	20.3	21.8	23.0
L-19; B-73; J-13; H-61		30,000 eggs per female; maximum 156,000 eggs per female.								H
B-23		25,000 eggs per 4 to 5 pound females; 60,000-100,000 eggs per 6 pound females								H
W-43		27,800 eggs per female								H
M-30	N.Y. Delaware R.	28,000 to 98,000 eggs per female								H
B-22		33,000 to 49,000 eggs per female								H
H-5	Md.	150,000 eggs per female								U
Y-1		100,000 to 150,000 eggs per female								U

GIZZARD SHAD, *Dorosoma cepedianum*

L-2	Ind.	F.L. = 1.097 S.L.	
Total length-weight relationship			
T.L. in inches	Weight in oz.	T.L. in inches	Weight in oz.
No.	Mean	No.	Mean
Range	Range	Range	Range
4.0-4.9	19 0.4 0.3-0.6	7.0-7.9	6 2.0 -
5.0-5.9	6 0.7 0.6-1.0	8.0-8.9	1 4.5 -
6.0-6.9	2 1.3 1.2-1.4	9.0-9.9	2 5.1 4.6-5.6
10.0-10.9	1 7.7	11.0-11.9	1 7.4
12.0-12.9	1 15.0		
C-23	Minn.	11 fish (150-309 mm. S.L.) average K 1.95	
E-28	Tenn.	197 fish average K 2.2	
R-64	Ohio	average C(T.L.) 40	
Weight in ounces			
	Code	No.	S.L.
	F.L.	T.L.	Range
	No.	Mean	Range
Age Group O, July			
L-2	Ind. Foots P.	P	71 31 - - 19-45
E-28	Tenn. Chickamauga	P	2233 - - 1.8 0.8-3.8



## GIZZARD SHAD, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces			
							No.	Mean	Range	
Age Group O, July										
L-2		Ind. Grassy P.	P	1115	32	-	-	21-43	-	-
H-95		Okla.	P	-	X	-	-	22-75	-	-
E-28		Tenn. Chickamauga	P	2546	-	-	2.0	0.8-4.3	-	-
Age Group O, August										
E-28		Tenn. Chickamauga	P	1113	-	-	2.8	1.4-4.7	-	-
L-2		Ind. Foots P.	P	42	67	-	-	45-79	-	-
S-117		Ala.	K	-	-	-	-	-	-	0.05-2.0
Age Group O, September										
E-28		Tenn. Chickamauga	P	4293	-	-	3.3	2.0-5.1	-	-
Age Group O, October										
E-28		Tenn. Chickamauga	P	1055	-	-	3.6	2.4-5.1	-	-
Age Group O, November										
L-2		Ind. Foots P.	P	70	72	-	-	61-88	-	-
S-117		Ala.	K	-	-	-	-	-	3.7	-
Age Group O										
R-64		Ohio	A	-	-	-	X	3.0-4.0	-	-
H-61		Md. Chesapeake	P	-	-	-	X	4.0-6.3	-	-
Age Group I										
E-28		Tenn. Chickamauga	P	-	-	-	7.3	-	-	-
R-64		Ohio	A	-	-	-	X	7.0-8.0	-	-
L-2		Ind.	S	38	152X	6.6	7.6	130-180	3	2.7
Age Group II										
E-28		Tenn. Chickamauga	P	-	-	-	9.1	-	-	-
R-64		Ohio	A	-	-	-	10.0	-	-	-
L-2		Ind.	S	84	193X	8.3	9.7	172-222	3	4.3
Age Group III										
L-2		Ind.	S	81	207X	8.9	10.5	173-238	3	6.5
W-7		Okla. L. Duncan	S	8	234	-	-	-	8	8.4
Age Group IV										
L-2		Ind.	S	25	224	9.7	11.3	199-250	2	16.2
Age Group V										
L-2		Ind.	S	6	256	11.1	12.8	219-309	-	-

ATLANTIC SALMON, *Salmo salar*

N-46 N.Y. T.L. = 1.152 S.L.		B-37 N.Br. F.L. = 0.9173 T.L. = 0.986 inches.	
N-46 N.Y. hatcheries			
Total length in inches	1.0	1.5	2.0
Mean weight in ounces	0.0046	0.0168	0.0392
Number per pound	3413	948	409
N-46 N.Y. hatcheries	1-2.5 inch fish	K(S.L.)	0.95-1.43
H-74 Canada	1433 smolt	K(F.L.)	0.97 0.57-1.44
J-11 Scotland, River Dee	1052 fish	K(F.L.)	1.01
M-11 Canada, Moisie R.		K(F.L.)	1.06
H-74 Canada	210 parr	K(F.L.)	1.09 0.75-1.45
B-37 N. Br.	1473 fish	K(F.L.)	1.12 K(T.L.) 0.91
B-35 Newfoundland	137 parr, age group II	K(F.L.)	1.12 K(T.L.) 0.89
B-35 Newfoundland	57 parr, age group III	K(F.L.)	1.14 K(T.L.) 0.91
A-12 England	896 freshwater fish	K(F.L.)	1.25
H-108 Britain, Wye R.		C(F.L.)	35.9
J-11 Scotland, River Dee	1052 fish	C(F.L.)	36.4
H-108 Britain, Derwent R.		C(F.L.)	41.7



## ATLANTIC SALMON

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in grams		
							No.	Mean	Range
Age class 0, May (or first 4 weeks)									
H-38	Canadian hatcheries	K	-	-	-	-	-	0.025	-
A-11	Nova Scotia	K	-	-	0.7	-	0.6-0.8	-	-
B-38	Canadian hatcheries	K	-	-	1.1	-	1.0-1.2	-	-
H-108	England Wye R.	P	-	-	1.4	-	1.3-1.5	-	-
Age class 0, June (or second 4 weeks)									
H-38	Canadian hatcheries	K	-	-	-	-	-	0.049	-
A-11	Nova Scotia	K	-	-	0.9	-	0.8-1.0	-	-
B-23	N.Y.	K	-	-	-	1.5	-	-	-
B-38	Canada hatcheries	K	-	-	1.5	-	1.4-1.6	-	-
H-108	England Wye R.	P	-	-	1.9	-	1.4-2.7	-	0.136
Age class 0, July (or third month)									
H-38	Canada Hatcheries	K	-	-	-	-	-	0.10	-
A-11	Nova Scotia	K	-	-	1.0	-	-	0.133	-
B-1	N.H.	P	28	42	-	2.0	1.6-2.4	-	-
B-38	Canada hatcheries	K	-	-	2.0	-	1.8-2.1	-	-
H-108	England Wye R.	P	-	-	2.2	-	1.6-3.4	-	-
Age class 0, August									
G-19	N.Y. Raquette	P	1	-	-	2.2	-	-	-
H-108	England Wye R.	P	-	-	2.6	-	1.9-3.5	-	-
Age class 0, September									
H-108	England Wye R.	P	-	-	3.0	-	2.1-3.9	-	-
Age class 0, October									
H-108	England Wye R.	P	-	-	3.1	-	2.0-4.6	-	-
A-18	Me. hatchery	K	-	-	-	-	-	-	1.8-2.4
Age class 0, November									
B-73	Hatcheries	K	-	-	-	X	2.5-3.0	-	0.4-14.5
A-17	Hatcheries	K	-	-	-	3.0	-	-	-
A-17	Mass. Mirimich R.	P	-	-	-	5.0	-	-	-
Age class 0									
B-36	N.S. Moisie R.	P	130	-	1.5	1.6	-	-	-
B-37	N.S. Margaree R.	P	1094	-	2.1	2.3	-	1.8	-
A-12	England Thurso R.	P	558	-	2.2	-	-	2.0	-
Age class I									
B-36	N.S. Moisie R.	S	80	-	2.6	2.8	-	-	-
B-35	Newfoundland	S	-	-	2.8	3.0	-	0.1	-
K-2	N.Y. Tuxedo	K	-	-	-	3.0	-	-	-
A-12	England Thurso R.	S	340	-	3.6	-	-	340	0.3
B-37	N.S. Margaree R.	S	363	-	3.8	4.2	-	363	0.4
G-19	N.Y. Raquette R.	S	3	-	4.7	4.7	4.5-5.0	-	-
B-1	N.H.	S	10	99	-	4.7X	4.1-5.4	-	-
H-108	England Wye R.	P	-	-	4.6	-	2.0-6.3	-	-
B-22	N.Y. Long Is.	P	-	-	-	7.1	-	-	-
Age Class II									
B-36	N.S. Moisie R.	S	15	-	3.7	4.0	-	-	-
B-37	N.S. Margaree R.	S	27	-	4.4	4.7	-	27	0.6
B-35	Newfoundland	S	134	-	4.4	4.8	-	134	0.5
A-12	England Thurso R.	S	158	-	4.9	-	-	158	0.6
K-2	N.Y. Tuxedo	K	-	-	-	X	6.0-9.0	-	-
C-66	Australia	I	-	-	6.9	-	-	-	-
B-1	N.H.	S	1	168	-	8.1	-	-	-
P-23	N.Z	I	2	-	-	X	22.0-23.0	-	-
Age class III									
A-12	England Thurso R.	S	3	-	4.3	-	-	-	0.5
B-36	N.S. Moisie R.	S	13	-	4.5	4.8	-	-	-
B-35	Newfoundland	S	57	-	4.8	5.2	-	57	0.7
G-19	N.Y. Raquette R.	S	6	-	-	12.2	7.1-21.6	-	-



## ATLANTIC SALMON, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
D-1 Norway	S	-	-	12.6	-	7.1-21.6	-	-	-
C-66 Australia	I	-	-	X	-	11.7-17.7	-	-	-
Age class IV									
B-35 Newfoundland	S	2	-	5.8	6.2	-	-	1.3	-
G-19 N.Y. Raquette R.	S	4	-	-	19.6	18.5-20.7	-	-	-
C-66 Australia	I	-	-	19.4	-	-	-	-	-
D-1 Norway	S	1	-	38.6	-	-	-	-	-
Age class V									
O-13 Sweden	K	-	-	16.6	-	-	-	25.6	-
G-19 N.Y. Raquette R.	S	2	-	-	20.8	19.9-21.6	-	25.6	-
Age class XIII									
F-7 Scotland	-	-	-	-	-	-	-	472.0	-
Age Group - 1 yr. of sea life							Weight in pounds		
							No.	Mean	Range
J-2 Baltic	S	4366	-	20.9	-	-	4362	2.9	-
H-108 Britain Wye R.	S	-	-	-	-	-	-	5.5	-
J-11 Britain	S	-	-	X	-	22.2-26.5	-	-	3.7-6.5
J-11 Scotland Dee R.	S	150	-	24.8	-	21.5-27.0	150	6.2	3.7-10.0
Age Group- 2 yrs. of sea life									
M-11 Canada, Moisie R.	S	54	-	29.2	-	-	54	9.1	-
J-2 Baltic	S	7494	-	29.6	-	-	7435	10.6	-
J-11 British Rivers	S	-	-	X	-	27.8-35.0	-	-	8.1-16.7
J-11 Scotland, Dee R.	S	566	-	31.2	-	27.0-38.0	566	10.8	5.5-25.0
H-108 Britain, R. Wye	S	-	-	-	-	-	-	-	11.4-12.3
Age Group - 3 yrs. of sea life									
H-108 Britain, Wye R.	S	-	-	-	-	-	-	-	20.7-23.6
J-11 British Rivers	S	-	-	X	-	34.6-43.2	-	-	15.7-32.0
J-11 Scotland Dee R.	S	279	-	36.4	-	30.0-46.0	279	17.4	9.0-32.0
J-2 Baltic	S	9423	-	37.4	-	-	9423	22.1	-
M-11 Canada Moisie R.	S	-	-	37.8	-	-	-	22.0	-
Age Group - 4 yrs. of sea life									
J-11 Scotland, Dee R.	S	14	-	40.3	-	36.5-42.0	14	24.1	15.0-34.0
J-2 Baltic	S	2818	-	42.0	-	-	2818	29.8	-
H-108 Britain, Wye R.	S	-	-	-	-	-	-	34.3	-
M-11 Canada, Moisie R.	S	2	-	43.8	-	-	2	36.0	-
H-108 Norway	S	-	-	-	-	-	1	74.0	-
Age Group - 5 yrs. of sea life									
J-2 Baltic	S	100	-	47.9	-	-	100	44.0	-

## Life in fresh water

No. Calculated lengths at each annulus

1 2 3 4 5

## Standard lengths in millimeters

B,33 N. Br. Upsalquitch R.	402	47	77		
D-1 Norway, Bornholm	-	48	114		
D-1 Norway, Bygland	-	88	170	266	

## Fork length in inches

B-36 N.S. Moisie R.	-	1.5	2.5	3.6		
D-18 Polish Baltic	-	1.5	3.2	4.9	6.3	7.9
D-17 Polish Baltic	-	1.6	3.4	5.0	5.9	
D-17 Scotch rivers	-	1.6	3.3	5.1	6.0	
N-13 Gr. Britain, Ewe R.	510	1.6	3.8	5.3	6.0	
N-13 Gr. Britain average	-	1.4	3.3	5.4		

## Total length in inches

B-34 Gaspé, St. John R.	-	1.6	2.5	3.4		F
B-36 Canada, Moisie R.	-	1.6	2.7	3.9		F
B-35 Newfoundland	148	1.5	3.1	5.0		
B-35 Newfoundland, Codry R.	-	1.8	3.1	4.4		F



## ATLANTIC SALMON (Continued)

	Total length in inches	Life in fresh water					Code
		No.	Calculated lengths at each annulus				
B-37 Canada, Margaree R.	-	2.2	3.4				F
B-35 Canada, 21 rivers average	-	2.0	3.6	4.5			F
B-35 Newfoundland, 6 rivers	196	2.0	3.5	4.9			F
B-35 Newfoundland, Barachois R.	-	2.1	3.8	5.5			F
B-35 Newfoundland	-	1.5	4.6	5.1	6.0	6.3	
B-34 Canada, Margaree R.	-	2.6	5.5				F

As an indication that, for most purposes, growth in fresh water can be disregarded in considering the growth in the ocean and that age can be listed as years of life at sea, the following data are recorded from D-18 on the Polish Baltic salmon. Growth after the \* is growth in the sea.

Age Group	Calculated Fork lengths at each annulus							
	1	2	3	4	5	6	7	8
II,5	2.0	4.5	*15.9	30.5	38.3	42.3	44.8	
III,5	1.7	3.5	5.8	*17.1	30.8	38.2	42.2	46.1
IV,4	1.5	2.9	4.5	6.2	*18.1	31.9	38.4	41.1
V,2	1.0	2.2	3.4	5.2	7.0	*14.2	29.2	

	Calculated fork lengths at each year of sea life.					
	No.	1	2	3	4	5
D-18 Polish Baltic	-	15.7	29.6	38.3	41.9	43.3
D-17 Polish Baltic	-	17.2	29.4	38.2	41.8	
D-1 Norway	-	16.8	29.5			
D-17 Scotch rivers	-	17.4				
N-13 Great Britain average	-	18.7	29.7	37.1	42.5	
J-11 Scotland, Dee R.	1033	19.2	30.1	36.5	38.6	

A-17 average of 9000 eggs per female by stripping.

L-1 average of 9,363 eggs per female; a 22.69 pound female had 20,992 eggs.

B-23 Penobscot R. 8 pound females had 5,000-6,000 eggs; 40 pound female had 15,000 eggs.

B-73 29-31 inch females 6,000-8,700 eggs; 35-40 inch females 16,000-20,000 eggs.

P-24 Britain. 10-pound females 8,800-9,000 eggs; 12-pound female, 10,000 eggs; 20- to 22-pound females, 17,000-18,000 eggs.

Additional data on the growth of Atlantic salmon are given in the following papers: Canada, B-59; C-3; C-4; M-44; M-45; M-54; British Isles, B-82; F-18; H-28; H-29; H-99; H-100; H-101; H-102; H-104; H-105; H-106; H-107; H-109; H-110; H-111; H-112; H-113; H-114; H-115; H-116; M-12; M-13; M-39; M-40; M-41; M-42; M-43; M-46; M-47; M-48; M-49; M-50; M-51; M-52; M-53; M-55; N-4; N-21; P-10; S-84; W-15; W-16; W-17; W-18; W-19; W-20; W-21; W-22; W-23; New Zealand, G-15; P-3; P-5; S-92.

HYBRID SALMON, *Salmo salar* X *trutta*

	Age Group.	No.	Fork length	Weight in ounces
J-12 Great Britain	O-Dec.	8	5.7	1.5
	I-Dec.	7	8.6	4.0
	IV-June	2	13.0	14.5

Back-cross (*Salmo salar* X *trutta*) X *Salmo salar*

J-12 Great Britain	O-Dec.	10	3.7
	I-Mar.	12	3.5

SEBAGO SALMON, *Salmo salar sebago* (Including other land-locked forms)

Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces				
						No.	Mean	Range		
Age Class II										
G-26	N.Y.	Schroon L.	S	-	-	7.0	-	-	-	
C-64	Me.	Moosehead L.	S	5	198	9.1X	7.9-11.7	5	4.5	2.8-8.4
C-62	Me.	Rangely L.	S	5	208	9.7X	9.1-10.6	5	4.8	3.7-6.1
F-26	Me.		S	8	239	11.2X	7.3-16.3	8	9.2	2.0-27.0



## SEBAGO SALMON, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
S-67 N.S. L. Jesse	S	1	-	11.4	-	-	-	-	-
C-62 Me.	S	9	277	-	12.7X	9.1-17.4	2	4.8	4.0-5.7
H-81 N.H.	S	7	-	-	14.0	-	7	23.4	-
Age Class III									
C-62 Me. Rangely	S	8	257	-	11.6	8.3-15.4	8	9.4	3.3-18.1
S-67 N.S. L. Jessie	S	49	-	12.8	-	-	49	8.5	-
C-64 Me. Moosehead L.	S	14	328	-	15.2X	12.8-17.7	14	20.8	13.0-31.0
F-26 Me.		30	-	-	16.5	13.8-21.2	30	25.2	6.4-64.0
F-26 Me.		24	363	-	-	295-476	-	-	-
C-62 Me.	S	88	384	-	17.5X	14.8-20.0	4	23.1	17.3-28.5
G-26 N.H. Schroon L.	S	-	-	-	18.0	-	-	-	-56.0
B-58 L. Erie	S	-	-	-	-	-	-	44.0	-
Age Class IV									
C-62 Me. Rangely L.	S	25	376	-	16.9X	11.6-22.5	25	31.6	7.1-82.6
C-64 Me. Moosehead L.	S	6	386	-	17.8X	15.1-19.6	6	36.0	16.0-50.0
F-26 Me.	S	26	424	-	-	323-551	-	-	-
F-26 Me.	S	32	-	-	18.8	15.1-27.7	32	37.7	12.0-72.0
C-62 Me.		116	434	-	19.9	-	3	32.9	-
G-26 N.Y. Schroon L.	S	-	-	-	22.0	-	-	-	-
Age Class V									
C-62 Me. Rangely L.	S	42	419	-	18.8X	14.6-23.4	42	41.4	13.7-85.4
B-58 L. Erie	T	1	-	-	-	-	-	44.0	-
C-64 Me. Moosehead L.	S	7	455	-	20.6X	19.6-21.8	7	53.6	35.0-72.0
C-62 Me.		34	495	-	22.4	-	4	59.9	-
F-26 Me.	S	5	-	-	23.9	17.0-27.3	-	-	-
F-26 Me.	S	4	566	-	-	528-599	-	-	-
Age Class VI									
B-58 L. Erie	T	-	-	-	-	-	1	44.0	-
C-64 Me. Moosehead L.	S	2	480	-	21.5X	20.6-22.4	2	54.5	52.0-57.0
C-62 Me. Rangely L.	S	12	485	-	21.7X	18.0-24.1	12	62.9	38.2-94.2
C-62 Me.		15	549	-	24.9	-	1	81.4	-
F-26 Me.	S	1	541	-	25.0	-	1	105.0	-
Age Class VII									
C-62 Me. Rangely L.	S	10	485	-	21.4X	20.4-23.5	10	57.2	53.5-71.5
Age Class VIII									
C-62 Me. Rangely L.	S	2	513	-	22.7X	22.5-23.0	2	69.8	64.2-76.3

C-19 N.Y. Raquette R.	No.	Calculated total length in inches at each				
		1	2	3	4	5
		2.1	4.9	12.4	17.3	19.6

B-73. Average of 4,000 eggs per female.

B-22. Three females averaged 767 eggs per female, but general average was 4000.

CUTTHROAT TROUT, *Salmo clarkii*

R-65 Wyo. T.L. = 1.159 S.L.

C-5 Cal.  $\log W$  (in oz.) =  $-3.6383 + 3.086 \log F.L.$  (in cm.)

S-10 Ore. 214 fish, average K 1.30

C-69 Ore. streams	11 fish (190-343 mm. S.L.)	C(S.L.)	27.5	Range	22.3-33.0
C-69 Ore. sea-run	6 fish (211-394 mm. S.L.)	C(S.L.)	46.7	"	41.1-54.9
G-31 Ore. lakes	35 fish	C(S.L.)	52.4	"	41.7-69.5
R-65 Wyo. Upper No Name L.	63 fish	C(T.L.)	37.7		
Lower No Name L.	44 fish	C(T.L.)	28.4		



## CUTTHROAT TROUT, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group 0(9-17 days)									
M-56 Hatchery	K	-	-	-	-	-	-	-	0.03-0.06
Age Group 0-June									
G-14 Wyo. L. Irene	K	-	-	-	-	32-35	-	-	0.2-0.4
S-77 Cal. Convict Cr.	K	2021	-	0.9	-	0.7-1.1	-	-	-
Age Group 0-July									
G-14 Wyo. L. Irene	K	-	X	-	-	41-61	-	-	0.7-2.7
S-77 Cal. Convict Cr.	K	135	-	1.1	-	0.9-2.0	-	-	-
B-62 Wash.	K	615	-	2.4	-	-	-	2.9	-
Age Group 0-August									
S-77 Cal. Convict Cr.	K	18	-	1.7	-	1.1-2.5	-	-	-
R-65 Wyo. hatchery	K	81	X	-	-	35-58	-	-	-
B-62 Wash.	K	1220	-	2.9	-	-	-	5.5	-
G-11 Wyo. L. Irene	K	-	X	-	-	70-87	-	-	3.6-7.1
Age Group 0-September									
S-77 Cal. Convict Cr.	K	769	-	2.0	-	1.3-3.5	-	-	-
B-62 Wash.	K	608	-	3.4	-	-	-	8.6	-
S-10 Ore.	K	25	86	-	-	-	-	10.0	-
G-14 Wyo.	K	-	X	-	-	91-93	-	-	7.5-8.7
Age group I									
S-126 Ore. hatchery	K	-	-	-	-	-	-	20.0	-
L-18	K	-	-	-	X	3.0-5.0	-	-	-
S-126 Ore. Sand Cr.	I	-	-	-	5.8	-	-	-	-
S-10 Ore.	K	214	193	-	-	139-198	214	101.0	-
L-34 Ore. Diamond L.	I	-	-	-	10.0	-	-	-	-
Age group II									
S-126 Ore. Sand Cr.	I	-	-	-	6.6	-	-	-	-
L-18	K	-	-	-	X	5.0-8.0	-	-	-
L-39 Colo.	S	-	-	-	X	7.0-8.0	-	-	-
C-69 Ore.	K	6	X	-	-	200-240	-	-	-
Age Group III									
L-18	K	-	-	-	X	8.0-12.0	-	-	-
L-39 Colo.	S	-	-	-	9.0	-	-	-	-
Age Group IV									
L-39 Colo.	S	-	-	-	11.0	-	-	-	-
L-18	K	-	-	-	X	11.0-15.0	-	-	-
Age group V									
S-126 Ore.	S	-	-	-	15.9	-	-	-	-

	Code	No.	Calculated total length in inches					
			1	2	3	4	5	6
R-65 Wyo. Lower No Name	L. F	64	4.0	5.7	7.5	8.7	9.1	-
R-65 Wyo. Upper No Name	L. F	75	4.4	7.0	10.8	15.0	16.6	18.8

	Size of females	No. of females	No. of eggs		
			Mean	Range	
C-69 Ore.	II year hatchery fish,	200-240 mm.	6	373	226-467
	Wild fish,	230-290 mm.	5	480	380-615
	Sea-run fish,	305-385 mm.	2	1170	1098-1242
L-18	III year fish	-	-	-	500-800
	IV year fish	-	-	-	800-1200
	older fish	-	-	-	950-2000
C-5 Cal.	-	93	-	-	400-2100

RAINBOW TROUT, *Salmo gairdnerii*

K-16 Va. F.L. = 1.083 S.L. T.L. = 1.071 F.L.  
 N-46 N.Y. T.L. = 1.149 S.L.



## RAINBOW TROUT, (Continued)

S.L. in mm.	No.	Weight in gm.		Location	S.L. in mm.	No.	Weight in gm.		Location
		Mean	Range				Mean	Range	
20-29	638	0.3	-	M-98 Mich.	260-279	5	202	166-240	S-80 Cal.
						3	320	-	C-20 Minn.
30-39	422	0.7	-	M-98 Mich.	280-299	3	247	213-284	S-80 Cal.
						3	303	-	C-20 Minn.
40-49	64	1.6	-	M-98 Mich.	300-319	5	298	284-326	S-80 Cal.
						20	536	-	C-20 Minn.
50-59	40	2.6	-	M-98 Mich.	340-359	7	536	-	C-20 Minn.
200-219	1	227.0	-	C-20 Minn.	360-379	1	680	-	C-20 Minn.
220-239	3	303.0	-	C-20 Minn.	500-519	1	2268	-	C-20 Minn.
240-259	1	170.0	-	S-80 Cal.					

Fork length-weight relationship, M-78							
F.L. in inches		Weight in ounces		F.L. in inches		Weight in ounces	
	No.	Mean	Range		No.	Mean	Range
8.0-8.9	4	4.6	3.5-4.9	13.0-13.9	30	16.5	12.7-19.1
9.0-9.9	12	6.1	4.9-8.1	14.0-14.9	11	19.1	14.5-30.3
10.0-10.9	12	7.9	6.3-9.5	15.0-15.9	22	27.1	17.6-35.3
11.0-11.9	17	9.8	8.1-11.3	16.0-16.9	6	33.6	25.8-42.3
12.0-12.9	18	13.6	8.1-15.8				

Total length-weight relationship, New York hatcheries, N-46									
T.L. in inches	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0
No. per pound	3436	982	381	181	101	62	42	29	22

T.L. in inches					T.L. in inches				
No.	Weight in oz.		Location		No.	Weight in oz.		Location	
	Mean	Range				Mean	Range		
6.0-6.9	-	1.3	-	N-46 N.Y.	14.0-15.9	-	12.8	-	S-62 Minn.
	31	1.8	1.0-2.4	K-15 Va.		9	16.8	15.2-17.3	K-15 M-67; N-27
7.0-7.9	-	2.0	-	N-46 N.Y.	16.0-17.9	-	19.2	-	S-62 Minn.
	1	2.5	-	N-27 Cal.		7	31.7	18.0-44.0	K-14; M-67
	30	2.6	1.5-4.4	K-15 Va.	18.0	-	22.3	-	S-62 Minn.
8.0-8.9	19	3.3	2.0-4.4	K-15 Va.	20.0-21.9	3	54.6	45.0-62.7	K-15; N-27
	10	4.1	3.5-4.5	N-27 Cal.	18-22	-	-	38.0-68.0	S-82 Cal.
9.0-9.9	15	5.4	4.0-6.4	K-15 Va.	22-23	1	64.0	-	K-15 Va.
	10	5.5	4.5-6.5	N-27 Cal.	24	-	80.0	-	S-62 Minn.
10.0-10.9	13	6.2	4.0-8.4	K-15 Va.	24-28	-	-	85-148	S-82 Cal.
	10	7.2	6.0-7.7	M-67; N-27	30-34	-	-	160-192	S-82 Cal.
	-	8.0	-	S-62 Minn.	36	1	376	-	R-84 Ore.
11.0-11.9	3	8.2	-	M-67 Cal.	48	1	768	-	R-84 B.C.
12.0-13.9	-	11.2	-	S-62 Minn.					
	10	11.6	8.0-13.9	K-15; M-67; N-27					

Size of fish		No.	Condition index	
			Mean	Range
		K		
H-43 Utah, Fish L.	-	20	1.41	-
S-10 Ore.	-	251	1.46	-
N-46 N.Y.	25-179 mm.	-	-	1.22-1.60
C-23 Minn.	128-275 mm.	9	1.57	-
E-3 Minn.	203-532 mm.	48	1.60	-
M-67 Cal. Colorado R.	-	-	1.66	-
K-15 Va.	-	-	1.75	1.5-2.8
		K(F.L.)		
W-1 Cal. Castle L.	130-370 mm.	273	1.05	-
W-2 Cal. Castle L.	-	400	1.07	-







## RAINBOW TROUT, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in grams		
							No.	Mean	Range
W-5 Cal. hatcheries	K	-	-	-	-	-	-	0.4-1.4	
D-4 Hatcheries	K	-	-	-	-	-	-	0.9-2.6	
D-3 Iowa hatcheries	K	-	-	-	X	1.6-2.1	-	-	
W-1 Cal. Castle L.	K	-	-	-	2.1	-	-	-	
S-28 Cal. Hatchery	K	-	-	-	-	-	1.6	-	
W-2 Cal. Mt. Shasta H.	K	200	-	2.2	-	-	2.0	-	
N-31 Cal.	K	-	-	2.4	-	-	-	-	
G-18 Mich. streams	P	78	-	-	2.6	1.7-3.8	-	-	
Age Group O-August									
S-37 Mich. Manistee R.	P	136	-	-	2.9	-	-	-	
S-37 Mich. Pine R.	P	10	-	-	3.1	-	-	-	
W-2 Cal. Barney Cr.	K	198	-	2.8	-	-	3.4	-	
S-107 Va. St. Mary's R.	P	-	-	-	4.6	-	-	-	
W-35 Mich. hatcheries	K	-	-	-	-	-	-	5.4-6.9	
G-34 W. Va. hatcheries	K	-	-	-	-	-	-	5.7-9.4	
T-34 Argentina	I	-	X	-	-	150-200	-	-	
Age Group O-September (or seventh month)									
M-98 Mich. hatchery	K	-	-	-	-	-	-	0.6-1.5	
M-61 Alberta hatchery	K	-	-	1.8	-	-	0.7	-	
D-4 Hatcheries	K	-	-	-	-	-	-	1.3-4.3	
E-8 N.Y. Hatcheries	K	-	-	2.4	-	1.6-3.0	2.8	-	
D-24 Wash. hatcheries	K	1800	64	-	-	-	4.3	-	
W-1 Cal. Castle L.	K	-	-	2.8	-	-	-	-	
N-31 Cal. hatcheries	K	-	-	2.9	-	-	-	-	
W-35 Mich. hatcheries	K	-	-	-	-	-	-	8.4-9.8	
S-37 Mich. Pine R.	P	48	-	-	3.4	-	-	-	
S-37 Mich. Manistee R.	P	116	-	-	3.4	-	-	-	
G-34 W. Va. hatcheries	K	-	-	-	-	-	-	10.4-14.9	
P-11 N.Y. Cortland	K	-	-	-	-	-	-	10.6-15.1	
T-27 N.Y. hatcheries	K	-	-	X	-	4.0-4.3	14.0	-	
Age Group O-October (eight month)									
M-61 Alberta Hatchery	K	-	-	2.0	-	-	0.9	-	
A-19 Hatchery	K	-	-	-	-	-	-	1.4-10.3	
N-26 Cal. Hatchery	K	-	-	2.9	-	-	-	-	
L-41 Mich. Hatchery	K	-	-	-	3.5	-	-	-	
S-33 Mich. Hatchery	K	-	-	-	3.9	-	-	-	
T-27 N.Y. Hatchery	K	-	-	X	-	4.2-4.5	17.5	-	
S-107 Va. St. Mary's R.	P	-	-	-	5.7	-	-	-	
S-33 Mich. Hatchery	K	197	-	-	5.9	-	-	-	
L-26 Cal. Selected stock	K	-	-	-	-	-	-	142-227	
Age Group O-November (ninth month)									
M-61 Alberta Hatchery	K	-	-	1.9	-	-	-	-	
B-73 Hatchery troughs	K	-	-	-	-	-	8.8	-	
B-23 N.Y. Aquarium	K	-	-	-	X	4.0-4.5	-	-	
S-33 Mich. Hatchery	K	468	-	-	4.8	-	-	-	
B-73 Hatchery ponds	K	41	-	-	-	-	31.2	-	
T-34 Argentina	I	-	X	-	-	240-270	-	-	
Age Group O									
N-23 Alta. Jasper P.	P	10	-	1.4	-	1.0-1.9	-	-	
N-33 Cal.	K	-	-	X	-	1.3-3.7	-	0.3-11.0	
K-15 Va. Smokies	P	2	-	-	3.5	-	-	-	
S-82 Cal.	K	-	-	X	-	4.0-10.0	-	-	
							Weight in ounces		
	Code	No.	S.L.	F.L.	T.L.	Range	No.	Mean	Range
Age Group I									
S-79 Cal. Waddell Cr.	K	28	-	3.9	-	-	-	-	-
B-10 Alta. Jasper P.	S	-	-	3.9	-	-	-	-	-
V-22 Cal. June L.	K	185	-	4.4	-	2.4-6.3	109	0.5	0.1-1.6
D-24 Wash. Hatchery	K	1739	109	-	-	-	1739	0.6	-







## RAINBOW TROUT, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
S-103 Ore. Steelhead	S	3	-	19.3	-	17.0-21.0	-	-	-
C-66 Australia	I	-	-	-	-	-	-	-	152.0-216.0
H-57 Africa	I	-	-	-	-	-	-	192.0	-
Age Group III									
S-37 Mich. Manistee	S	2	-	-	6.2	-	-	-	-
S-79 Cal. Waddell Cr.	S	171	-	6.9	-	-	-	-	-
S-107 Va. St. Mary's R.	S	66	-	-	8.4	-	-	-	-
B-10 Alta. Jasper P.	S	-	-	X	-	7.1-7.5	-	-	-
N-23 Alta. Jasper P.	S	-	-	X	-	7.6-8.7	-	-	-
L-39 Colo.	S	-	-	-	X	9.0-11.0	-	-	-
R-66 L. Mich.	S	3	-	-	9.7	8.7-10.3	3	4.7	4.0-5.5
P-6 Wash. Puget	S	6	227	-	-	180-260	-	-	-
K-15 Va. Smokies	S	80	-	-	10.4	6.5-15.5	-	-	-
M-6 N.Y. Cortland	K	-	-	-	X	7.0-14.0	-	-	-
S-80 Cal. Klamath R.	S	1	270	-	-	-	-	-	-
E-3 Minn.	S	30	295	-	-	254-356	-	-	-
S-10 Ore.	S	72	342	-	-	-	72	18.2	-
S-104 Va. Big Spring C.	S	2	-	14.4	-	14.0-14.9	-	-	-
V-22 Cal. June L.	S	4	-	14.5	-	13.6-15.4	3	21.7	16.7-30.5
H-32 Ore. Crater R.	S	49	404	-	-	-	46	240	-
H-35 Ore. Crater L.	S	82	-	-	15.6	-	-	-	-
L-18 Hatcheries	K	-	-	-	X	16.0-18.0	-	-	-
G-18 Mich. streams	S	32	-	-	17.1	8.1-23.8	-	-	-
B-73 Hatcheries	K	-	-	-	-	-	-	-	16.0-32.0
D-29 Wash.	I	-	-	-	19.0	-	-	-	-
C-66 Australia	I	-	-	-	19.8	-	-	44.0	-
P-2 Australia	I	3	-	X	-	18.0-23.0	3	-	38.0-64.0
N-27 Cal. Arrowhead L.	S	1	-	20.3	-	-	1	62.7	-
S-103 Ore. Steelhead	S	86	-	26.0	-	11.0-31.0	-	-	-
C-66 Australia	I	-	-	-	-	-	-	274.5	-
Age Group IV									
S-107 Va. St. Mary's R.	S	5	-	-	8.8	-	-	-	-
B-10 Alta. Jasper P.	S	-	-	X	-	7.8-8.9	-	-	-
N-23 Alta. Jasper P.	S	-	-	X	-	8.8-9.5	-	-	-
P-6 Wash. Puget	S	1	250	-	-	-	-	-	-
S-104 Va. Big Spring	S	1	-	13.5	-	-	-	-	-
K-15 Va. Smokies	S	27	-	-	13.7	9.5-17.0	-	-	-
G-25 N.Y. Ontario	S	1	-	-	15.8	-	1	21.5	-
E-3 Minn.	S	2	343	-	-	330-356	-	-	-
S-80 Cal. Klamath	S	3	398	-	-	345-480	-	-	-
H-35 Ore. Crater L.	S	148	-	-	17.0	-	-	-	-
H-32 Ore. Crater L.	S	56	439	-	-	-	56	29.0	-
P-2 Australia	I	8	-	-	X	16.0-24.0	8	-	32.0-80.0
B-73 Hatcheries	K	-	-	-	-	-	-	-	32.0-48.0
R-67 Sask.	I	-	-	20.0	-	-	-	64.0	-
R-67 N. Br.	I	-	-	X	-	20.0-22.0	-	-	48.0-72.0
G-18 Mich. streams	S	35	-	-	25.6	17.5-30.3	-	-	-
S-103 Ore. Steelheads	S	406	-	27.5	-	23.0-37.0	-	-	-
R-67 Prince Edward I.	I	-	-	-	-	-	-	80.0	-
Age Group V									
B-10 Alta. Jasper P.	S	-	-	X	-	9.6-10.1	-	-	-
N-23 Alta. Jasper P.	S	-	-	X	-	10.2-10.9	-	-	-
K-15 Va. Smokies	S	13	-	-	16.2	13.5-23.0	-	-	-
H-35 Ore. Crater L.	S	36	-	-	18.8	-	-	-	-
R-67 Sask.	I	-	-	18.5	-	-	-	56.0	-
E-3 Minn.	S	2	483	-	-	457-508	-	-	-
H-32 Ore. Crater L.	S	9	500	-	-	-	9	36.0	-
G-18 Mich. streams	S	22	-	-	25.9	19.0-31.0	-	-	-
S-80 Cal. Klamath R.	S	3	597	-	-	-	-	-	-
S-103 Ore. Steelhead	S	218	-	29.5	-	25.0-31.0	-	-	-
Age Group VI									
B-10 Alta. Jasper P.	S	-	-	X	-	11.0-11.8	-	-	-
N-23 Alta. Jasper P.	S	-	-	X	-	11.8-12.6	-	-	-
G-25 N.Y. Ontario	S	1	-	-	18.1	-	1	37.5	-



## RAINBOW TROUT, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
K-15 Va. Smokies	S	4	-	-	18.5	17.0-21.0	-	-	-
H-35 Ore. Crater L.	S	4	-	-	20.0	-	-	-	-
G-18 Mich. streams	S	7	-	-	27.3	25.0-31.0	-	-	-
S-80 Cal. Klamath	S	-	645	-	-	-	-	-	-
S-103 Ore. Steelhead	S	44	-	30.4	-	25.0-35.0	-	-	-
Age Group VII									
B-10 Alta. Jasper P.	S	-	-	X	-	12.6-13.4	-	-	-
G-25 N.Y. Ontario	S	1	-	-	19.5	-	1	44.6	-
S-80 Cal. Klamath	S	1	640	-	-	-	-	-	-
H-32 Ore. Crater L.	S	1	673	-	-	-	-	-	-
G-18 Mich. streams	S	2	-	-	29.3	27.5-31.0	-	-	-
S-103 Ore. Steelheads	S	6	-	31.8	-	28.0-35.0	-	-	-
Age Group VIII									
S-103 Ore. Steelheads	S	1	-	32.5	-	-	-	-	-
Age Group IX									
S-103 Ore. Steelheads	S	1	-	34.0	-	-	-	-	-

	Code	No.	Standard lengths in millimeters at each annulus						
			1	2	3	4	5	6	7
E-3 Minn.	L	76	105	194	273	343	437	-	-
H-32 Ore. Crater L.	L	124	94	185	297	388	475	584	660

	Code	No.	Fork length in inches at each annulus						
			1	2	3	4	5	6	7
S-80,81 Cal.	L	34	2.5	5.0	-	-	-	-	-
E-2 Minn.	L	72	4.6	8.6	11.5	15.2	19.7	-	-
P-2 Australia	L	-	4.8	9.0	16.7	16.7	-	-	-

	Code	No.	Total length in inches					
			1	2	3	4	5	6
T-2,3 N. Mex.	L	65	3.4	6.1	8.1	10.1	-	-
H-35 Ore. Crater L.	L	318	3.3	11.5	11.5	15.4	17.4	17.8
H-43 Utah, Fish L.	L	25	2.9	7.5	12.4	15.4	17.6	-
S-62 Minn.	L	-	4.9	9.1	12.8	16.1	20.5	-
G-18 Mich.	L	251	3.3	7.8	17.3	21.9	25.1	27.7

M-35; M-36. Additional growth data on steelhead trout (*Salmo gairdnerii*) in Puget Sound.

Location	Size of female	No. of females	Number of eggs per female	
			Mean	Range
S-122 Germany	1.6 pounds	1	1900	-
S-122 Germany	2.0 pounds	1	2400	-
S-122 Germany	3.7 pounds	1	2900	-
L-26 Cal.	II year olds	13	-	723-1693
L-26 Cal.	III year olds	9	-	2112-3072
N-28 -	-	-	-	200-9000
S-57 -	-	-	-	500-3000
L-15 -	II year olds	-	-	500-800
L-15 -	III year olds	-	-	1000-1200
M-77 B.C.	2 pounds	17	2,500	-
B-23 N.Y.	-	-	900	-
B-22 Mich.	-	-	968	-
E-31 Cal.	-	-	900	-
L-18 -	III-VI year olds	-	-	1200-1500
L-18 -	2 pounds	-	-	2500-3000
B-73 -	0-5-1.5 pounds	-	-	500-800
B-73 -	2.0-4.0 pounds	-	-	2500-3000



Salmo irideus argentatus

	Code	F.L.		Code	F.L.
Age group O					
N-23 Alta. Jasper P.	P	1.1-2.0	B-10 Alta. Jasper P.	S	7.6-7.9
Age group I					
B-10 Alta. Jasper P.	S	2.9-3.2	N-23 Alta. Jasper P.	S	7.8-8.7
N-23 Alta. Jasper P.	S	3.7-5.5	Age group V		
Age group II			B-10 Alta. Jasper P.	S	9.0-9.5
B-10 Alta. Jasper P.	S	4.9-5.1	N-23 Alta. Jasper P.	S	9.3-9.9
N-23 Alta. Jasper P.	S	5.9-6.3	Age group VI		
Age group III			B-10 Alta. Jasper P.	S	10.2-10.7
B-10 Alta. Jasper P.	S	6.5-6.7	N-23 Alta. Jasper P.	S	10.2-11.8
N-23 Alta. Jasper P.	S	6.7-7.9	Age group VII		
			B-10 Alta. Jasper P.	S	11.4-11.8

NELSON'S TROUT, Salmo nelsoni

	Code	No.	Fork length in inches at each annulus			
			1	2	3	4
S-81 Cal.	L	20	3.4	5.8	7.3	8.1
N-29 Cal.	Age group O-May	1.2-3.0 inches, fork length.				
N-29 Cal.	Age Group I	4.0-9.0 inches, fork length.				

GOLDEN TROUT, Salmo agua-bonita

N-36 Cal. Average K of 28 fish, 1.315 range 0.839-1.991  
 C-67 Cal. Average K (F.L.) 1.07. C.F.(F.L.) 38.8. Weight in grams equals 0.0107 times the length in centimeters cubed.

C-79 Cal.	Age group O-Aug.	1.0 inches, fork length
N-36 Cal.	Age Group O-Sept.	1.2 inches, fork length
C-79 Cal.	Age Group O-Sept.	1.3 inches, fork length
N-36 Cal.	Age Group I	12 fish, 4.3-5.4 inches, average 5.0, fork length 12 fish, 0.6-1.1 ounces, average 0.9 ounces
N-36 Cal.	Age group II	35 fish, 5.3-10.6 inches, average 8.3, fork length 16 fish, 1.0-8.2 ounces, average 4.0 ounces.

	Code	No.	Fork length in inches at each annulus				
			1	2	3	4	5
C-79 Cal. Lake 3	F	123	2.0	5.0	7.4	8.2	8.7
C-79 Cal. Lake 4	F	147	1.6	5.8	9.0	11.2	11.6

C-80 Cal. 200 mm. female#, 305 eggs stripped; 300 mm. female, 715 eggs; 375 mm. female 1030 eggs.  
 C-79 Cal. Number of eggs equals 41.1 times length of female in cm. minus 508. based on 450 females.

KAMLOOPS TROUT, Salmo gairdneri kamloops

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group O-May									
M-76 B.C. streams	S	-	-	1.4	-	-	-	-	-
M-76 B.C. lakes	S	-	-	3.2	-	-	-	-	-
Age Group I									
M-76 B.C. streams	S	-	-	6.6	-	-	-	-	-
R-68 B.C. Paul's L.	S	-	-	X	-	8.0-10.0	-	-	-
M-78 B.C. Paul's L.	S	50	-	10.7	-	8.3-13.4	-	-	-
M-76 B.C. lakes	S	-	-	10.9	-	-	-	-	-



## KAMLOOPS TROUT, (Continued)

		Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
								No.	Mean	Range
Age Group II										
M-76	B.C. streams	S	-	-	13.5	-	-	-	-	-
M-78	B.C. Paul's L.	S	80	-	14.0	-	10.2-16.9	80	20.0	6.3-45.8
M-76	B.C. lakes	S	-	-	16.2	-	-	-	-	-
Age Group III										
M-76	B.C. streams	S	-	-	16.6	-	-	-	-	-
M-76	B.C. lakes	S	-	-	18.5	-	-	-	-	-
M-78	B.C. Paul's L.	S	-	-	-	-	-	140	-	1911-51.2
M-76	B.C. Hya's L.	I	-	-	-	-	-	-	144.0	-
Age Group IV										
M-76	B.C. streams	S	-	-	19.0	-	-	-	-	-
M-76	B.C. lakes	S	-	-	20.2	-	-	-	-	-
M-76	B.C. Paul L.	I	-	-	-	-	-	-	384.0	-
Age Group VII										
N-28	B.C. Paul L.	S	-	-	-	-	-	-	112.0	-

		No.	Fork lengths in inches at each annulus						
			1	2	3	4	5	6	7
C-53	B.C. streams	6	2.4	4.5	11.0	17.1	20.1	23.4	27.8
C-53	B.C. lakes	34	3.9	10.6	15.0	19.5	24.4		

M-79 B.C. 800-1000 eggs per pound of female.

BROWN TROUT, *Salmo trutta*

	Standard lengths in millimeters	No. of fish	
N-46 N.Y.	20-175	-	Total length equals 1.161 S.L.
C-37 Minn.	130-159	10	1.175
	160-169	31	1.146
	170-229	1184	1.134
	230-299	265	1.126
	300-	5	1.106

Total length-weight relationship, New York hatcheries, N-46											
T.L. in inches	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	6.0	7.0
Number per pound	3676	959	383	191	109	109	44	31	22	13	8

Total length-weight relationship, New York, S-20							
Total length in inches	Number	Weight in ounces		Total length in inches	Number	Weight in ounces	
		Mean	Range			Mean	Range
5.0-5.9	4	1.3	1.2-1.4	10.0-10.9	7	7.1	5.9-8.0
6.0-6.9	24	1.8	1.3-2.2	11.0-11.9	3	9.2	8.6-10.3
7.0-7.9	23	2.5	1.8-3.3	12.0-12.9	1	12.3	
8.0-8.9	12	3.7	2.9-4.2	13.0-13.9	1	14.1	
9.0-9.9	9	5.4	4.4-6.4				

S-20 N.Y.  $\log W = 0.9561 + 3.1891 \log T.L.$  (wild trout);  $\log W = 1.0361 + 3.003 \log T.L.$  (tagged trout).

	Length	Number	K mean	Range
N-34 Cal. Convict Cr.	-	-	1.15	
S-21 N.Y. Crystal Cr.	-	1412	1.44	
N-46 N.Y.	1.0-7.0	-	-	1.17-1.61
C-23 Minn. Duschee Cr.	100-449	53	1.43	
H-1 Germany	-	178	1.08	
			K(F.L.)	
W-1 Cal. Castle L.	150-350	489	0.92	
W-2 Cal. Castle L.	-	878	0.95	
			C(S.L.)	
N-28 N. Amer.	-	-	42	-55



## BROWN TROUT, (Continued)

	Length	Number	K mean C(F.L.)	Range
P-4. N.Z. Main Drain	-	-	41.2	-
P-4 New Zealand	5.5-27.5"	233	42	20-70
H-58 South Africa	-	-	43	-
P-4 England, River Test	-	-	42	-
P-4 N.Z. Mataura R.	-	-	45	-
P-4 N.Z. Rakaia R.	-	-	45	-
P-4 N.Z. Selwyn R.	-	-	45.5	-

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in grams		
							No.	Mean	Range
Age Group O, Feb, Mar.									
W-5 Cal.	K	-	-	-	-	-	-	-	0.13-0.18
W-4 Cal.	K	-	-	-	-	-	-	0.2	-
H-55 Germany	K	-	-	0.8	-	-	-	-	-
Age Group O, April									
W-5 Cal.	K	-	-	-	-	-	-	-	0.16-0.35
W-35 Mich.	K	-	-	-	-	-	-	-	0.23-0.32
W-4 Cal.	K	-	-	-	-	-	-	X	0.2-0.6
J-3 Great Britain	K	409	-	-	0.8	-	-	-	-
T-27 N.Y.	K	-	-	X	-	2.2-2.5	-	1.3	-
Age Group O, May									
W-35 Mich.	K	-	-	-	-	-	-	-	0.37-0.53
W-5 Cal.	K	-	-	-	-	-	-	-	0.3-0.6
W-4 Cal.	K	-	-	-	-	-	-	-	0.4-1.1
N-24 B.C. Vancouver	P	-	24	-	-	-	-	-	-
J-3 Great Britain	K	-	-	1.3	-	-	-	-	-
Age Group O, June									
H-37 N.Y.	K	-	-	-	-	-	-	0.36	-
W-35 Mich.	K	-	-	-	-	-	-	-	0.7-1.2
W-5 Cal.	K	-	-	-	-	-	-	-	0.56-1.4
W-4 Cal.	K	-	-	-	-	-	-	-	0.8-1.6
N-31 Cal.	K	-	-	1.4	-	-	-	-	-
W-1 Cal. Castle L.	P	-	-	1.6	-	-	-	-	-
T-28 N.Y.	K	-	-	X	-	1.5-2.3	-	-	-
S-37 Mich.-Manistee	P	23	-	-	2.8	-	-	-	-
Age Group O, July									
W-5 Cal.	K	-	-	-	-	-	-	-	0.7-1.8
W-4 Cal.	K	-	-	-	-	-	-	-	1.2-2.6
W-35 Mich.	K	-	-	-	-	-	-	-	1.6-2.1
S-37 Mich.	P	90	-	-	3.1	-	-	-	-
S-23 N.Y. Crystal Cr.	K	408	-	-	-	-	-	4.6	-
Age Group O, August									
H-39 N.Y.	R	-	-	-	-	-	-	-	0.6-0.9
W-1 Cal. Castle L.	P	-	-	1.7	-	-	-	-	-
W-2 Cal. Mt. Shasta	K	-	-	2.2	-	-	-	1.9	-
W-5 Cal.	K	-	-	-	-	-	-	-	1.0-2.8
W-4 Cal.	K	-	-	-	-	-	-	-	1.7-3.7
W-35 Mich.	K	-	-	-	-	-	-	-	2.7-3.5
S-23 N.Y. slow water	P	74	-	-	-	-	-	4.6	-
S-23 N.Y. fast water	P	134	-	-	-	-	-	5.8	-
T-27 N.Y.	K	-	-	X	-	2.7-3.5	-	7.0	-
S-37 Mich.	P	48	-	-	3.6	-	-	-	-
G-34 W. Va.	K	-	-	-	-	-	-	-	7.9-11.1
H-55 Germany	K	-	-	-	X	6.0-6.3	-	-	-
Age Group O, September									
S-134 Sweden	K	96	-	2.5	-	1.8-3.5	-	-	-
W-1 Cal. Castle L.	P	-	-	2.4	-	-	-	-	-
P-11 N.Y. Cortland	K	-	-	-	-	-	-	-	2.9-4.5
W-35 Mich.	K	-	-	-	-	-	-	-	4.3-5.1
S-21 N.Y. Crystal C.	P	476	-	-	3.1	2.0-4.1	-	4.8	-
T-27 N.Y.	K	-	-	X	-	3.2-3.7	-	10.5	-
S-23 N.Y. slow water	P	-	-	-	3.5	-	8	6.2	-



## BROWN TROUT, (Continued)

							Weight in grams		
Code	No.	S.L.	F.L.	T.L.	Range	No.	Mean	Range	
Age Group O, September									
S-23	N.Y. fast water	P	-	-	3.8	-	21	6.9	-
G-34	W. Va.	K	-	-	-	-	-	-	7.8-12.8
S-37	Mich.	P	8	-	4.5	-	-	-	-
Age Group O, Oct.-Nov.									
N-24	B.C. Vancouver	-	-	X	-	45-55	-	-	-
N-31	Cal.	K	-	-	3.0	-	-	-	-
N-26	Cal. Hot Creek Hatch.	K	-	-	3.0	-	-	-	-
S-33	Mich. Perry C.	K	-	-	3.5	-	-	-	-
S-33	Mich. Clancy C.	K	506	-	4.0	-	-	-	-
G-34	W. Va.	K	-	-	-	-	-	-	7.6-15.4
T-27	N.Y.	-	-	-	5.5	-	-	35.0	-
Age Group O									
N-33	Cal.	K	-	-	-	X	1.2-1.6	-	0.2-0.6
G-19	N.Y. Cold B.	K	9	-	-	2.7	1.8-3.2	-	-
S-5	Sweden	P	-	50	-	-	-	-	-
R-8	N.Y. Cayuga Co.	K	87	-	-	3.3	2.6-4.4	-	-
							Weight in ounces		
Code	No.	S.L.	F.L.	T.L.	Range	No.	Mean	Range	
Age Group I									
E-11	N.Y.	S	37	-	X	-	2.0-6.0	-	-
N-23	B.C. Vancouver	S	-	X	-	-	64-142	-	-
S-5	Sweden	S	-	100	-	-	-	-	-
A-23	Swedish rivers	S	365	-	-	X	3.9-6.3	-	-
W-1	Cal. Hatchery	K	132	-	4.9	-	3.1-7.5	132	0.9
S-21	N.Y. Crystal C.	P	202	-	-	5.7	4.2-6.6	202	0.9
G-19,21,22;	N.Y.	S	59	-	-	5.8	3.8-8.6	28	1.1
W-42	G. Br. Hard water	S	-	X	-	-	90-168	-	0.2-2.1
W-42	G. Br. Soft Water	S	-	X	-	-	91-180	-	0.3-2.6
S-23	N.Y. Crystal C.	S	-	-	-	6.0	-	-	-
P-1	Hatcheries	K	-	-	-	-	-	-	0.1-3.2
W-2	Cal. Castle L.	I	589	-	6.1	-	-	-	-
W-1	Cal. Castle L.	S	-	-	6.1	-	-	-	-
S-37	Mich.	S	32	-	-	6.8	-	-	-
S-10	Ore.	I	33	182	-	-	-	33	2.6
P-9	Gr. Britain	S	-	-	8.0	-	-	-	-
P-4	New Zealand	S	13	-	9.7	-	5.5-12.5	10	9.2
M-29	--	K	-	-	-	-	-	12.0	-
G-16	N.Z Rakaia	I	-	-	-	11.0	-	-	-
Age group II									
B-84	Ore. Paulina L.	I	-	-	6.2	-	-	-	-
S-5	Sweden	S	-	-	6.3	-	-	-	-
A-23	Sweden (River trout)	K	606	-	X	-	5.1-7.9	-	-
P-9	Gr. Brit.	S	-	-	X	-	6.0-8.0	-	-
S-21	N.Y. Crystal Cr.	S	102	-	-	7.6	6.6-8.4	102	2.7
S-37	Mich. Manistee R.	S	7	-	-	7.6	-	-	-
G-19,21,22,25	N.Y.	S	101	-	-	7.7	5.7-12.7	65	2.5
A-23	Sweden (lake trout)	K	354	-	X	-	5.5-11.0	-	-
W-42	Gr. Brit.	S	-	-	X	-	6.7-7.4	-	2.2-2.8
N-23	Alta. Jasper P.	I	5	-	7.1	-	6.3-7.9	-	-
W-1	Cal. Castle L.	I	-	-	8.2	-	-	-	-
W-2	Cal. Castle L.	I	710	-	8.8	-	-	-	-
B-84	Ore. East L.	I	-	-	8.6	-	-	-	-
H-1	Germany	S	27	271	-	-	250-315	27	7.5
S-10	Ore.	S	47	294	-	-	-	47	7.6
P-4	New Zealand	S	28	-	13.6	-	10.0-18.8	27	19.0
P-2	Australia	I	1	-	16.5	-	-	1	17.0
K-7	Me. Penobscot	S	1	391	-	17.4	-	-	-
H-55	Germany, Danube R.	S	-	-	-	-	24.0-32.0	-	-
Age group III									
A-23	Sweden (river trout)	K	509	-	X	-	5.9-9.5	-	-
A-23	Sweden (lake trout)	K	354	-	X	-	6.7-14.2	-	-
S-5	Sweden	S	-	-	8.3	-	-	-	-



## BROWN TROUT, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
S-37 Mich. streams	S	4	-	-	9.7	8.6-11.0	-	-	-
S-21 N.Y. Crystal C.	S	60	-	-	10.2	8.4-10.7	60	6.5	-
G-21,22 N. Y.	S	35	-	-	10.7	6.2-18.1	26	9.5	1.6-31.1
W-2 Cal. Castle L.	I	159	-	10.1	-	-	-	-	-
H-1 Germany	S	103	310	-	-	225-395	103	11.7	5.3-24.7
S-10 Ore.	S	310	341	-	-	-	10	13.1	-
N-24 B.C. Vancouver	S	-	-	-	-	-	-	16.0	-
P-4 New Zealand	S	69	-	15.1	-	12.0-21.5	69	23.3	11.0-76.0
M-29 U.S.A.	K	-	-	-	-	-	-	-	48.0-56.0
P-2 Australia	I	6	-	X	-	18.0-24.0	6	-	30.0-80.0
Age group IV									
A-23 Sweden (river trout)	K	407	-	X	-	7.5-13.8	-	-	-
D-1 Norway	S	1	-	9.3	-	-	-	-	-
S-5 Sweden, west	S	-	-	9.5	-	-	-	-	-
W-2 Cal. Castle L.	I	341	-	10.5	-	-	-	-	-
S-5 Sweden, east	S	-	-	10.6	-	-	-	-	-
S-21 N.Y. Crystal Cr.	S	21	-	-	11.7	10.7-12.6	21	9.3	-
G-19,21,22,25 N.Y.	S	20	-	-	14.4	9.3-18.1	13	30.3	7.5-88.0
A-23 Sweden, (lake trout)	K	223	-	X	-	7.5-16.6	-	-	-
N-24 B.C. Vancouver I.	S	-	-	-	-	-	-	32.0	-
H-1 Germany	S	35	429	-	-	350-510	35	32.2	17.7-52.9
P-4 New Zealand	S	68	-	17.7	-	14.5-26.0	68	41.5	16.0-144.0
P-2 Australia	I	2	-	19.8	-	19.0-20.5	2	42.0	32.0-48.0
Age group V									
S-5 Sweden, west	S	-	-	9.8	-	-	-	-	-
W-2 Cal. Castle L.	I	110	-	10.9	-	-	-	-	-
A-23 Sweden (river trout)	K	112	-	X	-	8.3-16.2	-	-	-
S-5 Sweden, east	S	-	-	12.6	-	-	-	-	-
S-21 N.Y. Crystal Cr.	S	9	-	-	14.1	12.6-16.2	9	15.3	-
A-23 Sweden (lake trout)	S	131	-	X	-	7.9-16.6	-	-	-
N-24 B.C. Vancouver I.	S	-	-	-	-	-	-	48.0	-
G-19,21,22,25, N.Y.	S	5	-	-	16.5	13.8-22.6	5	56.4	15.4-128.0
P-4 New Zealand	S	31	-	19.7	-	13.6-25.0	31	59.3	19.0-124.0
H-1 Germany	S	9	557	-	-	490-670	9	65.4	42.3-97.0
P-2 Australia	I	3	-	X	-	22.5-27.5	3	-	72.0-144.0
P-23 New Zealand	I	6	-	26.1	-	19.7-30.5	6	128.7	52.0-272.0
S-5 Sweden, west	S	-	-	10.2	-	-	-	-	-
W-2 Cal. Castle L.	I	87	-	11.1	-	-	-	-	-
A-23 Sweden (lake trout)	K	46	-	X	-	9.0-16.6	-	-	-
S-5 Sweden, east	S	-	-	14.6	-	-	-	-	-
A-23 Sweden (river trout)	K	59	-	X	-	9.4-18.9	-	-	-
P-4 New Zealand	S	20	-	22.7	-	20.0-26.0	20	73.5	48.0-112.0
B-23 N.Y.	-	-	-	-	-	-	-	-	112.0-160.0
G-21,22 N.Y.	S	1	-	-	18.0	-	4	133.5	107.0-166.0
H-1 Germany	S	1	733	-	-	-	1	187.0	-
P-23 New Zealand	I	1	-	28.0	-	-	1	296.0	-
Age group VII									
W-2 Cal. Castle L.	I	28	-	11.1	-	-	-	-	-
A-23 Sweden, (river trout)	K	68	-	X	-	9.8-16.2	-	-	-
A-23 Sweden (lake trout)	K	32	-	X	-	9.0-19.3	-	-	-
S-5 Sweden, east	S	-	-	15.8	-	-	-	-	-
P-4 New Zealand	S	12	-	23.5	-	21.0-25.0	12	64.7	40.0-80.0
N-28 Cal. Convict Cr.	S	-	-	-	-	-	-	104.0	-
G-22 N.Y. Hudson R.	S	2	-	-	36.7	21.8-31.5	2	138.4	112.0-165.0
P-23 New Zealand	I	4	-	27.5	-	25.0-31.5	4	174.3	112.0-248.0
B-23 N.Y.	-	-	-	-	-	-	-	176.0	-
H-1 Germany	S	1	770	-	-	-	-	202.0	-
Age group VIII									
S-5 Sweden, west	S	-	-	11.8	-	-	-	-	-
A-23 Sweden (lake trout)	K	26	-	X	-	9.1-19.7	-	-	-
S-5 Sweden-East	S	-	-	16.5	-	-	-	-	-
W-2 Cal. Castle L.	I	3	-	18.8	-	-	-	-	-
G-22 N.Y.	S	1	-	-	29.5	-	-	130.0	-
N-13 Gr. Britain	S	-	-	-	-	-	-	176.0	-



## BROWN TROUT, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
H-1 Germany	S	1	900	-	-	-	-	280.5	-
P-4 New Zealand	S	3	-	27.0	-	26.5-27.5	3	181.3	154.0-232.0
Age Group IX									
A-23 Sweden (river trout)	K	12	-	X	-	11.0-14.6	-	-	-
F-7	K	-	375	-	-	-	-	-	-
S-5 Sweden-West	S	-	-	15.0	-	-	-	-	-
S-5 Sweden-East	S	-	-	17.7	-	-	-	-	-
M-64 Wisc.	S	1	-	-	33.0	-	-	-	-
Age Group X									
S-5 Sweden-West	S	-	-	15.8	-	-	-	-	-
S-5 Sweden-East	S	-	-	18.1	-	-	-	-	-
Age Group XI									
H-1 Germany	S	1	1030	-	-	-	-	529.2	-
Age Group XVIII									
N-13 Gr. Britain	S	-	-	-	-	-	-	200.0	-

## Standard lengths in millimeters at each annulus

	No.	Standard lengths in millimeters at each annulus							
		1	2	3	4	5	6	7	8
E-3 Minn.	38	96	180	248	302	387	437	482	

## Fork length in inches at each annulus

	No.	1	2	3	4	5	6	7	8
D-1 Norway	1	1.6	3.6	5.8	8.2				
N-13 Great Britain, par	2064	2.0	4.8	7.0	8.0				
N-13 Great Britain, fresh water	318	2.4	5.6	8.1	10.5	12.7	15.0	17.2	19.3
N-13 Great Britain, sea	-	2.0	4.8	7.3	11.2	14.2	17.6	20.3	
E-2 Minn.	32	4.2	8.0	11.1	14.0	17.6	20.0	22.0	
P-4 New Zealand	247	4.9	9.1	12.8	16.2	19.1	21.6	23.3	26.2
P-2 Australia	-	5.0	10.5	17.5	20.2	23.9			
D-17 Poland--2 year river life	-	3.4	6.8	16.8	22.7	27.5	29.1		
D-17 Poland--3 year river life	-	2.9	4.9	8.2	18.4	25.8	27.8		

	Code	Size of females	No. of females	Number of eggs per female	Mean	Range
L-1 S. Dak.	H	-	-	920		
L-1 Colo.	H	-	-	1500		
L-1 Colo.	H	6 pound	-	3000		
E-4 Minn.	V	-	4	2553		
L-18, B-23 N.Y.	D	2 pound	1	1994		
N-28	U	-	-	-		200-6000
N-24 B.C.	H	-	12	2020		587-3623
B-23 N.Y.	U	2 year olds	-	-		400-500
B-23 N.Y.	U	3 year olds	-	-		350-700
B-23 N.Y.	U	5 year olds	-	-		1500-2000
B-22 N.Y.	U	2 year olds	-	303		
B-22 N.Y.	U	3 year olds	-	942		
B-22 Mich.	U	-	-	-		520-800
S-122 Germany	V	0.2 pounds	-	144		
S-122 Germany	V	0.4 pounds	-	218		
S-122 Germany	V	0.5 pounds	-	518		
S-122 Germany	V	0.6 pounds	-	768		
S-122 Germany	V	2.2 pounds	-	2000		
P-24 Great Britain	U	2.25 pounds	-	2000		
P-24 Great Britain	V	4.5 pounds	-	4000		

Additional information on the growth of *Salmo trutta* in the following papers: British Isles, B-46; B-89; F-17; G-3; G-5; G-6; G-7; G-8; G-9; G-10; G-11; N-1; N-2; N-3; N-5; N-6; N-7; N-8; N-9; N-10; N-11; N-12; N-14; N-15; N-16; N-16; N-17; N-18; N-19; N-20; N-22; P-10; S-85; W-21; W-23; W-24; W-44; Europe, P-22; S-27; New Zealand, A-24; A-25; G-35.



LAKE TROUT, *Cristivomer namaycush*

N-26 N.Y. T.L. = 1.177 S.L.

V-18 Great Lakes T.L. = 1.192 S.L.

## Standard length-weight relationship, Minnesota, C-20

S.L. in mm.	No.	Weight in gm.	S.L. in mm.	No.	Weight in gm.	S.L. in mm.	No.	Weight in gm.
290	2	383	440	5	1123	590	3	2532
320	6	463	470	11	1346	650	3	4167
340	7	627	490	6	1451	730	3	5253
370	15	808	520	9	1907	800	1	7993
410	8	1042	540	3	1947			

## Fork length-Weight Relationship, Ontario, F-30

Fork length in inches	No.	Weight in pounds	Fork length in inches	No.	Weight in pounds	Fork length in inches	No.	Weight in pounds
9	1	0.38	18	797	2.29	27	23	9.13
10	7	0.43	19	787	2.56	28	25	9.63
11	24	0.55	20	540	3.01	29	15	11.69
12	48	0.66	21	343	3.40	30	7	12.31
13	77	0.92	22	168	3.97	31	12	14.63
14	142	1.18	23	76	4.94	32	7	15.63
15	243	1.49	24	46	6.14	33	3	19.50
16	358	1.72	25	24	7.50	34	2	19.50
17	572	1.99	26	22	8.31	35	2	19.56

## Total length-weight relationship, New York hatcheries, N-46

T.L. in inches	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	6.0	7.0
No. per pound	4371	1303	519	255	143	92	58	40	28	16	10

## Total length-weight relationship

T.L. in inches	No.	Weight in pounds	Location	T.L. in inches	No.	Weight in pounds	Location
10	-	0.38	V-13 L. Michigan	26	-	4.4	S-62 Minn.
11	-	0.44	V-13 L. Michigan		-	5.8	V-13 L. Michigan
12	-	0.56	V-13 L. Michigan	27	-	6.2	V-13 L. Michigan
13	-	0.69	V-13 L. Michigan	28	-	6.5	S-62 Minn.
14	-	0.81	V-13 L. Michigan		9	6.5	V-13 L. Superior
		0.90	S-62 Minn.		-	7.3	V-13 L. Michigan
15	-	1.0	V-13 L. Michigan	29	7	7.6	V-13 L. Superior
16	-	1.1	V-13 L. Michigan		-	8.4	V-13 L. Michigan
	-	1.3	S-62 Minn.	30	-	8.6	S-62 Minn.
17	-	1.3	V-13 L. Michigan		9	8.6	V-13 L. Superior
18	-	1.7	V-13 L. Michigan		-	9.2	V-13 L. Michigan
	-	1.9	S-62 Minn.	31	-	9.8	V-13 L. Michigan
19	-	2.1	V-13 L. Michigan		6	10.0	V-13 L. Michigan
20	-	2.4	S-62 Minn.	32	-	10.2	S-62 Minn.
	-	2.6	V-13 L. Michigan		-	11.3	V-13 L. Michigan
21	-	3.2	V-13 L. Michigan		7	11.4	V-13 L. Michigan
22	-	2.7	S-62 Minn.	33	7	12.3	V-13 L. Superior
	-	3.8	V-13 L. Michigan		-	13.2	V-13 L. Michigan
23	-	4.4	V-13 L. Michigan	34	-	11.9	S-62 Minn.
24	-	3.6	S-62 Minn.		12	13.8	V-13 L. Superior
	-	4.9	V-13 L. Michigan		-	14.5	V-13 L. Michigan
25	-	5.4	V-13 L. Michigan	35	7	14.9	V-13 L. Superior
	7	5.5	V-13 L. Superior	36	-	15.5	V-13 L. Michigan
				37	7	16.9	V-13 L. Superior
				38	10	19.4	V-13 L. Superior
				40	12	22.3	V-13 L. Superior



## LAKE TROUT, (Continued)

T.L. in inches	No.	Weight in pounds	Location	T.L. in inches	No.	Weight in pounds	Location
41	12	24.8	V-13 L. Superior	44	5	30.2	V-13 L. Superior
42	9	28.3	V-13 L. Superior	45	4	33.0	V-13 L. Superior

C-23 Minn. Greenwood L.	60 fish (150-750 mm. S.L.)	average K 1.18
N-46 N.Y.	Average K increases from 0.95-1.30 as length increases from 1 to 7 inches.	
E-3 Minn.	80 fish (279-812 mm. S.L.)	average K 1.43
C-23 Minn.	8 fish (250-450 mm. S.L.)	average K 1.48

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group O-Hatching									
F-5 Lake Erie	K	-	15mm.	-	0.6	-	-	-	-
Age Group O-3 Months									
B-73	K	-	-	-	X	1.0-2.0	-	-	-
Age Group O-5 Months									
A-22 Ont.	K	-	45	-	-	-	-	0.04	-
V-13 Mich.	K	-	-	-	3.0	-	-	-	-
S-112 Minn.	K	-	-	-	4.0	-	-	-	-
Age Group O-November									
A-16 Mich. Birch L.	P	46	-	-	3.2	2.8-3.9	-	-	-
P-1	K	-	-	-	-	-	-	-	0.3-2.2
B-73	K	-	-	-	X	4.0-8.0	-	-	-
S-112 Minn.	K	-	-	-	10.0	-	-	-	-
Age Group O									
M-63 Sask. Great Bear L.	P	14	-	1.1	-	-	-	-	-
N-23 Alta. Jasper P.	P	10	-	X	-	1.3-1.8	-	-	-
A-18 Me.	K	-	-	-	-	-	-	-	0.24-0.35
Age Group I									
M-63 Sask. Great Bear L.	S	29	-	2.5	-	-	20	0.08	-
A-22 Ont.	K	-	91	-	-	-	-	0.28	-
A-16 Mich. Birch L.	K	13	-	-	6.6	5.4-8.7	-	-	-
V-13 Mich.	K	-	-	-	8.0	-	-	-	-
W-2 Cal. Castle L.	I	78	-	10.5	-	-	-	-	-
S-112 Minn.	K	-	-	-	14.0	-	-	-	-
Age Group II									
M-63 Sask. Great Bear L.	S	10	-	3.9	-	-	10	0.4	-
M-59 Sask. Great Bear L.	S	-	-	4.0	-	-	-	-	-
F-26 Me.	S	2	213	-	9.7	9.4-10.0	2	4.0	3.8-4.3
V-13 Mich.	K	-	-	-	10.0	-	-	-	-
C-64 Me. Moosehead L.	S	13	216	-	10.0	7.9-14.6	13	5.1	3.6-14.0
G-21 N.Y. Otsego L.	S	1	-	-	10.4	-	-	-	-
S-76 L. Mich.	T	127	-	-	12.8	-	127	10.0	-
S-112 Minn.	K	-	-	-	X	16.0-18.0	-	-	-
Age Group III									
M-63 Sask. Great Bear L.	S	2	-	5.3	-	-	2	0.06	-
F-29 Ont. Red Rock L.	S	-	-	7.4	-	-	-	-	-
F-29 Ont. Louisa L.	S	-	-	7.6	-	-	-	-	-
H-15 Ont. Brewer L.	S	-	-	9.0	-	-	-	-	-
F-29 Ont. Brewer L.	S	-	-	9.5	-	-	-	-	-
C-64 Me. Moosehead L.	S	13	234	-	11.0	8.7-14.8	13	0.42	0.23-0.99
F-29 Ont. Opeongo L.	S	-	-	11.5	-	-	-	-	-
F-30 Ont. Opeongo L.	S	46	-	11.5	-	9.0-13.0	46	0.62	-
A-16 Mich. Birch L.	K	7	-	-	13.0	11.6-15.2	7	0.63	-
A-15 Ont. Redrock L.	S	-	-	14.0	-	-	-	-	-
F-26 Me.	S	1	328	-	15.4	-	1	1.40	-
E-3 Minn.	S	3	348	-	-	297-457	3	1.25	-
S-76 L. Mich.	T	42	-	-	16.3	-	42	1.50	-
S-112 Minn.	K	-	-	-	X	18.0-22.0	-	-	-
Age Group IV									
M-59 Sask. Great Bear	S	-	-	7.0	-	-	-	-	-
M-63 Sask. Great Bear	S	1	-	7.1	-	-	-	-	-



## LAKE TROUT, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in pounds		
							No.	Mean	Range
F-29 Ont. Louisa L.	S	-	-	8.6	8.6	-	-	-	-
G-21 N.Y. Otsego L.	S	1	-	-	10.3	-	1	0.24	-
F-29;H-15 Ont. Brewer L.	S	-	-	10.6	-	9.0-13.0	-	-	-
F-29;H-15-15 Ont. Red Rock	S	-	-	10.9	-	11.0-13.0	-	-	-
F-30;F-29 Ont. Opeongo L.	S	143	-	13.2	-	10.0-15.0	143	0.98	-
C-64 Me. Moosehead L.	S	32	312	-	14.6	12.8-18.6	32	0.95	0.63-1.94
A-16 Mich. Birch L.	K	11	-	-	15.0	8.3-17.7	11	1.06	-
E-3 Minn.	S	44	343	-	-	297-483	44	1.38	-
F-26 Me.	S	7	378	-	17.6	14.6-19.7	7	1.94	0.75-2.94
S-76 Lake Michigan	T	24	-	-	19.8	-	24	2.60	-
A-16 Mich. Higgin's L.	K	6	-	-	22.2	21.1-23.8	6	3.81	2.50-4.44
S-112 Minn.	K	-	-	-	X	18.0-26.0	-	-	-
Age Group V									
F-29 Ont. Louisa L.	S	-	-	9.6	-	-	-	-	-
F-29;H-15 Ont. Brewer L.	S	-	-	11.6	-	10.0-14.0	-	-	-
F-29 Ont. Red Rock L.	S	-	-	13.2	-	-	-	-	-
G-21 N.Y. Otsego L.	S	2	-	-	14.1	13.8-14.4	2	0.70	0.63-0.77
F-29;F-30 Ont. Opeongo L.	S	268	-	14.6	-	11.0-17.0	268	1.37	-
C-64 Me. Moosehead L.	S	43	348	-	16.1	13.5-21.7	43	1.32	0.69-3.63
H-15 Ont. Red Rock L.	S	-	-	16.0	-	-	-	-	-
E-3 Minn.	S	41	383	-	-	330-508	41	2.25	-
A-16 Mich. Birch L.	T	8	-	-	19.0	10.4-21.2	8	2.50	-
F-26 Me.	S	5	432	-	19.9	17.4-21.7	5	3.18	2.10-4.44
S-76 Mich.	T	26	-	-	22.2	-	26	3.90	-
Age Group VI									
F-29;H-15 Ont. Brewer L.	S	-	-	12.6	-	11.0-15.0	-	-	-
F-29 Ont. Louisa L.	S	-	-	12.9	-	-	-	-	-
F-29;H-15 Ont. Red Rock L.	S	-	-	15.8	-	15.0-17.0	-	-	-
F-29;30 Ont. Opeongo L.	S	294	-	16.4	-	14.0-21.0	294	1.83	-
C-64 Me.	S	44	399	-	18.3	14.4-22.2	44	2.05	0.88-3.94
A-16 Mich. Birch L.	K	7	-	-	19.9	14.2-25.2	7	4.0	-
E-3 Minn.	S	27	467	-	-	381-559	27	2.81	-
F-26 Me.	S	4	493	-	22.7	21.2-24.7	4	4.61	4.13-5.50
A-16 Mich. Crystal L.	K	48	-	-	22.8	21.0-26.0	48	3.81	2.50-5.56
S-76 Lake Michigan	T	13	-	-	23.8	-	13	5.00	-
F-29 Ont. Louisa L.	S	-	-	13.6	-	-	-	-	-
F-29;H-15 Ont. Brewer L.	S	-	-	14.0	-	12.0-17.0	-	-	-
F-29;H-15 Ont. Red Rock L.	S	-	-	17.8	-	15.0-22.0	-	-	-
F-29;30 Ont. Opeongo L.	S	1042	-	17.9	-	11.0-28.0	1042	2.27	-
C-64 Me. Haymock L.	S	26	437	-	20.0	18.1-22.0	26	2.56	2.09-3.39
C-64 Me. Moosehead L.	S	33	460	-	21.1	18.4-25.1	33	3.29	2.19-6.38
S-76 Lake Michigan	T	4	-	-	22.9	-	4	4.40	-
E-3 Minn.	S	12	505	-	-	457-584	12	3.25	-
F-26 Me.	S	3	574	-	25.9	23.4-30.4	3	8.38	6.00-11.19
A-16 Mich. Higgin's	K	3	-	-	26.6	25.6-28.0	3	5.94	5.19-7.0
V-13 N.Y. Seneca L.	S	-	-	-	27.0	-	-	9.25	-
G-21 N.Y. Otsego L.	S	2	-	-	27.8	24.7-30.9	1	4.90	-
Age Group VIII									
M-63 Sask. Great Bear L.	S	4	-	13.0	-	-	-	0.88	-
F-29 Ont. Louisa L.	S	-	-	14.5	-	-	-	-	-
F-29,30 Ont. Opeongo L.	S	1135	-	19.0	-	13.0-33.0	1135	2.66	-
C-64 Me. Haymock L.	S	14	450	-	20.6	18.8-22.0	14	2.72	2.25-3.06
F-29;H-15 Ont. Red Rock L.	S	-	-	19.4	-	17.0-20.0	-	-	-
C-64 Me. Moosehead L.	S	15	488	-	22.4	19.7-28.1	15	4.07	2.13-10.00
E-3 Minn.	S	12	583	-	-	432-660	12	5.50	-
S-76 Lake Michigan	T	2	-	-	29.1	-	2	9.10	-
V-13 Wyo. Fremont Lake	I	-	-	-	-	-	-	11.75	-
Age Group IX									
M-63 Sask. Great Bear L.	S	10	-	13.9	-	-	10	1.13	-
F-29 Ont. Louisa L.	S	-	-	16.7	-	-	-	-	-
F-29,30 Ont. Opeongo L.	S	631	-	20.1	-	17.0-29.0	631	3.09	-
F-29;H-15 Ont. Red Rock L.	S	-	-	21.2	-	16.0-23.0	-	-	-
C-64 Me. Moosehead L.	S	3	541	-	24.7	23.3-27.6	3	5.30	4.38-7.00
V-13 Lake Michigan	S	2	-	-	25.1	24.0-26.2	2	5.30	4.10-6.40



## LAKE TROUT, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in pounds		
							No.	Mean	Range
S-76 Lake Michigan	T	2	-	-	26.6	-	2	6.70	-
E-3 Minn.	S	5	655	-	-	508-785	5	10.50	-
V-13 Lake Superior	S	1	-	-	32.0	-	-	-	-
V-13 Minnesota	S	1	-	-	36.0	-	-	17.10	-
Age Group X									
M-59;M-63 Sask. Great Bear	S	7	-	147	-	-	7	1.25	-
C-64 Me. Haymock	S	1	452	-	20.8	-	1	2.94	-
F-29,30 Ont. Opeongo L.	S	244	-	21.6	-	16.0-28.0	244	4.04	-
H-15 Ont. Red Rock	S	-	-	22.0	-	-	-	-	-
E-3 Minn.	S	3	566	-	-	533-584	-	-	-
C-64 Me. Moosehead	S	2	592	-	26.8	26.7-26.8	2	8.75	8.63-8.88
G-21 N.Y. Otsego L.	S	1	-	-	32.0	-	1	12.25	-
Age Group XI									
M-63 Sask. Great Bear L.	S	14	-	16.2	-	-	-	1.63	-
F-29,30 Ont. Opeongo L.	S	86	-	23.3	-	19.0-30.0	86	5.44	-
E-3 Minn.	S	1	635	-	-	-	-	-	-
H-15 Ont. Red Rock L.	S	-	-	27.0	-	-	-	-	-
V-13 Minn. Sea Gull L.	S	1	-	-	29.0	-	-	-	-
C-64 Me. Moosehead	S	4	678	-	30.8	27.2-34.9	4	12.25	9.81-14.50
V-13 Lake Michigan	S	1	-	-	33.0	-	1	11.50	-
Age Group XII									
M-63 Sask. Great Bear	S	11	-	16.2	-	-	11	1.69	-
R-20 Sask. Athabaska	S	-	-	19.5	-	-	-	3.00	-
C-64 Me. Haymock L.	S	1	546	-	25.1	-	1	6.31	-
V-13 N.Y. Seneca L.	S	1	-	-	34.0	-	1	17.00	-
Age Group XIII									
M-63 Sask. Great Bear	S	13	-	16.6	-	-	13	1.81	-
V-13 Lake Superior	S	-	-	-	-	-	1	29.00	-
V-13 Lake Michigan	S	2	-	-	44.5	44.0-45.0	2	39.00	35.00-43.00
Age Group XIV									
M-63 Sask. Great Bear	S	17	-	17.7	-	-	-	2.19	-
R-19 Sask. Great Slave	S	-	-	19.5	-	-	-	2.75	-
R-20 Sask. Athabaska	S	-	-	21.5	-	-	-	4.50	-
F-30 Ont. Opeongo L.	S	27	-	30.3	-	23.0-35.0	27	11.38	-
Age Group XV									
M-63 Sask. Great Bear	S	27	-	19.2	-	-	-	3.00	-
Age Group XVI									
R-19 Sask. Great Slave	S	-	-	21.5	-	-	-	4.00	-
R-20 Sask. Athabaska	S	-	-	23.7	-	-	-	6.50	-
M-63 Sask. Great Bear	S	32	-	20.3	-	-	-	3.56	-
Age Group XVII									
M-63 Sask. Great Bear	S	33	-	21.9	-	-	33	4.25	-
Age Group XVIII									
M-63 Sask. Great Bear	S	23	-	22.6	-	-	23	5.13	-
R-19 Sask. Great Slave	S	-	-	23.8	-	-	-	5.50	-
R-20 Sask. Athabaska	S	-	-	25.5	-	-	-	8.75	-
Age Group XIX									
M-63 Sask. Great Bear	S	30	-	23.9	-	-	30	5.81	-
Age Group XX									
M-58 Sask. Great Bear	S	-	-	24.0	-	-	-	-	-
M-63 Sask. Great Bear	S	22	-	24.7	-	-	22	6.31	-
R-19 Sask. Great Slave	S	-	-	25.5	-	-	-	7.00	-
R-20 Sask. Athabaska	S	-	-	27.0	-	-	-	10.25	-
Age Group XXI									
M-63 Sask. Great Bear	S	10	-	25.8	-	-	10	6.44	-
Age Group XXII									
R-19 Sask. Great Slave	S	-	-	27.5	-	-	-	8.50	-
M-63 Sask. Great Bear	S	9	-	27.6	-	-	9	7.94	-
R-20 Sask. Athabaska	S	-	-	28.5	-	-	-	12.00	-



## LAKE TROUT, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in pounds		
							No.	Mean	Range
Age Group XXIII									
M-63 Sask. Great Bear	S	10	-	27.5	-	-	10	8.38	-
Age Group XXIV									
M-63 Sask. Great Bear	S	6	-	28.3	-	-	-	8.75	-
R-19 Sask. Great Slave	S	-	-	28.8	-	-	-	10.00	-
Age Group XXV									
M-63 Sask. Great Bear	S	7	-	30.2	-	-	7	10.81	-
Age Group XXVI									
M-63 Sask. Great Bear	S	8	-	30.5	-	-	8	11.69	-
Age Group XXVII									
M-63 Sask. Great Bear	S	2	-	30.7	-	-	2	10.50	-
Age Group XXIX									
M-63 Sask. Great Bear	S	3	-	31.4	-	-	3	13.81	-
Age Group XXX									
M-63 Sask. Great Bear	S	3	-	31.8	-	-	3	13.81	-
Age Group XXXI									
M-63 Sask. Great Bear	S	1	-	33.0	-	-	1	13.00	-
Age Group XXXII									
M-63 Sask. Great Bear	S	1	-	36.6	-	-	1	22.75	-
Age Group XXXIII									
M-63 Sask. Great Bear	S	1	-	35.8	-	-	1	13.00	-
Age Group XXXV									
M-63 Sask. Great Bear	S	1	-	33.2	-	-	1	16.00	-
Age Group XXXVII									
M-63 Sask. Great Bear	S	1	-	38.0	-	-	1	34.00	-

	No.	Average lengths at each annulus										
		1	2	3	4	5	6	7	8	9	10	11
Standard lengths in millimeters												
E-3 Minn.	297	114	191	264	333	392	434	492	544	596	538	618
Fork length in inches												
E-2 Minn.	245	4.6	7.9	11.8	13.6	15.9	18.4	19.5	19.6	21.8	23.4	
Total length in inches												
V-13 L. Michigan	-	5.0	7.0	9.0	12.5	14.5	18.0	21.5	24.2	25.8		
S-62 Minn.	-	5.4	9.0	12.4	15.6	18.4	20.4	23.1	25.5	27.9	28.3	29.0

	Code	Size of females	No. of females	Number of eggs per female	
				Mean	Range
N-45 N.Y. Seneca L.	H	-	-	-	3732-6578
V-13 Great Lakes	U	-	-	6000	-
N-25 N.Y.	D	24 pounds	1	14943	-
D-32 Ont.	D	6-10 pounds	12	6354	2542-11,931
D-32 Ont.	D	10-12 pounds	10	7694	4646-10578
D-32 Ont.	D	15-25 pounds	3	14793	11043-18051
L-18; B-23; L-1; J-13; M-65	U	24 pounds	1	14943	-
N-39 Great Lakes	U	6 pounds	1	8000	-
D-12	U	-	-	10000	-
M-65 Great Lakes Siscowets	D	5 pounds	3	3191	2796-3756
L-1; B-73	-	-	-	-	5000-6000
E-4 Minn.	V	20 inches	16	-	1500-2300
E-4 Minn. Siscowet	V	-	5	5000	3294-
V-21 Minn.	V	15-19 inches	3	1779	1518-2234

HYBRID TROUT, Cristivomer namaycush X Salvelinus fontinalis

S-132 Alta. Banff. at 21 months, 12-14 inches F.L.







## EASTERN BROOK TROUT, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in grams			
							No.	Mean	Range	
R-29 Ont.	P	16	-	1.1	-	-	-	-	-	
W-35 Mich.	K	-	-	-	-	-	-	-	-	
T-27 N.Y.	K	-	-	X	-	1.6-3.3	-	-	0.42-2.24	
Age Group O-June										
L-41 Mich.	K	-	-	-	1.5	-	-	-	-	
W-31 Nova Scotia	P	9	-	X	-	1.2-1.9	-	-	-	
D-4 U.S. hatcheries	K	-	-	-	-	-	-	-	0.4-1.3	
R-29 Ont.	P	12	-	1.6	-	-	-	-	-	
W-1 Cal. Castle L.	P	-	-	1.6	-	-	-	-	-	
S-37 Mich. Pine R.	P	-	-	2.1	-	-	-	-	-	
W-5 Cal.	K	-	-	-	-	-	-	-	0.93-2.2	
T-27 N.Y.	K	-	-	X	-	2.3-2.6	-	1.79	-	
W-35 Mich.	K	-	-	-	-	-	-	-	1.62-3.11	
S-37 Mich. Manistee R.	P	7	-	-	3.0	-	-	-	-	
M-5 Conn.	-	-	-	-	-	-	-	-	1.0-6.2	
Age Group O-July										
T-27 N.Y.	K	-	-	X	-	1.6-1.8	-	0.42	-	
G-20 N.Y.	P	31	-	-	2.0	1.3-2.4	-	-	-	
M-71 N.Y.	P	31	-	-	2.0	1.4-2.4	-	-	-	
L-41 Mich.	K	-	-	-	2.0	-	-	-	-	
D-4 U.S. hatcheries	K	-	-	-	-	-	-	-	0.5-2.4	
W-5 Cal.	K	-	-	-	-	-	-	-	0.5-4.7	
W-1 Cal. Castle L.	P	-	-	2.1	-	-	-	-	-	
R-29 Ont.	P	13	-	2.2	-	-	-	-	-	
H-84 N.H.	P	-	43	-	-	-	-	-	-	
S-37 Mich stream	P	33	-	-	2.8	-	-	-	-	
E-14 N.Y.	K	-	-	X	-	2.0-4.0	-	-	-	
D-11 Ont.	K	-	-	-	-	-	2000	2.68	2.08-3.59	
Age Group O-August										
D-15 N.H.	K	-	-	-	-	-	-	-	0.9-1.6	
W-2 Cal. Castle L.	P	200	-	2.2	-	-	-	-	-	
D-4 U.S. hatcheries	K	-	-	-	-	-	-	-	0.8-3.3	
W-5 Cal.	K	-	-	-	-	-	-	-	0.93-7.0	
N-31 Cal.	K	-	-	2.5	-	-	-	-	-	
W-1 Cal. Castle L.	P	-	-	2.6	-	-	-	-	-	
D-11 Ont.	-	-	-	-	-	-	997	5.23	3.66-6.74	
M-5 Conn.	-	-	-	-	-	-	-	-	1.1-9.5	
T-27 N.Y.	K	-	-	X	-	2.2-4.1	-	-	1.0-13.4	
L-41 Mich.	K	-	-	-	3.0	-	-	-	-	
S-37 Mich. streams	P	25	-	-	3.2	-	-	-	-	
G-34 W. Va.	K	-	-	-	-	-	-	-	9.7-14.1	
Age Group O-September										
N-35 Cal. Angora L.	P	52	-	2.0	-	-	-	-	-	
D-4 U.S. hatcheries	K	-	-	-	-	-	-	-	1.2-5.5	
S-77 Cal. Convict C.	P	2682	-	2.3	-	-	-	-	-	
D-2 Vt.	K	-	-	-	-	-	-	-	2.0-12.0	
P-11 N.Y. Cortland	K	-	-	-	-	-	-	-	8.8-13.3	
D-11 Ont.	K	-	-	-	-	-	891	8.4	4.8-11.7	
M-5 Conn.	K	-	-	-	-	-	-	-	1.2-16.0	
D-2 W. Va.	K	-	-	-	-	-	-	-	4.0-15.0	
S-37 Mich. streams	P	35	-	-	3.8	-	-	-	-	
M-2 N.Y. Cortland	K	-	-	-	-	-	-	-	13.0-17.1	
G-34 W. Va.	K	-	-	-	-	-	-	-	13.3-22.3	
S-33 Mich.	P	-	-	-	4.6	-	-	-	-	
L-41 Mich.	K	-	-	-	X	4.0-6.0	-	-	-	
T-27 N.Y.	K	-	-	X	-	4.5-5.5	-	-	-	
Age Group O-October										
A-18 Me.	K	-	-	-	-	-	-	-	6.6-8.5	
W-31 Prince Edward I.	P	811	-	2.4	-	1.4-4.0	-	-	-	
M-65 Wisc.	K	-	-	-	X	2.5-5.0	-	-	-	
S-33 Mich.-Grayling H.	K	295	-	-	3.5	-	-	-	-	
S-33 Mich. Canada C.	P	-	-	-	4.0	-	-	-	-	
S-33 Mich. Pine R.	P	-	-	-	5.5	-	-	-	-	
T-27 N.Y.	K	-	-	X	-	5.0-6.6	-	-	31.5-77.1	



## EASTERN BROOK TROUT, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in grams		
							No.	Mean	Range
Age Group 0-November									
M-5 Conn.	K	-	-	-	-	-	-	-	2.5-18.5
B-23 N.Y.	K	-	-	-	3.5	-	-	-	-
S-33 Mich. Clancy C.	P	541	-	-	6.0	-	-	-	-
Age Group 0-8 Weeks									
T-30 Conn.	K	-	-	-	-	-	-	-	7.0-10.0
B-50 Conn.	K	-	-	-	-	-	-	-	7.1-12.0
T-29 Conn.	K	-	-	-	-	-	-	10.0	-
Age Group 0,12-14 Weeks									
R-90 Ont.	K	5	-	1.0	-	0.9-1.3	-	-	-
W-29 Nova Scotia	P	-	-	-	-	-	-	-	2.6-10.2
M-3 N.Y.	K	-	-	-	-	-	-	-	3.0-7.5
T-29 Conn.	K	-	-	-	-	-	-	-	6.0-17.0
G-12 Colo.	K	-	-	-	4.5	-	-	-	-
Age Group 0,16-18 Weeks									
M-4 N.Y.	K	-	-	-	-	-	-	-	6.7-16.3
T-29 Conn.	K	-	-	-	-	-	-	-	6.0-19.0
T-30 Conn.	K	-	-	-	-	-	-	-	7.0-18.0
Age Group 0,20-24 Weeks									
R-90 Ont.	K	11	-	2.0	-	1.6-2.3	-	-	-
H-39 N.J.	K	-	-	-	-	-	-	-	1.3-2.7
M-3 N.Y.	K	-	-	-	-	-	-	-	3.8-10.5
M-4 N.Y.	K	-	-	-	-	-	-	-	5.3-16.8
T-30;T-29 Conn.	K	-	-	-	-	-	-	-	7.0-20.0
Age Group 0,30-36 Weeks									
R-90 Ont.	K	2	-	2.3	-	-	-	-	-
H-39 N.J.	K	-	-	-	-	-	-	-	2.3-4.0
T-29;30 Conn.	K	-	-	-	-	-	-	-	7.0-42.0
Age Group 0,40 Weeks									
T-29,30 Conn.	K	-	-	-	-	-	-	-	9.0-63.0
Age Group 0,44-52 Weeks									
T-30 Conn.	K	-	-	-	-	-	-	-	10.0-95.0
Age Group 0									
K-10 N.Y. Allegheny	P	130	-	2.3	-	1.6-3.0	-	-	-
G-19 N.Y. Raquette	P	122	-	-	2.5	1.7-3.5	-	-	-
R-17 Sask.	P	-	60	2.5	-	-	-	-	-
S-39 Mich. Hunt Cr.	P	33	-	-	2.7	2.2-3.2	-	-	-
	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group I									
H-15 Ont.	S	-	-	2.0	-	-	-	0.05	-
B-73 U.S. hatcheries	K	-	-	-	-	-	-	-	0.7-1.0
H-84 N.H. Brooks	S	53	68	-	-	-	-	-	-
H-84 N.H.	S	155	69	-	-	-	-	-	-
M-71 N.Y. Trammel Cr.	S	96	-	-	3.6	2.9-5.0	-	-	-
K-10 N.Y. Allegheny	S	25	-	-	3.7	2.7-4.9	-	-	-
S-39 Mich. Hunt Cr.	S	44	-	-	4.1	2.8-5.8	-	-	-
L-18 U.S. hatcheries	K	-	-	-	X	4.0-5.0	-	-	-
G-19,22,24,25. N.Y.	S	343	-	-	4.5	2.9-11.3	100	1.2	0.2-10.3
R-90 Ont.	K	14	-	4.9	-	4.2-5.4	-	-	-
R-29 Ont. Mad R.	P	14	-	4.9	-	-	-	-	-
K-11 N.Y. Six Mile C.	S	4	-	-	5.4	2.4-7.6	-	-	-
S-33 Mich. Canada Cr.	-	-	-	-	5.5	-	-	-	-
E-11 N.Y.	K	47	-	X	-	3.0-6.0	-	-	-
N-31 Cal. May	K	-	-	5.1	-	-	-	-	-
R-29 Ont. Wonder P.	P	-	-	5.3	-	-	-	-	-
N-35 Cal. Angora L.	T	100	-	5.3	-	-	100	2.2	-
S-37 Mich. streams	S	58	-	-	6.1	-	-	-	-
S-33 Mich. Grayling H.	K	267	134	-	6.2	-	-	-	-
W-2 Cal. Castle L.	S	163	-	6.0	-	3.9-8.3	163	1.5	-
R-17 Sask. Maligne L.	S	-	145	6.2	-	-	-	1.2	-
W-1 Cal. Castle L.	P	-	-	6.3	-	-	-	-	-



## EASTERN BROOK TROUT, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
S-33 Mich. AuSable	S	36	-	-	6.7	-	-	-	
R-17 Sask. Beaver L.	S	-	150	6.5	-	-	1.6	-	
R-29 Ont. Wolf L.	P	1	-	6.5	-	-	-	-	
S-107 Va. St. Mary's R.	S	107	-	6.7	-	-	-	-	
W-2 Cal. Castle L.	S	390	-	6.9	-	-	-	-	
B-23 U.S. hatcheries	K	-	-	-	-	-	2.0	-	
D-35 Man. stream	S	7	-	8.0	-	-	7	2.5	
C-64 Me. Moosehead L.	S	1	185	-	8.3	-	1	3.7	
C-62 Me.	S	62	198	-	8.9	7.5-10.5	62	5.0 2.4-9.1	
P-1 U.S. hatcheries	K	-	-	-	-	-	-	0.2-6.3	
S-40 Nova Scotia	K	-	-	-	-	-	-	0.07-7.4	
M-5 Conn.	K	-	-	-	-	-	-	6.2-6.4	
H-41 N.Y.	K	638	-	X	-	7.0-10.0	-	-	
T-30 N.Y.	K	-	-	-	-	-	-	0.4-21.2	
M-65 Wisc.	K	-	-	-	X	7.0-14.0	-	-	
C-43 N.Br. MacFadden's	I	-	-	X	-	10.0-11.0	-	-	
T-34 Argentina	I	-	X	-	-	250-300	-	-	
B-23 N.Y.	K	1	-	-	12.3	-	-	-	
H-41 N.Y. Selected	K	-	-	X	-	10.5-13.8	-	-	
R-17 Sask. Malign L.	I	-	-	X	-	14.0-18.0	-	24.0-32.0	
R-67 Alta. Jasper P.	I	-	-	18.0	-	-	-	-	
Age Group II									
H-84 N.H. brooks	S	203	93	-	-	-	-	-	
K-11 N.Y. Six Mile C.	S	23	-	-	4.9	2.6-9.1	-	-	
M-71 N.Y. Trammel C.	S	76	-	-	5.0	3.7-6.7	-	-	
H-15 Ont.	S	-	-	4.8	-	-	0.7	-	
K-10 N.Y. Allegany	S	25	-	-	5.8	4.9-6.9	-	-	
S-39 Mich. Hunt Cr.	S	37	-	-	6.3	4.7-8.6	-	-	
G-19,22, 24, 25, N. Y.	S	238	-	-	6.5	3.7-11.3	94	2.1 0.6-8.8	
W-31 Moser R.	S	-	-	6.7	-	-	-	-	
S-37 Mich. Pine R.	S	10	-	-	7.2	-	-	-	
R-29 Ont. Wander P.	P	-	-	7.1	-	-	-	-	
L-18 U.S. hatcheries	K	-	-	-	X	7.0-8.0	-	-	
L-39 Colo.	I	-	-	-	X	7.0-8.0	-	-	
N-35 Cal. Angora L.	T	3	-	7.6	-	-	3	7.2	
R-29 Ont. Mad R.	P	146	-	7.8	-	-	-	-	
S-107 Va. St. Mary's R.	S	10	-	7.8	-	-	-	-	
W-2 Cal. Castle L.	I	19	-	8.0	-	-	-	-	
W-1 Cal. Castle L.	S	-	-	8.2	-	-	-	-	
E-19 Mich. Lost L.	I	-	-	-	9.0	-	-	-	
B-23 U.S. hatcheries	K	-	-	-	-	-	4.0	-	
F-26 Me.	S	4	-	-	9.3	-	-	-	
C-64 Me. Moosehead L.	S	52	206	-	9.3	8.1-11.7	52	5.0 3.4-10.4	
C-64 Me. Haymock L.	S	3	208	-	9.4	9.1-9.8	3	4.4 4.1-4.9	
R-17 Sask. Maligne L.	S	-	210	9.0	-	-	-	6.0	
R-17 Sask. Beaver L.	S	-	215	9.2	-	-	-	6.1	
D-35 Man. streams	S	8	-	9.4	-	-	8	5.0	
C-62 Me.	S	101	221	-	9.8	6.9-12.8	98	5.8 3.2-12.1	
S-33 Mich. Grayling H.	S	400	224	-	10.3	-	-	-	
E-15 Mich.	I	199	-	-	10.5	-	-	-	
E-19 Mich. West Lost L.	I	-	-	-	11.0	-	-	-	
B-84 Ore.	S	-	-	11.6	-	-	-	-	
D-35 Man. rivers	S	2	-	11.6	-	-	2	7.5	
S-40 Nova Scotia	K	-	-	-	-	-	-	7.4-12.0	
B-73 U.S. hatcheries	K	-	-	-	-	-	-	8.0-10.0	
D-29 Wash.	I	-	-	-	15.0	-	-	-	
B-84 Ore.	S	-	-	14.1	-	-	-	-	
Age Group III									
H-84 N.H.		63	118	-	-	-	-	-	
K-11 N.Y. Six Mile C.	S	24	-	-	5.9	4.0-10.7	-	-	
M-71 N.Y. Trammel C.	S	3	-	-	6.1	5.1-7.3	-	-	
S-107 Va. St. Mary's R.	S	8	-	7.0	-	-	-	-	
H-15 Ont.	S	-	-	7.5	-	-	2.5	-	
G-19-21,25 N.Y.	S	35	-	-	7.7	5.1-15.0	14	3.9 2.1-11.3	



## EASTERN BROOK TROUT, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
W-31 N.S. Smolt	S	-	-	7.7	-	-	-	-	-
S-39 Mich. Hant Cr.	S	9	-	-	8.0	6.6-9.5	-	-	-
L-39 Colo.	I	-	-	-	9.0	-	-	-	-
S-65 N. Br. L. Jesse	S	4	-	8.9	-	8.1-9.6	-	-	-
W-31 N.S. Kelt	S	-	-	9.4	-	-	-	-	-
N-35 Cal. Angora L.	T	6	-	9.8	-	-	6	6.2	-
R-29 Ont. Wolf L.	P	9	-	10.0	-	-	-	-	-
R-29 Ont. L. Wander	P	-	-	10.4	-	-	-	-	-
R-29 Ont. Mad R.	P	21	-	10.7	-	-	-	-	-
C-62 Me.	S	178	244	-	10.9	7.2-16.5	133	10.8	3.6-31.5
L-18 U.S. hatcheries	K	-	-	-	X	10.0-12.0	-	-	-
B-23 U.S. hatcheries	K	-	-	-	-	-	-	8.0	-
S-37 Mich. Pine R.	S	2	-	-	11.3	11.2-11.4	-	-	-
F-26 Me.	S	6	-	-	11.4	-	6	8.9	-
W-2 Cal. Castle L.	I	4	-	11.2	-	-	-	-	-
R-17 Sask. Maligne L.	S	-	260	11.2	-	-	-	10.5	-
C-64 Me. Haymock L.	S	3	262	-	11.7	10.1-13.6	3	9.1	5.3-14.9
C-64 Me. Moosehead L.	S	28	269	-	12.1	9.8-14.0	28	11.5	6.1-18.8
R-17 Sask. Maligne L.	S	-	275	11.7	-	-	-	12.5	-
D-35 Man. streams	S	4	-	13.6	-	-	4	14.0	-
B-73 U.S. hatcheries	K	-	-	-	-	-	-	16.0	-
S-40 Nova Scotia	K	-	-	-	-	-	-	-	16.0-17.0
D-35 Man. rivers	S	45	-	15.2	-	-	45	20.5	-
R-17 Sask.	I	-	-	-	-	-	-	-	-96.0
Age Group IV									
K-11 N.Y. Six Mile C.	S	7	-	-	6.4	5.2-8.2	-	-	-
H-84 N.H. brooks	K	5	168	-	-	-	-	-	-
E-19 Mich. Lost L.	I	-	-	-	10.0	-	-	-	-
W-2 Cal. Castle L.	I	1	-	9.6	-	-	-	-	-
L-39 Colo.	I	-	-	-	X	10.0-11.0	-	-	-
H-15 Ont.	S	-	-	10.7	-	-	-	2.0	-
W-31 N.S. Moser R.	S	-	-	11.4	-	-	-	-	-
B-23 U.S. hatcheries	K	-	-	-	-	-	-	16.0	-
R-17 Sask. Maligne L.	S	-	300	13.0	-	-	-	16.2	-
R-29 Ont. Wolf L.	P	15	-	13.5	-	-	-	-	-
C-62 Me.	S	51	312	-	14.0	7.7-20.3	44	23.2	4.1-56.7
G-20,25 N.Y.	S	4	-	-	14.3	12.0-15.4	-	-	-
C-64 Me. Moosehead L.	S	25	318	-	14.3	12.4-17.4	25	19.6	11.0-30.0
R-29 Ont. L. Wonder P.	P	-	-	14.2	-	-	-	-	-
S-40 Nova Scotia	K	-	-	-	-	-	-	-	16.0-25.7
L-18 U.S. hatcheries	K	-	-	-	X	14.0-16.0	-	-	-
R-17 Sask. beaver L.	S	-	330	14.2	-	-	-	25.0	-
D-35 Man. streams	S	1	-	16.8	-	-	1	27.0	-
D-35 Man. rivers	S	29	-	17.3	-	-	29	29.9	-
C-64 Me. Haymock L.	S	2	404	-	18.0	16.3-19.7	2	35.0	23.0-47.0
D-29 Wash.	I	-	-	-	26.0	-	-	-	96.0-128.0
Age Group V									
H-15 Ont.	S	-	-	13.5	-	-	-	15.0	-
R-17 Sask. Maligne L.	S	-	335	14.5	-	-	-	23.0	-
G-20 N.Y.	S	6	-	-	15.6	13.7-18.5	1	16.7	-
R-17 Sask. Beaver L.	S	-	370	16.0	-	-	-	39.0	-
C-64 Me. Haymock L.	S	3	371	-	16.9	15.5-18.9	3	28.6	25.0-36.0
C-62 Me.	S	14	378	-	16.8	9.8-20.9	12	43.5	26.1-124.0
F-26 Me.	S	1	-	-	19.4	-	1	61.5	-
C-64 Me. Moosehead L.	S	8	434	-	19.5	16.5-22.1	8	48.7	25.0-70.0
E-19 Mich. Hemlock L.	I	-	-	-	19.5	-	-	-	-
D-35 Man. rivers	S	9	-	19.1	-	-	9	43.6	-
D-35 Man. streams	S	1	-	20.0	-	-	1	33.0	-
Age Group VI									
R-17 Sask. Maligne L.	S	-	360	15.5	-	-	-	27.5	-
C-64 Me. Haymock L.	S	6	465	-	20.7	17.8-23.5	6	59.3	42.0-85.0
D-35 Man. rivers	S	3	-	20.9	-	-	3	57.0	-
C-62 Me.	S	1	503	-	21.8	-	-	50.6	-
R-29 Ont. L. Nipigon	S	2	-	22.1	-	22.0-22.2	-	-	-
Age Group VIII									
E-19 Mich. Lost L.	I	-	-	-	22.0	-	-	-	-



## EASTERN BROOK TROUT, (Continued)

	Code	Calculated lengths at each annulus				4
		No.	1	2	3	
Standard lengths in millimeters						
H-48 N.H. smallest	F	-	50	70	100	
H-48 N.H. average	F	580	68	94	118	
H-48 N.H. largest	F	-	91	107	140	
E-3 Minn.	L	22	78	144		
H-42 N.Y.	F	202	94	135	168	
Fork length in inches						
E-2 Minn.	L	12	3.5	6.6		
Total length in inches						
S-39 Mich. Hunt Cr.	L	90	3.0	5.0	6.8	
H-43 Utah, Fish L.	L	15	4.6	8.3	10.6	12.9

	Code	Size of females	No. of females	Number of eggs per female	
				Mean	Range
R-29 Ont.	D	5.1-22.0"	23	-	80-5630
S-71 Prince Edward IS.	D	5.5-22.0"	54	-	24-5630
S-40 Nova Scotia	D	3 pounds	3	2242	2145-2340
S-40 Nova Scotia	D	2 pounds	-	872	-
S-40 Nova Scotia	D	1.0-1.3 pounds	2	2424	1260-3588
L-16 B-73	U	1 year old	-	-	150-250
L-16 B-73	U	2 year old	-	-	350-600
L-16 B-73	U	older fish	-	-	500-2500
D-12 *-	U	-	-	800	-
H-83 N.H.	D	4 inch	9	95	-
N-25 N.Y.	U	1.5 years old	-	-	150-250
N-25 N.Y.	U	2 year olds	-	-	350-500
N-25 N.Y.	U	older fish	-	-	-2500
B-23 N.Y.	D	1 pound	-	1800	-
B-23 N.Y.	U	-	-	-	400-600
E-31 Cal.	U	-	-	-	400-600
N-28 -	U	-	-	-	100-5000
K-6 Me.	U	-	-	-	150-2500
L-1 -	U	-	-	-	500-1500
V-28 Quebec	D	5.0-6.9 " F.L.	18	167	-
		7.0-8.9	21	245	-
		9.0-10.9	27	431	-
		11.0-12.9	9	891	-
		13.0-14.9	2	1469	1247-1691
T-24 Conn.	D	8.0-8.9	2	349	130-560
		9.0-10.9	3	485	308-656
		11.0-12.0	9	748	410-1312
		13.0-14.9	5	1252	923-1845
		15.0-16.9	6	1846	923-2563
		17.0-18.9	5	2583	2358-2665

Additional data on eastern brook trout in the following papers, not summarized above;  
F-16; V-29; W-34.

SUNAPEE TROUT, *Salvelinus aureolus*

	Age Group	Code	No.	Standard length in millimeters		Total length in inches		Weight in ounces	
				Mean	Range	Mean	Range	Mean	Range
F-26 Me.	I	S	1	130	-	6.0	-	0.9	-
F-26 Me.	II	S	6	211	173-244	9.8	8.0-11.4	4.7	3.6-6.2
F-26 Me.	III	S	8	277	246-328	12.8	11.2-15.0	11.3	7.5-16.7
F-26 Me.	IV	S	7	356	330-391	16.4	15.3-17.9	24.7	19.0-30.2
F-26 Me.	V	S	1	417	-	19.5	-	32.9	-



DOLLY VARDEN, Salvelinus malma spectabilis

Age Group	Location	Standard length in millimeters
0	B-10 Alb. Jasper Park	60-75
	N-23 Alb. Jasper Park	75
I	N-23, B-10 Alb. Jasper Park	200-330
II	N-23, B-10 Alb. Jasper Park	250-300
III	B-10, N-23 Alb. Jasper Park	330-400
IV	B-10, N-13 Alb. Jasper Park	410-460
V	B-10, N-13 Alb. Jasper Park	500-540
VI	B-10, N-13 Alb. Jasper Park	560-620
XX	S-30, Cal.	- 13.5 pounds

INCONNU, Stenodus leucichthys mackenzii

Age Group	Location	Fork length in inches
IV	D-34 (from B-45) Russia	11.8
VI	D-34 (from B-45) Russia	17.2
VIII	D-34 (from B-45) Russia	22.5
VIII-X	D-34 Canada	26.0-29.0
X	D-34 (from B-45) Russia	26.6
XII	D-34 (from B-45) Russia	30.6
XIV	D-34 (from B-45) Russia	33.3
XVI	D-34 (from B-45) Russia	36.6

SHALLOW WATER CISCO, Leucichthys artedi

C-37 L. Superior	142 fish (200-299 mm. S.L.)	F.L. = 1.049 S.L.
C-35 Minn. L. Vermilion	up to 250 mm. S.L.	F.L. = 1.080 S.L.
	over 250 mm. S.L.	F.L. = 1.085 S.L.
H-64 Wisc. Silver and Muskellunge L.		T.L. = 1.18 S.L.
H-64 Wisc. Trout and Allequash L.		T.L. = 1.19 S.L.
C-59 Mich. Blind L.		T.L. = 1.19 S.L.
C-35 Minn. L. Vermilion	up to 250 mm. S.L.	T.L. = 1.197 S.L.
	over 250 mm. S.L.	T.L. = 1.201 S.L.

Standard length in millimeters	Location	No.	Mean	Range	Mean weight in grams
120-129	H-64 Wisc. Trout L.	-	1.0	-	28
130-139	H-64 Wisc. Trout Lake	-	1.1	-	31
	H-64 Wisc. Silver L.	-	1.1	-	31
	H-64 Wisc. Muskellunge	-	1.2	-	33
	H-64 Wisc. Muskellunge	-	1.2	-	33
140-149	H-64 Wisc. Trout L.	-	1.3	-	37
	H-64 Wisc. Silver L.	-	1.3	-	37
	H-64 Wisc. Muskellunge	-	1.4	-	39
150-159	H-64 Wisc. Trout L.	-	1.5	-	43
	H-64 Wisc. Silver L.	1	1.5	-	43
	H-64 Wisc. Muskellunge	-	1.6	-	45
	C-35 Minn. L. Vermilion	1	3.0	-	85
160-169	H-64 Wisc. Trout L.	-	1.8	-	50
	H-64 Wisc. Muskellunge	-	1.8	-	50
	H-64 Wisc. Silver L.	-	1.9	-	55
	H-64 Wisc. Clear L.	-	2.2	-	64
	C-35 Minn. L. Vermilion	18	3.5	2.0-4.0	99
170-179	H-64 Wisc. Muskellunge	-	1.9	-	55
	H-64 Wisc. Clear L.	-	2.5	-	71
	H-64 Wisc. Silver L.	-	2.6	-	73
	C-35 Minn. L. Vermilion	22	4.1	3.0-5.0	114



## SHALLOW WATER CISCO, (Continued)

Standard length in millimeters	Location	No.	Mean	Range	Mean weight in grams
180-189	H-64 Wisc. Clear L.	-	2.8	-	80
	H-64 Wisc. Silver L.	-	3.1	-	87
	C-35 Minn. L. Vermilion	5	4.0	-	113
190-199	H-64 Wisc. Silver L.	-	3.6	-	101
	H-64 Wisc. Clear L.	-	3.6	-	103
	C-35 Minn. L. Vermilion	3	5.7	5.0-6.0	162
200-209	V-5 Lake Huron	17	3.1	-	88
	H-64 Wisc. Silver L.	-	3.8	-	108
	H-64 Wisc. Clear L.	-	4.7	-	132
	C-35 Minn. L. Vermilion	6	5.8	4.0-8.0	165
210-219	V-5 Lake Huron	40	3.8	-	108
	H-64 Wisc. Clear L.	-	4.9	-	138
	C-20 Lake Superior	1	5.0	-	142
	C-35 Minn. L. Vermilion	8	6.9	6.0-8.0	196
220-229	C-20 Lake Superior	1	4.0	-	113
	V-5 Lake Huron	142	4.6	-	130
	C-35 Minn. L. Vermilion	27	8.8	7.0-12.0	250
230-239	V-5 Lake Huron	240	5.1	-	145
	C-20 Lake Superior	9	6.4	-	181
	H-64 Wisc. Clear L.	-	6.6	-	187
	C-35 Minn. L. Vermilion	24	9.9	8.0-12.0	281
240-249	V-5 Lake Huron	109	5.8	-	164
	C-20 Lake Superior	41	6.4	-	182
	H-64 Wisc. Clear L.	-	8.2	-	231
	C-35 Minn. L. Vermilion	63	11.1	9.0-14.0	314
250-259	V-5 Lake Huron	19	6.5	-	184
	C-20 Lake Superior	58	6.8	-	193
	H-64 Wisc. Clear L.	-	9.4	-	267
	C-35 Minn. L. Vermilion	34	12.3	9.0-16.0	348
260-269	V-5 Lake Huron	25	7.2	-	204
	C-20 Lake Superior	11	7.2	-	204
	H-64 Wisc. Clear L.	-	10.8	-	307
	C-35 Minn. L. Vermilion	30	13.5	10.0-18.0	383
270-279	C-20 Lake Superior	13	7.4	-	210
	H-64 Wisc. Clear L.	-	12.4	-	351
	C-35 Minn. L. Vermilion	56	16.2	12.0-24.0	460
280-289	C-20 Lake Superior	7	7.9	-	224
	V-5 Lake Huron	17	10.0	-	284
	H-64 Wisc. Clear L.	-	14.2	-	401
	C-35 Minn. L. Vermilion	49	16.2	13.0-20.0	460
290-299	C-20 Lake Superior	2	9.0	-	255
	H-64 Wisc. Clear L.	-	15.7	-	446
	C-35 Minn. L. Vermilion	59	17.8	13.0-23.0	505
300-309	H-64 Wisc. Clear L.	-	18.1	-	514
	C-35 Minn. L. Vermilion	20	19.0	17.0-23.0	539
310-319	H-64 Wisc. Clear L.	-	20.8	-	579
	C-35 Minn. L. Vermilion	6	21.7	17.0-27.0	615
320-329	C-35 Minn. L. Vermilion	2	19.5	18.0-21.0	581
	H-64 Wisc. Clear L.	-	23.7	-	671
330-339	H-64 Wisc. Clear L.	-	25.7	-	727
340-349	H-64 Wisc. Clear L.	-	28.8	-	816
350-359	H-64 Wisc. Clear L.	-	31.2	-	884
360-369	H-64 Wisc. Clear L.	-	34.5	-	978
370-379	H-64 Wisc. Clear L.	-	37.7	-	1070
380-389	H-64 Wisc. Clear L.	-	42.7	-	1212



## SHALLOW WATER CISCO, (Continued)

T.L. in inches	Location	Weight in ounces			Weight in grams
		No.	Mean	Range	
11-11.9.9	W-41 N.Y.	1	5.0	-	142
12.0-12.9	W-41 N.Y.	1	8.0	-	227
13.0-13.9	W-41 N.Y.	3	12.3	10.0-14.0	349
14.0-14.9	W-41 N.Y.	1	16.0	-	454

	Size of fish	No.	Mean Condition index K
V-5 L. Huron		609	1.13
H-64 Wisc. Muskellunge L.		1032	1.17
E-3 Minn.	216-292 mm.	143	1.19
H-64 Wisc. Trout L.		1032	1.20
H-64 Wisc. Silver L.		405	1.31
H-64 Wisc. Allequash L.		113	1.45
H-64 Wisc. Tomahawk L.		68	1.58
H-62 Ind.	Age Group II-VII	45	1.66
H-64 Wisc. Clear L. males		186	1.67
C-34 Minn. Leech L.		101	1.75
H-64 Wisc. Clear L. females		198	1.84
C-35 Minn. L. Vermilion		499	2.03

H-64 Wisc. In various lakes the weight in grams increased as the standard length in millimeters raised to the 1.377 to 3.685 power.

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group O-First Week									
F-5 Lake Erie	K	-	-	-	0.4	-	-	-	-
F-20 Lake Ontario	K	-	-	-	0.5	-	-	-	-
Age Group O-May									
P-20 Lake Erie	P	95	-	-	0.6	0.4-0.7	-	-	-
Age Group O-June									
G-28 St. Lawrence	P	233	-	-	1.2	0.7-1.8	-	-	-
Age Group O-July									
F-20 Ont. L. Nipissing	P	111	-	2.2	-	-	-	-	-
Age Group O-August									
F-20 Ont. L. Nipissing	P	82	-	2.5	-	-	-	-	-
Age Group O-September									
C-1 Wisc.	P	3	62	-	-	-	3	0.8	-
F-20 Ont. Nipissing	P	7	-	3.1	-	-	-	-	-
Age Group O-Dec									
C-59 Mich. Blind L.	S	1	132	-	-	-	-	-	-
Age Group O									
M-98 Ont. L. Nipissing	S	70	56	-	-	-	-	-	-
K-32 N.W.T. Great Bear L.	S	11	-	2.6	-	2.0-3.0	-	-	-
H-64 Wisc. Trout L.	S	17	66	-	-	-	-	-	-
S-93 N.Y. Irondequoit	S	8	138	-	6.6	-	8	1.4	-
Age Group I									
C-52 Lake Erie	S	-	75	-	3.0	-	-	-	-
K-32 N.W.T. Great Bear L.	S	6	-	3.5	-	3.0-4.0	-	-	-
H-64 Wisc. Trout L.	S	4	128	-	-	122-132	4	0.9	-
P-21 Lake Ontario	S	-	129	5.6	-	-	-	1.1	-
V-17 Lake Ontario	S	-	-	-	6.0	-	-	-	-
H-64 Wisc. Tomahawk L.	S	1	135	-	-	-	1	1.2	-
H-64 Wisc. Allequash L.	S	69	135	-	-	-	69	1.2	-
N-37 Wisc. L. Geneva	S	8	-	-	6.4	-	-	-	-
H-64 Wisc. Silver L.	S	67	141	-	-	122-157	49	1.2	-
H-64 Wisc. Muskellunge L.	S	45	141	-	-	127-162	45	1.2	-
M-98 Ont. L. Nipissing	S	274	143	-	-	-	-	-	-
F-20 Ont. L. Nipissing	S	294	143	-	-	-	-	-	-
H-64 Wisc. Clear L. males	S	40	177	-	-	165-215	48	2.5	-
C-59 Mich. Blind L.	S	3	177	-	-	160-185	-	-	-



## SHALLOW WATER CISCO, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
H-64 Wisc. Clear L.	S	29	182	-	-	155-205	26	2.8	-
V-17 Saginaw Bay	S	-	-	-	9.3	-	-	-	-
S-93 N.Y. Irondequoit	S	3	222	-	10.6	-	3	5.9	-
V-17 Lake Erie	S	-	-	-	11.3	-	-	-	-
Age Group II									
C-52 Lake Erie	S	-	125	-	5.2	-	-	-	-
C-1 Wisc. Pine L.	S	11	125	-	-	-	11	1.6	-
C-1 Wisc. Oconomowoc L.	S	26	135	-	-	-	26	3.7	-
H-64 Wisc. Trout L.	S	199	136	-	-	122-152	102	1.1	-
K-32 N.W.T. Great Bear L.	S	3	-	6.0	-	4.0-7.0	-	-	-
H-64 Wisc. Allequash L.	S	28	153	-	-	-	28	1.9	-
N-37 Wisc. L. Geneva	S	30	-	-	8.3	-	-	-	-
H-64 Wisc. Muskellunge L.	S	724	157	-	-	132-182	695	1.6	-
H-64 Wisc. Silver L.	S	35	168	-	-	142-182	19	2.2	-
C-35 Minn. L. Vermilion	S	101	172	-	-	149-203	93	3.5	1.8-3.8
H-64 Wisc. Tomahawk L.	S	11	183	-	-	-	11	3.5	-
V-17 L. Ontario	S	-	-	-	9.1	-	-	-	-
D-33 Hudson Bay	S	4	184	9.0	-	166-197	-	-	-
M-98 Ont. L. Nipissing	S	316	193	-	-	-	-	-	-
F-20 Ont. L. Nipissing	S	412	196	-	-	-	-	-	-
P-21 L. Ontario	-	-	196	8.3	-	-	-	3.7	-
C-59 Mich. Blind L.	S	23	199	-	-	180-235	-	-	-
V-5 Lake Huron	S	21	199	-	-	177-229	7	3.5	2.0-5.0
V-17 Mich. Saginaw Bay	S	-	-	-	10.7	-	-	-	-
S-93 N.Y.	S	8	255	-	-	-	8	11.9	-
S-93 N.Y. Irondequoit L.	S	64	250	-	11.7	-	63	10.4	-
H-64 Wisc. Clear L. males	S	54	253	-	-	215-275	48	9.4	-
H-62 Ind.	S	3	260	-	-	257-264	3	9.8	9.3-10.4
H-64 Wisc. Clear L. females	S	48	264	-	-	235-295	40	10.8	-
V-17 Lake Erie	S	-	-	-	13.4	-	-	-	-
Age Group III									
H-64 Wisc. Trout L.	S	581	146	-	-	127-167	537	1.3	-
C-52 Lake Erie	S	-	160	7.0	-	-	-	3.0	-
C-1 Wisc. Pine L.	S	41	162	-	-	-	41	2.1	-
H-64 Wisc. Muskellunge	S	371	166	-	-	152-182	290	1.8	-
H-64 Wisc. Silver L.	S	132	174	-	-	152-197	48	2.7	-
C-1 Wisc. Oconomowoc L.	S	144	174	-	-	-	144	5.8	-
H-64 Wisc. Allequash L.	S	15	183	-	-	-	-	3.4	-
K-32 N.W.T. Great Bear L.	S	1	-	8.0	-	-	-	-	-
H-64 Wisc. Tomahawk L.	S	39	199	-	-	-	-	4.4	-
C-59 Mich. Blind L.	S	66	207	-	-	185-250	-	-	-
C-35 Minn. L. Vermilion	S	14	210	-	-	171-254	14	6.8	4.0-16.0
V-17 Lake Ontario	S	-	-	-	10.5	-	-	-	-
D-33 Hudson Bay	S	10	214	9.3	-	195-230	-	-	-
F-20 Ont. L. Nipissing	S	928	223	-	-	-	-	-	-
M-98 Ont. L. Nipissing	S	778	224	-	-	-	-	-	-
P-21 Lake Ontario	S	-	226	9.7	-	-	-	5.6	-
N-37 Wisc. L. Geneva	S	7	226	-	-	-	-	-	-
V-5 Lake Huron	S	1247	231	-	-	160-276	279	5.03	2.5-11.0
V-17 Mich. Saginaw Bay	S	-	-	-	11.2	-	-	-	-
S-93 N.Y. Irondequoit L.	S	219	281	-	13.3	-	209	15.1	-
S-93 N.Y.	S	78	282	-	-	-	78	17.1	-
H-64 Wisc. Clear L. males	S	49	287	-	-	255-315	40	14.8	-
H-62 Ind.	S	34	300	-	-	-	34	16.3	-
V-17 Lake Erie	S	-	-	-	14.4	-	-	-	-
H-64 Wisc. Clear L. females	S	46	305	-	-	265-325	40	18.4	-
Age Group IV									
H-64 Wisc. Trout L.	S	385	150	-	-	132-177	255	1.5	-
H-64 Wisc. Muskellunge L.	S	2	176	-	-	175-179	2	2.1	-
H-64 Wisc. Silver L.	S	229	180	-	-	162-202	93	3.0	-
C-52 Lake Erie	S	-	190	8.5	-	-	-	4.5	-
C-1 Wisc. Pine L.	S	54	195	-	-	-	54	3.0	-
H-64 Wisc. Allequash L.	S	1	203	-	-	-	1	4.9	-
H-64 Wisc. Tomahawk L.	S	16	209	-	-	-	16	5.1	-
C-59 Mich. Blind L.	S	38	216	-	-	205-260	-	-	-
V-17 Lake Ontario	S	-	-	-	10.9	-	-	-	-



## SHALLOW WATER CISCO, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
C-1 Wisc. Oconomowac L.	S	168	223	-	-	-	168	9.1	-
K-32 N.W.T. Great Bear L.	S	18	-	10.0	-	8.0-11.0	18	8.0	-
P-21 Lake Ontario		-	233	10.1	-	-	-	6.4	-
F-20 Ont. L. Nipissing	S	1036	240	-	-	-	-	-	-
M-98 Ont. L. Nipissing	S	840	240	-	-	-	-	-	-
V-5 Lake Huron	S	2098	241	-	-	200-308	321	5.6	3.0-13.0
C-35 Minn. L. Vermilion	S	136	241	-	-	203-288	134	10.5	6.0-17.0
N-37 Wisc. L. Geneva	S	4	241	-	-	-	-	-	-
V-17 Mich. Saginaw Bay	S	-	-	-	11.6	-	-	-	-
D-33 Hudson Bay	S	5	285	12.2	-	262-292	-	-	-
S-93 N.Y. Irondequoit L.	S	13	300	-	14.1	-	10	14.5	-
V-17 Lake Erie	S	-	-	-	14.8	-	-	-	-
H-62 Ind.	S	33	315	-	-	-	33	18.2	-
H-64 Wisc. Clear L. males	S	21	315	-	-	275-335	16	20.4	-
B-79 Mich. Swain L.	S	5	-	-	15.4	-	-	21.3	-
H-64 Wisc. Clear L. females	S	18	330	-	-	315-345	21	24.9	-
Age Group V									
H-64 Wisc. Trout L.	S	88	157	-	-	142-187	32	1.7	-
H-64 Wisc. Silver L.	S	143	188	-	-	172-207	59	3.4	-
C-52 Lake Erie	S	-	215	9.0	-	-	-	5.5	-
H-64 Wisc. Tomahawk L.	S	1	217	-	-	-	1	5.5	-
C-59 Mich. Blind L.	S	10	232	-	-	210-265	-	-	-
N-37 Wisc. L. Geneva	S	1	241	-	-	-	-	-	-
C-1 Wisc. Pine L.	S	108	246	-	-	-	108	4.2	-
V-17 Lake Ontario	S	-	-	-	11.8	-	-	-	-
P-21 Lake Ontario	S	-	250	10.8	-	-	-	7.6	-
K-32 N.W.T. Great Bear L.	S	31	-	11.2	-	10.0-12.0	31	9.0	-
V-5 Lake Huron	S	690	250	-	-	214-319	170	6.2	4.0-16.5
F-20 Ont. L. Nipissing	S	540	251	-	-	-	-	-	-
M-98 Ont. L. Nipissing	S	319	254	-	-	-	-	-	-
C-35 Minn. L. Vermilion	S	52	265	-	-	230-298	51	13.5	8.5-27.0
V-17 Mich. Saginaw Bay	S	-	-	-	12.1	-	-	-	-
C-1 Wisc. Oconomowac L.	S	340	282	-	-	-	340	12.9	-
D-33 Hudson Bay	S	10	290	12.5	-	270-308	-	-	-
S-93 N.Y. Irondequoit L.	S	43	313	-	14.7	-	37	20.3	-
S-93 N.Y.	S	2	317	-	-	-	2	20.5	-
H-64 Wisc. Clear L. males	S	11	322	-	-	285-355	9	22.8	-
H-64 Wisc. Clear L. females	S	9	341	-	-	325-355	8	27.2	-
H-62 Ind.	S	20	342	-	-	-	20	22.8	-
B-79 Mich. Swain L.	S	22	-	-	15.7	-	22	23.7	-
V-17 Lake Erie	S	-	-	-	17.6	-	-	-	-
H-64 Wisc. Trout L.	S	12	165	-	-	147-177	2	1.8	-
H-64 Wisc. Silver L.	S	24	194	-	-	187-202	11	3.7	-
C-52 Lake Erie	S	-	235	10.3	-	-	-	7.5	-
C-59 Mich. Blind L.	S	10	243	-	-	220-290	-	-	-
V-5 Lake Huron	S	157	259	-	-	208-337	29	7.8	4.7-13.0
F-20 Ont. L. Nipissing	S	318	262	-	-	-	-	-	-
K-32 N.W.T. Great Bear L.	S	18	-	10.0	-	8.0-11.0	18	8.0	-
P-21 Lake Ontario	S	-	270	11.5	-	-	-	10.7	-
V-17 Lake Erie	S	-	-	-	12.6	-	-	-	-
V-17 Mich. Saginaw Bay	S	-	-	-	12.9	-	-	-	-
K-32 N.W.T. Great Bear L.	S	57	-	12.4	-	11.0-14.0	57	13.0	-
C-35 Minn. L. Vermilion	S	67	280	-	-	194-308	62	16.3	11.0-20.0
C-1 Wisc. Pine L.	S	172	283	-	-	-	172	6.7	-
D-33 Hudson Bay	S	9	308	13.2	-	285-326	-	-	-
C-1 Wisc. Oconomowac L.	S	279	315	-	-	-	279	15.7	-
S-93 N.Y.	S	9	324	-	-	-	9	25.9	-
H-64 Wisc. Clear L. males	S	13	325	-	-	315-345	9	23.7	-
S-93 N.Y. Irondequoit L.	S	68	328	-	15.4	-	58	24.7	-
B-79 Mich. Swain R.	S	24	-	-	15.7	-	24	24.8	-
H-62 Ind.	S	4	336	-	-	-	4	27.6	-
H-64 Wisc. Clear L. females	S	13	338	-	-	315-355	9	29.7	-
V-17 Lake Erie	S	-	-	-	19.8	-	-	-	-
Age Group VII									
H-64 Wisc. Trout L.	S	4	175	-	-	162-197	2	3.9	-
H-64 Wisc. Silver L.	S	1	201	-	-	-	-	-	-



## SHALLOW WATER CISCO, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
C-52 Lake Erie		-	255	10.7	-	-	-	9.5	-
M-98 Ont. L. Nipissing	S	22	261	-	-	-	-	-	-
C-59 Mich. Blind L.	S	1	270	-	-	-	-	-	-
F-20 Ont. L. Nipissing	S	154	271	-	-	-	-	-	-
V-5 Lake Huron	S	24	277	-	-	239-331	-	-	-
K-32 N.W.T. Great Bear L.	S	106	-	12.6	-	11.0-15.0	106	14.0	-
C-35 Minn. L. Vermilion	S	81	289	-	-	225-310	74	16.8	12.0-24.0
P-21 Lake Ontario	S	-	297	12.9	-	-	-	17.2	-
V-17 Lake Ontario	S	-	-	-	13.8	-	-	-	-
V-17 Mich. Saginaw Bay	S	-	-	-	14.4	-	-	-	-
C-1 Wisc. Pine L.	S	95	314	-	-	-	95	9.2	-
D-33 Hudson Bay	S	17	324	13.9	-	310-344	-	-	-
S-93 N.Y.	S	4	329	-	-	-	4	27.6	-
H-64 Wisc. Clear L. males	S	17	334	-	-	315-345	15	25.7	-
C-1 Wisc. Oconomowac L.	S	138	336	-	-	-	138	18.6	-
B-79 Mich. Swain L.	S	29	-	-	15.9	-	29	23.4	-
S-93 N.Y. Irondequoit L.	S	76	339	-	16.0	-	66	28.1	-
H-64 Wisc. Clear L. females	S	33	351	-	-	315-385	29	32.3	-
H-62 Ind.	S	3	374	-	-	-	3	28.6	-
V-17 Lake Erie	S	-	-	-	17.9	-	-	-	-
Age Group VIII									
H-64 Wisc. Trout L.	S	5	192	-	-	182-202	-	-	-
C-52 Lake Erie	S	-	275	11.8	-	-	-	12.5	-
F-20 Ont. L. Nipissing	S	73	279	-	-	-	-	-	-
C-35 Minn. L. Vermilion	S	54	294	-	-	268-321	46	17.8	11.0-23.0
V-17 Lake Ontario	S	-	-	-	14.1	-	-	-	-
K-32 N.W.T. Great Bear L.	S	36	-	13.1	-	11.0-15.0	36	16.0	-
P-21 Lake Ontario	S	-	303	13.6	-	-	-	16.0	-
V-5 Lake Huron	S	5	310	-	-	263-365	-	-	-
C-1 Wisc. Pine L.	S	36	330	-	-	-	-	12.1	-
D-33 Hudson Bay	S	6	336	14.4	-	324-352	-	-	-
H-64 Wisc. Clear L. males	S	10	343	-	-	325-365	10	28.1	-
B-79 Mich. Swain L.	S	1	-	-	16.2	-	1	28.3	-
H-64 Wisc. Clear L. females	S	21	355	-	-	335-375	19	33.5	-
S-93 N.Y.	S	3	356	-	-	-	3	34.1	-
S-93 N.Y. Irondequoit L.	S	11	361	-	16.8	-	10	32.3	-
C-1 Wisc. L. Oconomowac	S	76	362	-	-	-	-	21.6	-
Age Group IX									
H-64 Wisc. Trout L.	S	2	200	-	-	197-202	-	-	-
C-52 Lake Erie	S	-	285	-	-	-	-	-	-
K-32 N.W.T. Great Bear L.	S	20	-	13.8	-	12.0-15.0	20	18.0	-
C-35 Minn. L. Vermilion	S	20	302	-	-	282-314	20	18.5	15.0-27.0
F-20 Ont. L. Nipissing	S	19	328	-	-	-	-	-	-
B-79 Mich. Swain L.	S	3	-	-	16.2	-	3	25.3	-
V-17 Lake Ontario	S	-	-	-	16.7	-	-	-	-
C-1 Wisc. Pine L.	S	17	338	-	-	-	17	14.3	-
H-64 Wisc. Clear L. male	S	1	355	-	-	-	1	31.0	-
P-21 Lake Ontario	S	-	358	16.3	-	-	-	26.5	-
H-64 Wisc. Clear L. female	S	3	362	-	-	355-375	3	38.3	-
S-93 N.Y. Irondequoit L.	S	1	365	-	17.4	-	1	36.9	-
C-1 Wisc. L. Oconomowac	S	14	374	-	-	-	14	22.0	-
V-17 Lake Erie	S	-	-	18.1	-	-	-	-	-
Age Group X									
C-35 Minn. L. Vermilion	S	6	299	-	-	280-318	6	19.0	16.0-23.0
F-20 Ont. L. Nipissing	S	7	314	-	-	-	-	-	-
K-23 N.W.T. Great Bear L.	S	13	-	14.0	-	13.0-17.0	13	18.0	-
C-1 Wisc. Pine L.	S	3	345	-	-	-	3	15.4	-
P-21 Lake Ontario	S	1	345	14.5	-	-	1	23.5	-
B-79 Mich. Swain L.	S	1	-	-	16.9	-	1	28.0	-
H-64 Wisc. Clear L. females	S	3	377	-	-	365-385	2	37.5	-
C-1 Wisc. L. Oconomowac	S	11	386	-	-	-	11	24.6	-
S-93 N.Y. Irondequoit L.	S	2	394	-	18.5	-	2	44.3	-



## SHALLOW WATER CISCO, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group XI									
H-64 Wisc. Trout L.	S	2	205	-	-	192-217	2	4.2	-
C-35 Minn. L. Vermilion	S	2	306	-	-	293-318	1	19.0	-
E-20 Ont. L. Nipissing	S	2	313	-	-	281-344	-	-	-
K-32 N.W.T. Great Bear L.	S	6	-	14.3	-	130-15.0	-	-	-
H-64 Wisc. Clear L. females	S	1	378	-	-	-	1	42.0	-
Age Group XII									
H-64 Wisc. Trout L.	S	1	226	-	-	-	1	6.1	-
K-32 N.W.T. Great Bear L.	S	2	-	13.5	-	13.0-14.0	-	-	-
Age Group XIII									
K-32 N.W.T. Great Bear L.	S	1	-	14.0	-	-	-	-	-

Location	Code	No. of fish	Mean Calculated Standard Length in mm. at each annulus											
			1	2	3	4	5	6	7	8	9	10	11	12
H-64 Wisc. Trout L.	L	1182	81	117	137	148	158	168	179	189	197	213	219	225
H-64 Wisc. Silver L.	L	564	80	129	155	169	181	189	196					
H-64 Wisc. Allequash L.	L	113	72	115	156	175								
H-64 Wisc. Muskellunge L.	L	1097	96	143	161	174								
C-35 Minn. L. Vermilion L.	F	534	77	119	168	209	236	258	274	284	292	292	302	
H-64 Wisc. Tomahawk L.	L	68	77	143	180	198	210							
C-59 Mich. Blind L.	L	152	106	156	185	203	216	230	244	270				
V-5 L. Huron	E	2315	127	185	218	235	244	256	274	292				
E-3 Minn.	L	120	94	165	223	245								
S-93 N.Y. Irondequoit Bay	L	500	131	200	236	264	287	306	323	340	359	373		
H-64 Wisc. Clear L. males	L	216	110	196	255	287	308	323	335	345	354			
H-64 Wisc. Clear L. females	L	224	109	199	260	291	312	326	340	351	361	369	376	
Mean Calculated fork length in inches at each annulus														
F-20 Ont. L. Nipissing	L	396	3.9	6.1	8.0	9.1	9.7							

	Code	Size of female	No. of females	Number of eggs per female Mean	Range
C-1 Wisc.	D	1-pound	1	15,238	-
L-13 Ohio	D	13.5" T.L.	1	30,328	-
B-79 Mich. Swain L.	D	15.0-16.3" T.L.	9	30,328	23,272-37,272
M-65 *	U	-	1	16,040	-
B-23 N.Y.	D	2.5 pound	1	23,700	-
J-13 -	U	-	-	23,700	-
S-93 N.Y.	V	II-VIII year olds	104		13,723-48,999

TULLIBEE, *Lecichthys artedi tullibee*

C-28 Minn. L. of Woods	F.L. = 1.076 S.L.	T.L. = 1.175 S.L.
C-35 Minn. L. Vermilion	F.L. = -2.6 mm. + 1.094 S.L.	T.L. = 1.3 mm. + 1.205 S.L.
C-37 Minn. 2537 fish (100-349 mm. S.L.)	F.L. = 1.071 S.L.	1073 fish T.L. = 1.186 S.L.

Standard length in millimeters	Weight in grams Mean	Range	Mean Weight in ounces	No. of fish	Location
80-99	28	-	1.0	1	C-20 Minn.
140-159	72	-	2.6	1	C-25 Minn. L. of Woods
160-179	88	63-98	3.1	9	C-25 Minn. L. of Woods
	105	-	3.7	109	C-20 Minn.
180-199	124	103-167	4.4	21	C-25 Minn. L. of Woods
	119	-	4.2	23	C-20 Minn.
200-219	192	150-234	6.8	53	C-25 Minn. L. of Woods
	238	-	8.4	68	C-20 Minn.
220-239	247	189-290	8.7	63	C-25 Minn. L. of Woods



TULLIBEE, (Continued)

Standard length in millimeters	Weight in grams		Mean Weight in ounces	No. of fish	Location
	Mean	Range			
240-259	313	240-400	11.0	70	C-25 Minn. L. of Woods
	340	-	12.0	182	C-20 Minn.
260-279	385	302-500	13.6	60	C-25 Minn. L. of Woods
	445	-	15.7	415	C-20 Minn.
280-299	467	378-536	16.5	12	C-25 Minn. L. of Woods
	573	-	20.2	684	C-20 Minn.
300-319	557	472-630	19.6	3	C-25 Minn. L. of Woods
	680	-	24.0	484	C-20 Minn.
320-339	656	-	23.1	1	C-25 Minn. L. of Woods
340-359	800	-	28.2	254	C-20 Minn.
360-379	890	-	31.4	64	C-20 Minn.
380-399	913	-	32.2	6	C-20 Minn.

C-25 Minn. L. of Woods. 293 fish.  $\text{Log } W = -5.2173 + 3.2134 \text{ Log } L$ .

C-17 Minn. L. of Woods. 1261 fish.  $\text{Log } W = -5.0564 + 3.168 \text{ Log } L$ .

Fork length--weight relationship C-17 Minn.

Fork length in inches	No.	Mean	Range	Fork length in inches	No.	Weight in ounces	
						Mean	Range
3.0-3.9	1	1.0	-	11.0-11.9	335	16.2	10.0-23.0
6.0-6.9	3	1.7	1.0-3.0	12.0-12.9	608	20.8	14.0-28.0
7.0-7.9	65	3.7	2.0-5.0	13.0-13.9	412	24.9	17.0-34.0
8.0-8.9	36	5.3	3.0-8.0	14.0-14.9	70	29.9	24.0-37.0
9.0-9.9	97	7.6	4.0-13.0	15.0-15.9	9	33.9	28.0-39.0
10.0-10.9	131	12.7	8.0-20.0				

Total length--Weight relationship S-26 Minn.

Total length in inches	No.	Weight in ounces		Total length in inches	No.	Mean Weight in ounces
		Mean	Range			
4	-	1.6		13	-	19.2
8	-	3.2		14	-	22.4
9	-	4.8		15	-	25.6
10	-	9.6		16	-	28.8
11	-	12.8		17	-	30.4
12	-	14.4		18	-	32.0

Size of fish	No. of fish	Condition index K	
		Mean	Range
C-28 Minn. L. of Woods 1942-43 158-320 mm.	293	1.99	1.30-2.60
C-17 Minn. L. of Woods 1939-41	1261	2.29	
E-3 Minn. 76-405 mm.	1841	2.28	
C-23 Minn. 1941-43 100-399 mm.	929	1.77	
C-23 Minnesota standards, Excellent		over 2.1	over 43
good		1.9-2.0	41-43
Average		1.5-1.9	32-41
Fair		1.2-1.5	26-32
Poor		under 1.2	under 26

Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces				
						No.	Mean	Range		
Age Group 0										
C-17	Minn. L. of Woods	S	208	67	-	-	52-80	1	1.0	-
Age Group I										
E-3	Minn.	S	2	152	-	-	-	-	-	-
C-17,25	Minn. L. of Woods	S	106	175	-	-	127-203	87	3.7	1.0-5.3
Age Group II										
C-17,25	Minn. L. of Woods	S	225	220	-	-	165-267	193	8.1	2.0-16.0
E-3	Minn.	S	13	241	-	-	229-279	-	-	-



## TULLIBEE, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group III									
M-57	S	22	-	10.4	-	-	-	-	-
C-17,25	S	394	257	-	-	184-305	334	14.4	5.0-25.0
E-3	S	96	259	-	-	203-356	-	-	-
R-67	I	-	-	-	-	-	-	20.0	-
Age Group IV									
M-57	S	37	-	10.7	-	-	-	-	-
E-3	S	363	287	-	-	229-356	-	-	-
C-17,25	S	447	287	-	-	238-330	419	19.8	9.0-31.0
Age Group V									
M-57	S	71	-	11.2	-	-	-	-	-
C-17,25	S	289	301	-	-	248-356	258	22.7	10.0-34.0
E-3	S	327	323	-	-	254-381	-	-	-
Age Group VI									
M-57	S	88	-	11.5	-	-	-	-	-
C-25	S	74	317	-	-	273-362	72	26.2	15.0-37.0
E-3	S	138	345	-	-	279-406	-	-	-
Age Group VII									
M-57	S	74	-	11.9	-	-	-	-	-
C-25	S	14	334	-	-	292-381	12	29.6	19.0-39.0
E-3	S	22	358	-	-	305-381	-	-	-
Age Group VIII									
C-25	S	14	342	-	-	337-343	2	28.5	28.0-29.0
E-3	S	6	373	-	-	330-406	-	-	-
Age Group IX									
E-3	S	2	436	-	-	-	-	-	-
Age Group X									
E-3	S	2	394	-	-	381-406	-	-	-
C-25	S	2	415	-	-	373-457	1	79.0	-

	Code	No.	Mean calculated Standard length in mm. at each annulus										
			1	2	3	4	5	6	7	8	9	10	11
C-28	E	1561	106	161	207	246	275	295	319	336	380	402	
E-3	L	1850	80	149	213	259	292	309	335	356	392		
Mean calculated fork length in inches at each annulus													
E-2	L	1220	3.4	6.4	9.3	11.3	13.1	14.3	15.8	16.0	17.1	17.4	
B-12	L	50	4.3	7.3	9.1	10.8	12.2	13.4	14.2	15.0			
Mean calculated total length in inches at each annulus													
S-62	L	-	3.7	6.9	9.9	12.0	13.6	14.4	15.6	16.6	18.2		
K-33	L	2930	3.9	6.8	9.3	11.3	13.0	14.3	15.4	16.3	17.6	18.1	
B-12			15,000-20,000 eggs per female										

LONGJAW CISCO, *Leucichthys alpenae*

J-7	L. Michigan	1028 fish (140-229 mm. S.L.)	T.L.	1.1976 S.L.
		5105 fish (230-329 mm. S.L.)	T.L.	1.1891 S.L.
		38 fish (330-469 mm. S.L.)	T.L.	1.1792 S.L.

## Total length-Weight relationship, L. Michigan J-7

Total Length in inches	No.	Weight in oz.	Total Length in inches	No.	Weight in oz.	Total Length in inches	No.	Weight in oz.
6.0-6.9	1	1.25	10.0-10.9	908	5.52	14.0-14.9	183	13.67
7.0-7.9	6	1.84	11.0-11.9	1374	6.85	15.0-15.9	58	17.08
8.0-8.9	17	2.97	12.0-12.9	1656	8.24	16.0-16.9	11	22.04
9.0-9.9	183		13.0-13.9	913	10.24	17.0-17.9	4	26.94

J-7 L. Michigan Log W = -5.0163 + 3.0606 Log S.L.

J-7 Lake Michigan 5314 fish, average K 1.31



## LONGJAW CISCO, (Continued)

J-7 Lake Michigan	Age Group	No.	Standard length in millimeters	
			Mean	Range
	II	20	233	205-265
	III	99	246	215-285
	IV	190	257	205-315
	V	35	274	245-305
	VI	20	300	275-385
	VII	9	317	285-375
	VIII	4	357	335-385
	IX	1	372	-

	No.	Calculated standard lengths at each annulus								
		1	2	3	4	5	6	7	8	9
J-7 N.E. Lake Michigan	320	113	169	209	238	262	289	312	344	360
J-7 South L. Michigan	58	123	179	215	235	245				

	No.	Calculated total length in inches at each annulus								
		1	2	3	4	5	6	7	8	9
J-7 North L. Michigan	320	5.3	8.0	9.9	11.1	12.3	14.6	16.0	16.7	
J-7 South L. Michigan	58	5.8	8.4	10.1	11.0	11.5				

SHORTJAW CISCO, *Leucichthys zenithicus*

V-8 Lake Superior. Total length equals 1.214 standard lengths.

V-8 Lake Superior. 320 fish, (185-305 mm. S.L.) average K 1.04

V-8 Lake Superior	Age Group	No.	Standard length in mm.		Total length in inches	Weight in ounces
			Mean	Range		
	IV	5	193	182-202	9.2	2.7
	V	35	229	202-252	10.9	4.4
	VI	196	245	192-373	11.7	5.3
	VII	243	257	237-287	12.3	6.0
	VIII	95	268	247-297	12.8	7.0
	IX	13	289	272-302	13.8	8.8
	X	2	284	272-297	13.6	8.8

V-8 Lake Superior	No.	Average standard lengths at each annulus									
		1	2	3	4	5	6	7	8	9	10
	589	80	107	136	165	191	215	232	247	265	268
		Average Calculated Fork Length in inches at each annulus									
B-12 Man. L. Winnipeg	-	3.7	5.9	7.7	9.0	10.4	11.6	12.4	12.8	12.9	13.0

B-12 Man. L. Winnipeg 15,000-20,000 eggs per female.

SHORTNOSE CISCO, *Leucichthys reighardi*

J-5 L. Michigan	384 fish,	160-209 mm. S.L.	Total length equals 1.196 S.L.
	6423 fish,	210-249 mm. S.L.	Total length equals 1.182 S.L.
	764 fish,	250-319 mm. S.L.	Total length equals 1.178 S.L.
J-5 L. Michigan	313 fish,	202-262 mm. S.L.	Average K 1.37

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group I									
P-21 Lake Ontario	S	-	175	5.6	-	-	-	1.7	
Age Group II									
J-5 Lake Michigan	S	14	224	-	10.4	212-237	14	5.7	-
Age Group III									
P-21 Lake Ontario	S	-	227	9.7	-	-	-	6.8	-
J-5 Lake Michigan	S	61	231	-	10.7	202-257	61	6.1	-
Age Group IV									
P-21 Lake Ontario	S	-	233	9.9	-	-	-	7.8	-
J-5 Lake Michigan	S	166	234	-	10.9	202-262	166	6.1	-



## SHORTNOSE CISCO, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group V									
J-5 Lake Michigan	S	71	241	-	11.2	217-262	71	6.6	-
P-21 Lake Ontario	S	-	250	10.6	-	-	-	9.1	-
Age Group VI									
P-21 Lake Ontario	S	-	241	10.0	-	-	-	7.1	-
J-5 Lake Michigan	S	18	245	-	11.4	222-262	18	7.1	-
Age Group VII									
J-5 Lake Michigan	S	1	234	-	10.9	-	1	5.5	-
P-21 Lake Ontario	S	-	270	11.4	-	-	-	12.6	-
Age Group VIII									
P-21 Lake Ontario	S	-	272	11.1	-	-	-	14.8	-
No. Average calculated standard length in mm. at each annulus									
			1	2	3	4	5	6	7
J-5 L. Michigan		331	130	170	200	218	228	237	228

BLACKFIN CISCO, *Leucichthys nigripinnis*

	Age Group	Standard length in millimeters	Fork length in inches	Weight in ounces
C-52 L. Erie	I	80	3.0	-
	II	130	5.2	-
	III	170	7.0	3.0
	IV	200	8.5	4.5
	V	220	9.8	6.5
	VI	240	10.7	8.5
	VII	260	11.4	11.0

KIYI, *Leucichthys kiyi*

D-8 L. Michigan. up to 220 mm. S.L. T.L. = 1.217 S.L.; over 220 mm. T.L. = 1.209 S.L.

## Total length-Weight Relationship, L. Michigan, D-8

Total length in inches	No.	Weight in ounces	Total length in inches	No.	Weight in ounces
7.0-7.9	3	1.8	10.0-10.9	2626	5.4
8.0-8.9	21	2.6	11.0-11.9	1060	6.4
9.0-9.9	900	4.3	12.0-12.9	83	7.9
			13.0-13.9	3	11.0

D-8 L. Michigan. 4696 fish, average K 1.43

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group II									
P-21 Lake Ontario	S	-	178	7.5	-	-	-	2.9	-
D-8 Lake Michigan	S	32	212	-	10.1	9.3-10.7	32	4.9	-
Age Group III									
P-21 Lake Ontario	S	-	203	8.5	-	-	-	4.4	-
D-8 Lake Michigan	S	184	211	-	10.0	7.4-12.1	184	5.0	-
Age Group IV									
D-8 Lake Michigan	S	596	218	-	10.4	8.3-12.1	596	5.5	-
P-21 Lake Ontario	S	-	222	9.7	-	-	-	5.9	-
Age Group V									
D-8 Lake Michigan	S	397	224	-	10.7	8.8-12.1	397	5.8	-
P-21 Lake Ontario	S	-	241	10.6	-	-	-	7.3	-
Age Group VI									
D-8 Lake Michigan	S	136	230	-	10.9	9.3-12.1	136	6.3	-
P-21 Lake Ontario	S	-	274	11.7	-	-	-	10.7	-



## KIYI, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group VII									
D-8 Lake Michigan	S	32	233	-	11.2	9.3-12.1	32	6.5	-
Age Group VIII									
D-8 Lake Michigan	S	5	241	-	11.4	10.7-12.6	5	7.5	-
Age Group IX									
D-8 Lake Michigan	S	1	228	-	10.6	-	1	5.7	-

	No.	Average calculated standard length in mm. at each annulus									
		1	2	3	4	5	6	7	8	9	10
D-8 L. Michigan	1649	103	147	178	198	211	220	225	227	214	222
		Average calculated total length in inches at each annulus									
D-8 L. Michigan	1649	4.9	6.8	8.6	9.5	10.2	10.5	10.7	10.8	10.2	10.6

BLOATER, *Leucichthys hoyi*

J-6 L. Michigan	1911 fish, 90-159 mm. S.L.	Total length equals 1.217 S.L.
	7362 fish, 160-249 mm. S.L.	Total length equals 1.203 S.L.
	714 fish, 250-309 mm. S.L.	Total length equals 1.192 S.L.
S-94 L. Ontario	79 fish	Total length equals 1.241 S.L.

## Total length-Weight Relationship, L. Michigan, J-6

Total length in inches	No.	Weight in ounces	Total length in inches	No.	Weight in ounces
4.0-4.9	1	0.3	10.0-10.9	1526	5.0
5.0-5.9	4	0.6	11.0-11.9	1850	6.3
6.0-6.9	247	1.1	12.0-12.9	372	8.0
7.0-7.9	1876	1.6	13.0-13.9	45	9.6
8.0-8.9	958	2.4	14.0-14.9	2	12.4
9.0-9.9	1061	3.6			

J-6 L. Michigan  $\log W = -5.2941 + 3.168 \log S.L.$ 

J-7 L. Michigan 8109 fish, average K 1.25

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group I									
P-21 Lake Ontario	S	-	144	6.1	-	-	-	1.1	-
Age Group II									
J-6 Lake Michigan	S	35	145	-	6.9	125-195	-	-	-
P-21 Lake Ontario	S	-	161	6.9	-	-	-	1.8	-
Age Group III									
J-6 Lake Michigan-Mar.	S	28	140	-	6.7	185-155	-	-	-
J-6 Lake Michigan-Nov.	S	6	159	-	7.6	145-195	-	-	-
S-94 L. Ontario-females	S	2	-	-	8.3	7.9-8.6	1	2.1	-
P-21 Lake Ontario	S	-	188	8.2	-	-	-	3.1	-
Age Group IV									
J-6 L. Mich.-Mar.	S	113	151	-	7.2	12.5-18.5	-	-	-
J-6 L. Mich.-Nov.	S	32	178	-	8.4	135-235	-	-	-
S-94 L. Ont.-females	S	30	-	-	8.7	7.6-10.5	26	2.5	-
P-21 Lake Ontario	-	-	214	9.1	-	-	-	4.1	-
Age Group V									
J-6 L. Mich.-Mar.	S	77	164	-	7.8	135-215	-	-	-
S-94 L. Ont.-females	S	60	-	-	9.3	8.1-11.1	55	3.6	-
J-6 L. Mich.-Nov.	S	29	206	-	9.8	175-235	-	-	-
P-21 L. Ontario	-	-	222	9.7	-	-	-	4.9	-
Age Group VI									
J-6 L. Mich.-Mar.	S	37	178	-	8.4	155-225	-	-	-
S-94 L. Ont.-females	S	74	-	-	9.8	8.5-11.7	67	4.1	-
J-6 L. Mich.-Nov.	S	27	212	-	10.0	185-245	-	-	-
P-21 L. Ontario	S	-	255	11.1	-	-	-	7.7	-



## BLOATER, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces							
							No.	Mean	Range					
Age Group VII														
J-6 L. Mich.-Mar.	S	13	204	-	9.7	175-235	-	-	-					
S-94 L. Ontario	S	122	-	-	10.2	8.7-12.3	92	4.9	-					
J-6 L. Mich.-Nov.	S	14	227	-	10.8	215-255	-	-	-					
Age Group VIII														
J-6 L. Mich.-Mar.	S	6	209	-	9.9	195-225	-	-	-					
S-94 L. Ontario	S	89	-	-	10.6	9.1-12.1	65	5.7	-					
Age Group IX														
J-6 Lake Michigan	S	1	231	-	10.9	-	-	-	-					
S-94 Lake Ontario	S	50	-	-	11.1	9.7-12.7	42	6.5	-					
Age Group X														
S-94 Lake Ontario	S	11	-	-	11.4	9.9-12.5	7	7.6	-					
Age Group XI														
S-94 Lake Ontario	S	2	-	-	12.4	11.6-13.3	2	11.0	8.2-13.7					
No. Average Calculated standard length in mm. at each annulus														
				1	2	3	4	5	6	7	8	9	10	11
J-6 L. Michigan	442			72	119	141	158	174	189	206	211	231		
Average Calculated total length in inches at each annulus														
S-94 L. Ontario, females	360			3.7	5.6	6.6	7.5	8.3	9.0	9.7	10.3	10.9	11.4	12.4
Average calculated weight in ounces														
J-6 L. Michigan	442			0.1	0.7	1.2	1.7	2.3	2.9	3.9	4.2	5.5		

LAKE WHITEFISH, *Coregonus clupeaformis*

C-22 Minn. L. of Woods.	22 fish, 250-349 mm. S.L.	F.L. = 1.062 S.L.
	10 fish, 350-530 mm. S.L.	F.L. = 1.071 S.L.
C-33 Minn.	69 fish, 250-350 mm. S.L.	F.L. = 1.067 S.L.
C-35 Minn. L. Vermilion	-	F.L. = 1.073 S.L.
V-30 L. Erie	42 fish, under 350 mm. S.L.	T.L. 1.186 S.L.
	1052 fish, 350-449 mm. S.L.	T.L. 1.175 S.L.
	36 fish, 450-499 mm. S.L.	T.L. 1.166 S.L.
	17 fish, over 500 mm. S.L.	T.L. 1.155 S.L.
C-22 Minn. L. of Woods	5 fish, 250-299 mm. S.L.	T.L. 1.156 S.L.
	10 fish, 300-530 mm. S.L.	T.L. 1.175 S.L.
C-37 Minn.	69 fish, 250-350 mm. S.L.	T.L. 1.180 S.L.
C-35 Minn. L. Vermilion	-	T.L. 1.186 S.L.
V-10 L. Huron	37 fish, under 250 mm. S.L.	T.L. 1.182 S.L.
	1495 fish, 250-549 mm. S.L.	T.L. 1.175 S.L.
	50 fish, over 550 mm. S.L.	T.L. 1.163 S.L.
V-19 N.Y. L. Champlain	257 fish, 300-499 mm. S.L.	T.L. 1.19 S.L.
	36 fish, 500-559 mm. S.L.	T.L. 1.18 S.L.

## Standard Length-Weight Relationship, Minnesota C-20

Standard length in millimeters	No.	Mean Weight		Standard length in millimeters	No.	Mean Weight	
		Grams	Pounds			Grams	Pounds
190	1	113	0.25	370	2	794	1.75
240	1	198	0.44	390	1	1191	2.63
260	6	335	0.74	420	3	1296	2.85
290	4	496	1.09	470	1	1927	4.25
320	4	505	1.11	490	1	2381	5.25
340	1	709	1.56	520	2	2920	6.44

V-30 L. Erie  $\log W = -8.1772 + 3.1523 \log S.L.$ 

H-25 Ont. Shakespeare Is. L. Weight increases as the 3.3 power of the F.L.

## Total length-weight relationship

T.L. in inches	No.	Weight in pounds	Location	T.L. in inches	No.	Weight in pounds	Location
6.0-6.9	1	0.12	V-30 L. Erie	8.0-8.9	9	0.20	V-30 L. Erie
7.0-7.9	5	0.12	V-30 L. Erie	9.0-9.9	1	0.41	V-30 L. Erie



## LAKE WHITEFISH, (Continued)

T.L. in inches	No.	Weight in pounds	Location	T.L. in inches	No.	Weight in pounds	Location
10.0-10.9	22	0.43	V-30 L. Erie	20.0-20.9	81	2.69	V-10 L. Huron
11.0-11.9	1	0.44	W-41 L. Erie		2	2.75	W-41 L. Erie
	155	0.53	V-30 L. Erie		238	3.19	V-30 L. Erie
12.0-12.9	96	0.66	V-30 L. Erie	21.0-21.9	1	2.50	W-41 L. Erie
13.0-13.9	86	0.82	V-39 L. Erie		57	3.23	V-10 L. Huron
14.0-14.9	2	0.81	W-41 L. Erie		61	3.73	V-30 L. Erie
	120	1.06	V-30 L. Erie	22.0-22.9	12	4.08	V-10 L. Huron
15.0-15.9	1	1.25	W-41 L. Erie		24	4.33	V-30 L. Erie
	178	1.28	V-30 L. Erie	23.0-23.9	6	4.28	V-10 L. Huron
16.0-16.9	4	1.54	V-10 L. Huron		33	5.06	V-30 L. Erie
	721	1.66	V-30 L. Erie	24.0-24.9	6	4.89	V-10 L. Huron
17.0-17.9	17	1.82	V-10 L. Huron		20	5.87	V-30 L. Erie
	971	2.00	V-30 L. Erie	25.0-25.9	1	5.38	V-10 L. Huron
18.0-18.9	95	2.13	V-10 L. Huron		9	6.85	V-30 L. Erie
	752	2.33	V-30 L. Erie	26.0-26.9	4	7.18	V-30 L. Erie
19.0-19.9	160	2.37	V-10 L. Huron	27.0-27.9	2	9.07	V-30 L. Erie
	345	2.74	V-30 L. Erie	28.0-28.9	1	10.75	V-30 L. Erie

	Size range	No.	Condition index K		Mean C. (T.L.)
			Mean	Range	
V-30 L. Erie			1.7	1.25-2.07	
C-22 Minn. L. of Woods	300-514 mm. S.L.	6	2.05	-	
C-23 Minn.	150-550	25	1.80	-	
C-23 Minnesota standards,	Excellent			over 2.2	over 48
	Average			1.6-2.0	35-44
	Poor			under 1.4	under 31
V-10 L. Huron	250-550 mm.	515	1.44	-	
C-34 Minn. Leech L.	-	3	1.77	-	
V-19 N.Y. L. Champlain, north	-	120	1.65	-	
V-19 N.Y. south L. Champlain	-	175	1.77	-	
V-20 Minn. Red Lake	268-409	2	2.11	-	
H-69 Wisc. Trout L.	-	48	1.30	-	
C-35 Minn. L. Vermilion	-	24	1.84	-	

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group O-May									
F-5 Lake Erie	P	-	-	-	0.5	-	-	-	-
R-21 Sask.	P	-	-	0.5	-	-	-	-	-
P-20 Lake Erie	P	-	-	-	X	0.6-0.7	-	-	-
Age Group O-June									
B-11 Man.	K	17	-	X	-	0.5-1.1	-	-	-
P-20 Lake Erie	P	-	-	-	0.9	-	-	-	-
F-5 Lake Erie	P	-	-	-	0.9	-	-	-	-
R-21 Sask.	P	-	-	0.9	-	-	-	-	-
H-25 Ont. Shakespeare	P	5	-	1.9	-	-	-	-	-
Age Group O-July									
F-5 Lake Erie	P	-	27	-	1.3	-	-	-	-
Age Group O-Oct.-Dec.									
B-23 N.Y.	K	-	-	-	X	5.0-7.0	-	-	-
M-65 U.S. hatcheries	K	-	-	-	X	5.0-7.0	-	-	-
M-15 B.C. Okanagan	P	4	-	5.1	-	-	-	-	-
N-41 Ontario	K	-	-	6.0	-	-	-	-	-
B-73 Ohio	K	864	-	-	X	7.5-8.0	-	-	-
B-73 U.S. hatcheries	K	-	-	-	X	7.0-9.0	-	-	-
Age Group O									
K-32 N.W.T. Great Bear L.	S	3	-	2.0	-	-	-	-	-



## LAKE WHITEFISH, (Continued)

		Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
								No.	Mean	Range
Age Group I										
F-5	Lake Erie	S	1	71	-	3.3	-	-	-	-
H-24	Ont. L. Nipigon	S	2	-	4.3	-	-	-	-	-
H-24	Ont. Shakespeare L.	S	9	-	5.3	-	-	9	1.5	-
H-25	Ont. Shakespeare L.	S	5	-	5.7	-	-	-	-	-
H-69	Wisc. Trout L.	S	3	130	-	-	-	3	0.9	-
K-5	Me. Penobscot	S	3	-	-	X	6.0-6.5	-	-	-
G-21	N.Y. Otsego L.	S	4	-	-	6.6	6.1-6.8	4	1.1	0.9-1.2
C-67	Lake Erie	S	9	-	6.9	-	6.1-8.0	5	3.6	2.0-5.0
M-15	B.C. Okanagan	S	7	-	7.9	-	-	-	-	-
V-30	Lake Erie - July	S	9	-	-	8.5	-	9	3.2	-
C-35	Minn. L. Vermilion	S	1	199	-	-	-	1	4.3	-
R-21	Sask.	I	10	-	X	-	8.3-9.1	10	X	5.0-7.0
V-30	Lake Erie - Fall	S	167	256X	-	12.0	205-305	167	8.8	-
Age Group II										
H-24	Ont. L. Nipigon	S	14	-	5.9	-	-	11	2.0	-
H-24	Ont. Shakespeare	S	11	-	6.8	-	-	11	2.5	-
H-69	Wisc. Trout L.	S	1	164	-	-	-	1	1.9	-
D-33	Hudson Bay	S	2	178	-	-	175-180	-	-	-
C-35	Minn. L. Vermilion	S	1	179	-	-	-	1	4.0	-
H-25	Ont. Shakespeare	S	7	-	7.8	-	-	-	-	-
H-24	Lake Ontario	S	12	-	8.0	-	-	12	3.0	-
M-15	B.C. Okanagan	S	28	-	10.3	-	-	-	-	-
E-3	Minn.	S	1	254	-	-	-	-	-	-
C-67	Lake Erie	S	1	-	11.4	-	-	1	12.0	-
V-30	Lake Erie - July	S	31	-	-	12.9	-	31	11.4	-
R-21	Sask.	I	9	-	X	-	12.2-12.8	9	X	19.0-26.0
M-65	Ontario	K	-	-	-	-	-	-	20.0	-
M-57	Alta. Lesser Slave	S	1	-	13.8	-	-	1	22.0	-
V-19	N.Y. L. Champlain	S	3	311	-	-	-	3	16.0	-
V-30	Lake Erie - Fall	S	182	311X	-	14.5	250-395	182	16.9	-
B-73	Ohio	K	70	-	-	X	16.0-18.0	-	-	-
Age Group III										
H-24	Ont. L. Nipigon	S	14	-	6.8	-	-	10	3.0	-
R-76	N.W.T. Great Slave	S	3	-	X	-	6.2-8.0	-	-	-
R-76	N.W.T. Great Slave	S	3	X	-	-	150-190	-	-	-
H-24	Ont. Shakespeare	S	1	-	7.9	-	-	1	6.0	-
H-69	Wisc. Trout L.	S	2	179	-	-	-	2	2.8	-
D-33	Hudson Bay	S	22	203X	8.8	-	189-218	-	-	-
K-32	N.W.T. Great Bear L.	S	1	-	10.0	-	-	-	-	-
H-24	Lake Ontario	S	10	-	10.2	-	-	10	8.0	-
G-21	N.Y. Otsego L.	S	2	-	-	11.3	11.2-11.4	-	-	-
M-15	B.C. Okanagan	S	2	-	11.1	-	-	-	-	-
C-35	Minn. L. Vermilion	S	4	276	-	-	255-301	4	13.6	10.0-16.0
C-67	Lake Erie	S	1	-	11.9	-	-	1	18.0	-
E-3	Minn.	S	40	282	-	-	254-305	-	-	-
V-10	N.Y. L. Champlain	S	5	333	-	-	-	5	20.8	-
V-10	N.Y. N.L. Champlain	S	5	349	-	-	-	5	25.7	-
V-30	Lake Erie - July	S	103	-	-	15.9	-	103	22.7	-
M-57	Alta. Lesser Slave	S	52	-	15.4	-	-	52	29.4	-
V-30	Lake Erie Fall	S	1385	379X	-	17.5	275-505	1385	32.1	-
V-10	Lake Huron	S	28	404X	-	18.7	365-435	26	33.4	-
R-67	Sask. Quill L.	I	-	-	-	-	-	-	40.0	-
L-17	Mich.	K	-	-	-	-	-	-	-	48.0-72.0
Age Group IV										
H-24	Ont. Nipissing L.	S	9	-	8.9	-	-	5	5.0	-
H-69	Wisc. Trout L.	S	11	204	-	-	-	11	4.0	-
R-76	N.W.T. Great Slave	S	1	210	8.8	-	-	-	-	-
H-24	Ont. Shakespeare	S	8	-	9.1	-	-	8	6.8	-
D-33	Hudson Bay	S	6	241X	10.5	-	227-255	-	-	-
K-32	N.W.T. Great Bear L.	S	7	-	11.0	-	10.0-13.0	7	9.0	-
C-35	Minn. L. Vermilion	S	5	277	-	-	261-310	5	14.2	11.0-18.0
M-59	Alb. Great Bear L.	S	-	-	12.0	-	-	-	16.0	-
M-15	B.C. Okanagan	S	1	-	12.6	-	-	-	-	-
E-3	Minn.	S	33	307	-	-	254-356	-	-	-



## LAKE WHITEFISH, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
G-21 N.Y. Otsego L.	S	8	-	-	14.0	11.4-16.0	1	14.6	-
H-24 Lake Ontario	S	15	-	13.1	-	-	15	17.0	-
C-67 Lake Erie	S	4	-	13.6	-	12.6-15.4	4	26.0	17.0-42.0
C-67 Lake Ontario	S	2	-	14.4	-	13.8-15.0	2	25.0	22.0-28.0
V-19 N.Y. N.L. Champlain	S	16	373	-	-	-	16	30.4	-
V-19 N.Y. So. L. Champlain	S	6	390	-	-	-	6	35.2	-
V-30 Lake Erie - July	S	37	-	-	17.5	-	37	31.7	-
M-57 Alta. Lesser Slave	S	203	-	16.9	-	-	203	42.4	-
R-18 Sask. Redberry L.	I	79	-	X	-	16.0-18.5	-	-	48.0-64.0
V-30 Lake Erie - Fall	S	498	404	-	18.7	345-485	498	40.2	-
V-10 Lake Huron	S	338	419	-	19.4	355-515	322	38.6	-
Age Group V									
H-69 Wisc. Trout L.	S	8	220	-	-	-	8	5.1	-
C-67 Hudson Bay	S	1	-	9.2	-	-	-	-	-
H-24 Ont. L. Nipigon	S	16	-	9.4	-	-	4	8.0	-
H-24 Ont. Shakespeare L.	S	31	-	9.5	-	-	31	7.8	-
R-76 N.W.T. Great Slave L.	S	2	248	10.8X	-	10.5-11.0	-	-	-
D-33 Hudson Bay	S	9	260X	11.3	-	243-281	-	-	-
K-32 N.W.T. Great Bear L.	S	5	-	11.5	-	10.0-13.0	5	15.0	-
G-21 N.Y. Otsego L.	S	17	-	-	13.9	12.0-16.7	5	11.9	8.9-20.2
M-15 B.C. Okanagan	S	1	-	13.5	-	-	-	-	-
C-35 Minn. L. Vermilion	S	3	325	-	-	309-349	3	21.2	18.0-27.5
C-67 Lake Ontario	S	1	-	14.6	-	-	1	26.0	-
C-67 Lake Erie	S	1	-	14.6	-	-	1	38.0	-
H-24 Lake Ontario	S	34	-	15.2	-	-	34	33.0	-
E-3 Minn.	S	20	363	-	-	229-381	-	-	-
V-30 Lake Erie - July	S	2	-	-	18.4	-	2	36.5	-
V-19 N.Y. N.L. Champlain	S	3	402	-	-	-	3	38.4	-
V-19 N.Y. L. Champlain	S	17	404	-	-	-	17	40.0	-
M-57 Alta. Lesser Slave L.	S	106	-	17.9	-	-	106	46.8	-
V-30 Lake Erie - Fall	S	203	433	-	20.0	315-535	203	48.0	-
R-18 Sask. Redberry L.	I	-	-	19.0	-	-	-	72.0	-
V-10 Lake Huron	S	119	450	-	20.8	375-555	95	47.5	-
Age Group VI									
H-69 Wisc. Trout L.	S	12	224	-	-	-	12	6.2	-
H-24 Ont. L. Nipigon	S	14	-	9.9	-	-	6	10.0	-
H-24 Ont. Shakespeare	S	12	-	10.2	-	-	12	10.0	-
D-33 Hudson Bay	S	4	273X	12.6	-	256-300	-	-	-
R-76 N.W.T. Great Slave L.	S	3	X	-	-	275-310	-	-	-
R-76 N.W.T. Great Slave L.	S	3	-	-	-	12.2-13.5	-	-	-
E-3 Minn.	S	4	338	-	-	305-381	-	-	-
C-35 Minn. L. Vermilion	S	3	341	-	-	310-377	3	25.2	16.0-33.6
G-21 N.Y. Otsego L.	S	24	-	-	15.3	12.2-17.4	8	18.4	13.6-24.8
K-32 N.W.T. Great Bear L.	S	10	-	14.7	-	13.0-16.0	10	26.0	-
C-67 Lake Erie	S	10	-	15.0	-	12.7-16.5	10	40.0	24.0-52.0
M-15 B.C. Okanagan	S	1	-	15.1	-	-	-	-	-
C-67 Lake Ontario	S	2	-	16.0	-	15.5-16.5	2	37.5	36.0-39.0
H-24 Lake Ontario	S	120	-	16.3	-	-	120	40.0	-
V-19 N.Y. N.L. Champlain	S	10	419	-	-	-	10	40.0	-
V-19 N.Y. So. L. Champlain	S	10	424	-	-	-	10	48.0	-
M-57 Alta. Lesser Slave	S	40	-	18.4	-	-	40	53.8	-
V-30 Lake Erie - July	S	2	-	-	20.9	-	2	54.6	-
V-30 Lake Erie - Fall	S	65	458	-	21.0	405-505	65	48.2	-
V-10 Lake Huron	S	343	489	-	22.6	415-585	63	54.4	-
Age Group VII									
V-4 N.Y.	K	4	256	-	-	227-287	-	-	-
H-69 Wisc. Trout L.	S	6	263	-	-	-	6	8.5	-
H-24 Ont. L. Nipigon	S	8	-	11.1	-	-	7	14.0	-
H-24 Ont. Shakespeare I.L.	S	5	-	11.3	-	-	5	14.0	-
D-33 Hudson Bay	S	9	318X	13.7	-	282-343	-	-	-
R-76 N.W.T. Great Slave L.	S	3	X	-	-	320-350	-	-	-
R-76 N.W.T. Great Slave L.	S	3	-	X	-	13.9-15.1	-	-	-
C-64 Me. Moosehead L.	S	1	338	-	15.4	-	1	21.1	-
C-67 Lake Erie	S	8	-	15.7	-	15.0-16.0	8	43.0	37.0-51.0



## LAKE WHITEFISH, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
G-21 N.Y. Otsego L.	S	15	-	-	16.4	14.9-17.8	2	18.1	15.9-20.2
K-32 N.W.T. Great Bear L.	S	12	-	16.2	-	15.0-18.0	12	34.0	-
E-3 Minn.	S	4	381	-	-	356-432	-	-	-
C-35 Minn. L. Vermilion	S	2	395	-	-	380-410	1	40.0	-
C-67 Lake Ontario	S	3	-	17.6	-	16.9-18.2	3	50.0	44.0-61.0
H-24 Lake Ontario	S	45	-	17.8	-	-	45	50.0	-
V-19 N.Y. N.L. Champlain	S	39	436	-	-	-	39	48.0	-
V-19 N.Y. So. L. Champlain	S	20	438	-	-	-	20	54.4	-
M-57 Alb. Lesser Slave L.	S	34	-	18.2	-	-	34	54.3	-
V-30 Lake Erie - Fall	S	11	479X	-	22.0	455-515	11	64.9	-
V-30 Lake Erie - July	S	1	-	-	22.4	-	1	68.0	-
V-10 Lake Huron	S	89	5133	-	23.7	425-565	17	67.0	-
Age Group VIII									
H-24 Ont. Shakespeare I.L.	S	8	-	11.9	-	-	8	16.0	-
H-69 Wisc. Trout L.	S	4	277	-	-	-	4	10.2	-
V-4 N.Y.	K	21	282	-	-	210-344	-	-	-
H-24 Ont. L. Nipigan	S	13	-	12.7	-	-	13	20.0	-
R-19 N.W.T. Great Slave R.	S	-	-	14.0	-	-	-	16.0	-
D-33 Hudson Bay	S	1	358	15.4	-	-	-	-	-
G-21 N. Y. Otsego L.	S	9	-	-	16.2	14.4-17.5	4	23.1	18.7-29.4
C-67 Lake Erie	S	1	-	15.7	-	-	1	43.0	-
R-76 N.W.T. Great Slave L.	S	3	X	-	-	355-370	-	-	-
R-76 N.W.T. Great Slave L.	S	3	-	X	-	15.2-16.1	-	-	-
C-35 Minn. L. Vermilion	S	4	397	-	-	358-422	4	44.3	28.0-51.5
K-32 N.W.T. Great Bear L.	S	62	-	17.9	-	17.0-20.0	62	46.0	-
H-24 Lake Ontario	S	8	-	17.9	-	-	8	54.0	-
V-19 N.Y. N.L. Champlain	S	17	444	-	-	-	17	54.4	-
V-19 N.Y. So. L. Champlain	S	21	449	-	-	-	21	59.2	-
M-57 Alta. Lesser Slave L.	S	39	-	19.0	-	-	39	60.4	-
V-30 Lake Erie - July	S	1	-	-	22.5	-	1	68.8	-
V-30 Lake Erie - Fall	S	6	513X	-	23.3	475-555	6	87.8	-
V-10 Lake Huron	S	17	542	-	25.0	505-595	1	80.0	-
Age Group IX									
H-24 Ont. Shakespeare I.L.	S	11	-	12.4	-	-	11	19.0	-
H-69 Wisc. Trout L.	S	1	307	-	-	-	1	14.4	-
V-5 N.Y.	K	2	332	-	-	317-347	-	-	-
H-24 Ont. L. Nipigan	S	14	-	14.1	-	-	9	30.0	-
C-64 Me. Moosehead L.	S	1	358	-	16.6	-	1	23.5	-
D-33 Hudson's Bay	S	2	367X	15.6	-	360-374	-	-	-
R-76 N.W.T. Great Slave L.	S	2	385	16.7X	-	16.5-16.9	-	-	-
C-35 Minn. L. Vermilion	S	1	391	-	-	-	1	42.0	-
C-67 Lake Erie	S	1	-	16.9	-	-	1	72.0	-
G-21 N.Y. Otsego L.	S	3	-	-	17.9	17.2-18.7	-	-	-
K-32 N.W.T. Great Bear L.	S	47	-	18.8	-	17.0-20.0	47	54.0	-
H-24 Lake Ontario	S	4	-	19.0	-	-	4	65.0	-
V-19 N.Y. N.L. Champlain	S	4	459	-	-	-	4	56.0	-
V-19 N.Y. So. L. Champlain	S	23	461	-	-	-	23	59.2	-
V-30 Lake Erie	S	9	513X	-	23.3	465-545	9	80.4	-
V-10 Lake Huron	S	31	559X	-	25.6	515-615	2	73.2	-
Age Group X									
C-67 Hudson's Bay	S	-	-	11.9	-	-	-	-	-
H-24 Ont. Shakespeare I. L.	S	2	-	13.7	-	-	2	26.0	-
C-64 Me. Moosehead L.	S	1	356	-	16.3	-	1	23.0	-
H-24 Ont. L. Nipigan	S	24	-	15.1	-	-	14	32.0	-
R-19 N.W.T. Great Slave L.	S	-	-	16.5	-	-	-	36.0	-
R-76 Great Slave L.	S	2	410	X	-	16.1-16.8	-	-	-
K-32 N.W.T. Great Bear L.	S	14	-	19.4	-	19.0-20.0	14	61.0	-
V-19 N.Y. N.L. Champlain	S	8	452	-	-	-	8	62.4	-
C-35 Minn. L. Vermilion	S	1	464	-	-	-	1	68.0	-
V-19 N.Y. So. L. Champlain	S	21	477	-	-	-	21	68.8	-
M-57 Alta. Great Bear L.	S	-	-	20.0	-	-	-	64.0	-
C-67 Lake Erie	S	2	-	20.2	-	18.3-22.0	2	97.0	71.0-122
V-30 Lake Erie	S	21	516X	-	23.5	475-585	21	78.5	-
V-10 Lake Huron	S	12	569X	-	26.1	515-605	2	83.5	-



## LAKE WHITEFISH, (Continued)

							Weight in ounces			
Code	No.	S.L.	F.L.	T.L.	Range	No.	Mean	Range		
Age Group XI										
H-24	Ont. Shakespeare I.L.	S	7	-	14.3	-	7	32.0	-	
H-24	Ont. Nipigon L.	S	23	-	15.5	-	8	28.0	-	
C-64	Me. Moosehead L.	S	2	371	-	17.1X	15.2-19.0	2	24.0	14.0-34.0
R-76	N.W.T. Great Slave L.	S	-	425	18.3	-	-	-	-	-
V-19	N.Y. N.L. Champlain	S	3	465	-	-	-	3	54.4	-
K-32	N.W.T. Great Bear L.	S	7	-	20.5	-	-	7	67.0	-
V-19	N.Y. So. L. Champlain	S	18	488	-	-	-	18	72.0	-
H-24	Lake Ontario	S	1	-	22.2	-	-	1	126.0	-
V-30	Lake Erie	S	16	522X	-	23.8	485-555	16	86.1	-
V-10	Lake Huron	S	3	585	-	26.8	-	-	-	-
Age Group XII										
H-24	Ont. Shakespeare L.	S	10	-	14.6	-	-	10	34.0	-
C-64	Me. Moosehead L.	S	2	358	-	16.9	16.3-17.5	2	25.7	22.0-29.0
H-24	Ont. L. Nipigon	S	13	-	15.8	-	-	5	38.0	-
R-19	N.W.T. Great Slave L.	S	-	-	18.0	-	-	-	48.0	-
K-32	N.W.T. Great Bear L.	S	4	-	20.8	-	20.0-21.0	4	65.0	-
V-19	N.Y. So. L. Champlain	S	15	488	-	-	-	-	75.2	-
V-19	N.Y. L. Champlain	S	8	494	-	-	-	-	75.2	-
V-30	Lake Erie	S	11	543	-	24.7	505-575	11	98.8	-
V-10	Lake Huron	S	2	555	-	25.4	-	-	-	-
Age Group XIII										
H-24	Ont. Shakespeare I.L.	S	9	-	14.6	-	-	9	35.0	-
C-64	Me. Moosehead L.	S	1	356	-	16.3	-	1	26.6	-
H-24	Ont. L. Nipigon	S	22	-	16.9	-	-	9	44.0	-
V-19	N.Y. So. L. Champlain	S	6	502	-	-	-	6	75.2	-
K-32	N.W.T. Great Bear L.	S	9	-	21.7	-	20.0-23.0	9	79.0	-
V-19	N.Y. W.L. Champlain	S	2	512	-	-	-	2	88.0	-
V-30	Lake Erie	S	8	548	-	25.0	515-595	8	109.8	-
Age Group XIV										
H-24	Ont. Shakespeare I.L.	S	6	-	15.6	-	-	6	41.0	-
C-64	Me. Moosehead L.	S	1	356	-	16.5	-	1	21.0	-
H-24	Ont. L. Nipigon	S	7	-	17.1	-	-	2	50.0	-
R-19	N.W.T. Great Slave L.	S	-	-	20.0	-	-	-	60.0	-
V-19	N.Y. So. L. Champlain	S	3	505	-	-	-	3	80.0	-
K-32	N.W.T. Great Bear L.	S	3	-	24.7	-	24.0-25.0	-	-	-
V-30	Lake Erie	S	5	554	-	25.2	535-605	5	110.4	-
Age Group XV										
H-24	Ont. Shakespeare I.L.	S	2	-	16.0	-	-	2	55.0	-
H-24	Ont. L. Nipigon	S	8	-	17.4	-	-	3	39.0	-
V-19	N.Y. L. Champlain	S	5	509	-	-	-	5	81.6	-
K-32	N.W.T. Great Bear L.	S	12	-	22.8	-	22.0-25.0	12	94.0	-
Age Group XVI										
H-24	Ont. Shakespeare I.L.	S	11	-	15.9	-	-	11	50.0	-
H-24	Ont. L. Nipigon	S	2	-	17.7	-	-	2	48.0	-
V-19	N.Y. L. Champlain	S	4	529	-	-	-	4	87.5	-
R-19	N.W.T. Great Slave L.	S	-	-	21.0	-	-	-	68.0	-
M-37	Ont. L. Nipigon	S	1	-	21.3	-	-	-	-	-
K-32	N.W.T. Great Bear L.	S	3	-	24.7	-	24.0-25.0	-	-	-
V-30	Lake Erie	S	2	584	-	26.6	535-635	2	141.1	-
Age Group XVII										
H-24	Ont. Shakespeare I.L.	S	2	-	16.4	-	-	2	48.0	-
H-24	Ont. L. Nipigon	S	1	-	17.1	-	-	-	-	-
V-19	N.Y. L. Champlain	S	3	524	-	-	-	3	86.4	-
K-32	N.W.T. Great Bear L.	S	3	-	25.0	-	24.0-26.0	-	-	-
Age Group XVIII										
H-24	Ont.	S	6	-	16.5	-	-	4	53.3	-
K-32	N.W.T. Great	S	1	-	27.0	-	-	-	-	-
Age Group XIX										
H-24	Ont. Shakespeare I.L.	S	5	-	16.7	-	-	5	55.0	-
H-24	Ont. L. Nipigon	S	2	-	20.6	-	-	2	85.0	-
K-32	N.W.T. Great Bear L.	S	1	-	27.0	-	-	-	-	-



LAKE WHITEFISH, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group XX									
E-32 N.W.T. Great Bear L.	S	1	-	28.0	-	-	-	-	-
Age Group XXI									
H-24 Ont. Shakespeare L.	S	6	-	16.9	-	-	6	57.0	-
Age Group XXII									
H-24 Ont. Shakespeare I.L.	S	3	-	17.1	-	-	3	60.0	-
Age Group XXIII									
H-24 Ont. L. Nipigan	S	1	-	24.2	-	-	1	113.0	-
Age Group XXIV									
H-24 Ont. Shakespeare I.L.	S	1	-	17.8	-	-	1	62.0	-
Age Group XXVI									
H-24 Ont. Shakespeare I.L.	S	1	-	19.6	-	-	1	89.0	-

	Code	No.	Average calculated standard length in millimeters at each annulus																
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
H-69 Wisc. Trout L.	L	67	81	117	151	181	207	230	251	275	303	319	333	342	357	366			
V-5 N.Y. Aquarium	L	27	67	132	165	191	213	233	253	271									
C-35 Minn. L. Vermillion	L	25	89	148	207	254	298	330	366	386	410	454							
E-3 Minn.	L	203	86	139	221	271	299	308	337	354									
V-10 L. Huron	L	982	108	192	265	347	415	463	495	517	536	552	566	580					
V-5 L. Huron	L	238	99	213	268	322	366	412	449										
V-19 N.Y. north L. Champlain	L	120	117	207	277	335	372	400	421	438	454	466	480	492	503	513	522	530	539
V-19 N.Y. south L. Champlain	L	175	114	224	306	360	394	414	431	444	458	469	480	489	498	507	515	521	528
V-30 L. Erie	L	2766	147	271	344	391	423	447	466	482	497	510	521	531	541	550	556	563	

	No.	Average calculated fork length in inches at each annulus																	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
K-13 Ont. Opengo	167	3.6	4.4	4.7	4.9	5.0													
K-13 Ont. Opengo	1039	4.1	5.6	6.7	7.7	8.6	9.1	9.9	10.7	12.6	14.2	14.8	16.5	17.8					
E-2 Minn.	161	3.6	6.7	9.9	12.2	13.0	13.9	15.1	15.7										
M-15 B.C. Okanagan	44	5.1	8.8	10.2	12.0	13.2	14.7												
M-88 Alta. Wabamum	439	4.3	8.2	11.5	13.6	14.9	16.0	16.8	18.0										
M-60 Alta. Wabamum	350	4.3	8.3	11.6	13.7	15.0	16.1	17.0	17.7										
M-88 Alta. Pigeon	388	4.4	8.7	12.2	14.3	15.7	16.8	17.5	18.6										
M-60 Alta. Pigeon	300	4.4	8.7	12.3	14.5	16.0	16.2	16.3											
B-11 Man. Winnipeg	-	4.7	6.7	12.8	15.0	16.5	17.7	18.9	19.7	20.5	21.3	22.1	22.6	23.0	23.2	23.6	24.2	24.8	
B-11 Man. Winnipegosis	-	4.9	6.9	13.8	15.4	16.5	17.7	18.9	19.7	20.5	21.3	22.1	22.6	23.0	23.3	23.6	24.0	24.4	

	No.	Average calculated total length in inches at each annulus																	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		
S-62 Minn.	-	4.0	6.4	10.3	12.6	13.9	14.3	15.7	16.5										
S-17 L. Huron	-	5.0	8.9	12.3	16.1	19.2	21.4	22.9	23.9	24.8	25.3	25.9	26.6						
S-17 L. Michigan	-	6.3	9.9	13.9	17.1	20.3	22.3	24.0	24.8	24.8	25.4	26.0	26.5						
B-30 L. Erie	2766	6.9	12.7	16.1	18.1	19.6	20.7	21.4	22.1	22.8	23.2	23.7	24.2	24.6	25.0	25.3	25.6		

	No.	Average calculated weight in pounds at each annulus																	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
M-60 Alta. Pigeon	300	0.07	0.31	0.99	1.78	2.68	2.61	2.69											
B-11 Man. Winnipegosis	-	-	0.15	1.4	1.8	2.3	2.5	3.0	3.3	3.7	4.2	4.8	5.5	5.8	6.5	7.0	7.6	8.0	
B-11 Man. Winnipeg	-	0.05	0.14	1.3	1.7	2.3	2.5	3.0	3.3	3.7	4.2	4.8	5.3	5.8	6.5	7.0	8.0	10.0	
V-30 L. Erie	2766	0.10	0.69	1.45	2.18	2.79	3.32	3.78	4.21	4.63	5.03	5.38	5.71	6.05	6.38	6.60	6.87		

	Code	Size of females	No. of females	Number of eggs per female
				Mean Range
D-25 B-11, L-1	H	-	-	35,000
D-25 Great Lakes	H	11 pounds	1	150,000
B-11 Man.	U	V-year olds	-	22,000
		X-year olds	-	51,000
		XV-year olds	-	91,000
N-25 N.Y.	U	-	-	10,000-75,000
L-13 L. Erie	V	20" T.L.	1	34,760
B-23 N.Y.	D	7.5 pound	1	66,606
L-17 B-73	U	-	-	10,00-75,000
N-39 Great Lakes	U	4 pound	1	50,000
D-12 Great Lakes	U	-	-	25,00-28,000
M-65 Great Lakes	D	2-3 pounds	2	24865
		4 pound	1	48,000
		7.5 pounds	1	66,606

B-73, N-25. List 10,000 eggs per pound of female.  
 L-17 lists 10,000-12,000 eggs per pound of female.  
 M-65 lists 11,000-12,000 eggs per pound of female.  
 H-23, Ontario, lists 4,000 to 6,500 eggs per pound of female, by stripping.



ROUND WHITEFISH, *Prosopium cylindraceum quadrilaterale*

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age group III									
C-64 Me. Moosehead L.	S	20	224	-	10.2X	9.5-11.2	20	4.9	4.0-6.6
Age group IV									
C-64 Me. Moosehead L.	S	9	236	-	10.8X	9.7-12.2	9	5.9	4.1-8.8
Age group V									
C-64 Me. Moosehead L.	S	12	251	-	11.5X	9.5-13.2	12	7.3	3.5-10.9
K-32 N.W.T. Great Bear L.	S	6	-	12.9	-	11.0-15.0	6	14.0	-
Age group VI									
C-64 Me. Moosehead L.	S	9	269	-	12.3X	11.0-14.3	9	8.8	5.9-12.8
K-32 N.W.T. Great Bear L.	S	11	-	13.3	-	10.0-16.0	11	14.0	-
W-13 Conn.	S	1	348	-	15.5	-	1	27.0	-
Age group VII									
C-64 Me. Moosehead L.	S	3	272	-	12.3X	12.0-13.0	3	8.3	7.8-9.2
K-32 N.W.T. Great Bear L.	S	22	-	13.9	-	12.0-17.0	22	16.0	-
Age group VIII									
C-64 Me. Moosehead L.	S	6	315	-	14.3X	13.0-15.7	6	13.5	9.6-16.8
K-32 N.W.T. Great Bear L.	S	24	-	14.5	-	12.0-19.0	24	19.0	-
Age group IX									
C-64 Me. Moosehead L.	S	3	328	-	14.8	13.9-15.9	3	17.1	13.9-21.1
K-32 N.W.T. Great Bear L.	S	6	-	16.6	-	14.0-20.0	6	32.0	-
Age group X									
C-64 Me. Moosehead L.	S	2	353	-	15.9X	15.7-16.1	2	21.0	20.6-21.4
K-32 N.W.T. Great Bear L.	S	3	-	16.3	-	15.0-18.0	-	-	-
Age group XII									
K-32 N.W.T. Great Bear L.	S	1	-	19.0	-	-	-	-	-

B-73 Average of 3,500 eggs per female. One 1.75 pound female produced 12,000 eggs.

MOUNTAIN WHITEFISH, *Prosopium williamsoni*

	No.	F.L. in inches		No.	F.L. in inches
Age Group 0			Age Group V		
M-16 Poorest lake, Rocky Mt.	-	1.3	M-16 Rocky Mt. poorest	-	5.6
M-16 Rocky Mt. average	-	2.3	M-16 Rocky Mt. average	-	9.5
M-15 B.C. Okanagan	4	2.4	M-16 Rocky Mt. best	-	12.0
M-16 Best lake, Rocky Mt.	-	3.4	Age Group VI		
Age Group I			M-16 Rocky Mt. poorest	-	6.2
M-16 Poorest lake, Rocky Mt.	-	2.6	M-16 Rocky Mt. average	-	9.8
M-16 Rocky Mt. average	-	4.9	M-16 Rocky Mt. best	-	13.4
M-16 Rocky Mt. best lakes	-	6.2	Age Group VII		
M-15 B.C. Okanagan	16	6.5	M-16 Rocky Mt. poorest	-	7.3
Age Group II			M-16 Rocky Mt. average	-	11.8
M-16 Rocky Mt. poorest lake	-	4.1	M-16 Rocky Mt. best	-	13.9
M-16 Rocky Mt. average	-	7.0	Age Group VIII		
M-15 B.C. Okanagan	16	8.6	M-16 Rocky Mt. poorest	-	7.7
M-16 Rocky Mt., best lake	-	9.0	M-16 Rocky Mt. average	-	11.7
Age Group III			M-16 Rocky Mt. best	-	14.8
M-16 Rocky Mt. poorest	-	4.6	Age Group IX		
M-16 Rocky Mt. average	-	8.3	M-16 Rocky Mt. poorest	-	8.7
M-16 Rocky Mt. best	-	10.3	M-16 Rocky Mt. average	-	11.7
M-16 B.C. Okanagan	1	11.6	M-16 Rocky Mt. best	-	14.0
Age Group IV					
M-16 Rocky Mt. poorest	-	6.3			
M-16 Rocky Mt. ave.	-	8.9			
M-16 Rocky Mt., best	-	11.2			



## MOUNTAIN WHITEFISH, (Continued)

	No.	Calculated fork length at each annulus			
		1	2	3	4
M-15 B.C. Okanagan Valley	37	4.6	7.5	10.0	11.1

AMERICAN GRAYLING, *Thymallus signifer*

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group 0-2 months									
B-74 Mich.	K	-	-	-	1.0	-	-	-	-
Age Group 0-July									
M-58 Alta. Great Bear L.	P	44	-	1.1	-	0.8-1.7	-	-	-
Age Group 0-August									
L-36 Vt.	K	-	-	1.5	-	-	-	0.02	-
Age Group 0-September									
F-28 Mont.	K	-	-	-	-	-	-	-	0.03-0.04
L-36 Vt.	K	-	-	-	-	-	-	0.04	-
Age Group 0-5 months									
B-74 Mich.	K	-	-	-	2.5	-	-	-	-
Age Group 0-Dec.									
B-74 Mich.	K	-	-	-	7.0	-	-	-	-
Age Group 0									
N-23 Alta. Jasper P.	P	2	-	X	-	1.4-2.1	-	-	-
C-74 Mich.	P	1	90	-	4.4	-	-	-	-
Age Group I									
M-58 Alta.	S	5	-	5.5	-	-	5	2.1	-
B-76 Mich. Ford L.	S	2	125	-	5.9	86-164	1	2.4	-
N-47 Mich.	K	-	-	-	6.0	-	-	-	-
C-74 Mich. Otter R.	S	5	168	-	7.9	152-188	-	-	-
C-74 Mont.	S	1	252	-	11.9	-	-	-	-
B-76 Mont.	S	40	192	-	8.6	151-286	40	4.2	2.1-16.2
Age Group II									
B-76 Mich. Ford L.	S	5	212	-	9.8	190-246	3	3.1	-
N-47 Mich.	K	-	-	-	X	10.0-12.0	-	-	-
M-58 Alta.	S	22	-	9.9	-	9.1-11.3	22	6.7	6.0-8.0
C-74 Mich.	S	6	236	-	10.7	224-258	-	-	-
B-76 Mont.	S	28	262	-	11.9	232-282	28	8.8	4.5-12.7
C-74 Mont.	S	4	293	-	13.9	250-314	-	-	-
Age Group III									
C-74 Mich.	S	1	242	-	11.3	-	-	-	-
B-76 Mich. Ford L.	S	4	266	-	12.4	250-280	3	8.9	-
M-58 Alta.	S	16	-	11.5	-	-	16	9.8	-
N-47 Mich.	K	-	-	-	X	13.0-15.0	-	-	-
B-76 Mont.	S	31	288	-	13.1	252-301	31	12.6	6.3-15.8
D-6 Mont.	I	-	-	-	-	-	-	-	32.0-48.0
Age Group IV									
B-76 Mich. Ford L.	S	1	288	-	13.5	-	1	12.6	-
M-58 N.W.T. Great Bear L.	S	18	-	12.5	-	-	18	13.5	-
B-76 Mont.	S	22	313	-	14.1	287-348	22	15.5	8.7-26.7
C-74 Mont.	S	2	341	-	15.5	338-344	-	-	-
N-47 Mich.	K	-	-	-	X	16.0-17.0	-	-	-
Age Group V									
B-76 Mont.	S	5	315	-	14.3	284-368	5	14.3	6.6-27.0
M-58 Alta.	S	25	-	14.4	-	-	25	20.3	-
R-89 Sask. Reindeer L.	S	-	-	17.0	-	-	-	-	-
R-89 Sask. Rocky Falls	S	-	-	18.0	-	-	-	-	40.0-48.0
Age Group VI									
B-76 Mont.	S	1	318	-	14.3	-	1	16.2	-
M-58 Alta.	S	21	-	14.9	-	-	21	23.4	-



## AMERICAN GRAYLING, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group VII									
M-58 Alta	S	17	-	15.6	-	-	17	24.8	-
Age Group VIII									
M-58 N.W.T. Great Bear L.	S	6	-	16.3	-	-	6	28.0	-
Age Group IX									
M-58 N.W.T. Great Bear L.	S	5	-	16.7	-	-	5	33.0	-
Age Group X									
M-58 N.W.T. Great Bear L.	S	2	-	17.2	-	-	2	37.5	-
Age Group XI									
M-58,59 N.W.T. Great Bear	S	1	-	18.2	-	-	1	29.9	-

	Code	No.	1	2	3	4	5	6
C-74 Mich. Otter R.	L	12	79	174	193			
B-76 Mich. Ford L.	F	12	76	185	258	284		
C-74 Mich. Au Sable R.	L	1	86	191				
B-76 Mont. Agnes R.	F	10	114	193	250	276	279	
B-76 Mont. Grebe L.	F	31	100	205	255	297	301	307
C-74 Mont. Georgetown L.	L	5	91	239				
B-76 Mont. Rogers L.	F	44	137	247	285	304		
B-76 Mont. Meadow L.	F	39	135	252	298	323		
B-76 Mont. Georgetown L.	F	5	133	254	320	339	359	
C-74 Mont. Rogers L.	L	2	160	292	312	332		

Average calculated fork length in inches at each annulus

	Code	No.	1	2	3	4	5	6	7	8	9	10	11
M-58 N.W.T. Great Bear L.	F	100	3.7	6.1	9.1	11.2	12.8	13.9	14.9	15.7	16.2	17.1	17.9
M-58 N.W.T. Great Slave L.	F	23	4.1	7.3	10.0	12.4	14.2	15.3	16.7				
M-58 N.W.T. Athabaska L.	F	15	4.4	7.5	10.0	13.7	14.8						

	Size of females	No. of females	No. of eggs per female
			Mean Range
B-74 Mont. Grebe Lake	5 oz.	2	832 416-1,248
	12 oz	1	5,563
	average	-	1,650
B-74 Mont. Rogers L.	12.8-14.5	11	6,029 -9,059
W-28 Mich.	9 oz.	1	3,555
	20 oz.	1	5,200
H-51 Mich.	12 inches	1	3,000
B-73 L-1	-	-	3,000-4,000
R-89 Sask.	-	-	4,000-10,000

L-17 reports 3000 eggs per pound of female.

H-103 gives additional data on growth of grayling in the British Isles.

AMERICAN SMELT, *Osmerus mordax*

B-27 Mich. 241 fish, 80-230 mm. S.L.	T.L. = 1.165 S.L.
W-8 N.H.	T.L. = 1.12 S.L. to 1.17 S.L.

B-27 Mich.  $\text{Log } W = -4.59918 + 2.8095 \text{ Log } S.L.$ 

Total length - weight relationship, Michigan, C-71

T.L. in inches	7.75	8.25	9.5	11.0
Weight in ounces	1.5	2.0	3.0	5.0

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group O									
G-29 N.Y. Finger L.	S	53	90	-	4.3	-	-	-	-
G-29 N.Y. L. Champlain	S	17	131	-	6.2	-	-	-	-
G-29 N.Y. Saranac L.	S	1	167	-	7.7	-	-	-	-



## AMERICAN SMELT, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group I									
W-8 N.H.	S	10	-	-	3.4	-	10	0.08	-
C-71 Great Lakes	S	-	-	-	X	3.0-4.0	-	-	-
C-73 Mich. Mt. L.	S	32	72	-	-	-	-	-	-
B-27 Mich. Crystal L.	S	3	111X	-	5.0	92-107	3	0.5	0.3-0.8
V-16 Green Bay, 1941	S	1	-	-	5.3	-	1	0.5	-
G-29 N.Y. Finger L.	S	119	113	-	5.4	-	-	-	-
V-16 Green Bay, 1944-45	S	6	-	-	5.8	-	6	0.8	-
G-29 N.Y. Champlain dwarfs	S	19	121	-	5.8	-	-	-	-
V-7 Lake Erie	S	2	129X	-	5.9	123-135	-	-	-
S-7 Wisc.	S	-	-	-	7.0	6.5-8.5	-	-	-
G-29 N.Y. Saranac L.	S	98	171	-	8.0	-	-	-	-
G-29 N.Y. L. Champlain	S	118	173	-	8.2	-	-	-	-
Age Group II									
G-29 N.Y. Finger L.	S	4	113	-	5.4	-	-	-	-
W-8 N.H.	S	189	-	-	5.7	-	189	0.6	-
G-29 N.Y. Champlain dwarfs	S	83	124	-	5.9	-	-	-	-
V-16 Green Bay, 1941	S	71	-	-	6.8	-	71	1.1	-
B-27 Mich. Crystal L.	S	6	153X	-	7.0	150-155	6	1.2	1.1-1.3
C-71 Great Lakes	S	-	-	-	X	6.5-7.5	-	-	-
V-16 Green Bay, 1944-45	S	87	-	-	7.7	-	87	2.0	-
G-29 N.Y. Saranac L.	S	3	183	-	8.5	-	-	-	-
G-29 N.Y. L. Champlain	S	83	199	-	9.4	-	-	-	-
V-7 Lake Erie	S	1	203	-	9.5	-	-	-	-
S-7 Wisc.	S	-	-	-	11.0	9.0-11.5	-	-	-
Age Group III									
G-29 N.Y. Champlain dwarfs	S	13	130	-	6.2	-	-	-	-
W-8 N.H.	S	85	-	-	6.7	-	85	1.1	-
V-16 Green Bay, 1941	S	23	-	-	7.7	-	23	1.6	-
B-27 Mich. Crystal L.	S	6	172X	-	7.8	164-193	6	1.8	1.5-2.5
V-16 Green Bay, 1944-45	S	21	-	-	8.6	-	21	2.8	-
C-71 Great Lakes S	S	-	-	-	9.0	-	-	-	-
G-29 N.Y. L. Champlain	S	31	225	-	10.6	-	-	-	-
S-7 Wisc.	S	-	-	-	12.0	11.0-13.0	-	-	-
Age Group IV									
V-16 Green Bay, 1941	S	1	-	-	7.6	-	1	1.4	-
B-27 Mich. Crystal L.	S	3	179X	-	8.1	175-182	3	1.9	1.8-2.1
W-8 N.H.	S	3	-	-	8.7	-	3	1.9	-
C-7 Great Lakes	S	-	-	-	10.0	-	-	-	-
V-16 Green Bay, 1944-45	S	2	-	-	10.5	-	2	4.9	-
G-29 N.Y. L. Champlain	S	14	244	-	11.4	-	-	-	-
S-7 Wisc.	S	-	-	-	14.0	-	-	-	-
Age Group V									
B-27 Mich. Crystal L.	S	2	179	-	8.3	174-184	2	2.1	1.9-2.2
C-71 Great Lakes	-	-	-	-	X	10.8-12.0	-	-	-
G-29 N.Y. L. Champlain	S	1	249	-	11.6	-	-	-	-

	Code	Size of females	No. of females	No. of eggs per female
				Mean Range
V-31 Mich.	V	7.3-7.7" T.L.	-	25,000
L-14 L. Erie	V	9.5 " T.L.	1	57,910
N-25 N.Y. B-73, K-6	U	2 ounces	-	46,000-50,000
H-82 N.H.	D	104 mm. S.L.	-	1,700-7,000
K-6 Me.	-	4.6 " T.L.	1	5,893
K-9 Me.	H	-	-	17,300

Additional egg count data in M-22, N. Br.

AMERICAN EEL, *Anguilla bostoniensis*

Total length in inches	No.	Weight in ounces		Location
		Mean	Range	
2	1	0.03	-	H-61 Chesapeake
3	2	0.06	0.04-0.07	H-61 Chesapeake



## AMERICAN EEL, (Continued)

Total length in inches	No.	Weight in ounces		Location
		Mean	Range	
7	1	0.4	-	H-61 Chesapeake
12	1	1.7	-	H-61 Chesapeake
13	1	2.3	-	H-61 Chesapeake
15	1	3.4	-	H-61 Chesapeake
16	2	4.8	4.0-5.5	H-61 Chesapeake
17	1	5.1	-	H-61 Chesapeake
19	1	7.5	-	H-61 Chesapeake
20	4	9.4	8.0-11.1	H-61 Chesapeake
21	5	10.7	8.5-12.0	H-61 Chesapeake
22	6	13.1	10.2-14.8	H-61 Chesapeake
23	6	14.1	12.0-16.9	H-61 Chesapeake
24	5	18.3	14.4-20.0	H-61 Chesapeake
30	2	38.7	33.9-44.5	H-61 Chesapeake
34	1	60.0	-	F-10 -
43	1	104.0	-	J-13 -

S-65 Nova Scotia. 149 eels, 91-750 mm. average K 0.19 range 0.13-0.25.

H-61 Chesapeake.	Age Group	No. eels,	Length (inches).	Code
	I	11 eels,	2.3-3.9 inches.	P
	II	13 eels,	4.4-6.9 inches,	P

B-23 N.Y. 9,000,000 eggs per female.

F-10 10,700,000 eggs in a 32 inch female.

BIGMOUTH BUFFALO, *Megastomatobus cyprinella*

C-30 Iowa	2 fish	F.L. = 1.13 S.L.	20 fish	T.L. = 1.25 S.L.
C-89 Iowa	33 fish (300-592 mm.)	F.L. = 1.110 S.L.	33 fish	T.L. = 1.211 S.L.
S-16 Tenn.	118 fish (220-600 mm.)			T.L. = 1.224 S.L.

## Standard length-weight relationship, Iowa, C-30

S.L. in mm.	No.	Weight in grams		Weight in pounds	S.L. in mm.	No.	Weight in grams		Weight in pounds
		Mean	Range				Mean	Range	
248	2	425	411-439	0.94	388	2	1985	1814-2155	4.38
265	4	521	454-567	1.15	403	6	2212	1785-2495	4.88
327	4	1105	823-1460	2.44	434	2	2509	2268-2750	5.53
345	12	1382	1219-2041	2.99	442	1	2637	-	6.25
367	14	1744	1304-2041	3.84	758	1	13863	-	30.56

## Total length-weight relationship, Iowa, Ruth's Pond, C-89

T.L. in inches	No.	Weight in pounds		T.L. in inches	No.	Weight in pounds	
		Mean	Range			Mean	Range
14.8	3	1.39	1.25-1.50	21.3	7	5.37	5.00-5.63
15.5	5	2.05	1.69-2.88	22.3	4	6.05	5.75-6.19
16.5	10	2.29	2.00-2.69	23.1	7	7.21	6.69-7.69
17.5	22	2.79	2.13-3.19	24.2	1	7.94	-
18.5	18	3.39	2.81-3.81	25.7	1	8.63	-
19.4	26	3.91	3.06-4.44	28.5	1	12.00	-
20.4	13	4.95	4.31-5.44				

C-36 Iowa. 47 fish, 240-440 mm S.L. average K 3.32 range 2.31-4.68

C-89 Iowa, Ruth's P. 118 fish, 14.8-28.5 inches. Ave. C(T.L.) 54 range 39-67

Code	No.	S.L.	F.L.	T.L.	Range	Weight in pounds			
						No.	Mean	Range	
Age Group O-July									
B-2	Iowa-Okoboji L.	P	17	28	-	-	20-30	-	-
B-3	Iowa-Clear L.	P	10	39	-	-	29-49	-	-
Age Group O-Aug.									
B-2	Iowa-Okoboji	P	50	59	-	-	48-73	-	-
B-3	Iowa-Clear L.	P	1	65	-	-	-	-	-



## BIGMOUTH BUFFALO, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in pounds		
							No.	Mean	Range
Age Group I									
E-3 Minn.	S	10	196	-	-	152-229	-	-	-
S-16 Tenn. Reelfoot L.	S	6	271	-	13.2	220-295	6	1.54	1.00-1.88
Age Group II									
E-3 Minn.	S	10	287	-	-	229-330	-	-	-
S-16 Tenn. Reelfoot L.	S	18	316X	-	15.2	280-345	18	2.06	1.56-3.13
Age Group III									
S-16 Tenn. Reelfoot L.	S	34	343X	-	16.7	225-390	34	2.51	1.38-4.50
E-3 Minn.	S	11	373	-	-	340-432	-	-	-
Age Group IV									
S-16 Tenn. Reelfoot L.	S	20	373X	-	17.9	330-400	20	3.12	2.75-4.50
E-3 Minn.	S	8	419	-	-	381-483	-	-	-
Age Group V									
S-16 Tenn. Reelfoot L.	S	25	427X	-	20.8	370-475	25	5.27	3.31-8.25
E-3 Minn.	S	6	478	-	-	432-533	-	-	-
Age Group VI									
S-16 Tenn. Reelfoot L.	S	12	489X	-	23.5	460-520	12	7.35	7.00-9.81
E-3 Minn.	S	17	531	-	-	452-584	-	-	-
Age Group VII									
S-16 Tenn. Reelfoot L.	S	3	553X	-	26.3	520-560	3	13.76	13.50-15.50
E-3 Minn.	S	9	561	-	-	533-610	-	-	-
Age Group VIII									
E-3 Minn.	S	9	566	-	-	533-635	-	-	-
Age Group IX									
E-3 Minn.	S	4	615	-	-	584-635	-	-	-
Age Group X									
E-3 Minn.	S	4	716	-	-	660-787	-	-	-
Age Group XI									
E-3 Minn.	S	9	719	-	-	660-813	-	-	-
Age Group XII									
E-3 Minn.	S	3	777	-	-	762-787	-	-	-

Average standard length in millimeters at each annulus													
	No.	1	2	3	4	5	6	7	8	9	10	11	12
F-13 Wisc.	1130	116	236	312	376	426	469	471					
E-3 Minn.	199	116	211	298	360	424	478	520	557	601	644	675	731

Average calculated fork length in inches at each annulus													
	No.	1	2	3	4	5	6	7	8	9	10	11	12
E-2 Minn.	149	5.3	9.9	13.7	16.4	19.3	22.3	23.9	25.5	28.1	29.3	30.6	33.4

BLACK BUFFALO, *Ictiobus niger*

C-30 Iowa 1 fish T.L. = 1.19 S.L.

Standard length-weight relationship, Iowa, C-30						
S.L. in mm.	380	380	390	420	550	600
Weight in gm.	1673	1701	1701	2268	5557	6747

E-28 Tenn. Chickamauga. 47 fish average K 2.8

C-36 Iowa 7 fish, 380-600 mm. S.L. average K 3.05, range 2.80-3.34.

E-28 Tenn. Chickamauga, Age Group II. 43 fish 178 mm. S.L., 9.0 inches T.L.

A-2 Ill. (Study of bones) Age Group XXIV 34 pounds (1 fish).

Average calculated length at each annulus					
	No.	Standard lengths		Total lengths	
		1	2	1	2
E-28 Tenn. Chickamauga	43	105	164	5.3	8.3



SMALLMOUTH BUFFALO, *Ictiobus bubalus*

S-17 Tenn. Reelfoot L. 107 fish, 190-750 mm. S.L. T.L. = 1.213 S.L.  
 C-30 Iowa 1 fish T.L. = 1.27 S.L.

E-28 Tenn. Chickamauga Res. 596 fish average K 3.1

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in pounds		
							No.	Mean	Range
Age Group I									
S-17 Tenn. Reelfoot L.	S	6	262X	-	11.2	190-295	6	0.9	0.4-2.0
Age Group II									
E-28 Tenn. Chickamauga Res.	S	2812	-	-	7.2	4.9-10.3	-	-	-
S-17 Tenn. Reelfoot L.	S	14	318	-	15.3	280-350	14	2.2	1.8-3.3
Age Group III									
S-17 Tenn. Reelfoot L.	S	20	356X	-	17.3	310-400	20	3.1	2.3-5.0
Age Group IV									
S-17 Tenn. Reelfoot L.	S	28	377X	-	18.4	340-440	28	3.5	2.0-5.4
Age Group V									
S-17 Tenn. Reelfoot	S	19	444X	-	21.4	380-530	19	7.0	3.1-10.1
Age Group VI									
S-17 Tenn. Reelfoot L.	S	5	492X	-	23.4	450-540	5	8.0	7.0-10.1
Age Group VII									
S-17 Tenn. Reelfoot L.	S	4	535X	-	25.5	520-550	4	9.9	8.9-10.6
Age Group IX									
S-17 Tenn. Reelfoot L.	S	7	661X	-	30.8	620-690	7	17.6	10.0-20.5
Age Group XII									
S-17 Tenn. Reelfoot L.	S	4	698X	-	32.9	650-750	4	25.5	23.3-28.5

## Average calculated length at each annulus

	No.	Standard lengths		Total lengths	
		1	2	1	2
E-28 Tenn. Chickamauga	596	73	122	3.8	6.4

QUILLBACK, *Carpionodes cyprinus*

C-22 Minn. L. of Woods. 14 fish 330-399 mm. S.L. F.L. = 1.100 S.L.  
 21 fish 400-483 mm. S.L. F.L. = 1.098 S.L.  
 C-22 Minn. L. of Woods 6 fish 391-435 mm. S.L. T.L. = 1.22 S.L.  
 C-30 Iowa 5 fish 391-435 mm. S.L. T.L. = 1.32 S.L.

## Standard length-weight relationship, Iowa, C-30

SeL. in mm.	293	335	379	379	390
Weight in gm.	822	1063	1616	1956	1814

## Total length-weight relationship, Iowa, Ruth's Pond, C-89

T.L. in inches	No.	Weight in pounds		T.L. in inches	No.	Weight in pounds	
		Mean	Range			Mean	Range
11.8	1	0.44	-	14.6	4	1.44	1.25-1.75
12.8	1	0.94	-	15.2	4	1.53	1.31-1.75
13.8	2	1.22	1.19-1.25	17.4	1	2.13	-

E-28 Tenn. Chickamauga Res. 421 fish average K 3.0  
 C-22 Minn. L. of the Woods 26 fish, 330-483 mm. average K 3.12  
 C-36 Iowa 4 fish 293-390 mm. average K 3.19 range 2.83-3.62  
 C-89 Iowa, Ruth's P. 13 fish, 11.8-17.4 inches average C(T.L.) 44 range 27-54  
 E-28 Tenn. Chickamauga 423 fish, Age Group II 164 mm. S.L. 8.7 inches T.L.

## Average calculated lengths at each annulus

	No.	Standard lengths		Total lengths	
		1	2	1	2
E-28 Tenn. Chickamauga	423	92	146	4.8	7.7



RIVER CARPSUCKER, *Carpionodes carpio*

Total length-weight relationship, Iowa, C-30; C-89

T.L. in inches	No.	Weight in pounds		T.L. in inches	No.	Weight in pounds	
		Mean	Range			Mean	Range
11.0-11.9	1	0.80	1.04-1.09	15.0-15.9	2	2.06	2.00-2.12
12.0-12.9	2	1.07	1.04-1.09	16.0-16.9	6	2.09	1.69-2.31
13.0-13.9	6	1.31	1.06-1.73	17.0-17.9	1	2.25	-
14.0-14.9	4	1.42	1.25-1.58				

C-89 Iowa, Ruth's Pond 11 fish C(T.L.) 48 range 39-55

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in pounds		
							No.	Mean	Range
Age Group I									
E-28 Tenn. Chickamauga	S	77	173	-	8.8	-	-	-	-
W-7 Okla. Duncan L.	S	1	305	-	-	-	1	2.20	-
Age Group VIII									
W-7 Okla. Duncan L.	S	1	483	-	-	-	1	7.59	-

Average calculated lengths at each annulus  
Standard length      Total length

	No.	1	1
E-28 Tenn. Chickamauga	77	93	4.7

WHITE SUCKER, *Catostomus commersonii*

	No. of fish	S.L. in mm.	F.L. S.L.	No. of fish	S.L. in mm.	T.L. S.L.
C-35 Minn. L. Vermilion	-	under 300	1.108	-	under 300	1.187
	-	over 300	1.098	-	301-350	1.184
C-22 Minn. L. of Woods	-	under 100	1.160	-	-	1.174
	-	101-200	1.119	-	-	-
	-	201-300	1.113	-	-	-
	-	301-400	1.103	-	-	-
	-	over 400	1.096	-	-	-
C-37 Minn.	22	100-199	1.117	22	100-199	1.193
	121	200-299	1.107	571	200-399	1.177
	450	300-399	1.099			
	104	over 400	1.095	104	over 400	1.169
C-30 Iowa	2	-	1.12	63	-	1.19

S.L. in mm.	No.	Weight in grams		Weight in ounces	Location
		Mean	Range		
10-29	175	0.13	-	0.003	S-89 Wisc.
30-49	91	0.85	-	0.03	S-89 Wisc.
70-79	1	8	-	0.3	C-30 Iowa
110-129	42	32	-	1.1	S-89 Wisc.
	2	42	-	1.5	C-20 Minn.
130-149	1	33	-	1.2	C-30 Iowa
	163	48	-	1.7	S-89 Wisc.
150-169	138	74	-	2.6	S-89 Wisc.
	1	113	-	4.0	C-20 Minn.
170-189	237	104	-	3.7	S-89 Wisc.
190-209	2	106	85-127	3.8	R-24 Mich.
	391	140	-	4.9	S-89 Wisc.
	3	184	-	6.5	C-20 Minn.
210-229	6	143	113-170	5.1	R-24 Mich.
	2	184	170-198	6.5	C-35 Minn., L. Vermilion
	746	189	-	6.7	S-89 Wisc.
	4	207	-	7.3	C-20 Minn.
-249	597	229	-	8.1	S-89 Wisc.



## WHITE SUCKER, (Continued)

S.L. in mm.	No.	Weight in grams		Weight in ounces	Location
		Mean	Range		
250-269	1	284	-	10.0	R-24 Mich.
	196	304	-	10.7	S-89 Wisc.
	2	369	284-454	13.0	C-35 Minn., L. Vermilion
	25	377	-	13.3	C-20 Minn.
270-289	182	359	-	12.7	S-89 Wisc.
	3	454	425-510	16.0	C-35 Minn., L. Vermilion
290-309	4	319	255-397	11.3	R-24 Mich.
	60	425	-	15.0	S-89 Wisc.
	20	485	-	17.1	C-20 Minn.
310-329	1	411	-	14.5	R-24 Mich.
	8	518	-	18.3	S-89 Wisc.
	59	633	-	22.3	C-20 Minn.
	4	645	624-680	22.8	C-35 Minn. L. Vermilion
	2	766	709-822	27.0	C-30 Iowa
330-349	7	604	-	21.3	S-89 Wisc.
	18	771	680-907	27.2	C-35 Minn. L. Vermilion
	111	785	-	27.7	C-20 Minn.
	3	881	765-970	31.1	C-30 Iowa
350-369	25	921	765-1106	32.5	C-35 Minn. L. Vermilion
	170	1052	-	37.1	C-20 Minn.
370-389	3	1193	1134-1247	42.1	C-30 Iowa
390-409	6	1139	1106-1162	40.2	C-35 Minn. L. Vermilion
	70	1284	-	45.3	C-20 Minn.
	10	1326	992-1616	46.8	C-30 Iowa
410-429	5	1321	1021-1758	46.6	C-35 Minn. L. Vermilion
	51	1516	-	53.5	C-20 Minn.
	23	1752	1318-2353	61.8	C-30 Iowa
430-449	26	1789	-	63.1	C-20 Minn.
	5	2075	1871-2722	73.2	C-30 Iowa
450-469	3	2069	1814-2324	73.0	C-35 Minn. L. Vermilion
	1	2270	-	80.1	C-30 Iowa
470-489	9	1925	-	67.9	C-20 Minn.
490-509	1	2877	-	101.5	C-30 Iowa

C-35 Minn. L. Vermilion  $\log W = -4.9867 + 3.113 \log S.L.$

## Fork length-Weight relationship, Minn. Lake of the Woods C-22

Fork length in inches	No.	Weight in pounds		Fork length in inches	No.	Weight in pounds	
		Mean	Range			Mean	Range
8.0-8.9	1	0.38	-	16.0-16.9	76	2.55	2.00-3.25
11.0-11.9	10	0.86	0.69-1.00	17.0-17.9	45	2.90	2.25-3.94
12.0-12.9	11	1.10	0.88-1.56	18.0-18.9	29	3.52	2.81-4.31
14.0-14.9	37	1.36	0.94-1.94	20.0-20.9	3	4.96	4.75-5.13
13.0-13.9	64	1.74	1.25-2.13	19.0-19.9	12	3.84	2.94-4.56
15.0-15.9	61	2.09	1.56-2.63	21.0-21.9	1	2.81	-

## Total length-Weight Relationship

Total length in inches	No.	Weight in pounds		Location
		Mean	Range	
-	-	0.1	-	S-62 Minn.
8	-	0.3	-	S-62 Minn.
10	-	0.5	-	S-62 Minn.
12	-	0.33	-	R-50 Ohio
	-	0.7	-	S-62 Minn.
14	-	0.78	-	R-50 Ohio
	-	1.2	-	S-62 Minn.
	-	1.13	-	R-50 Ohio
	2	1.38	1.25-1.50	R-14 N.Y. males



## WHITE SUCKER, (Continued)

Total length in inches	No.	Weight in pounds		Location
		Mean	Range	
15	11	1.63	1.31-1.94	R-14 N.Y. males
	1	1.44	-	R-14 N.Y. spent females
16	-	1.7	-	S-62 Minn.
	-	1.65	-	R-50 Ohio
	2	1.72	1.63-1.81	R-14 N.Y. spent females
	27	1.81	1.56-2.25	R-14 N.Y. males
	3	2.00	1.75-2.19	R-14 N.Y. ripe females
17	10	2.00	1.69-2.25	R-14 N.Y. spent females
	10	2.13	1.63-3.00	R-14 N.Y. males
	4	2.50	2.38-2.63	R-14 N.Y. ripe females
18	-	2.6	-	S-62 Minn.
	9	2.31	2.00-2.63	R-14 N.Y. spent females
	7	3.13	2.81-3.44	R-14 N.Y. ripe females
19	3	2.56	2.44-2.68	R-14 N.Y. spent females
	6	3.38	2.94-3.56	R-14 N.Y. ripe females
20	-	3.50	-	S-62 Minn.
	5	3.75	3.69-3.88	R-14 N.Y. ripe females
22	-	4.1	-	S-62 Minn.
R-14 N.Y. ripe males		Log W = 2.4224	Log T.L. = -1.4678	
spent males		Log W = 2.5914	Log T.L. = -1.6962	
ripe females		Log W = 2.2303	Log T.L. = -1.1404	
spent females		Log W = 2.5070	Log T.L. = -1.6004	

S-89 Wisc.	2369 fish	average K 1.70
C-34 Minn. Leech L.	67 fish (200-499 mm. S.L.)	average K 1.85
C-23 Minn. 1941-43	468 fish (100-499 mm. S.L.)	average K 1.94
C-35 Minn. L. Vermilion	83 fish	average K 2.02
E-3 Minn. 1936-41	474 fish (102-482 mm. S.L.)	average K 2.07
V-20 Minn. Red L.	11 fish (291-400 mm. S.L.)	average K 2.12
C-22 Minn. L. of Woods	393 fish (150-520 mm. S.L.)	average K 2.15
C-36 Iowa	64 fish (77-505 mm. S.L.)	average K 2.26 range 1.54-3.15
C-23 Minn. standards for K:	poor under 1.70;	excel. over 2.20
R-50 Ohio		average C(T.L.) 40
C-23 Minn. standards for C(T.L.)	poor under 37;	excel. over 46

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group O-May									
S-91 N.Y.	K	-	X	-	-	8-11	-	-	-
C-70 N.Y.	K	-	16	-	-	-	-	-	-
C-8 Mich.	K	-	-	-	0.9	-	-	-	-
Age Group O-June									
F-5 L. Erie	P	33	-	-	X	0.5-0.8	-	-	-
B-49 Ont. L. Nipigon	P	60	-	0.8	-	-	-	-	-
H-92 Mich. Douglas L.	P	655	18	-	-	13-30	-	-	-
Age Group O-July									
D-10 N.Y. C.c. utawana	P	-	-	-	X	0.7-1.0	-	-	-
F-5 L. Erie	P	53	-	-	X	0.8-1.0	-	-	-
A-1 N.Y. Oneida L.	P	-	-	-	X	1.0-1.5	-	-	-
B-49 Ont. L. Nipigon	P	171	-	1.1	-	0.9-1.3	-	-	-
C-35 Minn. Vermilion	P	3	34	-	-	21-44	-	-	-
H-92 Mich. Douglas L.	P	102	X	-	-	23-53	-	-	-
H-76 W. Va. Back Cr.	P	6	-	2.1	-	-	-	-	-
Age Group O-August									
D-10 N.Y. C.c. utawana	P	-	-	-	1.5	0.9-1.8	-	-	-
B-49 Ont. L. Nipigon	P	82	-	1.4	-	1.1-1.6	-	-	-
H-92 Mich. Douglas L.	P	94	X	-	-	38-62	-	-	-
B-113 Minn.	K	-	-	-	2.5	-	-	-	-



## WHITE SUCKER, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group O-September									
A-1 N.Y. Oneida L.	P	-	-	-	X	2.0-3.0	-	-	-
S-113 Minn.	K	-	-	-	3.5	-	-	-	-
B-16 Mich. Wolf L.	K	-	-	-	X	3.3-8.2	-	-	0.2-3.2
Age Group O-Oct.-Nov.									
A-1 N.Y. Oneida L.	P	-	-	-	X	3.0-4.0	-	-	-
C-8 Mich.	K	-	-	-	3.4	2.1-6.4	-	-	-
Age Group O									
E-9 N.Y.	K	-	-	2.0	-	-	-	-	-
Age Group I									
B-20 Minn. Superior	S	-	-	-	2.0	1.0-3.5	-	-	-
D-10 N.Y. C.c. utawana	S	-	-	-	X	1.5-4.0	-	-	-
B-49 Ont. L. Nipigon	S	3	-	2.2	-	-	-	-	-
R-14 N.Y. Skaneateles	S	6	-	-	2.8	-	-	-	-
S-91 N.Y.	K	-	-	-	3.0	-	-	-	-
E-9 N.Y.	K	-	-	X	-	3.0-4.0	-	-	-
S-113 Minn.	K	-	-	-	X	4.0-4.5	-	-	-
S-89 Wisc. Muskellunge L.	S	23	127	-	-	-	-	-	-
C-35 Minn. L. Vermilion	S	3	165	-	-	143-177	2	3.4	3.2-3.5
E-3 Minn.	S	3	178	-	-	127-254	-	-	-
Age Group II									
B-20 Minn. Superior N.F.	S	-	-	-	3.5	2.0-6.5	-	-	-
S-91 N.Y.	S	-	-	-	4.0	-	-	-	-
E-9 N.Y.	K	-	-	X	-	6.0-7.0	-	-	-
S-89 Wisc. Muskellunge L.	S	25	148	-	-	-	-	-	-
E-3 Minn.	S	26	264	-	-	178-406	-	-	-
C-35 Minn. L. Vermilion	S	16	277	-	-	216-379	9	13.4	6.0-24.0
Age Group III									
S-91 N.Y.	S	-	-	-	X	4.5-6.0	-	-	-
B-20 Minn. Superior N.F.	S	-	-	-	3.5	3.0-10.5	-	-	-
S-89 Wisc. Muskellunge	S	69	186	-	-	-	-	-	-
C-35 Minn. L. Vermilion	S	26	340	-	-	283-375	23	27.9	15.0-37.6
E-3 Minn.	S	297	343	-	-	229-483	-	-	-
C-13 Mich. Deep L.	S	1	-	-	15.6	-	-	-	-
Age Group IV									
S-91 N.Y.	S	-	-	-	X	6.0-8.0	-	-	-
B-20 Minn. Superior N.F.	S	-	-	-	7.5	4.0-12.5	-	-	-
S-89 Wisc. Muskellunge L.	S	126	209	-	-	-	-	-	-
R-14 N.Y. Skanaeteles (males)	S	-	-	-	14.9	-	-	-	-
C-35 Minn. L. Vermilion	S	27	357	-	-	295-418	23	32.5	18.0-42.0
E-3 Minn.	S	484	373	-	-	254-508	-	-	-
R-14 N.Y. Skanaeteles (females)	S	-	-	-	16.6	-	-	-	-
Age Group V									
B-20 Minn. Superior N.F.	-	-	-	-	9.0	5.5-14.0	-	-	-
S-89 Wisc. Muskellunge L.	S	193	225	-	-	-	-	-	-
S-91 N.Y.	S	-	-	-	X	8.0-13.5	-	-	-
R-14 N.Y. Skanaeteles (males)	S	-	-	-	15.5	-	-	-	-
C-35 Minn. L. Vermilion	S	14	371	-	-	343-403	12	35.7	26.0-41.0
E-3 Minn.	S	398	381	-	-	279-558	-	-	-
R-14 N.Y. Skanaeteles (females)	S	-	-	-	17.2	-	-	-	-
Age Group VI									
S-89 Wisc. Muskellunge L.	S	139	246	-	-	-	-	-	-
B-20 Minn. Superior N.F.	S	-	-	-	11.0	6.5-14.0	-	-	-
S-91 N.Y.	S	-	-	-	X	13.5-15.5	-	-	-
E-3 Minn.	S	106	389	-	-	305-558	-	-	-
C-35 Minn. L. Vermilion	S	9	417	-	-	363-463	9	54.3	31.0-81.0
R-14 N.Y. Skanaeteles (males)	S	-	-	-	17.3	-	-	-	-
R-14 N.Y. Skanaeteles (females)	S	-	-	-	18.6	-	-	-	-
W-13 Conn.	S	1	568	-	25.0	-	1	111.0	-
Age Group VII									
S-89 Wisc. Muskellunge L.	S	68	261	-	-	-	-	-	-
B-20 Minn. Superior N.F.	S	-	-	-	12.0	8.0-15.5	-	-	-



## WHITE SUCKER, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
E-3 Minn.	S	39	394	-	-	305-457	-	-	-
R-14 N.Y. Skanaeteles (males)	S	-	-	-	17.2	-	-	-	-
C-35 Minn. L. Vermilion	S	1	451	-	-	-	1	64.2	-
R-14 N.Y. Skanaeteles (females)	S	-	-	-	19.1	-	-	-	-
Age Group VIII									
S-89 Wisc. Muskellunge L.	S	15	287	-	-	-	-	-	-
B-20 Minn. Superior N.F.	S	-	-	-	13.5	10.0-16.0	-	-	-
R-14 N.Y. Skanaeteles (males)	S	-	-	-	17.7	-	-	-	-
C-35 Minn. L. Vermilion	S	1	415	-	-	-	1	54.3	-
E-3 Minn.	S	10	439	-	-	381-483	-	-	-
R-14 N.Y. Skanaeteles (females)	S	-	-	-	19.3	-	-	-	-
Age Group IX									
S-89 Wisc. Muskellunge L.	S	3	306	-	-	-	-	-	-
B-20 Minn. Superior N.F.	S	-	-	-	14.5	11.5-11.7	-	-	-
E-3 Minn.	S	5	447	-	-	432-457	-	-	-
Age Group X									
B-20 Minn. Superior N.F.	S	-	-	-	16.0	13.5-18.5	-	-	-

	No.	Average calculated standard length at each annulus									
		1	2	3	4	5	6	7	8	9	10
S-89 Wisc. Muskellunge L.	2990	61	100	138	173	197	222	245	262	292	284
E-3 Minn.	2655	95	178	253	304	345	366	377	422	427	
C-35 Minn. L. Vermilion	94	120	199	265	309	348	393	404	398		
Average fork length in inches at each annulus											
E-2 Minn.	2523	3.7	7.5	12.1	13.6	14.4	16.9	18.2	18.7	19.6	
Average total length in inches at each annulus											
K-33 Minn.	1065	3.7	7.1	10.2	13.1	14.9	16.7	18.1	19.5		
S-62 Minn.	-	4.3	8.1	11.6	13.9	15.8	16.7	17.2	19.3	19.5	
R-50 Ohio		2.5	9.0	12.5	15.1	17.0	18.0	18.5			
Average weight in grams at each annulus											
S-89 Wisc.	2990	4	19	48	78	130	178	244	320	401	

	Code	Size of females	No. of females	No. of eggs per female Mean	Range
S-91. N.Y.	V	12 inches	1	18,000	-
	V	15 inches	1	31,200	-
D-10 N.Y. <u>C.c. utawana</u>	D	4.75 inches	1	775	-
	D	5.0 inches	1	1,000	-
	D	6.0 inches	-	1,300	-
	D	7.0 inches	-	1,500	-
L-14 Ohio	V	13.5 inches	1	24,600	-
R-14 N.Y.	V	16 inches	1	21,800	
	V	17 inches	3	28,400	26,700-30,400
	V	18-29 inches	4	40,525	36,100-47,800
V-21 Minn.	V	7-8 inches	3	42,000	36,000-46,000
	V	14-16 inches	9	67,000	46,000-81,000
	V	16-17 inches	12	72,000	56,000-114,000
	V	17-19 inches	50	92,000	66,000-134,000
	V	19-20 inches	8	111,000	93,000-139,000
E-4 Minn.	V	-	-	-	36,000-140,000

COLUMBIA LARGE-SCALED SUCKER, Catostomus macrocheilus

	Average calculated fork length in inches at each annulus										
	1	2	3	4	5	6	7	8	9	10	11
C-53 B.C. Okanagan	1.8	3.0	4.9	6.7	8.5	10.0	11.2	12.0	13.4	14.0	14.8



LONGNOSE SUCKER, *Catostomus catostomus*

C-22 Minn. Lake of the Woods, 6 fish, average K 1.96

	No.	Fork lengths in inches
Age Group 0		
N-23 Alta Jasper Park	-	0-2.4
Age Group I		
N-23 Alta. Jasper Park	-	2.7-3.0
Age Group II		
N-23 Alta. Jasper Park	-	3.6
Age Group III		
N-23 Alta. Jasper Park	-	3.9
C-53 B.C. Okanagan	1	10.1
Age Group IV		
C-53 B.C. Okanagan	1	15.2

E-3 Minn.	No.	Average calculated standard lengths at each year				
		1	2	3	4	5
	20	99	174	242	270	307

HOG SUCKER, *Hypentelium nigricans*

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group I									
R-11 N.Y. Genesee	S	3	-	-	1.7	1.6-1.8	-	-	-
R-11 N.Y. Catatonk	S	52	-	-	3.1	1.6-4.3	-	-	-
Age Group II									
R-11 N.Y. Genesee (females)	S	11	-	-	3.8	3.3-4.1	-	-	-
R-11 N.Y. Genesee (males)	S	12	-	-	4.0	3.4-4.8	-	-	-
R-11 N.Y. Catatonk	S	34	-	-	4.8	2.7-5.5	-	-	-
Age Group III									
R-11 N.Y. Genesee (females)	S	14	-	-	5.4	4.0-6.4	-	-	-
R-11 N.Y. Genesee (males)	S	21	-	-	5.7	4.5-7.2	-	-	-
R-11 N.Y. Catatonk	S	37	-	-	7.0	4.3-8.3	-	-	-
Age Group IV									
R-11 N.Y. Genesee (females)	S	5	-	-	7.4	5.9-8.8	-	-	-
R-11 N.Y. Genesee (males)	S	11	-	-	7.5	6.3-8.8	-	-	-
R-11 N.Y. Catatonk	S	16	-	-	8.4	7.1-9.9	-	-	-
Age Group V									
R-11 N.Y. Genesee (males)	S	22	-	-	9.2	8.1-11.5	-	-	-
R-11 N.Y. Genesee (females)	S	36	-	-	9.5	7.7-10.8	-	-	-
Age Group VI									
R-11 N.Y. Genesee (males)	S	6	-	-	9.6	9.1-10.5	-	-	-
R-11 N.Y. Genesee (females)	S	7	-	-	10.1	8.4-11.7	-	-	-
Age Group VII									
R-11 N.Y. Genesee (males)	S	7	-	-	10.5	9.8-10.8	-	-	-
R-11 N.Y. Genesee (females)	S	14	-	-	11.0	9.1-12.5	-	-	-
Age Group VIII									
R-11 N.Y. Genesee (males)	S	5	-	-	10.7	10.1-11.5	-	-	-
R-11 N.Y. Genesee (females)	S	2	-	-	12.6	12.5-12.6	-	-	-
Age Group IX									
R-11 N.Y. Genesee (females)	S	1	-	-	13.8	-	-	-	-

E-3 Minn.	No.	Average calculated standard lengths		
		1	2	3
	43	95	167	232



RUSTYSIDE SUCKER, Thoburnia rathoeca

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group O-October									
R-12 N.Y.	S	9	-	-	1.5	1.2-1.8	-	-	-
Age Group I-April									
R-12 N.Y.	S	10	-	-	1.9	1.6-2.0	-	-	-
Age Group II-April									
R-12 N.Y.-females	S	50	-	-	2.7	2.2-3.2	-	-	-
R-12 N.Y.-males	S	54	-	-	2.9	2.0-3.6	-	-	-
Age Group III-April									
R-12 N.Y.-males	S	20	-	-	4.0	3.1-4.9	-	-	-
R-12 N.Y.-females	S	22	-	-	4.4	3.3-5.1	-	-	-
Age Group IV-April									
R-12 N.Y.-males	S	7	-	-	4.7	4.3-4.9	-	-	-
R-12 N.Y.-females	S	26	-	-	5.0	4.3-5.7	-	-	-
Age Group V-April									
R-12 N.Y.-males	S	2	-	-	5.5	-	-	-	-
R-12 N.Y.-females	S	9	-	-	5.8	5.1-6.3	-	-	-
Age Group VI-April									
R-12 N.Y.-females	S	2	-	-	6.2	5.7-6.3	-	-	-
Age Group VII-April									
R-12 N.Y.-females	S	3	-	-	6.5	-	-	-	-

R-12 N.Y. 108 mm. female, 742 eggs; 112 mm. female, 1190 eggs; 144 mm. female 1749 eggs.

LAKE CHUBSUCKER, Erismyzon sucetta

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group O-May-June									
R-29 Ill. R.	P	-	-	-	X	0.7-1.3	-	-	-
H-86 Mich. Portage L.							Lists the growth as 0.5 mm. per day for 1st month.		
Age Group II									
B-77 Mich. Third Sister	S	-	-	-	2.3	1.6-3.1	-	-	-
R-34 Ind. Shoe L.	P	19	-	6.6	-	6.1-7.3	-	-	-
U-3 N.Y. Glovers	S	2	193	-	-	-	-	-	-
Age Group III									
R-34 Ind. Shoe L.	P	81	-	7.5	-	6.5-9.1	-	-	-
U-3 N.Y. Glovers L.	S	1	219	-	-	-	-	-	-
Age Group IV									
R-34 Ind. Shoe L.	P	16	-	9.1	-	8.5-10.0	-	-	-
U-3 N.Y. Glovers L.	S	51	255	-	-	-	-	-	-
Age Group V									
U-3 N.Y. Glovers L.	S	59	268	-	-	-	-	-	-
W-13 Conn.	S	1	300	-	13.9	-	-	27.0	-
C-58 Mich.		-	-	-	10.0	-	-	-	-
Age Group VI									
U-3 N.Y. Glovers L.	S	67	270	-	-	-	-	-	-
Age Group VII									
U-3 N.Y. Glovers L.	S	14	268	-	-	-	-	-	-
Age Group VIII									
U-3 N.Y. Glovers L.	S	6	266	-	-	-	-	-	-

C-56 Mich. 3,000-20,000 eggs per female



SPOTTED SUCKER, Minytrema melanops

H-76 W. Va. Back Creek. 17 fish, Age Group 0 1.6 inches F.L.

Average calculated standard length at each annulus

	No.	1	2
E-3 Minn.	1	65	192

SILVER REDHORSE, Moxostoma anisurum

C-22 Minn. L. of Woods	4 fish	300-399 mm. S.L.	Fork length equals 1.120 S.L.
	8 fish	400-449 mm. S.L.	Fork length equals 1.108 S.L.
	4 fish	450-570 mm. S.L.	Fork length equals 1.102 S.L.
C-22 Minn. L. of Woods	12 fish	Total length equals 1.140 S.L.	
C-22 Minn. L. of Woods	11 fish	343-483 mm. S.L.	average K 2.54

NORTHERN REDHORSE, Moxostoma aureolum

C-37 Minn. L. of Woods.	9 fish	under 99 mm. S.L.	F.L. = 1.124 S.L.	T.L. = 1.240 S.L.
	7 fish,	200-299 mm. S.L.	F.L. = 1.114 S.L.	T.L. = 1.240 S.L.
	163 fish,	300-499 mm. S.L.	F.L. = 1.097 S.L.	T.L. = 1.184 S.L.
C-30 Iowa	1 fish,	250 mm. S.L.	F.L. = 1.16 S.L.	T.L. = 1.28 S.L.

## Standard length-weight relationship, Minn. C-20

S.L. in mm.	No.	Weight in pounds	S.L. in mm.	No.	Weight in pounds	S.L. in mm.	No.	Weight in pounds
240	1	0.56	340	72	1.81	440	1	3.75
250	1	0.82	370	84	2.24	470	2	4.91
290	8	1.25	390	4	3.00	490	2	5.63
320	18	1.44	420	2	3.81			

C-23 Minn. 1941-43	37 fish (200-550 mm. S.L.)	average K 1.96
E-3 Minn. 1936-41	194 fish (229-507 mm. S.L.)	average K 2.06
C-22 Minn. L. of Woods	201 fish	average K 2.23
C-36 Iowa	1 fish (250 mm. S.L.)	K 2.26

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group 0-July									
F-5 L. Erie	P	1	-	-	-	-	-	-	-
Age Group II									
E-3 Minn.	S	3	254	-	-	-	-	-	-
Age Group III									
E-3 Minn.	S	10	302	-	-	279-330	-	-	-
Age Group IV									
E-3 Minn.	S	19	329	-	-	279-381	-	-	-
Age Group V									
E-3 Minn.	S	11	348	-	-	305-406	-	-	-
Age Group VI									
E-3 Minn.	S	4	356	-	-	330-381	-	-	-
Age Group VII									
E-3 Minn.	S	2	432	-	-	-	-	-	-
Age Group VIII									
E-3 Minn.	S	2	521	-	-	483-558	-	-	-
Age Group IX									
E-3 Minn.	S	1	558	-	-	-	-	-	-

## Average calculated standard length at each annulus

	Code	No.	1	2	3	4	5	6	7	8	9
E-3 Minn.	L	101	86	154	214	266	315	361	407	490	520

## Average calculated total length at each annulus

K-33 Minn.	L	53	3.8	6.8	9.9	12.9	15.0	16.0	17.4	19.8
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GOLDEN REDHORSE, Moxostoma erythrurum

E-28 Tenn. Chickamauga. 21 fish, average K 2.3

R-55 Ohio average C(T.L.) 50

	No.	Average calculated standard lengths				
		1	2	3	4	5
E-28 Tenn. Chickamauga	41	126	169			
		Average calculated total lengths				
R-55 Ohio	-	3.8	9.9	13.0	15.4	17.1
E-28 Tenn. Chickamauga	41	6.3	8.5			
E-28 Tenn. Chickamauga	41 fish,	Age Group II	190 mm. S.L.,	9.6 inches, T.L.		
R-55 Ohio	11 pound female	35,000 eggs.				

REDBELLY DACE, Chrosomus eos

C-56 Mich. Age Group O- Oct. 485 fish, T.L. ave. 1.3", range 0.4-1.9

HITCH, Lavinia exilicauda

Fork Length-Weight relationship, Cal. Clear L. M-86

Fork length in inches	No.	Weight in ounces		Fork length in inches	No.	Weight in ounces	
		Mean	Range			Mean	Range
6	1	1.0	-	10	13	8.0	4.0-12.0
7	5	2.0	2.0-3.0	11	24	11.0	7.0-14.0
8	2	3.0	2.0-3.0	12	11	13.0	11.0-16.0
9	7	5.0	3.0-8.0	13	4	17.0	16.0-19.0

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group O-May M-86 Cal. Clear L.	P	-	-	0.9	-	-	-	-	-
Age Group O-June M-86 Cal. Clear L.	P	-	-	1.5	-	-	-	-	-
Age Group O-July M-86 Cal. Clear L.	P	-	-	1.7	-	-	-	-	-
Age Group I-April M-86 Cal. Clear L. (males)	S	8	-	3.9	-	3.1-4.5	-	-	-
Age Group II-April M-86 Cal. Clear L. (males)	S	10	-	5.7	-	4.5-7.1	-	-	-
M-86 Cal. Clear L. (females)	S	1	-	6.9	-	-	-	-	-
Age Group III-April M-86 Cal. Clear L. (males)	S	12	-	7.3	-	5.7-8.9	-	-	-
M-86 Cal. Clear L. (females)	S	24	-	10.2	-	7.9-12.8	-	-	-
Age Group IV-April M-86 Cal. Clear L. (males)	S	5	-	9.2	-	8.5-9.7	-	-	-
M-86 Cal. Clear L. (females)	S	37	-	11.2	-	9.7-13.0	-	-	-
Age Group V-April M-86 Cal. Clear L. (males)	S	1	-	10.2	-	-	-	-	-
M-86 Cal. Clear L. (females)	S	2	-	11.9	-	11.0-12.8	-	-	-
Age Group VI-April M-86 Cal. Clear L. (females)	S	1	-	13.4	-	-	-	-	-

COLUMBIA SQUAWFISH, Ptychocheilus oregonensisC-14 B.C.  
C-14 B.C.Age Group VI  
Age Group XI10-12 inches, fork length  
18 inches, fork length



## COLUMBIA SQUAWFISH, (Continued)

	Average calculated fork length at each annulus										
	1	2	3	4	5	6	7	8	9	10	11
C-53 B.C. Okanagan	1.8	3.5	5.1	6.3	7.9	9.4					
C-53 B.C. L. Woods	1.9	3.9	5.8	7.8	8.9	10.4	11.9	13.6	14.4	15.2	16.2

CHUB, Mylocheilus caurinus

C-14 B.C.	Age Group V	9.75 inches, fork length.				
	Average calculated fork length at each annulus					
	1	2	3	4	5	
C-53 B.C. Okanagan	2.0	4.2	5.6	6.7	7.8	

UTAH CHUB, Tigoma atraria

	No.	Average calculated total length at each annulus				
		1	2	3	4	5
H-43 Utah, Fish L.	26	1.3	3.5	5.5	6.6	7.4

CHUB, Leuciscus vandoisulus

B-67 D.C. Oxon Run	Age Group I--Jan.	20-40 mm. S.L.
	Age Group II-- Jan.	44-64 mm. S.L.

GOLDEN SHINER, Notemigonus crysoleucas

C-33 Iowa ponds	6 fish (79-107 mm. S.L.)	F.L. = 1.133 S.L.	T.L. = 1.233 S.L.
L-29 Iowa, East L.	69 fish (40-169 mm. S.L.)	F.L. = 1.138 S.L.	
	97 fish (10-169 mm. S.L.)		T.L. = 1.255 S.L.
B-86 Ill. Onized L.			T.L. = 1.25 S.L.
C-30 Iowa	58 fish	F.L. = 1.14 S.L.	T.L. = 1.26 S.L.
S-65 Nova Scotia		F.L. = 1.144 S.L.	

## Standard length-weight relationship, Iowa, L-29, C-30

Standard length in millimeters	No.	Weight in grams		Standard length in millimeters	No.	Weight in grams	
		Mean	Range			Mean	Range
56	1	3	-	124	7	39	29-47
75	6	6	5-7	133	11	48	38-62
82	4	8	7-9	144	25	63	48-74
95	15	15	7-25	154	18	82	66-100
104	18	21	15-26	165	9	98	91-111
115	7	31	23-38				

L-29 Iowa, East L.  $\log W = -5.306 + 3.294 \log S.L.$ S-65 Nova Scotia, L. Jesse  $\log W = -3.2114 + 3.31 \log F.L.$ 

## Total length-Weight relationship

Total length in inches	Weight in grams			Weight in oz.	Location
	No.	Mean	Range		
3.0-3.9	1	8	-	0.28	C-33 Iowa
4.0-4.9	4	15	-	0.53	C-33 Iowa
5.0-5.9	1	24	-	0.84	C-33 Iowa
	4	26	20-37	0.92	H-61 Md.
6.0-6.9	3	47	39-57	1.67	H-61 Md.
7.0-7.9	3	77	65-88	2.70	H-61 Md.
8.0-8.9	2	120	105-135	4.25	H-61 Md.



## GOLDEN SHINER, (Continued)

C-23 Minn.	2 fish (121-140 mm.)	average K 1.49	
C-36 Iowa	44 fish (56-158 mm.)	average K 1.74	range 1.03-2.37
T-5 Ala.	3283 fish (1-3 inches)	average K 1.7	
	187 fish (3-5 inches)	average K 2.0	
C-33 Iowa ponds	6 fish (79-107 mm.)	average K 1.96	
L-29 Iowa, East L.	65 fish (110-169 mm.)	average K 2.12	
S-65 Nova Scotia	108 fish	average K(F.L.) 1.27	

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in grams		
							No.	Mean	Range
Age Group O-June									
C-60 Mich.	K	1121	14	-	-	-	1121	0.05	-
L-29 Iowa East L.	P	9	18	-	-	13-20	-	-	-
B-86 Ill. Onized L.	S	8	-	-	2.2	1.0-3.5	-	-	-
Age Group O-July									
L-29 Iowa East L.	P	17	25	-	-	19-29	-	-	-
C-60 Mich.	K	603	34	-	-	-	603	0.8	-
Age Group O-August									
L-29 Iowa East L.	P	1	20	-	-	-	-	-	-
T-5 Ala.	K	3283	-	-	X	1.0-3.3	3283	1.5	-
Age Group O-October									
L-13 Ohio	K	-	-	-	X	1.7-2.5	-	-	-
C-60 Mich.	K	682	58	-	-	-	-	3.3	-
Age Group O									
C-57 N.Y.	K	24	-	-	1.5	-	-	-	-
C-57 Mich.	K	48	-	-	1.6	-	-	-	-
E-9 N.Y.	K	-	-	1.5	-	-	-	-	-
C-56 Mich.	K	198	-	-	1.8	0.9-2.4	-	-	-
C-58 Mich.	K	-	-	-	3.0	-	-	-	-
M-25 Iowa	K	-	-	-	4.0	-	-	-	-
A-10 Okla.	K	-	-	-	-	-	-	15.0	-
Age Group I									
E-9 N.Y.	K	-	-	2.0	-	-	-	-	-
T-5 Ala.	S	173	-	-	X	2.2-3.8	173	4.9	-
L-29 Iowa East L.	S	6	56	-	-	-	-	-	-
C-57 Mich.	S	532	64	-	-	46-90	-	-	-
C-57 N.Y.	S	1	73	-	-	-	-	-	-
H-98 N.Car.-Mar.	K	-	-	-	X	1.3-4.0	-	-	-
C-58 Mich.	K	-	-	-	4.0	-	-	-	-
B-86 Ill. Onized L.	S	38	-	-	5.3	4.0-6.5	-	-	-
Age Group II									
E-9 N.Y.	K	-	-	X	-	2.5-3.0	-	-	-
T-5 Ala.	S	9	-	-	X	3.7-5.0	9	17.2	-
C-57 Mich.	S	254	84	-	-	76-117	-	-	-
C-57 N.Y.	S	2	85	-	-	-	-	-	-
L-13 Ohio	K	36	-	-	5.0	-	-	-	-
L-29 Iowa East L.	S	1	122	-	-	-	-	-	-
B-86 Ill. Onized L.	S	38	-	-	7.2	6.5-8.5	-	-	-
Age Group III									
T-5 Ala.	S	1	-	-	4.6	-	1	23.5	-
C-57 Mich.	S	146	92	-	-	85-120	-	-	-
C-57 N.Y.	S	20	95	-	-	-	-	-	-
L-29 Iowa East L.	S	33	141	-	-	-	-	-	-
B-86 Ill. Onized L.	S	6	-	-	7.8	6.5-9.0	-	-	-
Age Group IV									
T-5 Ala.	S	4	-	-	X	5.0-55	4	34.2	-
C-57 Mich.	S	48	101	-	-	82-14	-	-	-
L-29 Iowa East L.	S	15	154	-	-	-	-	-	-
Age Group V									
C-58 Mich.	S	-	-	-	5.5	-	-	-	-
C-57 Mich.	S	21	122	-	-	-	-	-	-
L-29 Iowa East L.	S	5	158	-	-	-	-	-	-
C-57 N.Y.	S	24	168	-	-	-	-	-	-



## GOLDEN SHINER, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in grams		
							No.	Mean	Range
Age Group VI									
C-57 Mich.	S	7	150	-	-	-	-	-	-
C-57 N.Y.	S	3	165	-	-	-	-	-	-
W-13 Conn.	S	1	203	-	9.8	-	1	198.0	-
Age Group VII									
C-57 Mich.	S	2	134	-	-	-	-	-	-
Age Group IX									
C-57 Mich	S	1	207	-	-	-	-	-	-

	Code	No.	Average calculated standard length at each annulus				
			1	2	3	4	5
L-29 Iowa, East L.	L	60	36	88	135	150	155
	Code	No.	Average calculated total length				
			1	2	3	4	
L-29 Iowa, East L.	L	60	1.8	4.3	7.4	7.7	
B-86 Ill. Onized L.	L	87	3.7	6.8	7.5		

REDSIDE DACE, Clinostomus elongatus

	Age Group	Sex	No.	Standard length in millimeters	
				Mean	Standard deviation
K-18 N.Y.	I- May	males	8	38	2.5
		females	7	37	2.8
	II- May	males	6	56	2.9
		females	10	57	2.7
	III- May	males	5	62	3.4
		females	8	69	3.2
	IV- May	Males	1	65	
		females	2	77	

K-18 N.Y. 409-1526 eggs per female.

NORTHERN PEARL DACE, Margariscus margarita nachtriebi

L-7 Ohio 4.5 inch female 1686 eggs.

FALLFISH, Semotilus corporalis

B-70 D.C.	Age Group O-Sept.	26 mm. S.L.
B-70 D.C.	Age Group I-Jan.-June	30-38 mm. S.L.
W-13 Conn.	Age Group VI. 1 fish	360 mm. S.L. 17.5 inches, T.L. 2 pounds

CREEK CHUB, Semotilus atromaculatus

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group O									
C-58, H-91 Mich.	K	-	-	-	X	2.0-3.0	-	-	-
W-10 Mich.	K	-	-	-	3.7	2.5-4.8	-	-	-
L-24 Quebec	S	2	72	-	-	68-84	2	0.4	0.3-0.5
Age Group O-June									
C-49 Ohio	K	-	-	-	1.2	-	-	-	-
Age Group O-August									
C-49 Ohio	K	-	-	-	1.8	-	-	-	-
Age Group O-September									
B-16 Mich., Drayton H.	K	-	-	-	2.5	-	-	-	0.07-0.08
C-49 Ohio	K	-	-	-	2.7	-	-	-	-
M-24 Ill.	K	-	-	-	3.5	-	-	-	-
B-16 Mich., Hastings	K	-	-	-	X	3.1-4.8	-	-	0.18-0.90



## CREEK CHUB, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group O-December									
C-49 Ohio	K	-	-	-	3.2	-	-	-	-
Age Group II									
L-24 Quebec	S	32	116	-	-	84-145	32	1.1	0.5-2.0
Age Group III									
L-24 Quebec	S	40	147	-	-	117-169	40	2.1	1.0-3.4
H-91 Mich.	K	-	-	-	X	4.0-7.0	-	-	-
Age Group IV									
L-24 Quebec	S	1	172	-	-	-	1	3.7	-
Average calculated total lengths at each annulus									
			1	2	3	4	5	6	7
R-60 Ohio.	females		2.0	4.0	4.7	5.0	5.1	6.2	
	males		2.0	4.0	5.5	6.8	7.7	8.4	8.7
W-10 Mich.	28 females	3 to 8 inches, T.L.				4,250 eggs per female			
C-49 Ohio	2 females	4.5-4.75 inches, T.L.				4,193-4,671 eggs per female			

EMERALD SHINER, Notropis atherinoides

F-5 L. Erie	Age Group O-July	979 fish	0.2-0.9 inches
	Age Group O-Aug.	994 fish	0.2-1.3 inches, T.L.
	Age Group O-Sept.	3 fish	0.7 inches T.L.
H-87 Mich.	Age Group O		26-60 mm. S.L.
	Age Group I		70-91 mm. S.L.

BRIDLED SHINER, Notropis bifrenatus

	Code	Standard lengths in millimeters			Total Length in inches
		No.	Mean	Range	
Age Group O-June					
H-16 N.H.	P	-	-	4-6	0.1-0.3
Age Group O-July					
H-16 N.H.	P	-	-	8-14	0.4-0.8
N-17 N.H.	P	667	12	5-21	-
Age Group O-Aug					
H-17 N.H.	P	117	16	11-22	-
Age Group I					
H-17 N.Y.-March	P	1751	-	14-33	
H-17 N.H. June	P	677	-	23-38	
Age Group II					
H-17 N.Y. March	P	326	-	34-45	
H-17 N.H. June	P	43	-	37-43	
H-17 N.H.		25 mm. female with 135 eggs.			
		34 mm. female with 531 eggs.			
		44 mm. female with 1055 eggs.			

RIVER SHINER, Notropis blennius

	Code	No.	Standard length in millimeters	
			Mean	Range
Age Group O-July				
H-88 Mich.	P	101	14	10-17
Age Group O-Aug.				
H-88 Mich.	P	-	-	11-39
Age Group O				
C-22 Minn. L. of Woods	S	8	31	28-36



## RIVER SHINER, (Continued)

	Code	No.	Standard length in millimeters	
			Mean	Range
Age Group I C-22 Minn. L. of Woods	S	2	49	48-50
Age Group II C-22 Minn. L. of Woods	S	4	70	59-79

Notropis chalybaeus

	Age in days	No.	Length in millimeters	
			S.L.	T.L.
M-27 Fla.	0	2	2.2	2.3
	3	1	3.7	3.9
	9	1	4.3	4.6
	19	1	5.4	5.7
	26	1	5.7	6.2
	33	1	6.3	7.0
	47	1	7.4	9.2
	69	1	11.6	14.8

COMMON SHINER, Notropis cornutus

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group O-June F-5 L. Erie H-86 Mich. Portage L.	K	1	6	-	-	-	-	-	-
									reports a growth of 0.45 mm. per day for a month.
Age Group O-July F-5 L. Erie	P	9	6	-	-	-	-	-	-
Age Group O-October B-70 D.C. H-91 Mich.	K	-	30	-	-	-	-	-	-
	P	-	-	-	2.0	-	-	-	-
Age Group O M-26 Ohio C-57 Mich.	K	63	41	-	-	25-51	-	-	-
	K	-	-	-	2.0	-	-	-	-
Age Group I B-70 D.C. M-26 Ohio	K	-	X	-	-	26-42	-	-	-
	S	42	59	-	-	39-87	-	-	-
Age Group II B-70 D.C. M-26 Ohio	K	-	54	-	-	-	-	-	-
	S	25	83	-	-	53-105	-	-	-
Age Group III M-26 Ohio	S	16	102	-	-	86-122	-	-	-
Age Group IV M-26 Ohio	S	2	106	-	-	104-107	-	-	-

## Average calculated total lengths in each annulus

		Average calculated total lengths in each annulus					
		1	2	3	4	5	6
R-56 Ohio	females	2.0	3.9	4.7	5.4	6.0	
	males	2.0	3.9	5.1	6.6	7.7	8.3

SAND SHINER, Notropis deliciosus

	Age Group	No.	Length in millimeters	
			S.L.	T.L.
F-5 L. Erie	O-July	8	5-12	T.L.
F-5 L. Erie	O-Aug	131	5-16	T.L.
S-90 Iowa, Des Moines R.	O- Oct.-Nov.	1642	16-33	S.L.
	I-Mar.	212	18-37	S.L.



## SAND SHINER, (Continued)

S-90 Iowa, Des Moines River	No.	Length in millimeters
I-July-Aug.	1044	22-49 S.L.
I-Oct.-Nov.	443	34-47 S.L.
Age Group II-Mar.	23	38-47 S.L.
II-July	57	42-53 S.L.
II-Oct.-Nov.	143	47-57 S.L.
Age Group III-Mar.		48-55 S.L.

Notropis girardi

M-72 Okla.	Days old	No.	Total length in mm.	
	4		5.4	
	7		7.7	
	22		16.0	
	40		24.5	
	59		28.0	
	6.5 months		34.5	
	7.5 months	13	35.4	28.0-39.5

SPOTTAIL SHINER, Notropis hudsonius

	Code	No.	Standard lengths in millimeters	
			Mean	Range
H-86 Mich. Portage L.	0.5 mm. growth per day for first month			
Age Group O-June				
H-88 Mich.	P	-	-	5-22
Age Group O-July				
F-5 L. Erie	P	1	5	-
H-88 Mich.	P	-	-	11-30
Age Group O				
C-22 Minn. L. of Woods	S	25	-	14-40
Age Group I				
C-22 Minn. L. of Woods	S	47	45	34-55
Age Group II				
C-22 Minn. L. of Woods	S	13	61	50-72
Age Group III				
C-22 Minn. L. of Woods	S	6	73	67-77

## Calculated standard lengths at each annulus

	No.	1	2	3
C-19 Minn.	116	30	47	62

Notropis procne

R-6 N.Y. Age group I. 20 fish, 37 mm. S.L. ave., range 33-39 mm.

SPOTFIN SHINER, Notropis spilopterus

E-32 Ind. 2 females 686-745 eggs per female

MIMIC SHINER, Notropis volucellus

B-56 Ind. 515 fish Total length equals 1.255 S.L.  
 B-56 Ind. Shriner's L. Age Group I 40-50 mm.  
 Age Group II 55-57 mm.  
 B-56 Ind. 367 eggs per female.



SILVERJAW MINNOW, Ericymba buccata

H-8 Ill. Age Group O-Aug. 0.7 inches T.L.  
O-Dec. 1.25 inches T.L.

SILVER CHUB, Hybopsis storerianus

F-5 L. Erie Age group O- June-July 6 fish 5-8 mm. T.L.

BLACKNOSE DACE, Rhinichthys atratulus

	Code	Standard lengths in mm.			Weight in gms.	
		No.	Mean	Range	Mean	Range
T-32 Age Group O-July	P	39	17.5	14-24	0.09	0.03-0.23
O-Aug.	P	55	20.5	13-30	0.17	0.06-0.5
P-Sept.	P	8	25.2	22-28	0.3	0.2-0.4
O-Oct.	P	3	29.5	27-33	0.33	0.2-0.55
O-Nov.	P	27	29.3	21-33	0.30	0.1-0.5
I-Jan.	P	2	25.3	24-26	0.12	0.1-0.15
I-Mar.	P	29	32.6	25-39	0.52	0.2-0.8
I-Apr.	P	3	35.0	31-38	0.70	0.4-1.0
I-May	P	11	35.2	31-40	0.70	0.4-1.0
I-Nov.	P	-	-	37-44	-	0.7-1.4

LONGNOSE DACE, Rhinichthys cataractae

F-5 L. Erie Age Group O-June-July 12-19 mm. T.L.

BLUNTNOSE MINNOW, Hyborhynchus notatus

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group O-June									
F-5 L. Erie	P	-	-	-	X	0.2-0.3	-	-	-
W-26 N.Y.	K	-	12	-	-	-	-	-	-
R-82 Ohio L. Alma	P	12	-	-	0.7	-	-	-	-
H-86 Mich. Portage L.									reports 0.48 mm. growth per day for the month.
Age Group O-July									
R-82 Ohio L. Alma	P	7	-	-	1.1	-	-	-	-
Age Group O-August									
R-82 Ohio L. Alma	P	1	-	-	1.4	-	-	-	-
Age Group O-September									
R-82 Ohio L. Alma	P	3	-	-	1.9	-	-	-	-
Age Group O-October									
C-56 Mich.	K	1700	-	-	1.4	0.8-2.5	-	-	-
Age Group O-December									
W-26 N.Y.	K	-	X	-	-	15-55	-	-	-
Age Group I-April									
V-1 Ill.	P	-	X	-	-	13-45	-	-	-
Age Group I-September									
W-26 N.Y.-females	P	4	50	-	-	-	-	-	-
W-26 N.Y.-males	P	7	57	-	-	-	-	-	-
Age Group II-April									
V-1 Ill.-females	P	-	50	-	-	45-56	-	-	-
V-1 Ill.-males	P	-	62	-	-	50-70	-	-	-
Age Group III-April									
V-1 Ill.-males	P	-	X	-	-	70-79	-	-	-



## BLUNTNOSE MINNOW, (Continued)

		Calculated total lengths at each annulus		
		1	2	3
R-60 Ohio	females	2.0	2.9	3.1
	males	2.0	3.1	3.8

C-56 Mich. 200-500 eggs per spawning, 2 or more times a year.

W-26 N.Y. One female produced 2,298 eggs in 12 spawnings over a 2-month period

10 females had an average of 2,005 eggs in various stages, range 1743-2223.

SILVERY MINNOW, *Hybognathus nuchalis*

							Weight in ounces		
	Code	No.	S.L.	F.L.	T.L.	Range	No.	Mean	Range
Age Group O-May									
R-3 N.Y.	K	-	5.5	-	0.2	-	-	-	-
Age Group O-June									
R-5 N.Y.	K	-	-	-	1.2	-	-	-	-
Age Group O-July									
R-3 N.Y.	K	-	X	-	-	20-30	-	-	-
R-5 N.Y.	K	-	-	-	1.8	-	-	-	-
Age Group O-August									
R-3 N.Y.	K	-	40	-	-	-	-	-	-
Age Group O-September									
R-5 N.Y.	K	6650	-	-	2.4	1.6-2.8	-	-	-
Age Group I									
R-3 N.Y.	K	-	X	-	-	50-55	-	-	-
Age Group I-September									
R-5 N.Y.	K	-	-	-	3.2	2.5-3.5	-	-	-
Age Group II-September									
R-5 N.Y.-males	K	-	-	-	3.2	3.0-3.5	-	-	-
R-5 N.Y.-females	K	-	-	-	3.5	3.1-3.8	-	-	-

R-3 N.Y. 60mm. female, 2000 eggs; 68-70 mm. females, 3000 eggs; 90 mm. female, 6600 eggs.

FATHEAD MINNOW: *Pimephales promelas*

C-36 Iowa. Clear L. 6 fish 30-61 mm. average K 1.90, range 1.54-2.26.

Age group	Location	Standard length in mm.	Total length in inches
O-May	M-23 Iowa	4.7	-
	W-9 Ohio	-	0.25
O-June	M-23 Iowa	to 35.0	-
	W-9 Ohio	-	0.5
O-July	W-9 Ohio	-	0.87
O-Aug.	L-35 Iowa	8-40	-
	W-9 Ohio	-	1.25
O-Sept.	W-9 Ohio	-	1.50
O-Oct.	W-9 Ohio	-	2.0
O-Nov.	M-23 Iowa	20-55	-
O-Dec.	A-9 Okla.	-	2.38

STONEROLLER, *Campostoma anomalum*

		Calculated total length at each annulus		
		1	2	3
R-56 Ohio	males	2.7	4.1	4.7
	females	2.7	4.0	5.3



Hesperoleucas venustis

Standard length in millimeters

		Standard length in millimeters		
		No.	Mean	Range
F-19 Coyote Creek. Cal.	Age Group O-July	50	19	10-32
	O-Aug.	100	30	21-41
	O-Oct.	100	31	21-43
	O-Dec.	280	36	21-48
	I-May	50	40	29-55
	I-Oct	20	61	43-72
	II-Apr.	25	65	40-85
	II-Oct.	40	76	70-96
F-19 Cal. Guadalupe C.	II	-	71	48-96
F-19 Cal. San Anselmo C.	II	-	53	40-68
F-19 Cal. Coyote C.	III-Apr.	14	87	74-105
F-19 Cal.	55 mm. female, 85 mm. female,	250 eggs; 800 eggs;	75 mm. female 95 mm. female	600 eggs; 900 eggs.

GOLDFISH, Carassius auratus

C-33 Iowa. 197 fantailed goldfish, Fork length equals 1.221 S.L.  
Total length equals 1.499 S.L.

Standard length-Weight relationship, Iowa pond, C-33

S.L. in mm.	No.	Weight in grams	S.L. in mm.	No.	Weight in grams	S.L. in mm.	No.	Weight in grams
79	1	16	144	23	108	183	16	208
87	7	22	153	45	129	192	8	245
92	4	25	164	43	158	201	1	285
126	2	80	173	29	182	228	2	335
134	16	90						

K-1 Weight in grams equals 0.0309 times the length in cm. cubed. 569 2-month fish

K-1 Weight in grams equals 0.0303 times the length in cm. cubed. 708 older fish

C-33 Iowa. 197 fish, 79-228 mm. S.L. average K 3.54

F-7 reports that a goldfish lived to 25 years of age in captivity.

		Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
								No	Mean	Range
Age Group O-Hatching										
K-1	Japan	K	-	5	-	0.2	-	-	-	-
Age Group O-10 Days										
K-1	Japan	K	-	6	-	0.3	-	-	-	-
Age Group O-May										
B-22	D.C.	K	-	-	-	1.0	-	-	-	-
Age Group O-30 Days										
K-1	Japan Ironfish	K	-	34	-	-	-	-	-	-
Age Group O-50 Days										
H-73	China	K	-	22	-	-	-	-	-	-
Age Group O-70 Days										
K-1	Japan Ironfish	K	-	40	-	-	-	-	-	-
Age Group O-100 Days										
H-73	China	K	-	37	-	-	-	-	-	-
Age Group O-150 Days										
H-73	China	K	-	46	-	-	-	-	-	-
Age Group O										
E-9	N.Y.	K	-	-	2.5	-	-	-	-	-
Age Group I										
K-1	Japan Ironfish	K	-	61	-	-	-	-	-	-
E-9	N.Y.	K	-	-	-	3.5	-	-	-	-



## GOLDFISH, (Continued)

		Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces			
								No.	Mean	Range	
Age Group II											
K-1	Japan Ironfish	K	-	81	-	-	-	-	-	-	
E-9	N.Y.	K	-	-	X	-	5.0-6.0	-	-	-	
Age Group III											
K-1	Japan Ironfish	K	-	X	-	-	86-94	-	-	-	
Age Group IV											
K-1	Japan Ironfish	K	-	114	-	-	-	-	-	-	

R-28 additional data on the growth of goldfish in Germany.

CARP, *Cyprinus carpio*

C-89 Iowa, Ruth's P.	5 fish	F.L. = 1.089	S.L.	5 fish	T.L. = 1.215	S.L.
C-30 Iowa	58 fish	F.L. = 1.10	S.L.	155 fish	T.L. = 1.23	S.L.
S-15 Tenn. Reelfoot L.					T.L. = 1.218	S.L.

## Standard length-weight relationship, Minn. and Iowa, C-20, C-30

S.L. in mm.	No.	Weight in grams		Weight in pounds	S.L. in mm.	No.	Weight in grams		Weight in pounds
		Mean	Range				Mean	Range	
145	2	93	85-100	0.21	415	11	1599	-	3.53
165	3	122	-	0.27	429	2	1924	1807-2041	4.24
174	1	130	-	0.29	445	2	2112	-	4.66
188	5	163	115-184	0.36	467	7	2626	-	5.79
208	7	271	220-336	0.60	490	3	2778	-	6.12
232	7	366	317-397	0.81	522	4	3097	-	6.83
247	15	437	312-504	0.96	546	2	3883	-	8.56
269	22	515	457-562	1.14	564	4	4462	-	9.84
291	32	659	585-907	1.45	599	4	5394	-	11.89
312	41	739	595-924	1.63	625	4	7388	-	16.29
329	32	915	765-1360	2.02	690	3	8051	-	17.75
346	29	1065	680-1432	2.35	724	1	5442	-	12.00
367	22	1335	1077-1639	2.94	826	1	16853	-	37.15
391	10	1451	-	3.20					

## Total length-weight relationship

T.L. in inches	No.	Weight in pounds		Location	T.L. in inches	No.	Weight in pounds		Location
		Mean	Range				Mean	Range	
5.0-5.9	-	0.10	-	O-7 Ohio	21.0-21.9	2	4.50	4.44-4.56	C-89 Iowa
						-	6.17	-	C-55 Ill.
6.0-6.9	-	0.14	-	O-7 Ohio		12	6.67	5.0-8.0	S-49 N.Y.
		0.20	-	S-62 Minn.					
					22.0-22.9	1	5.38	-	C-89 Iowa
7.0-7.9	-	0.19	-	O-7 Ohio		-	5.40	-	S-62 Minn.
	1	0.70	-	S-49 N.Y.		-	7.09	-	C-55 Ill.
						5	8.40	7.0-10.0	S-49 N.Y.
8.0-8.9	-	0.27	-	O-7 Ohio					
	-	0.30	-	S-62 Minn.	23.0-23.9	1	6.50	-	C-89 Iowa
						-	8.11	-	C-55 Ill.
9.0-9.9	-	0.37	-	O-7 Ohio		9	9.33	8.0-12.0	S-49 N.Y.
	-	0.48	-	C-55 Ill.					
					24.0-24.9	-	6.80	-	S-62 Minn.
10.0-10.9	-	0.49	-	O-7 Ohio		1	7.63	-	C-89 Iowa
	-	0.50	-	S-62 Minn.		5	9.20	8.0-10.0	S-49 N.Y.
	-	0.69	-	C-55 Ill.		-	9.22	-	C-55 Ill.
11.0-11.9	-	0.64	-	O-7 Ohio	25.0-25.9	5	9.80	8.0-12.0	S-49 N.Y.
	-	0.92	-	C-55 Ill.		-	10.42	-	C-55 Ill.
	1	1.25	-	S-49 N.Y.					
12.0-12.9	-	0.80	-	O-7 Ohio	26.0-26.9	-	9.60	-	S-62 Minn.
						5	11.40	10.0-13.0	S-49 N.Y.



## CARP, (Continued)

T.L. in inches	Weight in pounds			Location	T.L. in inches	Weight in pounds			Location
	No.	Mean	Range			No.	Mean	Range	
	-	0.90	-	S-62 Minn.		-	11.69	-	C-55 Ill.
	-	1.17	-	C-55 Ill.		-	13.13	-	C-55 Ill.
	1	1.40	-	S-49 N.Y.	27.0-27.9	5	14.20	11.0-18.0	S-49 N.Y.
13.0-13.9	-	1.04	-	0-7 Ohio		-	12.10	-	S-62 Minn.
	1	1.50	-	S-49 N.Y.	28.0-28.9	3	13.30	12.0-14.0	S-49 N.Y.
	-	1.51	-	C-55 Ill.		-	12.56	-	C-89 Iowa
14.0-14.9	-	1.24	-	0-7 Ohio	29.0-29.9	-	15.25	-	C-55 Ill.
	-	1.40	-	S-62 Minn.		4	16.25	15.0-20.0	S-49 N.Y.
	-	1.89	-	C-55 Ill.		-	14.10	-	S-62 Minn.
	1	2.00	-	S-49 N.Y.	30.0-30.9	-	16.00	-	C-55 Ill.
15.0-15.9	-	1.41	-	0-7 Ohio		2	19.00	18.0-22.0	S-49 N.Y.
	-	2.25	-	C-55 Ill.		-	15.10	-	S-62 Minn.
	2	4.00	2.0-6.0	S-49 N.Y.	31.0-31.9	7	20.84	18.0-24.0	S-49 N.Y.
16.0-16.9	-	2.20	-	S-62 Minn.		3	20.50	20.0-21.5	S-49 N.Y.
	-	2.72	-	C-55 Ill.	33.0-33.9	1	24.75	-	S-49 N.Y.
17.0-17.9	-	3.28	-	C-55 Ill.	35.0-36.9	1	24.75	-	S-49 N.Y.
	4	6.00	5.0-8.0	S-49 N.Y.	39.0-40.9	2	30.50	29.0-32.0	S-49 N.Y.
18.0-18.9	-	2.90	-	S-62 Minn.		-	-	-	-
	3	2.96	2.7-3.2	C-89 Iowa		-	-	-	-
	5	3.80	3.0-5.0	S-49 N.Y.		-	-	-	-
	-	3.91	-	C-55 Ill.		-	-	-	-
19.0-19.9	2	3.34	3.1-3.6	C-89 Iowa		-	-	-	-
	-	4.56	-	C-55 Ill.		-	-	-	-
	6	4.67	4.0-5.0	S-49 N.Y.		-	-	-	-
20.0-20.9	-	4.00	-	S-62 Minn.		-	-	-	-
	3	4.02	3.6-4.9	C-89 Iowa		-	-	-	-
	-	5.34	-	C-55 Ill.		-	-	-	-
	6	5.67	5.0-7.0	S-49 N.Y.		-	-	-	-

E-3	Minn.	77 fish, 127-736 mm.	S.L. average K	2.37
E-28	Tenn. Chickamauga.	239 fish	average K	2.8
C-36	Iowa	191 fish, 140-826 mm.	S.L. average K	2.71 range 1.69-3.77
H-1	Germany	10 fish	average K(T.L.)	1.41
S-122	Germany		average K(T.L.)	1.8
C-89	Iowa, Ruth's Pond	14 fish (18-30 inches T.L.)	C(T.L.) mean	47 range 40-57

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in pounds			
							No.	Mean	Range	
Age Group O-May										
S-101	N.Y.	K	-	-	-	X	0.1-0.3	-	-	-
R-26	Ill.	P	-	-	-	X	0.2-0.5	-	-	-
B-22	D. C.	K	-	-	-	X	1.0-1.5	-	-	-
Age Group O-June										
F-5	L. Erie	P	11	-	-	X	0.4-0.7	-	-	-
E-28	Tenn. Chickamauga	P	36	-	-	1.8	0.8-2.7	-	-	-
A-20	France	K	-	X	-	-	30-40	-	-	-
Age Group O-July										
S-49,50	N.Y.	P	-	X	-	-	10-40	-	-	-
B-2	Iowa, Okoboji L.	P	2	22	-	-	19-24	-	-	-
R-26	Ill.	P	-	-	-	X	0.7-2.0	-	-	-
B-3	Iowa Clear L.	P	15	51	-	-	32-44	-	-	-
E-28	Tenn. Chickamauga	P	113	-	-	2.6	1.8-3.6	-	-	-
C-91	Iowa, Clear L.	P	5	-	-	2.8	2.1-3.2	-	-	-
Age Group O-August										
S-49,50	N.Y.	P	-	X	-	-	38-78	-	-	-
A-1	N.Y. Oneida L.	P	-	-	-	X	2.0-2.5	-	-	-
B-2	Iowa, Okoboji L.	P	2	63	-	-	62-63	-	-	-



## CARP, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in pounds		
							No.	Mean	Range
E-28 Tenn. Chickamauga	P	391	-	-	3.4	2.3-5.9	-	-	-
B-3 Iowa Clear L.	P	7	81	-	-	74-94	-	-	-
C-91 Iowa, Clear L.	P	15	-	-	3.2	2.5-5.3	-	-	-
Age Group O-September									
S-49,50 N.Y.	P	-	X	-	-	72-112	-	-	-
E-28 Tenn. Chickamauga	P	474	-	-	4.0	2.7-5.9	-	-	-
B-8 America	K	-	-	-	11.0	-	-	0.88	-
Age Group O-Oct.-Dec.									
J-1 Germany	K	-	X	-	-	50-60	-	-	-
W-47 Germany, starved	K	-	56	-	-	-	-	0.02	-
S-49,50 N.Y.	P	-	X	-	-	50-110	-	-	-
S-122 Germany	K	-	X	-	-	90-120	-	0.07	-
A-20 France	K	-	-	-	X	2.5-5.0	-	-	-
E-9 N.Y.	K	-	-	X	-	3.5-5.0	-	-	-
W-47 Germany, normal	K	-	-	-	-	-	-	0.12	-
S-57 N.C.	K	-	-	-	X	4.0-7.0	-	-	-
S-101 N.Y. Erie	P	2	-	-	6.0	-	-	-	-
H-4 Great Britain	K	-	-	-	-	-	-	0.25	-
H-77 Ark.	K	-	-	-	-	-	-	-	0.37-1.50
L-16 U.S.A.	K	-	-	-	-	-	-	-	0.75-1.00
B-66 America	I	-	-	-	-	-	-	-	1.00-2.00
Age Group I									
J-1 Texas	I	-	-	-	X	4.0-8.0	-	-	-
O-8 Ohio	S	17	-	-	6.3	-	-	-	-
E-9 N.Y.	K	-	-	X	-	6.0-8.0	-	-	-
L-13 Ohio	S	6	-	-	7.5	-	-	-	-
S-49 N.Y. Oneida L.	S	-	-	-	X	6.0-10.0	-	-	-
S-15 Tenn. Reelfoot L.	S	2	188X	-	8.8	185-190	2	0.32	0.31-0.34
W-47 Germany, starved	K	-	200	-	-	-	-	0.28	-
T-10 Ill. knotheads	S	-	-	-	-	-	2	0.34	0.19-0.50
L-16 U.S.A.	K	-	-	-	9.0	-	-	0.50	-
E-28 Tenn. Chickamauga	S	151	202	-	10.1	-	-	-	-
E-3 Minn.	S	85	203	-	-	76-356	-	-	-
W-47 Germany, normal	K	-	210	-	-	-	-	0.64	-
S-122 Germany, starved	K	-	-	-	-	-	3	0.75	0.64-0.93
S-122 Germany, normal	K	-	-	-	-	-	3	0.94	0.88-0.98
T-10 Ill.	S	-	-	-	-	-	3	1.19	0.19-1.75
H-4 Great Britain	K	-	-	-	-	-	-	-	1.00-1.50
W-7 Okla. L. Duncan	S	1	305	-	-	-	1	2.00	-
B-66 America	I	-	-	-	-	-	-	-	0.69-5.00
H-56 Germany	K	-	-	-	-	-	-	-	2.75-3.25
C-55 Ill.	K	1	-	-	22.0	-	1	9.25	-
Age Group II									
C-53 B.C. Okanagan	S	1	-	5.6	-	-	-	-	-
O-8 Ohio	S	110	-	-	8.2	-	-	-	-
L-13 Ohio	S	375	-	-	8.9	-	-	-	-
E-28 Tenn. Chickamauga	S	246	206	-	10.3	-	-	-	-
S-15 Tenn. Reelfoot L.	S	1	215	-	10.6	-	1	0.58	-
S-102 N.Y. Cayuga	S	-	-	-	-	-	40	0.75	0.25-2.00
F-12 Wisc. Monona L.	S	68	267	-	-	-	-	-	-
F-12 Wisc. Kegonsa	S	38	288	-	-	-	-	-	-
B-66 America	I	-	-	-	-	-	-	0.94	-
W-47 Germany	K	-	X	-	-	265-330	-	-	0.92-3.58
L-16 U.S.A.	K	-	-	-	12.0	-	-	1.12	-
T-10 Ill. knothead	S	-	-	-	-	-	6	1.13	0.75-1.63
E-3 Minn.	S	188	338	-	-	-	-	-	-
T-10 Ill.	S	-	-	-	-	-	6	1.88	1.38-2.63
H-4 Great Britain	I	-	-	-	-	-	-	-	2.00-2.50
E-9 N.Y.	K	-	-	X	-	12.0-15.0	-	-	-
S-122 Germany	K	-	-	-	-	-	-	-	2.76-3.31
H-56 Germany	K	-	-	-	-	-	-	-	3.00-3.25
Age Group III									
O-8 Ohio	S	213	-	-	9.3	-	-	-	-
L-13 Ohio	S	74	-	-	10.5	-	-	-	-



## CARP, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in pounds		
							No.	Mean	Range
H-1 Germany	S	3	268	-	-	-	3	0.68	-
S-102 N.Y. Cayuga	S	-	-	-	-	-	31	1.50	0.70-3.00
B-23 N.Y.	I	-	-	-	-	-	10	1.69	0.63-2.75
S-15 Tenn. Reelfoot L.	S	14	304X	-	14.7	280-335	14	1.81	1.50-2.25
F-12 Wisc. Waubesa	S	43	319	-	-	-	-	-	-
L-16 U.S.A.	K	-	-	-	15.0	-	-	2.25	-
T-10 Ill.	S	-	-	-	-	-	29	2.50	1.19-6.63
S-122 Germany	K	-	-	-	-	-	6	3.17	2.73-3.66
E-3 Minn.	S	110	439	-	-	330-508	-	-	-
H-56 Europe	K	-	-	-	-	-	-	-	3.00-3.50
S-102 N.Y. Canoga L.	S	-	-	-	-	-	19	4.80	3.00-7.00
S-122 Germany	K	-	-	-	-	-	-	5.54	-
Age Group IV									
O-8 Ohio	S	123	-	-	12.0	-	-	-	-
L-13 Ohio	S	17	-	-	14.8	-	-	-	-
T-10 Ill. knothed	S	-	-	-	-	-	31	1.69	0.69-2.88
S-15 Tenn. Reelfoot L.	S	8	334X	-	16.0	325-350	8	2.19	2.06-2.25
T-10 Ill.	S	-	-	-	-	-	14	2.63	1.38-4.25
S-102 N.Y. Cayuga L.	S	-	-	-	-	-	11	3.00	1.00-5.00
U-1 Ind.	S	1	387	-	-	-	1	4.00	-
D-9 France	K	-	-	-	-	-	-	4.40	-
E-3 Minn.	S	86	523	-	-	356-610	-	-	-
L-16 U.S.A.	K	-	-	-	20.0	-	-	5.50	-
S-102 N.Y. Canoga L.	S	-	-	-	-	-	55	5.60	3.00-8.00
Age Group V									
O-8 Ohio	S	44	-	-	13.9	-	-	-	-
T-10 Ill. knotheds	S	-	-	-	-	-	17	2.38	0.94-4.25
L-13 Ohio	S	4	-	-	17.3	-	-	-	-
S-15 Tenn. Reelfoot L.	S	12	363X	-	17.5	350-375	12	2.58	2.12-2.94
S-102 N.Y. Cayuga L.	S	-	-	-	-	-	16	4.00	2.50-5.00
T-10 Ill.	S	-	-	-	-	-	4	4.50	1.88-8.31
S-102 N.Y. Canoga L.	S	-	-	-	-	-	39	7.25	5.00-10.00
S-49 N.Y. Oneida L.	S	62	-	-	X	16.0-26.0	62	-	4.00-11.00
E-3 Minn.	S	49	594	-	-	508-711	-	-	-
Age Group VI									
O-8 Ohio	S	4	-	-	15.7	-	-	-	-
T-10 Ill. knothed	S	-	-	-	-	-	5	2.81	1.94-5.00
H-1 Germany	S	1	395	-	-	-	1	2.09	-
S-15 Tenn. Reelfoot L.	S	19	399X	-	19.4	380-430	19	3.46	2.69-4.25
S-102 N.Y. Cayuga L.	S	-	-	-	-	-	15	5.00	3.00-7.00
U-1 Ind.	S	2	427	-	-	-	2	5.38	-
L-13 Ohio	S	5	-	20.6	-	-	-	-	-
T-10 Ill.	S	-	-	-	-	-	1	6.75	-
E-3 Minn.	S	13	648	-	-	508-762	-	-	-
S-102 N.Y. Canoga L.	S	-	-	-	-	-	33	9.06	7.00-12.00
Age Group VII									
C-53 B.C. Okanagan	S	-	-	16.0	-	-	-	-	-
O-8 Ohio	S	1	-	-	20.0	-	-	-	-
H-1 Germany	S	3	437	-	-	-	3	2.57	-
T-10 Ill. knothed	S	-	-	-	-	-	6	3.75	1.13-5.00
S-15 Tenn. Reelfoot L.	S	12	430X	-	22.0	410-470	12	4.43	3.50-5.50
U-1 Ind.	S	3	440	-	-	-	3	6.00	-
L-13 Ohio	S	4	-	-	25.5	-	-	-	-
E-3 Minn.	S	4	660	-	-	610-787	-	-	-
S-102 Canoga	S	-	-	-	-	-	25	10.88	9.00-13.00
Age Group VIII									
T-10 Ill. knothed	S	-	-	-	-	-	1	1.63	-
C-53 B.C. Okanagan	S	-	-	18.0	-	-	-	-	-
H-1 Germany	S	1	420	-	-	-	1	2.64	-
S-15 Tenn. Reelfoot L.	S	3	482X	-	23.3	465-500	3	6.06	5.81-6.31
U-1 Ind.	S	1	575	-	-	-	1	11.00	-
E-3 Minn.	S	1	711	-	-	-	-	-	-



## CARP, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in pounds		
							No.	Mean	Range
Age Group IX									
T-10 Ill. knothead	S	-	-	-	-	-	2	3.16	3.00-3.31
S-15 Tenn. Reelfoot L.	S	5	514X	-	25.0	480-525	5	7.38	6.00-8.00
H-1 Germany	S	2	648	-	-	-	2	9.10	-
Age Group X									
S-15 Tenn. Reelfoot L.	S	4	550X	-	26.4	530-560	4	9.18	8.25-10.38
Age Group XI									
S-15 Tenn. Reelfoot L.	S	3	588X	-	27.9	580-595	3	10.63	10.56-10.75
T-10 Ill.	S	-	-	-	-	-	1	22.00	-
Age Group XII									
S-15 Tenn. Reelfoot L.	S	3	615X	-	29.4	605-630	3	12.13	11.63-12.81
Age Group XIII									
S-15 Tenn. Reelfoot L.	S	3	665X	-	31.4	655-680	3	14.81	13.38-15.00
Age Group XV									
H-56 Germany	K	-	-	-	-	-	2	48.50	42.00-55.00
Age Group XVI									
F-7	K	-	-	-	-	-	1	18.75	-
Age Group XXXVIII									
F-7	K	1	675	-	-	-	1	20.72	-

F-7 reports that a carp lived for 47 years in captivity.

	No.	Average calculated standard length at each annulus							
		1	2	3	4	5	6	7	8
E-28 Tenn. Chickamauga	397	145	193						
E-3 Minn.	1082	149	275	389	473	566	633	644	687
Average calculated fork length at each annulus									
E-2 Minn.	867	7.1	12.8	18.3	22.4	26.9	28.7	30.5	31.9
Average calculated total length at each annulus									
E-28 Tenn. Chickamauga	397	7.3	9.7						
S-62 Minn.	-	6.8	15.6	17.8	21.6	25.8	28.9	29.4	31.4

	Code	Size of females	No. of females	No. of eggs per female	
				Mean	Range
B-23 H-56, G-13	V	4-5 pounds	-	-	400,000-500,000
M-66 Iowa, Okoboji	V	25 pound	1	1,700,000	
L-13 L. Erie	V	9.5 pounds	1	1,696,585	
L-13 Ohio	V	24.5 inches T.L.	1	660,000	
L-16 U.S.	U	-	-	-	300,000-700,000
H-3 Europe	U	6.6 pounds	1	342,180	
G-13 U.S.	U	16.5 pounds	1	2,000,000	
C-55 Ill.	V	9 pounds	1	600,000	
	V	16.75 pounds	1	101,200	
	V	25.5 pounds	1	203,109	
	V	21.5 pounds	1	1,310,750	
	V	16.5 pounds	1	2,059,750	
H-4 U.S.	U	5 year olds	-	500,000	
U-1 Ind.	V	4 years, 4 pounds	1	115,500	
	V	6 years, 5 pounds	2	103,950	79,200-128,700
	V	7 years, 6 pounds	3	180,400	145,200-211,200
	V	8 years, 11 pounds	1	366,300	
C-53 B.C.	U	18.5 inches F.L.	1	300,000	
S-122 Germany	U	4-6 pounds	-	-	400,000-500,000
	D	11 year old,	1	860,000	
P-24 Great Britain	V	4 pounds	2	300,000	200,000-400,000
	V	14.5 pounds	1	633,000	
	V	16.5 pounds	1	2,000,000	
	V	21.5 pounds	1	1,310,000	



GOLDEN IDE, *Idus idus*

B-73 F-6	3 inches, T.L., at 6 months; specimen lived 29 years in captivity	6 inches at 1 year
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TENCH, *Tinca tinca*

S-122	Germany	Age Group I fall II fall	50-100 grams. 150-400 grams.
S-122	Germany	K(T.L.) average 1.3	

CHANNEL CATFISH, *Ictalurus lacustris*

C-30, C-89, L-29	Iowa	30 fish	F.L. = 1.091 S.L.	T.L. = 1.201 S.L.
C-36, L-29	Iowa	13 fish (348-746 mm. S.L.)	average K 1.95	
C-89	Iowa, Ruth's Pond	20 fish (9.0-16.2 inches)	C(T.L.) 27	range 13-42

## Standard length-weight relationship

S.L. in mm.	No.	Weight in grams		Weight in pounds	Location
		Mean	Range		
348	1	709	-	1.56	C-30, L-29 Iowa
452	3	1673	1389-2041	3.69	C-30, L-29 Iowa
461	1	1772	-	3.91	C-30, Iowa
485	1	2325	-	5.13	C-30, L-29 Iowa
510	1	2778	-	6.12	C-30, L-29 Iowa
600	3	4168	3970-4309	9.19	C-30, L-29 Iowa
648	1	5528	-	12.19	C-30, L-29 Iowa
730	1	6620	-	14.59	C-30, L-29 Iowa
756	1	8392	-	18.50	C-30, L-29 Iowa

## Total-length-weight relationship

T.L. in inches	No.	Weight in pounds		Location	T.L. in inches	No.	Weight in pounds		Location
		Mean	Range				Mean	Range	
7.6	-	0.11	-	0-7 Ohio	15.4	-	1.02	-	0-7 Ohio
8.3	-	0.13	-	M-38 Va.	15.4	-	1.12	-	M-38 Va.
8.4	-	0.17	-	0-7 Ohio	15.6	4	1.17	1.0-1.7	C-89 Iowa
9.3	1	0.19	-	C-89 Iowa	16.2	1	1.50	-	C-89 Iowa
9.4	-	0.19	-	M-38 Va.	17.5	-	2.00	-	R-46 Ohio
9.4	-	0.21	-	0-7 Ohio	17.7	-	1.82	-	M-38 Va.
10.0	-	0.50	-	R-46 Ohio	18.9	-	2.26	-	M-38 Va.
10.4	-	0.30	-	0-7 Ohio	20.0	-	3.00	-	R-46 Ohio
10.6	-	0.30	-	M-38 Va.	20.1	-	2.87	-	M-38 Va.
11.4	-	0.37	-	0-7 Ohio	21.3	-	3.58	-	M-38 Va.
11.5	3	0.31	0.2-0.4	C-89 Iowa	22.0	-	4.00	-	R-46 Ohio
11.8	-	0.40	-	M-38 Va.	22.4	-	4.41	-	M-38 Va.
12.4	-	0.50	-	0-7 Ohio	23.6	-	5.55	-	M-38 Va.
12.4	4	0.55	0.5-0.6	C-89 Iowa	24.0	-	5.00	-	R-46 Ohio
13.0	-	0.55	-	M-38 Va.	28.0	-	10.00	-	R-46 Ohio
13.0	-	1.00	-	R-46 Ohio	33.0	-	15.00	-	R-46 Ohio
13.2	-	0.66	-	0-7 Ohio	35.0	-	18.00	-	R-46 Ohio
13.3	3	0.56	0.4-0.7	C-89 Iowa					
14.2	-	0.82	-	M-38 Va.					
14.2	-	0.83	-	0-7 Ohio					
14.3	4	0.89	0.7-0.9	C-89 Iowa					

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in pounds		
							No.	Mean	Range
Age Group O-July									
S-41 Iowa	K	58	-	-	0.0	0.3-1.9	-	-	-
G-32 Ohio, Buckeye L.	P	-	-	-	X	1.3-1.5	-	-	-
M-74 Mo.	K	-	-	-	1.5	-	-	-	-
Age Group O-August									
G-32 Ohio, Buckeye L.	P	-	-	-	X	2.1-2.5	-	-	-
S-41 Iowa	K	55	-	-	3.0	2.0-4.1	-	-	-



## CHANNEL CATFISH, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in pounds		
							No.	Mean	Range
Age Group O-September									
G-32 Ohio, Buckeye L.	P	-	-	-	2.7	-	-	-	-
S-41 Iowa	K	15	-	-	3.7	3.1-4.4	-	-	-
Age Group O-Oct.-Nov.									
B-6 Iowa	P	-	-	-	X	-4.0	-	-	-
M-74 Mo.	K	-	-	-	2.5	-5.5	-	-	-
D-26,27 Kan.	K	-	-	-	X	3.0-7.0	-	-	-
M-38 Va.	P	-	-	-	6.0	-	-	-	-
A-10 Okla.	K	-	-	-	-	-	-	-	0.002-0.095
A-9 Okla.	K	-	-	-	8.1	-	-	-	-
Age Group I									
B-6 Iowa	P	-	-	-	X	4.0-7.9	-	-	-
U-4 Ill. Mississippi	B	-	-	-	7.7	-	-	-	-
M-38 Va.	P	-	-	-	X	10.0-11.0	-	-	-
B-81 Kan.	K	-	-	-	X	7.0-14.0	-	-	-
Age Group II									
L-38 Ill. Kaskaskia R.	P	-	178	-	-	152-229	-	-	-
B-6 Iowa	P	-	-	-	X	8.0-11.9	-	-	-
W-7 Okla. Duncan L.	B	1	216	-	-	-	1	0.34	-
U-5 Iowa, Mississippi R.	B	-	-	-	9.8	-	-	-	-
U-4 Ill., Mississippi R.	B	-	-	-	10.1	-	-	-	-
L-29 Iowa East L.	B	-	-	-	-	-	1	2.00	-
Age Group III									
L-38 Ill. Kaskaskia R.	P	-	279	-	-	229-305	-	-	-
U-4 Ill. Mississippi R.	B	-	-	-	13.6	-	-	-	-
U-5 Ia. Mississippi R.	B	-	-	-	11.7	-	-	-	-
Age Group IV									
C-82 Ia.	K	1	-	-	10.0	-	-	-	-
U-5 Ia. Mississippi R.	B	-	-	-	13.3	-	-	-	-
U-4 Ill. Mississippi R.	B	-	-	-	15.6	-	-	-	-
L-38 Ill. Kaskaskia R.	P	-	381	-	-	-	-	-	-
Age Group V									
T-21 Okla. Duncan L.	B	1	298	-	-	-	1	0.77	-
C-82 Iowa	K	1	-	-	12.8	-	1	0.88	-
U-5 Ia. Mississippi R.	B	1	-	-	15.6	-	-	-	-
U-4 Ill. Mississippi R.	B	-	-	-	17.6	-	-	-	-
W-7 Okla. Duncan L.	B	4	386	-	-	-	4	2.26	-
Age Group VI									
U-5 Ia. Mississippi R.	B	-	-	-	18.2	-	-	-	-
L-29 Ia. East L.	B	1	457	-	-	-	1	3.50	-
U-4 Ill. Miss. R.	B	-	-	-	21.8	-	-	-	-
Age Group VII									
W-7 Okla. Duncan L.	B	1	406	-	-	-	1	2.39	-
L-29 Ia. East L.	B	1	485	-	-	-	1	5.13	-
U-5 Ia. Mississippi R.	B	-	-	-	21.1	-	-	-	-
U-4 Ill. Miss. R.	B	-	-	-	22.0	-	-	-	-
Age Group VIII									
W-7 Okla. Duncan L.	B	2	451	-	-	-	2	3.35	-
U-5 Ia. Mississippi R.	B	-	-	-	22.5	-	-	-	-
L-29 Ia. East L.	B	2	689	-	-	648-730	3	13.38	12.19-14.63
Age Group IX									
U-5 Ia. Mississippi R.	B	-	-	-	24.8	-	-	-	-
Age Group X									
U-5 Ia. Mississippi R.	B	1	-	-	28.0	-	-	-	-
Age Group XI									
U-5 Ia. Mississippi R.	B	2	-	-	26.2	-	-	-	-
L-29 Ia. East L.	B	-	-	-	-	-	1	10.00	-
Age Group XII									
U-5 Ia. Mississippi R.	B	1	-	-	28.8	-	-	-	-
Age Group XIII									
L-29 Ia. East L.	B	1	756	-	-	-	1	18.50	-



## CHANNEL CATFISH, (Continued)

	Code	Size of females	No. of females	No. of eggs per female Mean	Range
L-13 Ohio	V	16.25 " T.L.	1	8,110	
C-82 Iowa	V	10 "	1	2,000	
	V	14 oz, 12.75"	1	3,100	
	V	1.5 pounds	1	4,000	
	V	4.0 pounds	1	8,000	
M-38 Va.	V	16-20 inches	10	7,430	4,200-10,600
B-81 Kan.	U	largest	1	52,000	
D-26 Kan.	U	-	-	-	2,500-70,000
D-13 Cal. Colorado R.	V	8.5 inches	1	1,600	
	V	26 inches	1	34,500	
D-27 Kan	V	4 pound	1	10,500	

WHITE CATFISH, Ictalurus catus

Total length-weight relationship, Va. M-38

T.L. in inches	Weight in pounds	T.L. in inches	Weight in pounds
7.1	0.11	11.8	0.75
8.3	0.20	13.0	1.04
9.4	0.33	14.2	1.54
10.6	0.53	15.4	2.20

M-38 Va. 2 females 11.8-12.6 inches T.L., 3,200-3,500 eggs.

BULLHEADS, Ameiurus spp.

C-37 Minn. 785 fish, 100-350 mm. S.L. Total length equals 1.135 S.L.

T.L. in inches	No.	Weight in ounces	Location	T.L. in inches	No.	Weight in ounces	Location
5.0-5.9	4	1.9	M-20 Wisc.	10.0-10.9	117	11.0	M-20 Wisc.
6.0-6.9	20	2.7	M-20 Wisc.		-	9.6	S-62 Minn.
	-	1.6	S-62 Minn.	11.0-11.9	-	11.2	S-62 Minn.
7.0-7.9	26	3.7	M-20 Wisc.		101	14.9	M-20 Wisc.
	-	4.8	S-62 Minn.	12.0-12.9	-	16.0	S-62 Minn.
8.0-8.9	60	5.6	M-20 Wisc.		90	19.0	M-20 Wisc.
	-	6.4	S-62 Minn.	13.0-13.9	-	22.4	S-62 Minn.
9.0-9.9	-	8.0	S-62 Minn.		36	22.9	M-20 Wisc.
	87	8.2	M-20 Wisc.	14.0-14.9	-	27.2	S-62 Minn.
					1	28.6	M-20 Wisc.

E-3 Minn. 333 fish 127-329 mm. S.L. average K 2.33

C-23 Minn. 387 fish, 145-330 mm. S.L. average K 2.40 average C(T.L.) 59

N-25 N.Y. 2000 eggs per female.

YELLOW BULLHEAD, Ameiurus natalis

C-30 Iowa 2 fish. Total length equals 1.17 S.L.

Total length-weight relationship

T.L. in inches	No.	Weight in ounces	Location	T.L. in inches	No.	Weight in ounces	Location
1.0-1.9	48	0.045	L-12 Ohio	10.0-10.9	11	10.20	L-12 Ohio
2.0-2.9	24	0.216	L-12 Ohio		2	13.0	E-32 Ind.
				11.0-11.9	10	13.2	L-12 Ohio



YELLOW BULLHEAD, (Continued)

T.L. in inches	No.	Weight in ounces	Location	T.L. in inches	No.	Weight in ounces	Location
3.0-3.9	96	0.39	L-12 Ohio		1	17.0	E-32 Ind.
4.0-4.9	18	0.64	L-12 Ohio	12.0-12.9	11	17.0	E-32 Ind.
6.0-6.9	1	8.0	E-32 Ind.		21	17.4	L-12 Ohio
7.0-7.9	1	2.9	C-30 Iowa	13.0-13.9	3	20.0	E-32 Ind.
	3	3.6	L-12 Ohio		1	22.5	C-30 Iowa
8.0-8.9	6	4.4	L-12 Ohio		11	24.7	L-12 Ohio
9.0-9.9	9	7.11	L-12 Ohio	14.0-14.9	2	26.0	E-32 Ind.
	1	8.0	E-32 Ind.		2	31.8	L-12 Ohio
				15.0-15.9	1	28.0	L-12 Ohio

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces			
							No.	Mean	Range	
Age Group 0--First month										
S-59 Va.	K	-	-	-	-	0.5-0.8	-	-	-	
H-86 Mich. reports 0.60 mm. per day										
Age Group 0--2 months										
S-59 Va.	K	-	-	-	2.0	-	-	-	-	
Age Group 0-October										
B-4 Iowa Clear L.	P	2	54X	-	2.6	48-60	-	-	-	
Age Group I-Jan.										
S-59 Va.	K	-	-	-	X	2.2-2.5	-	-	-	
Age Group I										
B-77 Mich.	P	411	-	-	2.1	1.2-2.6	411	0.06	-	
B-86 Ill. Onized L.	P	333	-	-	X	4.0-7.0	-	-	-	
L-29 Iowa, Red Haw	B	1	155	-	7.1	-	1	2.9	-	
Age Group II										
B-77 Mich.	P	60	-	-	4.9	3.5-5.9	60	0.9	-	
B-86 Ill. Onized L.	P	12	-	-	X	8.5-10.5	-	-	-	
Age Group III										
B-86 Ill. Onized L.	P	2	-	-	13.0	12.0-14.0	-	-	-	
Age Group IV										
L-29 Iowa, Red Haw	B	1	289	-	13.1	-	1	22.5	-	

	Code	Size of females	No. of females	No. of eggs per female	Mean	Range
E-4 Minn.	V	10-11 inches	-	4,000		
V-21 Minn.	V	14-20 oz.	3	4,157	3950-4270	
U-1 Ind.	V	6 oz.	2	1,847	1652-2042	
	V	10 oz.	7	2,334	2028-2977	
	V	14 oz.	4	3,607	2715-4452	
	V	24 oz.	1	6,660		

BROWN BULLHEAD, *Ameiurus nebulosis*

C-30 Iowa 3 fish Total length equals 1.16 S.L.

Standard length-weight relationship

S.L. in mm	No.	Weight in grams	Weight in oz.	Location	S.L. in mm.	No.	Weight in grams	Weight in oz.	Location
140	1	85	3.0	C-22 Minn.	240	67	300	10.6	C-22 Minn.
160	1	85	3.0	R-24 Mich.		1	369	13.0	R-24 Mich.
190	2	148	5.2	C-30 Iowa	270	214	468	15.5	C-22 Minn.
	1	198	7.0	C-22 Minn.		1	284	10.0	R-24 Mich.
220	1	222	7.1	C-30 Iowa	290	25	647	22.8	C-22 Minn.
	16	234	8.2	C-22 Minn.	320	9	811	28.6	C-22 Minn.



## BROWN BULLHEAD, (Continued)

## Total length-weight relationship, Ohio L-12

T.L. in inches	No.	Weight in oz.	T.L. in inches	No.	Weight in oz.	T.L. in inches	No.	Weight in oz.
1.0-1.9	160	0.045	6.0-6.9	3	2.25	11.0-11.9	183	12.4
2.0-2.9	205	0.111	7.0-7.9	6	3.3	12.0-12.9	139	15.7
3.0-3.9	7	0.38	8.0-8.9	17	4.9	13.0-13.9	95	22.1
4.0-4.9	2	1.75	9.0-9.9	25	6.7	14.0-14.9	41	26.8
5.0-5.9	1	2.00	10.0-10.9	214	9.9	15.0-15.9	17	29.5
						16.0-16.9	1	38.8

S-65 Nova Scotia, L. Jesse.  $\log W = -2.0405 + 5.125 \log F.L.$

C-36 Iowa	1 fish	222 mm. S.L.	K equals 2.14
C-22 Minn.	L. of Woods	333 fish	average K 2.35
C-34 Minn.	Leech Lake	106 fish	average K 2.49

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group O-May									
S-57 N.C.	K	-	X	-	-	4-18	-	-	-
Age Group O-June									
R-13 N.Y.	P	197	15X	-	0.7	12-21	-	-	-
S-57 N.C.	K	-	50	-	-	-	-	-	-
Age Group O-July									
R-13 N.Y.	P	265	27X	-	1.3	18-38	-	-	-
H-76 W. Va.	P	1	-	1.3	-	-	-	-	-
R-27 Ill.	P	-	-	-	1.8	-	-	-	-
Age Group O-August									
R-13 N.Y.	P	63	35X	-	1.7	30-48	-	-	-
Age Group O-September									
R-13 N.Y.	P	27	48X	-	2.3	37-65	-	-	-
Age Group O-October									
R-13 N.Y.	P	53	56X	-	2.7	35-77	-	-	-
Age Group O-December									
E-32 Ind.	P	1	-	-	2.1	-	-	-	-
Age Group O									
E-9 N.Y.	K	-	-	2.5	-	-	-	-	-
Age Group I									
E-9 N.Y.	K	-	-	X	-	3.0-4.0	-	-	-
E-11 N.Y.	K	150	-	3.0	-	-	-	-	-
Age Group II									
E-9 N.Y.	K	-	-	X	-	5.0-6.0	-	-	-
L-29 Ia. Red Haw L.	B	1	186	-	8.5	-	1	5.2	-
Age Group III									
L-29 Ia. Red Haw L.	B	1	212	-	9.7	-	1	7.1	-

	Code	Size of females	No. of females	No. of eggs per female	Mean	Range
S-123 -	U	-	-	2,000		
M-38 Va.	V	8.6 inches	1	2,400		
T-27 N.Y.	D	1 pound	-	2,188		
E-4 Minn.	V	11-13 inches	-	-		6,000-13,000
V-21 Minn.	V	10.5 inches	1	7,786		
	V	11.5	2	11,425		9,050-13,800
	V	12.0	1	13,400		
	V	13.0	1	6,180		



BLACK BULLHEAD, *Ameiurus melas*

L-29 Iowa, East Lake	13 fish, 134-321 mm. S.L.	Total length equals 1.173 S.L.
C-30 Iowa	66 fish	Total length equals 1.18 S.L.
C-33 Iowa ponds	74 fish, 40-209 mm. S.L.	Total length equals 1.178 S.L.
C-38 Iowa, Little Wall L.	15 fish, 71-105 mm. S.L.	Total length equals 1.213 S.L.
	82 fish, 106-130 mm. S.L.	Total length equals 1.208 S.L.
	65 fish, 131-140 mm. S.L.	Total length equals 1.205 S.L.
	18 fish, 150-215 mm. S.L.	Total length equals 1.193 S.L.

## Standard length-weight relationship, Iowa, C-30, C-33, C-38, C-89

S.L. in mm.	No.	Weight in grams Mean	Weight in grams Range	Weight in oz.	S.L. in mm.	No.	Weight in grams Mean	Weight in grams Range	Weight in oz.
72	2	8	-	0.3	185	4	153	129-175	5.4
82	5	11	9-10	0.4	191	2	158	140-176	5.6
96	13	17	14-21	0.6	204	6	201	175-240	7.1
106	48	21	14-32	0.8	214	3	234	198-254	8.3
115	63	28	19-39	1.0	226	3	395	340-454	13.9
125	115	34	20-80	1.2	233	4	506	300-680	17.8
135	85	48	25-70	1.7	244	5	394	270-680	13.9
144	68	50	28-142	1.8	257	3	427	369-482	15.1
154	31	73	39-105	2.5	268	1	567	-	20.0
164	20	83	44-113	2.9	279	1	609	-	21.5
173	10	111	69-227	3.9	321	1	680	-	24.0

## Total length-weight relationship, Ohio, L-12

T.L. in inches	No.	Weight in oz.	T.L. in inches	No.	Weight in oz.	T.L. in inches	No.	Weight in oz.
1.0-1.9	184	0.03	5.0-5.9	1	1.75	9.0-9.9	45	8.7
2.0-2.9	49	0.13	6.0-6.9	6	2.71	10.0-10.9	116	11.2
3.0-3.9	3	0.38	7.0-7.9	3	3.16	11.0-11.9	64	14.8
4.0-4.9	1	1.50	8.0-8.9	18	5.51	12.0-12.9	17	18.6

L-29 Iowa, East L.	13 fish	average K 2.34
C-36 Iowa Clear L.	3 fish, 150-170 mm. S.L.	average K 1.97 range 1.61-2.19
C-36 Iowa, Ahquabi L.	3 fish, 211-279 mm. S.L.	average K 2.78 range 2.71-2.83
C-33 Iowa ponds	58 fish, 40-209 mm. S.L.	average K 1.77
C-38 Iowa, Little Wall L.	180 fish, 71-275 mm. S.L.	average K 2.29

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group O-July									
B-3 Iowa Clear L.	P	167	28	-	-	16-42	-	-	-
R-38 Ind.	P	-	-	1.3	-	-	-	-	-
Age Group O-August									
B-2 Iowa Okoboji L.	P	23	38	-	-	29-47	-	-	-
B-3 Iowa Clear L.	P	61	46	-	-	32-55	-	-	-
L-27 Iowa Pond	P	226	-	-	2.7	1.3-3.5	-	-	-
Age Group O-October									
B-4 Iowa Clear L.	P	55	66X	-	3.1	54-95	-	-	-
Age Group O									
R-31 Ind.	P	-	-	3.3	-	-	-	-	-
Age Group I									
L-27 Ia. Clear L.-Apr.	P	24	-	-	2.6	1.8-3.7	-	-	-
L-27 Ia. Ponds	B	58	-	-	3.4	2.3-4.7	-	-	-
R-38 Ind. Sweet Gum P.	P	8	-	3.2	-	2.7-3.6	8	0.3	0.2-0.5
R-31 Ind. Gravel Pit	P	-	-	5.1	-	-	-	-	-
R-38 Ind. Croddy Pond	P	6	-	5.2	-	4.5-5.7	6	1.4	0.8-2.1
L-27 Ia. Von Zomeron P.	I	2	-	-	9.4	9.2-9.5	-	-	-
Age Group II									
L-27 Ia. Ponds	B	58	-	-	5.1	3.9-7.4	-	-	-
T-16 Ill. Horseshoe L.	I	-	-	-	9.0	-	-	-	-



## BLACK BULLHEAD, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group III									
L-27 Ia. Ponds	B	60	-	-	6.5	4.0-8.2	-	-	-
L-29 Ia. Red Haw L.	B	5	168X	-	7.8	134-200	5	4.1	1.9-6.7
Age Group IV									
L-27 Ia. Ponds	B	64	-	-	6.9	5.3-8.1	-	-	-
L-29 Ia. Red Haw L.	B	2	288X	-	10.2	202-254	2	10.0	6.9-13.0
Age Group V									
L-27 Ia. Ponds	B	59	-	-	7.5	6.2-10.6	-	-	-
Age Group VI									
L-27 Ia. Ponds	B	15	-	-	7.7	6.7-8.3	-	-	-
L-29 Ia. Red Haw L.	B	1	321	-	14.8	-	1	14.0	-
Age Group VII									
L-27 Ia. Barringer's L.	B	4	-	-	8.3	7.7-9.0	-	-	-

FLATHEAD CATFISH, Pilodictis olivaris

J-13	37 inch fish weighed	36.5 pounds
	38 inch	37.0 pounds
	41 inch	46.0 pounds

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in pounds		
							No.	Mean	Range
Age Group O-Oct.									
F-8 Texas	K	-	-	-	8.0	-	-	0.02	-
Age Group I									
U-4 Ill. Miss. R.	B	-	-	-	8.0	-	-	-	-
Age Group II									
L-38 Ill. Kaskaskia R.	P	-	203	-	-	-	-	-	-
U-4 Ill. Miss. R.	B	-	-	-	13.0	-	-	-	-
W-7 Okla. L. Duncan	B	1	381	-	-	-	1	2.0	-
Age Group III									
L-38 Ill. Kaskaskia R.	P	-	279	-	-	-	-	-	-
U-4 Ill. Miss. R.	B	-	-	-	16.3	-	-	-	-
Age Group IV									
L-38 Ill. Kaskaskia R.	P	-	356	-	-	-	-	-	-
U-4 Ill. Miss. R.	B	-	-	-	17.9	-	-	-	-
Age Group V									
L-38 Ill. Kaskaskia R.	P	-	432	-	-	-	-	-	-
U-4 Ill. Miss. R.	B	-	-	-	21.5	-	-	-	-
Age Group VI									
U-4 Ill. Miss. R.	B	-	-	-	23.4	-	-	-	-
Age Group VII									
U-4 Ill. Miss. R.	B	-	-	-	27.5	-	-	-	-
Age Group VIII									
U-4 Ill. Miss. R.	B	-	-	-	34.0	-	-	-	-
Age Group IX									
U-4 Ill. Miss. R.	B	-	-	-	35.5	-	-	-	-
Age Group X									
U-4 Ill. Miss. R.	B	-	-	-	37.5	-	-	-	-

MADTOM, Schilbeodes mollis

H-80 Minn. Demming Lake	Age Group	No.	S.L. in mm.		Weight in grams	
			Mean	Range	Mean	Range
	O	2176	26	15-35	0.3	
	I	1978	62	43-85	4.2	
	II	52	89	78-104	16.3	

E-32 Ind. average 50 eggs per female. One 2 inch female had 93 eggs.



MUSKELLUNGE, Esox masquinongy

Total length in inches	No.	Weight in pounds		Location
		Mean	Range	
10	1	0.19	-	K-29 N.Y.
12-14	5	0.44	-	J-15 Wisc.
	3	0.65	0.57-0.81	K-29 N.Y.
15-17	17	0.81	0.83-1.06	J-15 Wisc.
	2	1.22	1.19-1.25	K-29 N.Y.
18-20	12	1.31	1.06-1.38	J-15 Wisc.
	3	1.38	1.00-2.00	K-29 N.Y.
21-23	8	2.13	1.50-2.69	J-15 Wisc.
	12	2.72	1.94-3.98	K-29 N.Y.
24-26	21	4.01	3.00-5.50	K-29 N.Y.
	6	4.06	2.31-6.25	J-15 Wisc.
27-29	38	5.81	4.13-8.00	K-29 N.Y.
	10	6.94	3.81-12.25	J-15 Wisc.
30-32	20	7.13	5.50-8.25	K-29 Mich.
	66	7.92	6.00-10.00	K-29 N.Y.
	40	8.56	6.00-13.00	J-15, W-39 Wisc.
33-35	66	9.42	7.00-13.00	K-29 Mich.
	42	9.72	7.00-13.25	K-29 N.Y.
	70	10.19	7.00-32.00	J-15, W-39 Wisc.
30-34	15	-	6.00-13.00	W-37 Mich.
36-38	12	11.56	9.50-13.50	K-29 N.Y.
	17	11.67	9.50-14.50	K-29 Mich.
	87	12.38	4.00-30.00	J-15, W-39 Wisc.
35-39	37	-	8.00-38.00	W-37 Mich.
39-41	4	14.39	13.60-15.19	K-29 N.Y.
	47	14.87	13.00-20.00	K-29 Mich.
	70	17.25	7.31-30.63	J-15, W-39 Wisc.
42-44	59	21.06	11.00-38.00	J-15, W-39 Wisc.
	8	21.06	18.00-28.00	K-29 N.Y.
	24	21.08	15.75-28.00	K-29 Mich.
40-44	36	-	14.00-37.00	W-37 Mich.
45-47	15	25.22	21.00-31.50	K-29 Mich.
	53	25.50	14.31-37.00	J-15, W-39 Wisc.
	5	27.64	26.00-29.19	K-29 N.Y.
48-50	9	28.75	23.00-37.00	K-29 Mich.
	38	31.06	10.00-42.00	J-15, W-39 Wisc.
	2	34.75	33.50-36.00	K-29 N.Y.
45-49	44	-	19.00-42.00	W-37 Mich.
51-53	22	33.69	22.00-44.00	J-15 W-39 Wisc.
	2	34.50	33.00-36.00	K-29 Mich.
50-54	26	-	28.00-52.00	W-37 Mich.
54-56	8	35.63	25.00-43.50	J-15, W-39 Wisc.
57-59	3	44.88	41.25-52.00	J-15, W-39 Wisc.
55-59	6	-	46.00-63.00	W-37 Mich.
60-61	3	-	45.00-58.00	W-37 Mich.
88	1	110.00	-	W-37 Mich.

C-22 Minn. L. of Woods. 2 fish, 29-38 inches, Average K 1.14

R-45 Ohio

Average C(T.L.) 24-32



## MUSKELLUNGE, (Continued)

							Weight in pounds		
	Code	No.	S.L.	F.L.	T.L.	Range	No.	Mean	Range
Age Group O-May									
0-5 Wisc.	K	-	-	-	0.5	-	-	-	-
Age Group O-June									
E-7 Ont.	K	-	-	0.6	-	-	-	-	-
0-5 Wisc.	K	-	-	-	-	0.6-3.8	-	-	-
M-18 Ont.	K	-	-	X	-	1.2-2.3	-	-	-
Age Group O-July									
E-7 Ont.	K	-	-	X	-	2.2-3.5	-	-	-
M-18 Ont.	K	-	-	X	-	3.5-4.0	-	-	-
0-5 Wisc.	K	-	-	-	X	4.5-6.8	-	-	-
N-43 N.Y.	K	11	-	-	6.0	-	-	-	-
Age Group O-August									
E-7 Ont.	K	-	-	X	-	4.0-6.8	-	-	-
0-5 Wisc.	K	-	-	-	X	1.7-10.0	-	-	-
N-43 N.Y.	K	100	-	-	8.5	-	-	-	-
Age Group O-September									
E-7 Ont.	K	-	-	X	-	4.0-8.5	-	-	-
Age Group O-October									
E-7 Ont.	K	-	-	X	-	4.5-9.5	-	-	-
W-12 Wisc.	K	-	-	-	X	8.0-10.0	-	-	-
Age Group O-November									
E-7 Ont.	K	-	-	X	-	8.0-11.5	-	-	-
H-15 Ont.	K	-	-	X	-	8.0-12.0	-	0.44	-
Age Group I									
M-69 N.Y. Chautauqua	K	1	-	-	10.8	-	1	0.19	-
G-23 N.Y. Chautauqua	S	3	-	-	13.1	11.8-14.5	2	0.70	0.58-0.81
E-7 Ont.	K	3	-	13.1	-	12.6-13.6	-	-	-
H-15 Ont.	S	-	-	X	-	12.0-14.0	-	2.00	-
S-2 Wisc.	S	21	338	-	-	-	-	-	-
Age Group II									
J-15 Wisc.	S	13	-	-	17.2	13.0-22.0	-	-	-
S-2 Wisc.	S	24	417	-	-	-	-	-	-
E-7 Ont.	K	1	-	17.5	-	-	-	-	-
H-15 Ont.	S	-	-	X	-	18.0-22.0	-	4.00	-
M-69 N.Y. Chautauqua	K	1	-	-	15.0	-	1	0.58	-
J-15 Wisc.	S	11	-	-	21.2	16.0-30.5	-	-	-
S-2 Wisc.	S	9	523	-	-	-	-	-	-
G-23 N.Y. Chautauqua	S	25	-	-	26.4	23.4-30.0	25	4.32	2.31-6.00
H-15 Ont.	S	-	-	26.0	-	-	-	5.00	-
Age Group IV									
M-69 N.Y. Chautauqua	K	3	-	-	24.5	22.7-27.3	3	2.95	2.44-3.66
G-23 N.Y. Chautauqua	S	15	-	-	28.5	22.1-32.0	14	5.43	2.56-8.50
H-15 Ont.	S	-	-	28.0	-	-	-	7.00	-
S-2 Wisc.	S	12	706	-	-	-	-	-	-
J-15 Wisc.	S	15	-	-	31.3	23.0-37.4	-	-	-
Age Group V									
M-69 N.Y. Chautauqua	S	6	-	-	29.9	28.0-32.3	6	5.75	4.50-7.50
G-23 N.Y. Chautauqua	S	27	-	-	30.7	26.2-33.5	26	6.96	4.25-9.00
H-15 Ont.	S	-	-	30.0	-	-	-	9.00	-
S-2 Wisc.	S	20	732	-	-	-	-	-	-
J-15 Wisc.	S	25	-	-	31.9	18.5-41.0	-	-	-
W-37 Mich.	S	-	-	-	32.0	-	-	-	7.00-8.00
Age Group VI									
G-23 N.Y. Chautauqua	S	44	-	-	32.6	29.1-38.1	44	8.19	5.75-11.41
H-15 Ont.	S	-	-	32.0	-	-	-	12.00	-
S-2 Wisc.	S	36	809	-	-	-	-	-	-
J-15 Wisc.	S	43	-	-	35.1	29.5-42.1	-	-	-
M-69 N.Y. Chautauqua	S	4	-	-	35.2	34.1-36.5	4	9.88	9.00-10.50



## MUSKELLUNGE, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in pounds		
							No.	Mean	Range
Age Group VII									
G-23 N.Y. Chautauqua	S	30	-	-	34.0	29.9-41.0	30	8.99	7.00-13.50
H-15 Ont.	S	-	-	34.0	-	-	-	13.00	-
S-2 Wisc.	S	54	835	-	-	-	-	-	-
J-15 Wisc.	S	85	-	-	35.9	22.0-48.0	-	-	-
M-69 N.Y. Chautauqua	S	1	-	-	40.8	-	1	15.19	-
Age Group VIII									
G-23 N.Y. Chautauqua	S	21	-	-	34.1	30.8-41.5	21	9.52	6.25-12.25
H-15 Ont.	S	-	-	36.0	-	-	-	15.00	-
S-2 Wisc.	S	43	858	-	-	-	-	-	-
J-15 Wisc.	S	72	-	-	38.6	27.3-49.5	-	-	-
M-69 N.Y. Chautauqua	S	1	-	-	43.5	-	1	20.75	-
Age Group IX									
G-23 N.Y. Chautauqua	S	15	-	-	38.3	32.7-44.5	13	13.71	9.13-20.25
H-15 Ont.	S	-	-	38.0	-	-	-	19.00	-
S-2 Wisc.	S	39	951	-	-	-	-	-	-
J-15 Wisc.	S	78	-	-	40.7	30.2-53.5	-	-	-
Age Group X									
G-23 N.Y. Chautauqua	S	3	-	-	41.9	34.1-48.0	3	19.00	10.50-26.50
W-37 Mich.	S	-	-	-	-	-	-	-	20.00-25.00
H-15 Ont.	S	-	-	41.0	-	-	-	21.00	-
S-2 Wisc.	S	39	997	-	-	-	-	-	-
J-15 Wisc.	S	42	-	-	42.6	32.5-52.5	-	-	-
Age Group XI									
J-15 Wisc.	S	41	-	-	43.8	30.0-57.8	-	-	-
S-2 Wisc.	S	26	944	-	-	-	-	-	-
H-15 Ont.	S	-	-	43.0	-	-	-	24.00	-
G-23 N.Y. Chautauqua	S	2	-	-	44.6	44.0-45.3	2	23.50	21.00-26.00
M-69 N.Y. Chautauqua	S	2	-	-	48.0	-	2	27.63	26.00-29.19
Age Group XII									
G-23 N.Y. Chautauqua	S	1	-	-	44.0	-	1	19.50	-
H-15 Ont.	S	-	-	44.0	-	-	-	28.00	-
J-15 Wisc.	S	31	-	-	47.5	39.0-53.8	-	-	-
S-2 Wisc.	S	13	1104	-	-	-	-	-	-
M-69 N.Y. Chautauqua	S	1	-	-	50.5	-	1	36.00	-
Age Group XIII									
H-15 Ont.	S	-	-	46.0	-	-	-	30.00	-
G-23 N.Y. Chautauqua	S	1	-	-	47.0	-	1	28.00	-
S-2 Wisc.	S	6	1073	-	-	-	-	-	-
J-15 Wisc.	S	25	-	-	48.0	42.0-54.0	-	-	-
Age Group XIV									
H-15 Ont.	S	-	-	48.0	-	-	-	32.00	-
S-2 Wisc.	S	2	1137	-	-	-	-	-	-
J-15 Wisc.	S	10	-	-	50.1	33.5-59.0	-	-	-
Age Group XV									
J-15 Wisc.	S	3	-	-	48.2	45.5-57.0	-	-	-
G-23 N.Y. Chautauqua	S	2	-	-	49.0	47.0-51.0	-	31.00	28.50-33.50
H-15 Ont.	S	-	-	50.0	-	-	-	50.00	-
W-37 Mich.	S	-	-	-	-	-	-	-	-
S-2 Wisc.	S	2	1307	-	-	-	-	-	-
S-3 Wisc.	S	1	-	-	57.0	-	1	52.00	-
Age Group XVI									
S-2 Wisc.	S	1	1066	-	-	-	-	-	-
J-15 Wisc.	S	1	-	-	45.5	-	-	-	-
H-15 Ont.	S	-	-	51.0	-	-	-	-	-
Age Group XVII									
H-15 Ont.	S	-	-	52.0	-	-	-	-	-
J-15 Wisc.	S	1	-	-	54.0	-	-	-	-
S-2 Wisc.	S	2	1302	-	-	-	-	-	-



## MUSKELLUNGE, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in pounds		
							No.	Mean	Range
Age Group XVIII									
J-15 Wisc.	S	1	-	-	52.0	-	-	-	-
B-2 Wisc.	S	1	1256	-	-	-	-	-	-
H-15 Ont.	S	-	-	54.0	-	-	-	-	-
Age Group XIX									
S-2 Wisc.	S	1	1320	-	-	-	-	-	-
J-15 Wisc.	S	1	-	-	52.3	-	-	-	-

Code	No.	Average calculated standard lengths at each annulus																				
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19		
E-3 Minn.	L	48	147	275	381	481	579	654	755	884	947	986	1031									
B-2 Wisc.	L	351	178	366	503	630	716	794	858	924	964	1007	1045	1094	1127	1157	1200	1193	1256	1261	1297	
Average calculated Fork lengths at each annulus																						
E-2 Minn.	L	18	8.7	13.3	18.9	23.8	28.1	31.0														
Code	No.	Average calculated total lengths in inches at each annulus																				
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
S-82 Minn.	-	6.9	12.5	17.1	21.5	25.8	29.0	33.4	41.8	43.5	45.5											
V-15 "Typical"	-	8.0	16.0	23.0	28.0	32.0	35.0	38.0	40.0	43.0	45.0	48.0	48.0	49.0	51.0	52.0	53.0	54.0	55.0	56.0	58.0	
R-45 Ohio	-	10.0	17.0	23.0	30.0	33.0	37.0	40.0	42.0	45.0	48.0	49.0										
Code	No.	Average calculated weight in pounds at each annulus																				
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
V-15 "typical"	0.2	1	3	6	9	12	14	16	19	23	25	28	31	33	34	35	36	37	38	39		

F-6 reports a specimen kept in captivity 10 years.

	Code	Size of females	No. of females	No. of eggs per female
				Mean Range
N-40 Wisc.	H	40 pounds	1	225,000
N-45 N.Y. Chautauqua L.	H	-	-	-
C-47 N.Y.	H	32 pounds	1	265,000
V-15 -	U	-	-	-
B-24 Ohio	H	35 pounds	1	255,000
H-36 Wisc.	H	36-46 inches	11	22,092-164,112
W-42 Wisc.	H	-	30	10,000-15,000
W-42 Wisc.	H	52 inches	1	260,000
W-38 Wisc.	H	36-54 inches	13	107,224
N-25 B-73, L-1, K-4	H	35 pounds	1	265,000
B-23 N.Y. Chautauqua L.	H	-	1	60,000
K-4 -	H	-	190	6,315

NORTHERN PIKE, *Esox lucius*

C-17 Minn. L. of Woods	1015 fish	F.L. = 1.064 S.L. + 8 mm.
C-35 Minn. L. of Vermilion	fish under 400 mm. S.L.	F.L. = 1.089 S.L.
	401-500 mm. S.L.	F.L. = 1.083 S.L.
	over 500 mm. S.L.	F.L. = 1.076 S.L.
C-37 Minn.	1405 fish, 200-800 mm. S.L.	F.L. = 1.078 S.L.
C-30 Iowa	16 fish	F.L. = 1.09 S.L.
C-37 Minn.	894 fish 200-499 mm. S.L.	T.L. = 1.141 S.L.
	511 fish over 499 mm. S.L.	T.L. = 1.133 S.L.
V-3 Wisc.	41 fish	T.L. = 1.13 S.L.
C-17 Minn. L. of Woods	1015 fish	T.L. = 1.108 S.L. + 12 mm.
B-30 Mich.	1034 fish under 20 inches T.L.	T.L. = 1.162 S.L.
	457 fish, 20-31 inches T.L.	T.L. = 1.153 S.L.
	22 fish, over 31 inches T.L.	T.L. = 1.140 S.L.
C-35 Minn. L. Vermilion	under 400 mm. S.L.	T.L. = 1.148 S.L.
	401-500 mm. S.L.	T.L. = 1.146 S.L.
	over 500 mm. S.L.	T.L. = 1.136 S.L.
C-30 Iowa	8 fish under 430 mm. S.L.	T.L. = 1.18 S.L.
	35 fish over 430 mm. S.L.	T.L. = 1.15 S.L.



## NORTHERN PIKE, (Continued)

S.L. in mm.	No.	Weight in grams		Weight in pounds	Location
		Mean	Range		
150-174	1	28	-	0.06	C-30 Iowa
175-199	1	255	-	0.56	C-20 Minn.
200-224	4	221	-	0.49	C-20 Minn.
225-249	3	198	-	0.44	C-20 Minn.
250-274	2	240	-	0.53	C-20 Minn.
275-299	4	312	-	0.69	C-20 Minn.
300-349	1	295	-	0.65	C-30 Iowa
	9	304	227-369	0.67	C-35 Minn. L. Vermilion
	6	307	284-340	0.68	R-23,23 Mich. Douglas L.
	78	445	-	0.98	C-20 Minn.
350-399	1	350	-	0.77	C-30 Iowa
	12	430	340-567	0.95	C-35 Minn. L. Vermilion
	5	521	425-794	1.15	R-24,23 Mich. Douglas L.
	199	601	-	1.32	C-20 Minn.
400-449	6	624	539-794	1.38	C-35 Minn. L. Vermilion
	4	702	561-784	1.55	C-30 Iowa
	7	725	595-836	1.60	R-24,23 Mich. Douglas L.
	523	771	-	1.70	C-20 Minn.
450-499	561	1017	-	2.24	C-20 Minn.
	9	1046	879-1247	2.31	C-35 Minn. L. Vermilion
	4	1067	907-1241	2.35	C-30 Iowa
	3	1096	765-1673	2.42	R-24,23 Mich. Douglas L.
500-549	7	1195	907-1332	2.63	C-35 Minn. L. Vermilion
	321	1333	-	2.94	C-20 Minn.
	7	1467	1247-1857	3.23	C-30 Iowa
550-599	200	1751	-	3.86	C-20 Minn.
	4	1956	1729-2197	4.31	C-30 Iowa
	3	1966	1871-2098	4.33	C-35 Minn. L. Vermilion
600-649	4	1843	1474-2155	4.06	C-30 Iowa
	1	2041	-	4.50	C-35 Minn. L. Vermilion
	121	2116	-	4.66	C-20 Minn.
650-699	2	2452	2041-2863	5.41	C-30 Iowa
	55	2756	-	6.08	C-20 Minn.
700-749	2	3494	3175-3813	7.70	C-30 Iowa
	35	3549	-	7.82	C-20 Minn.
750-799	1	2948	-	6.50	R-24,23 Mich. Douglas L.
	20	4082	-	9.00	C-20 Minn.
	6	4970	4082-5443	10.56	C-30 Iowa
800-849	4	4649	-	10.25	C-20 Minn.
850-899	9	5100	-	12.57	C-20 Minn.
900-949	6	7463	-	16.45	C-20 Minn.
950-999	6	7298	-	16.09	C-20 Minn.
1000-1049	3	9373	-	20.66	C-20 Minn.
1050-1099	2	10433	-	23.00	C-20 Minn.

F.L. in mm.	No.	Weight in pounds		Location
		Mean	Range	
14.0-15.9	5	0.89	0.69-1.06	C-17 Minn. L. of Woods
	3	1.04	0.88-1.19	S-83 Sask.
16.0-17.9	3	1.31	1.19-1.56	S-83 Sask.
	48	1.54	1.00-1.81	C-17 Minn. L. of Woods
18.0-19.9	282	1.84	1.25-2.50	C-17 Minn. L. of Woods
	3	1.98	1.69-2.25	S-83 Sask.



## NORTHERN PIKE, (Continued)

F.L. in inches	No.	Weight in pounds		Location
		Mean	Range	
20.0-21.9	336	2.34	1.44-4.00	C-17 Minn. L. of Woods
	2	2.72	2.69-2.75	S-83 Sask.
22.0-23.9	131	2.99	2.13-5.06	C-17 Minn. L. of Woods
	9	3.31	2.80-4.00	S-83 Sask.
24.0-25.9	6	4.06	3.06-4.75	S-83 Sask.
	54	4.23	2.75-6.19	C-17 Minn. L. of Woods
26.0-27.9	26	5.63	4.25-9.50	C-17 Minn. L. of Woods
	1	5.88	-	S-83 Sask.
28.0-29.9	9	6.66	4.64-8.63	C-17 Minn. L. of Woods
	3	6.81	6.00-7.19	S-83 Sask.
30.0-31.9	2	7.04	5.94-8.13	S-83 Sask.
	5	8.44	6.50-9.94	C-17 Minn. L. of Woods
32.0-33.9	1	7.63	-	S-83 Sask.
	3	9.50	9.00-10.50	C-17 Minn. L. of Woods
34.0-35.9	1	9.81	-	S-83 Sask.
38.0-39.9	2	17.38	16.44-18.25	C-17 Minn. L. of Woods

T.L. in inches	No.	Weight in pounds		Location
		Mean	Range	
2	16	0.002	-	B-30 Mich.
3-4	14	0.011	-	B-30 Mich.
5-6	11	0.046	-	B-30 Mich.
7-8	31	0.101	-	B-30 Mich.
9-11	98	0.18	-	B-30 Mich.
	4	0.22	0.11-0.33	J-15 Wisc.
	1	0.50	-	S-62 Minn.
	1	0.75	-	M-20 Wisc.
12-14	8	0.42	0.31-0.50	J-15 Wisc.
	211	0.51	-	B-30 Mich.
	-	0.60	-	S-62 Minn.
	57	0.63	-	M-20 Wisc.
15-17	2	0.85	0.68-1.00	C-9 Mich.
	242	0.87	-	B-30 Mich.
	95	0.97	-	M-20 Wisc.
	13	1.06	0.94-2.25	J-15 Wisc.
	-	1.10	-	S-62 Minn.
18-20	-	1.50	-	S-62 Minn.
	64	1.50	1.00-3.00	J-15,W-39 Wisc.
	74	1.52	-	M-20 Wisc.
	243	1.60	-	B-30 Mich.
	6	2.00	1.63-2.13	C-9 Mich.
21-23	-	2.30	-	S-62 Minn.
	84	2.38	1.25-6.00	J-15,W-39 Wisc.
	70	2.42	-	M-20 Wisc.
	158	2.45	-	B-30 Mich.
	9	2.55	2.06-3.13	C-9 Mich.
24-26	-	3.20	-	S-62 Minn.
	70	3.31	1.75-5.00	J-15,W-39 Wisc.
	58	3.42	-	B-30 Mich.
	9	3.58	-	C-9 Mich.
	39	3.66	-	M-20 Wisc.
27-29	-	5.00	-	R-58 Ohio
	57	4.31	2.00-8.00	J-15,W-39 Wisc.
	-	4.10	-	S-62 Minn.
	29	4.64	-	B-30 Mich.
	3	4.65	4.19-5.50	C-9 Mich.
	17	5.29	-	M-20 Wisc.



## NORTHERN PIKE, (Continued)

T.L. in inches	No.	Weight in pounds		Location
		Mean	Range	
30-32	26	6.29	-	B-30 Mich.
	-	6.60	-	S-62 Minn.
	40	6.63	3.00-11.50	J-15,W-39 Wisc.
	12	7.20	-	M-20 Wisc.
33-35	-	8.10	-	S-62 Minn.
	8	9.34	-	B-30 Mich.
	33	9.88	3.50-18.50	J-15,W-39 Wisc.
	-	10.00	-	R-58 Ohio
	1	10.66	-	C-9 Mich.
	2	10.95	9.90-12.00	M-20 Wisc.
36-38	-	10.50	-	S-62 Minn.
	23	10.88	8.00-18.00	J-15,W-39 Wisc.
	3	11.58	-	M-20 Wisc.
	2	14.16	-	B-30 Minn.
39-41	12	14.19	10.00-20.00	J-15,W-39 Wisc.
	2	14.87	-	B-30 Mich.
	-	15.00	-	R-58 Ohio
	-	15.30	-	S-62 Minn.
42-44	16	15.38	11.13-20.00	J-15,W-39 Wisc.
	-	18.60	-	S-62 Minn.
45-47	1	16.75	-	M-20 Wisc.
	10	20.13	15.13-30.00	J-15,W-39 Wisc.
	-	22.00	-	S-62 Minn.
48-50	2	18.50	15.00-22.00	J-15,W-39 Wisc.
	-	20.00	-	R-58 Ohio
51-53	1	25.00	-	J-15, Wisc. W-39

C-17 Minn. L. of Woods  
C-35 Minn. L. Vermilion  
B-30 Mich.

Log W = -6.2076 + 3.0657 Log S.L.  
Log W = -5.622 + 3.223 Log S.L.  
Log W = -5.2363 + 3.06647 Log T.L.

C-34 Minn. Leech L.	128 fish	average K 0.85	
V-3 Wisc.	480 fish	average K 0.64	
V-20 Minn. Red Lake	1 fish 468 mm.	average K 0.86	
E-3 Minn.	1869 fish, 178-1066 mm. S.L.	average K 0.94	
C-17 Minn. L. of Woods	901 fish	average K 0.90	
C-23 Minn. 1941-43	1111 fish	average K 0.89	
B-30 Mich.		K varied from 0.78-0.94	
C-35 Minn. L. Vermilion	65 fish	average K 0.90	
C-9 Mich.	30 females, 338-775 mm. S.L.	average K 0.95	range 0.81-1.28
C-36 Iowa	30 fish, 173-781 mm. S.L.	average K 0.97	range 0.55-1.19
H-1 Germany	35 fish	average K(F.L.) 0.83	
R-58 Ohio		average C(T.L.) 25	
B-30 Michigan		average C(T.L.) 18 to 23	
C-23 Minn.		average C(T.L.) 22	

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in pounds		
							No.	Mean	Range
Age Group O-May									
C-7 Mich.	P	521	-	-	0.9	0.3-3.0	-	-	-
S-122 Germany	K	-	X	-	-	20-30	-	-	-
Age Group O-June									
S-83 Sask.	K	2	-	2.5	-	-	-	-	-
S-122 Germany	K	-	60	-	-	-	-	-	-
C-10 Mich. Ortonville	K	40	-	-	2.9	2.0-5.3	-	-	-0.03
C-7 Mich.	P	570	-	-	3.1	1.1-8.5	-	-	-
B-43 Minn.	K	-	-	-	X	3.0-7.0	-	-	-
Age Group O-July									
A-1 N.Y. Oneida L.	P	5	-	-	3.7	1.7-4.5	-	-	-
S-83 Sask.	K	24	-	3.9	-	2.8-6.1	-	-	-



## NORTHERN PIKE, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in pounds		
							No.	Mean	Range
C-10 Mich. Ortonville	K	21	-	-	4.2	2.4-8.7	21	0.03	0.002-0.18
C-7 Mich.	P	656	-	-	6.1	1.9-9.0	-	-	-
Age Group O-August									
C-10 Mich. Ortonville	K	12	-	-	6.7	3.1-10.4	12	0.10	0.004-0.23
S-83 Sask.	K	3	-	6.8	-	-	-	-	-
C-7 Mich.	P	3	-	-	8.2	7.5-8.9	-	-	-
Age Group O-September									
C-35 Minn. L. Vermilion	S	1	176	-	-	-	1	0.13	-
Age Group O-October									
C-10 Mich. Ortonville	K	362	-	-	8.2	3.3-17.6	362	0.17	0.004-1.01
Age Group O-December									
C-10 Mich. Belle Isle	K	-	-	-	9.7	8.2-12.0	-	0.14	-
Age Group O									
H-31 Sweden	K	-	-	X	-	3.0-7.0	-	-	-
E-9 N.Y.	-	-	-	X	-	5.0-6.0	-	-	-
H-30 England	K	-	-	6.2	-	-	-	-	-
C-17 Minn. L. of Woods	S	5	147	-	-	127-178	-	-	-
S-122 Germany	K	-	X	-	-	100-300	-	-	-
J-15 Wisc.	S	5	-	-	9.7	8.0-11.6	-	-	-
C-11 Mich.	K	-	-	-	X	8.0-12.0	-	-	-
C-14 B.C.	-	-	-	X	-	8.0-12.0	-	-	-
V-3 Wisc.	S	13	-	-	11.1	-	-	-	-
Age Group I									
S-83 Sask.	S	3	-	4.0	-	-	-	-	-
E-15 Sask.	S	4	-	5.9	-	5.5-7.5	-	-	-
C-10 Mich. small fish(May)	K	-	-	-	7.1	6.3-7.8	-	0.07	-
H-30 England-Barrington	S	-	-	7.5	-	3.9-11.0	-	-	-
H-31 Eng. E. Anglia	S	6	-	7.6	-	3.9-11.0	-	-	-
H-15 Ont.	S	-	-	X	-	7.0-10.0	-	0.25	-
E-9 N.Y.	K	-	-	X	-	8.0-11.0	-	-	-
H-30 Eng. Windermere	S	-	-	9.9	-	-	-	-	-
H-31 Sweden	S	-	-	X	-	6.8-14.5	-	-	-
L-20 U.S.A.	K	-	-	-	X	10.0-12.0	-	-	-
K-4 Sweden	K	-	-	X	-	9.9-11.8	-	-	-
C-17 Minn. L. of Woods	S	1	229	-	-	-	-	-	-
G-25 N.Y. Ontario	S	2	-	-	11.3	9.8-12.7	1	0.42	-
C-10 Mich. Belle Isle(May)	K	-	-	-	11.9	10.7-12.9	-	0.38	-
B-23 N.Y.	K	-	-	-	12.0	-	-	-	-
C-10 Mich. small fish-Nov.	K	-	-	-	12.1	10.0-13.3	-	0.32	-
J-15 Wisc.	S	8	-	-	13.1	10.7-19.3	-	-	-
C-10 Mich. large, May	K	-	-	-	13.4	11.7-15.2	-	0.50	-
C-10 Mich. Belle Isle-Nov.	K	-	-	-	14.0	12.7-15.6	-	0.52	-
C-35 Minn. L. Vermilion	S	11	330	-	-	248-375	6	0.71	0.29-1.25
H-1 Germany	S	2	-	13.0	-	11.8-13.4	2	0.46	-
E-3 Minn.	S	21	335	-	-	229-457	-	0.64	-
C-10 Mich., large, Nov.	K	-	-	-	15.5	13.7-21.1	-	0.71	-
C-11 Mich.	P	-	-	-	X	14.0-18.0	-	-	-
N-37 Wisc. L. Geneva	S	13	358	-	-	-	-	-	-
V-3 Wisc.	S	51	-	-	19.9	-	-	-	-
Age Group II									
S-83 Sask.	S	1	-	8.3	-	-	-	-	-
E-15 Sask. Waskesiu L.	S	5	-	9.7	-	8.1-11.6	-	-	-
H-31 Eng. E. Anglia	S	13	-	9.7	-	6.3-15.8	-	-	-
H-30 Eng.-Barrington	S	-	-	11.1	-	9.4-15.8	-	-	-
H-15 Ont.	S	-	-	13.0	-	-	-	0.44	-
H-31 Sweden	S	-	-	X	-	10.6-17.0	-	-	-
C-10 Mich., small-Oct.	K	-	-	-	14.3	14.0-14.7	-	0.51	-
L-20 U.S.A.	K	-	-	-	X	14.0-16.0	-	-	-
C-10 Mich. Belle Isle	K	-	-	-	15.1	14.0-16.6	-	0.58	-
E-9 N.Y.	K	-	-	X	-	14.0-16.0	-	-	-
K-4 Sweden	K	-	-	X	-	14.1-16.6	-	-	-
C-10 Mich., large-Oct.	K	-	-	-	16.4	10.2-25.7	-	0.80	-
M-20 Wisc., south	S	17	-	-	16.6	-	17	1.05	-



## NORTHERN PIKE, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in pounds			
							No.	Mean	Range	
G-25 N.Y. Ontario	S	6	-	-	16.7	13.3-18.7	6	0.95	0.42-1.30	
H-1 Germany	S	5	-	14.3	-	13.8-15.0	5	0.66	0.55-0.77	
E-3 Minn.	S	284	366	-	-	254-559	-	1.23	-	
C-17 Minn. L. of Woods	S	43	374	-	-	254-432	15	1.05	0.69-1.50	
C-35 Minn. L. Vermilion	S	33	377	-	-	314-479	22	0.99	0.63-2.19	
V-3 Wisc.	S	123	-	-	21.5	-	-	-	-	
J-15 Wisc.	S	8	-	-	21.7	19.0-25.7	-	-	-	
C-11 Mich.	K	-	-	-	X	22.0-26.0	-	-	-	
N-37 Wisc. L. Geneva	S	32	513	-	-	-	-	-	-	
Age Group III										
H-31 England E. Anglia	S	44	-	11.7	-	8.7-17.3	-	-	-	
H-30 England, Barrington	S	-	-	12.3	-	8.7-17.3	-	-	-	
H-62 Ind.	S	1	303	-	-	-	-	0.50	-	
H-30 England, Windermere	S	-	-	13.8	-	-	-	-	-	
S-83 Sask., males	S	541	-	14.8	-	-	-	-	-	
S-83 Sask., females	S	516	-	14.9	-	-	-	-	-	
M-20 Wisc., south	S	72	-	-	15.6	-	72	0.86	-	
R-15 Sask. Waskesiu L.	S	6	-	13.8	-	13.0-15.4	-	-	-	
H-1 Germany, summer	S	19	-	15.9	-	14.6-17.3	19	0.90	0.67-1.10	
E-3 Minn.	S	1046	439	-	-	279-610	-	1.60	-	
C-35 Minn. L. Vermilion	S	29	443	-	-	362-555	13	1.60	0.94-2.56	
G-25 N.Y. Ontario	S	9	-	-	20.0	17.7-21.1	7	1.58	1.19-1.92	
C-17 Minn. L. of Woods	S	210	450	-	-	356-533	52	1.65	1.01-2.25	
H-15 Ontario	S	-	-	20.0	-	-	-	1.00	-	
H-1 Germany, fall	S	3	-	20.0	-	18.9-20.9	3	1.74	1.66-2.10	
J-15 Wisc.	S	73	-	-	21.3	14.0-31.6	-	-	-	
L-20 U.S.A.	K	-	-	-	X	22.0-24.0	-	-	-	
V-3 Wisc.	S	109	-	-	23.4	-	-	-	-	
K-4 Sweden	K	-	-	X	-	21.7-23.7	-	-	-	
N-37 Wisc. L. Geneva	S	2	556	-	-	-	-	-	-	
Age Group IV										
H-30 England, Barrington	S	-	-	13.3	-	11.0-17.3	-	-	-	
H-31 England, E. Anglia	S	21	-	13.7	-	10.2-17.3	-	-	-	
H-30 England, Windermere L.	S	-	-	15.6	-	-	-	-	-	
R-15 Sask. Waskesiu L.	S	6	-	16.2	-	15.9-18.5	-	-	-	
M-20 Wisc., south	S	104	-	-	17.5	-	104	1.30	-	
H-1 Germany	S	20	-	18.9	-	16.5-21.3	20	1.59	0.99-2.10	
H-31 Sweden	S	-	-	X	-	17.6-21.0	-	-	-	
S-83 Sask., males	S	142	-	19.2	-	-	-	-	-	
S-83 Sask., females	S	106	-	20.0	-	-	-	-	-	
H-62 Ind.	S	6	474	-	-	-	4	2.24	-	
C-35 Minn. L. Vermilion	S	29	476	-	-	404-548	12	2.10	1.42-2.94	
C-17 Minn. L. of Woods	S	219	496	-	-	406-584	81	2.24	1.38-3.75	
E-3 Minn.	S	798	498	-	-	356-686	798	2.27	-	
H-15 Ontario	S	-	-	21.0	-	-	-	1.50	-	
G-25 N.Y. Ontario L.	S	7	-	-	21.9	17.3-32.1	7	2.66	1.01-9.11	
J-15 Wisc.	S	71	-	-	23.2	17.0-30.4	-	-	-	
O-2 Finland	S	-	-	-	-	-	-	4.00	-	
V-3 Wisc.	S	87	-	-	27.0	-	-	-	-	
Age Group V										
H-30 England, Barrington	S	-	-	15.0	-	13.4-18.1	-	-	-	
H-31 England, E. Anglia	S	5	-	15.5	-	13.4-18.1	-	-	-	
H-30 England, Windermere	S	-	-	17.8	-	-	-	-	-	
R-15 Sask. Waskesiu L.	S	4	-	18.3	-	17.7-21.3	-	-	-	
M-20 Wisc., south	S	102	-	-	20.3	-	102	1.53	-	
S-83 Sask., males	S	135	-	21.4	-	-	-	-	-	
H-31 Sweden	S	-	-	X	-	19.6-24.1	-	-	-	
S-83 Sask. females	S	41	-	22.4	-	-	-	-	-	
C-35 Minn. L. Vermilion	S	15	520	-	-	474-589	6	2.85	2.13-4.25	
H-15 Ontario	S	-	-	23.0	-	-	-	2.50	-	
H-1 Germany	S	10	-	23.3	-	20.8-29.6	10	3.07	2.10-5.29	
C-17 Minn. L. of Woods	S	110	546	-	-	381-660	30	3.20	1.88-4.63	
J-15 Wisc.	S	63	-	-	24.3	15.7-37.4	-	-	-	
E-3 Minn.	S	421	564	-	-	406-686	421	3.46	-	



## NORTHERN PIKE, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in pounds		
							No.	Mean	Range
G-25 N.Y. Ontario L.	S	2	-	-	25.6	23.1-28.2	2	3.73	2.45-5.02
H-62 Ind.	S	6	609	-	-	-	4	3.47	-
V-3 Wisc.	S	48	-	-	29.2	-	-	-	-
W-13 Conn.	S	1	750	-	34.0	-	1	9.00	-
C-11 Mich.	K	-	-	-	39.0	-	-	-	-
Age Group VI									
H-31 England, E. Anglia	S	1	-	15.8	-	-	-	-	-
R-15 Sask. Waskesiu L.	S	4	-	20.1	-	18.1-21.3	-	-	-
H-30 England, Windermere	S	-	-	20.5	-	-	-	-	-
M-20 Wisc.	S	83	-	-	22.8	-	83	2.21	-
S-83 Sask., males	S	84	-	22.5	-	-	-	-	-
S-83 Sask., females	S	29	-	23.7	-	-	-	-	-
H-15 Ontario	S	-	-	24.0	-	-	-	3.00	-
C-35 Minn. L. Vermilion	S	5	563	-	-	450-617	2	4.41	4.19-4.63
C-17 Minn. L. of Woods	S	38	612	-	-	559-686	18	4.67	3.25-6.20
H-1 Germany	S	10	-	26.0	-	22.8-29.5	10	4.70	2.98-8.82
J-15 Wisc.	S	58	-	-	27.5	17.0-42.1	-	-	-
E-3 Minn.	S	133	638	-	-	533-787	-	4.58	-
H-62 Ind.	S	2	692	-	-	546-827	2	4.52	3.03-6.00
O-2 Finland	S	-	-	-	-	-	-	5.51	-
V-3 Wisc.	S	41	-	-	31.6	-	-	-	-
N-37 Wisc. L. Geneva	S	2	822	-	-	-	-	-	-
V-3 Ill.	S	1	-	-	37.3	-	1	9.50	-
L-20 U.S.A.	K	-	-	-	39.0	-	-	-	-
K-4 Sweden	K	-	-	39.4	-	-	-	-	-
Age Group VII									
H-31 England, E. Anglia	S	3	-	X	-	14.2-22.9	-	-	-
R-15 Sask. Waskesiu	S	5	-	22.1	-	19.9-23.4	-	-	-
S-83 Sask., males	S	33	-	23.0	-	-	-	-	-
M-20 Wisc., south	S	65	-	-	24.0	-	65	3.00	-
S-83 Sask., females	S	25	-	26.2	-	-	-	-	-
H-15 Ontario	S	-	-	27.0	-	-	-	4.00	-
C-35 Minn. L. Vermilion	S	3	624	-	-	593-669	1	4.50	-
J-15 Wisc.	S	64	-	-	29.1	16.2-45.0	-	-	-
C-17 Minn. L. of Woods	S	15	688	-	-	610-711	2	5.31	4.44-6.19
E-3 Minn.	S	74	696	-	-	584-610	-	7.06	-
H-1 Germany	S	7	-	30.3	-	27.2-39.4	7	8.45	5.07-13.23
V-3 Wisc.	S	25	-	-	35.0	-	-	-	-
N-37 Wisc. L. Geneva	S	1	894	-	39.8	-	1	14.00	-
Age Group VIII									
R-15 Sask. Waskesiu L.	S	6	-	23.8	-	22.6-26.4	-	-	-
S-83 Sask., males	S	14	-	25.4	-	-	-	-	-
M-20 Wisc., south	S	37	-	-	27.7	-	37	4.61	-
S-83 Sask., females	S	15	-	28.8	-	-	-	-	-
H-15 Ontario	S	-	-	29.0	-	-	-	5.00	-
O-2 Finland, males	S	-	-	-	-	-	-	5.29	-
G-25 N.Y. Ontario	S	1	-	-	30.5	-	1	6.20	-
C-17 Minn. L. of Woods	S	6	707	-	-	635-762	-	-	-
E-3 Minn.	S	26	757	-	-	610-913	-	7.76	-
O-2 Finland, females	S	-	-	-	-	-	-	7.95	-
J-15 Wisc.	S	32	-	-	33.2	20.7-49.1	-	-	-
H-1 Germany	S	7	-	33.1	-	28.3-39.4	3	10.03	6.06-13.25
V-3 Wisc.	S	12	-	-	37.3	-	-	-	-
Age Group IX									
R-15 Sask. Waskesiu L.	S	4	-	25.8	-	24.8-27.6	-	-	-
M-20 Wisc., south	S	21	-	-	30.4	-	21	6.35	-
S-83 Sask., females	S	6	-	29.5	-	-	-	-	-
H-15 Ontario	S	-	-	33.0	-	-	-	7.00	-
S-83 Sask., males	S	1	-	33.0	-	-	-	-	-
C-17 Minn. L. of Woods	S	1	787	-	-	-	1	10.38	-
O-2 Finland	S	-	-	-	-	-	-	10.80	-
C-35 Minn. L. Vermilion	S	2	801	-	-	762-840	-	-	-
J-15 Wisc.	S	12	-	-	36.4	24.0-44.5	-	-	-
E-3 Minn.	S	17	833	-	-	660-991	17	12.45	-
V-3 Wisc.	S	13	-	-	39.6	-	-	-	-
H-1 Germany	S	1	-	40.9	-	-	1	16.53	-



## NORTHERN PIKE, (Continued)

							Weight in pounds		
Code	No.	S.L.	F.L.	T.L.	Range	No.	Mean	Range	
Age Group X									
R-15	Sask. Waskesiu L.	S	4	-	27.8	-	26.4-30.0	-	-
M-20	Wisc., south	S	8	-	-	30.9	-	8	6.83
S-83	Sask., females	S	4	-	31.4	-	-	-	-
H-15	Ont.	S	-	-	36.0	-	-	-	9.00
J-15	Wisc.	S	15	-	-	38.4	30.2-43.8	-	-
E-3	Minn.	S	15	836	-	-	711-940	15	16.45
V-3	Wisc.	S	3	-	-	44.3	-	-	-
Age Group XI									
R-15	Sask, Waskesiu L.	S	5	-	29.5	-	28.1-31.5	-	-
M-20	Wisc., south	S	2	-	-	33.7	-	2	8.78
S-83	Sask., females	S	2	-	36.4	-	-	-	-
H-15	Ontario	S	-	-	38.0	-	-	-	12.00
J-15	Wisc.	S	7	-	-	42.1	28.0-53.8	-	-
V-2	Wisc.	S	2	-	-	44.8	-	-	-
C-35	Minn. L. Vermilion	S	1	888	-	-	-	1	16.00
E-3	Minn.	S	6	909	-	-	813-1041	-	19.00
C-11	Mich.	-	-	-	-	53.0	-	-	-
Age Group XII									
R-15	Sask. Waskesiu L.	S	4	-	31.1	-	29.5-32.7	-	-
S-83	Sask., females	S	2	-	35.5	-	-	-	-
J-15	Wisc.	S	5	-	-	38.8	24.2-43.0	-	-
M-20	Wisc., South	S	5	-	-	40.0	-	-	10.77
H-15	Ontario	S	-	-	42.0	-	-	-	14.00
E-3	Minn.	S	1	1016	-	-	-	1	20.00
L-20	U.S.A.	K	-	-	-	53.0	-	-	-
K-4	Sweden	K	-	-	53.2	-	-	-	-
Age Group XIII									
R-15	Sask. Waskesiu L.	S	7	-	33.3	-	31.9-36.0	-	-
M-20	Wisc., south	S	2	-	-	36.0	-	2	10.00
S-83	Sask., females	S	1	-	39.0	-	-	-	-
H-15	Ontario	S	-	-	44.0	-	-	-	16.00
V-2	Wisc.	S	1	-	-	46.9	-	-	-
J-15	Wisc.,	S	2	-	-	47.3	45.5-49.0	-	-
E-3	Minn.	S	1	1016	-	-	-	-	-
Age Group XIV									
S-83	Sask., females	S	1	-	37.0	-	-	-	-
E-3	Minn.	S	1	813	-	-	-	-	-
H-15	Ontario	S	-	-	47.0	-	-	-	18.00
Age Group XV									
R-15	Sask., Waskesiu L.	S	2	-	37.2	-	-	-	-

C-12 reports the following growth for tagged pike in Michigan  
 out 1 year, an increase of 0.2-6.2 inches T.L.  
 2 0.7-6.9  
 3 2.4-10.0  
 8 14.4







## NORTHERN PIKE, (Continued)

	Code	Size of females	No. of females	No. of eggs per female Mean	Range
N-25 N.Y.	U	-	-	100,000	
L-13 Ohio	V	23.5 " T.L.	1	48,950	
V-15 -	U	-	-	35,000	-100,000
W-40 Mich.	H	20"	-	-	8,000-12,000
W-40 Mich.	H	40"	1	88,000	
H-44 Mich.	U	-	-	32,200	
V-21 Minn.	V	13-15 " T.L.	8	7,500	2,000-11,000
	V	15-17	10	11,000	2,000-17,000
	V	17-19	6	22,000	9,000-35,000
	V	19-21	14	27,000	17,000-48,000
	V	21-23	4	31,000	23,000-35,000
	V	23-25	4	50,000	15,000-62,000
	V	25-28	5	63,000	53,000-74,000
K-4 -	U	-	-	80,000	-100,000
	V	6 pounds	1	135,500	
	V	28 pounds	1	292,320	
	V	32 pounds	1	595,200	
E-4 Minn.	H	4 pounds	26	60,000	
H-3 Europe	U	-	-	-	80,388-272,160
C-9 Mich.	D	338-775 mm.	30	32,200	7,691-97,273
P-24 Great Britain	V	6.5 pounds	-	136,000	
	V	10 pounds	-	149,000	
	V	23 pounds	-	224,000	
	V	32 pounds	-	595,000	

V-21 Lists 9000 eggs per pound of female

CHAIN PICKEREL, *Esox niger*

## Standard length-weight relationship, Conn. F-9

S.L. mm.	No.	Weight in grams	Weight in ounces	S.L. mm.	No.	Weight in grams	Weight in ounces
150-169	2	34	1.2	210-329	11	277	9.8
170-189	8	48	1.7	330-349	4	328	11.6
190-209	15	71	2.5	350-369	11	380	13.4
210-229	25	86	3.0	370-389	5	484	17.1
230-249	33	110	3.9	390-409	4	622	21.9
250-269	33	140	4.9	410-429	5	682	24.1
270-289	25	175	6.2	430-449	4	767	27.1
290-309	18	202	7.1	450-469	3	927	32.7
				490-509	3	1177	41.5

## Total length-weight relationship

T.L. in inches	No.	Weight in ounces	Location	T.L. in inches	No.	Weight in ounces	Location
6.0-6.9	19	0.8	U-6 N.Y.	15.0-15.9	38	13.1	U-6 N.Y.
7.0-7.9	18	1.4	U-6 N.Y.	16.0-16.9	-	12.6	H-61 Md.
					1	16.1	U-6 N.Y.
8.0-8.9	1	1.7	U-6 N.Y.	17.0-17.9	32	17.4	U-6 N.Y.
9.0-9.9	13	2.6	U-6 N.Y.	18.0-18.9	14	20.6	U-6 N.Y.
10.0-10.9	-	3.7	H-61 Md.	19.0-19.9	-	24.4	H-61 Md.
	8	4.2	U-6 N.Y.		6	25.8	U-6 N.Y.
11.0-11.9	9	4.0	U-6 N.Y.	20.0-20.9	14	31.6	U-6 N.Y.
	-	4.7	H-61 Md.				
12.0-12.9	-	5.8	H-61 Md.	21.0-21.9	3	33.6	U-6 N.Y.



## CHAIN PICKEREL, (Continued)

T.L. in inches	No.	Weight in ounces	Location	T.L. in inches	No.	Weight in ounces	Location
	32	8.2	U-6 N.Y.				
13.0-13.9	6	9.5	U-6 N.Y.	23.0-23.9	1	55.2	U-6 N.Y.
14.0-14.9	23	10.0	U-6 N.Y.	28.0	1	104.0	U-6 N.Y.
U-6 N.Y.	239 fish	average K(T.L.)		0.31			

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group O-Hatching									
U-6 N.Y.	R	14	-	-	0.4	-	-	-	-
Age Group O-April									
H-61 Md.	P	90	X	-	-	28-90	-	-	-
Age Group O-May									
U-6 N.Y.	P	9	-	-	0.5	-	-	-	-
Age Group O-June									
U-6 N.Y.	P	50	-	-	1.1	-	-	-	-
R-4 N.Y.	P	54	-	-	1.6	1.2-2.6	-	-	-
Age Group O-July									
U-6 N.Y.	P	79	-	-	2.2	-	-	-	-
A-1 N.Y. Oneida L.	P	7	-	-	2.3	1.7-3.0	-	-	-
R-4 N.Y.	P	36	-	-	2.6	2.3-3.0	-	-	-
Age Group O-August									
U-6 N.Y.	P	37	-	-	2.6	-	-	-	-
R-4 N.Y.	P	22	-	-	3.7	2.9-4.5	-	-	-
Age Group O-September									
R-4 N.Y.	P	8	-	-	3.6	3.1-4.7	-	-	-
Age Group O-Oct.-Dec.									
M-89, L-20, K-4	K	-	-	-	4.5	-	-	0.5	-
E-9 N.Y.	K	-	-	X	-	4.0-5.0	-	-	-
U-6 N.Y.	P	26	-	-	6.6	-	-	-	-
Age Group I									
E-9 N.Y.	K	-	-	X	-	6.0-7.0	-	-	-
M-1 Mass.	S	33	-	-	6.8	5.7-7.9	33	1.1	-
M-87 Mass.	S	44	-	-	6.9	-	44	1.3	-
M-89, L-20, K-4 Mass.	K	-	-	-	7.0	-	-	1.5	-
U-6 N.Y.	S	39	-	-	7.0	6.6-7.7	-	-	-
U-6 N.Y.	P	15	-	-	7.1	-	-	-	-
G-24 Long Island-N.Y.	S	5	-	-	9.6	7.7-11.6	2	2.0	1.4-2.7
Age Group II									
F-9 Conn.	S	29	-	-	7.6	-	-	-	-
M-89, L-20, K-4	K	-	-	-	10.0	-	-	4.0	-
M-1 Mass.	S	38	-	-	10.0	-	58	3.5	-
M-1 Mass.	S	25	-	-	10.0	7.6-10.5	25	2.3	-
U-6 N.Y.	S	261	-	-	11.1	9.4-15.5	-	-	-
E-9 N.Y.	K	-	-	X	-	10.0-12.0	-	-	-
G-24 N.Y. Long Island	S	6	-	-	11.6	9.8-13.2	6	5.2	3.0-7.3
M-89 Mass.	K	-	-	-	-	-	-	-	64.0-80.0
Age Group III									
M-1 Mass.	S	17	-	-	11.7	11.3-12.3	17	5.6	-
F-9 Conn.	S	75	-	-	12.3	-	-	-	-
M-87 Mass.	S	75	-	-	12.7	-	75	7.5	-
U-6 N.Y.	S	65	-	-	14.0	11.9-19.1	-	-	-
M-89, L-20, K-4 Mass.	K	-	-	-	X	13.5-14.5	-	-	-
Age Group IV									
F-9 Conn.	S	34	-	-	14.1	-	-	-	-
M-1 Mass.	S	18	-	-	15.2	12.8-19.1	18	16.6	-
M-87 Mass.	S	60	-	-	15.5	-	60	14.0	-
U-6 N.Y.	S	66	-	-	16.3	13.3-20.7	-	-	-
M-89, L-20, K-4 Mass.	K	-	-	-	17.5	-	-	24.0	-



## CHAIN PICKEREL, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group V									
G-24 N.Y. Long Island	S	3	-	-	16.4	13.3-20.5	3	18.7	7.9-36.3
F-9 Conn.	S	13	-	-	17.5	-	-	-	-
U-6 N.Y.	S	31	-	-	18.1	14.9-21.9	-	-	-
M-87 Mass.	S	17	-	-	18.2	-	17	24.6	-
M-89, L-20, K-4 Mass.	K	-	-	-	20.0	-	-	40.0	-
M-1 Mass.	S	2	-	-	21.0	20.0-22.0	2	40.0	-
Age Group VI									
U-6 N.Y.	S	8	-	-	18.7	17.1-20.5	-	-	-
M-1 Mass.	S	3	-	-	19.7	-	3	40.0	-
F-9 Conn.	S	5	-	-	19.6	-	-	-	-
M-87 Mass.	S	5	-	-	19.5	-	5	34.9	-
Age Group VII									
U-6 N.Y.	S	1	-	-	21.0	-	-	-	-
G-24 N.Y. Long Island	S	1	-	-	19.7	-	1	27.5	-
M-1 Mass.	S	1	-	-	24.1	-	1	56.3	-
F-9 Conn.	S	5	-	-	19.1	-	-	-	-
Age Group VIII									
M-1 Mass.	S	1	-	-	23.4	-	1	53.6	-

	No.	Average calculated total length at each annulus					
		1	2	3	4	5	6
T-23, W-13, Mass	118	7.1	11.1	14.0	16.4	18.4	20.4
V-15 "Typical"	-	8.0	11.0	14.0	16.0	18.0	21.0
		Average calculated weight in pounds at each annulus					
V-15 "Typical"	-	0.1	0.3	0.6	1.0	1.5	2.5

N-25 N.Y. 2 pound female 30,000 eggs.

GRASS PICKEREL, *Esox vermiculatus*

Total length-weight relationship, R-51 Ohio

T.L. in inches	4	6	7.5	8.7	10.1
Weight in oz.	5	10	15	20	25

	Code	No.	S.L.	F.L.	T.L.	Range
Age Group O-May						
L-3 Mich.	P	28	24	-	-	15-36
R-27 Ill.	P	-	-	-	X	0.6-2.5
Age Group O-June						
L-3 Mich.	P	14	30	-	-	22-36
Age Group O-July						
L-3 Mich.	P	3	45	-	-	
Age Group O-Aug						
L-3 Mich.	P	1	50			
Age Group O-Sept.						
C-13 Mich. Deep L.	P	300	-	-	4.1	2.5-5.1
Age Group O-Nov.						
L-3 Mich. (fall spawned)		12	28			19-36
L-3 Mich.	P	3	114	-	-	91-135
H-86 Mich. Portage L.						0.96 mm. per day for first month.

	Calculated total length at each annulus		
	1	2	3
R-51 Ohio	5.5	8.5	11.0
C-9 Mich. 6.2 inch Female			15,732 eggs.



Esox HYBRIDS

E-10 N.Y.	<u>Esox lucius</u> x <u>niger</u>	5.0 inches at 6 months, varied from 3.6-6.0
B-57 Wisc.	<u>Esox lucius</u> x <u>masquinongy</u>	In Sept. 136 averaged 12.0 inches T.L. and ranged up to 14.0 inches.

CENTRAL MUDMINNOW, Umbra limi

A-14 Mich.	122 fish under 50 mm. S.L.	Total length equals 1.256 S.L.
	219 fish 50-69 mm. S.L.	Total length equals 1.249 S.L.
	47 fish 70-79 mm. S.L.	Total length equals 1.242 S.L.
	34 fish over 79 mm. S.L.	Total length equals 1.232 S.L.

## Age Group I

A-14 Mich.	29.5 mm. S.L.
	41.5 mm. S.L.
E-32 Ind.	425-450 eggs per female.

BANDED KILLIFISH, Fundulus diaphanus

S-65 N.S. L. Jesse	Log W = -4.26672 + 3.25 Log F.L.
S-65 N.S. L. Jesse	325 fish 1.0-3.8 inches F.L. Average K(F.L.) 0.89
F-5 L. Erie.	Age Group O-June 6 fish 0.3-0.5 inches T.L.
C-56 Mich.	Age Group O-Oct. 630 fish Average T.L. 1.1 inches, range 0.5-1.7
H-61 Md.	252 eggs per female.

Crenichthys baileyi

K-17 Nev.	Age group O-15 days,	7.3 mm. S.L.
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DESERT MINNOW, Cyprinodon macularis

C-68, Cal.	Salton Sea area	at hatching, April 5.	5 mm. S.L.
		on June 6 ave 20 mm.	and some at 22 mm.

VARIEGATED MINNOW- Cyprinodon variegatus

K-28	at hatching	4 mm.
H-60 Md.	in August	32 mm.

MOSQUITO-FISH, Gambusia affinis

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group O-June									
H-60 U.S.A.	K	-	X	-	-	8-10	-	-	-
K-22 Ill. females	P	646	-	-	0.63	0.39-0.79	-	-	-
K-22 Ill. males	P	1321	-	-	0.67	0.39-0.91	-	-	-
Age Group O-July									
K-22 Ill. females	P	1413	-	-	0.91	0.55-1.14	-	-	-
K-22 Ill. males	P	3075	-	-	1.02	0.43-1.77	-	-	-
Age Group O-August									
K-22 Ill. females	P	2309	-	-	0.91	0.43-1.22	-	-	-
K-22 Ill. males	P	4067	-	-	1.04	0.39-1.93	-	-	-
Age Group O-September									
H-60 U.S.A.	K	-	X	-	-	13-25	-	-	-
K-22 Ill. females	P	359	-	-	0.82	0.59-1.34	-	-	-
K-22 Ill. males	P	3154	-	-	1.04	0.51-1.93	-	-	-
Age Group O-October									
K-22 Ill. females	P	253	-	-	0.75	0.55-1.10	-	-	-
K-22 Ill. males	P	4545	-	-	1.11	0.43-1.93	-	-	-



Gambusia affinis, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces			
							No.	Mean	Range	
Age Group I-May										
K-22 Ill., females	P	109	-	-	1.06	0.87-1.14	-	-	-	
K-22 Ill., males	P	41	-	-	1.49	1.30-1.77	-	-	-	
Age Group I-June										
K-22 Ill., females	P	315	-	-	1.10	0.91-1.22	-	-	-	
K-22 Ill., males	P	145	-	-	1.71	1.26-2.32	-	-	-	
Age Group I-July										
K-22 Ill., females	P	192	-	-	1.10	0.94-1.18	-	-	-	
K-22 Ill., males	P	540	-	-	1.78	1.30-2.28	-	-	-	
Age Group I-August										
K-22 Ill., females	P	126	-	-	1.10	0.94-1.22	-	-	-	
K-22 Ill., males	P	921	-	-	1.57	1.34-2.17	-	-	-	
Age Group I-September										
K-22 Ill., males	P	398	-	-	1.57	1.42-1.85	-	-	-	
Age Group I-October										
K-22 Ill., males	P	196	-	-	1.57	1.42-1.77	-	-	-	
H-60	63 eggs per female at maximum.						Average 40.			
K-27	76 eggs per female									
S-58	100 eggs per female									
K-22 Ind.	1-315 eyed eggs per female.									

Gambusia holbrooki

H-61 Md. 211 young per female.

BURBOT, Lota lota maculosa

V-18 Lake Michigan	T.L.	1.071	S.L.
C-22 Minn. L. of Woods	T.L.	1.071	S.L.
C-24 Minn. 50 fish	T.L.	1.070	S.L.
C-35 Minn. L. Vermilion	T.L.	1.085	S.L.

## Fork length-weight relationship, Canada, H-26

F.L. in inches	No.	Weight in pounds		F.L. in inches	No.	Weight in pounds	
		Mean	Range			Mean	Range
22	1	4.63	-	34	1	17.06	-
24	2	5.50	5.19-5.75	37	1	15.00	-
26	2	6.63	5.50-8.25	38	1	11.69	-
27	1	6.88	-	39	1	25.63	-
28	2	7.00	-	40	1	25.00	-
29	4	9.06	8.00-10.50	41	1	26.00	-

C-22 Minn. L. of Woods	20 fish	Average K 0.74
C-23 Minn. 1941-43	23 fish (200-700 mm.)	Average K 0.94
C-35 Minn. L. Vermilion	20 fish	Average K 0.87
C-34 Minn. Leech Lake	4 fish	Average K 1.10

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group O-June									
F-4,5 L. Erie	P	97	-	-	X	0.1-0.5	-	-	-
Age Group O-July									
F-4,5 L. Erie	P	23	-	-	X	0.3-0.6	-	-	-
C-53 B.C. Okanagan	P	3	-	1.1	-	1.1-1.2	-	-	-
Age Group O-August									
F-4,5 L. Erie	P	4	-	-	1.2	-	-	-	-
C-53 B.C. Okanagan	P	1	-	1.5	-	-	-	-	-
Age Group I									
M-28 Ont.	S	3	-	X	-	4.7-6.3	-	-	-
Age Group II									
C-35 Minn. L. Vermilion	S	4	247	-	-	223-265	4	4.5	4.2-5.1
M-28 Ont.	S	2	-	10.0	-	9.8-10.2	-	-	-



## Burbot, (Continued)

	Code.	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group III									
M-28 Ont.	S	3	-	X	-	11.0-15.0	-	-	-
C-35 Minn. L. Vermilion	S	5	326	-	-	293-360	5	11.0	7.0-16.2
Age Group IV									
M-28 Ont.	S	5	-	X	-	11.8-15.4	-	-	-
C-35 Minn. L. Vermilion	S	5	398	-	-	310-470	5	20.5	9.9-35.0
Age Group V									
M-38 Ont.	S	2	-	15.0	-	14.6-15.4	-	-	-
C-35 Minn. L. Vermilion	S	3	470	-	-	410-521	3	32.2	19.0-41.0
Age Group VI									
M-28 Ont.	S	2	-	15.1	-	13.8-17.3	-	-	-
C-35 Minn. L. Vermilion	S	3	487	-	-	470-500	3	34.8	29.0-39.5
Age Group VII									
M-28 Ont.	S	3	-	X	-	17.3-19.3	-	-	-
Age Group VIII									
M-28 Ont.	S	4	-	X	-	16.5-19.7	-	-	-
Age Group IX									
M-28 Ont.	S	3	-	X	-	16.5-18.9	-	-	-
Age Group XII									
M-28 Ont.	S	1	-	21.3	-	-	-	-	-
Age Group XIII									
M-28 Ont.	S	1	-	20.9	-	-	-	-	-

	Code	Size of females	No. of females	No. of eggs per female	Mean	Range
D-12	U	-	-	800,000		
D-55 Wyo.	V	12 inches	1	64,498		
	V	22.5	1	451,473		
	V	24.6	1	522,385		
	V	33 inches	1	1,444,122		
C-2 Wisc.	V	27.5 inches	1	1,153,144		
B-23 Europe	U	-	-	160,000		
M-73	U	-	-	-	160,000-670,000	

TROUT-PERCH, Percopsis omiscomaycus

F-5 L. Erie	at hatching	0.23 in. T.L.
	June 10 fish	0.23-0.30 in. T.L.
	July 8 fish	0.23-0.40 in. T.L.
	Aug. 9 fish	0.63-1.37 in. T.L.

THREE-SPINED STICKLEBACK, Gasterosteus aculeatus

V-33 Cal.	at 86 days	16.4 mm. F.L. in salt water	19.9 in fresh
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BROOK SILVERSIDES, Labidesthes sicculus

	No.	S.L. in mm.			No.	S.L. in mm.	
		Mean	Range			Mean	Range
Age Group O, June				Age Group I, Apr.			
R-27 Ill.	-	-	5-9	C-1 Wisc.	89	65.4	-
H-86 Mich.	-	10.0	5-14	Age Group I, May			
C-1 Wisc.	504	15.6	-	H-86 Mich.	-	65.0	-
Age Group O-July				C-1 Wisc.	282	67.4	-
H-85 Mich. Portage L.	-	20.0	-				
H-85 Mich. other lakes	-	30.0	-				
C-1 Wisc.	1015	35.9	-				



## BROOK SILVERSIDES, (Continued)

	No.	S.L. in mm.			No.	S.L. in mm.	
		Mean	Range			Mean	Range
Age Group O, Aug.				Age Group I, June			
H-86 Mich. Portage L.	-	30.0	-	H-86 Mich.	-	69.0	-
H-86 Mich. other lakes	-	45.0	-	C-1 Wisc.	382	72.9	-
C-1 Wisc.	755	45.6	-	Age Group I, July			
Age Group O-Sept.				H-86 Mich.			
H-86 Mich. Portage L.	-	40.0	-	C-1 Wisc.	110	76.0	-
H-86 Mich. other lakes	-	56.0	-	Age Group I, Aug.			
C-1 Wisc.	751	58.4	-	H-86 Mich.	-	73.0	-
Age Group O, Oct.				C-1 Wisc.			
H-86 Mich. Whitmore L.	-	-	37-64	H-86 Mich.	-	73.0	-
H-86 Mich. Portage L.	-	50.0	-	C-1 Wisc.	370	76.2	-
H-86 Mich. other lakes	-	60.0	-	Age Group I, Sept			
C-1 Wisc.	755	65.4	-	H-86 Mich.	-	75.0	-
Age Group O, Nov.				Age Group I, Oct.			
H-86 Mich. Portage L.	-	55.0	-	H-86 Mich. Whitmore L.	-	-	69-84
H-86 Mich. other lakes	-	62.0	-				

YELLOW PERCH, *Perca flavescens*

	No.	S.L. in mm.	F.L. S.L.	No.	S.L. in mm.	T.L.
						S.L.
C-17 Minn. L. of Woods						
C-13 Minn. L. of Woods	1774	34-318	1.114	208	under 150	1.160
				35	150-200	1.154
				27	over 201	1.146
C-37 Minn.	806	under 119	1.116	806	under 119	1.170
	1276	120-199	1.108	1276	120-199	1.160
	878	200-239	1.108	878	200-239	1.152
	390	over 240	1.102	390	over 240	1.145
C-37 Minn. (from hypural)	100	130-229	1.152	100	130-229	1.208
C-35 Minn. L. Vermilion	-	under 100	1.137	-	under 100	1.192
	-	100-149	1.124	-	100-149	1.174
	-	over 150	1.119	-	over 200	1.159
C-30 Iowa, Spirit L.				209	-	1.18
L-29 Iowa, East & Red Haw	175	30-219	1.145	184	30-219	1.205
P-25 Iowa, Clear L.	685	74-216	1.150	685	74-216	1.210
P-26 Iowa, Okoboji, & Spirit	-	-	1.15	-	-	1.19
S-65 N.S., L. Jesse	490	-	1.139			
B-30 Mich.				422	under "T.L.	1.200
				3610	4.0-7.8" T.L.	1.181
				1569	over 7.8" T.L.	1.174
H-71 Mich. Green Bay				57	under 149	1.185
				657	150-209	1.172
				155	over 210	1.166
H-70 Mich. Saginaw Bay				248	under 175	1.177
				996	175-239	1.155
				167	over 239	1.141

## Standard length-weight relationship

S.L. in mm.	No.	Weight in grams		Weight in ounces	Location
		Mean	Range		
40-59	1	2	-	0.04	L-29 Ia.
60-79	20	8	6-11	0.3	L-29; C-30; P-25; P-26 Ia.
80-99	86	15	8-25	0.5	L-29; C-30; P-25; P-26 Ia.
	47	28	-	1.0	C-20 Minn.
100-119	3	16	14-21	0.6	R-24 Mich.
	22	22	12-32	0.8	P-26 Ia. Okoboji
	131	24	16-43	0.9	P-25 Ia. Clear L.
	30	29	18-38	1.0	L-29 Ia.
	7	31	20-38	1.1	C-31 Minn. L. of Woods
	163	40	-	1.4	C-20 Minn.
	79	51	25-100	1.8	C-30 Ia.



## YELLOW PERCH, (Continued)

S.L. in mm.	No.	Weight in grams		Weight in ounces	Location
		Mean	Range		
120-139	18	42	28-56	1.5	C-31 Minn. L. of Woods
	54	43	31-70	1.5	P-25 Ia. Clear L.
	43	43	32-55	1.5	L-29 Ia.
	37	50	32-79	1.8	P-26 Ia. Okoboji
	133	56	30-113	2.0	C-30 Ia.
140-159	52	70	48-104	2.5	L-29 Ia.
	66	70	42-92	2.5	P-26 Ia. Okoboji
	167	71	-	2.5	C-20 Minn.
	78	73	52-108	2.6	C-31 Minn. L. of Woods
	34	74	56-128	2.6	P-25 Ia. Clear L.
	103	77	40-142	2.7	C-30 Ia.
160-179	1	43	-	1.5	R-24 Mich.
	43	91	71-122	3.2	L-29 Ia.
	46	100	42-124	3.5	P-26 Ia. Okoboji
	101	103	76-172	3.6	C-31 Minn. L. of Woods
	61	106	60-170	3.7	C-30 Ia.
	21	118	85-152	4.2	P-25 Ia. Clear L.
	353	122	-	4.3	C-20 Minn.
180-199	5	119	85-170	4.2	R-24 Mich.
	2	126	-	4.5	L-29 Ia.
	79	140	107-192	4.9	C-31 Minn. L. of Woods
	52	157	122-192	5.5	P-26 Ia. Okoboji
	10	163	130-198	5.8	C-30 Ia.
	609	179	-	6.3	C-20 Minn.
	1	198	-	7.0	P-25 Ia. Clear L.
200-219	10	137	113-198	4.8	R-24 Mich.
	2	187	168-205	6.6	L-29 Ia.
	29	197	156-264	6.9	C-31 Minn. L. of Woods
	112	209	160-269	7.4	P-26 Ia. Okoboji
	31	221	80-269	7.8	C-30 Ia.
	3	246	227-255	8.7	P-25 Ia. Clear L.
	543	247	-	8.7	C-20 Minn.
220-239	16	269	236-382	9.5	C-31 Minn. L. of Woods
	73	279	226-354	9.9	P-26 Ia. Okoboji
	42	288	241-404	10.2	C-30 Ia.
240-259	358	337	-	11.9	C-20 Minn.
	12	349	302-392	12.3	C-31 Minn. L. of Woods
	81	393	140-496	13.8	C-30 Ia.
	77	396	298-496	14.0	P-26 Ia. Okoboji
260-279	327	445	-	15.7	C-20 Minn.
	34	465	333-539	17.4	P-26 Ia. Okoboji
	34	478	333-539	16.8	C-30 Ia.
280-299	95	510	-	18.0	C-20 Minn.
300-319	22	556	-	19.6	C-20 Minn.
340-359	2	723	-	25.5	C-20 Minn.

H-71 Wisc. Green Bay

Log W = -5.0311 + 3.133 Log S.L.

H-71 L. Michigan

Log W = -4.2336 + 2.811 Log S.L.

H-70 Mich. Saginaw Bay

Log W = -5.0077 + 3.1174 Log S.L.

C-17 Minn. L. of Woods

Log W = -4.5007 + 2.954 Log S.L. (1939-41 data)

L-29 Ia. Red Haw L.

Log W = -4.530 + 2.938 Log S.L.

L-29 Ia. East L.

Log W = -6.954 + 2.753 Log S.L.

C-31 Minn. L. of Woods

Log W = -5.2236 + 3.244 Log S.L. (1941-43 data)

B-30 Mich.

Log W = -4.854310 + 3.05445 Log S.L.

C-35 Minn. L. Vermilion

Log W = -4.8832 + 3.0931 Log S.L.

P-26 Ia. Spirit L.

Log W = -5.48713 + 3.36778 Log S.L.

P-26 Ia. West Okoboji L.

Log W = -5.0120 + 3.1560 Log S.L.

P-26 Ia. West Okoboji L.

Log W = -5.51726 + 3.3546 Log S.L.

P-25 Ia. Clear L.

Log W = -5.6902 + 3.483 Log S.L.



## YELLOW PERCH, (Continued)

Fork length-weight relationship, Minn. L. of Woods, C-17

F.L. in inches	No.	Weight in ounces		F.L. in inches	No.	Weight in ounces	
		Mean	Range			Mean	Range
7.0-7.9	6	4.7	4.0-5.0	10.0-10.9	321	11.9	6.-17.0
8.0-8.9	111	6.5	4.0-10.0	11.0-11.9	230	16.0	11.0-24.0
9.0-9.9	385	8.8	7.0-13.0	12.0-12.9	44	19.2	14.0-24.0
				13.0-13.9	1	21.0	

S-65 Nova Scotia, L. Jesse

Log W = -2.0189 + 3.07 Log F.L.

## Total length-weight relationship

T.L. in inches	No.	Weight in ounces		Location	
		Mean	Range		
2.0-2.9	126	0.12	-	B-30 Mich.	
3.0-3.9	249	0.24	-	B-30 Mich.	
	1	0.3	-	M-20 Wisc.	
	1	0.3	-	H-61 Md.	
4.0-4.9	253	0.57	-	B-30 Mich.	
	7	0.7	-	H-61 Md.	
	10	0.7	-	H-71 Green Bay	
	5	0.8	-	M-20 Wisc.	
	-	-	1.6	-	S-62 Minn.
5.0-5.9	649	1.03	-	B-30 Mich.	
	29	1.1	-	H-61 Md.	
	61	1.1	-	H-71 Green Bay	
	8	1.1	-	H-70 Saginow Bay	
	12	1.3	-	C-35 Minn. L. Vermilion	
	22	1.4	-	M-20 Wisc.	
	-	-	1.6	-	S-62 Minn.
	-	-	1.6	-	S-62 Minn.
6.0-6.9	1055	1.51	-	B-30 Mich.	
	32	1.6	-	H-61 Md.	
	54	1.7	-	H-70 Saginow Bay	
	77	1.9	-	H-71 Green Bay	
	38	1.9	1.1-1.7	M-20 Wisc.	
	22	2.1	1.2-3.4	C-35 Minn. L. Vermilion	
	-	-	3.1	-	S-62 Minn.
	-	-	3.1	-	S-62 Minn.
7.0-7.9	-	2.0	-	R-78 Ohio -- Meander L.	
	15	2.5	-	H-61 Md.	
	615	2.52	-	B-30 Mich.	
	144	2.7	-	H-70 Saginow Bay	
	183	2.8	-	H-71 Green Bay	
	24	3.0	2.2-3.9	C-35 Minn. L. Vermilion	
	96	3.2	-	M-20 Wisc.	
	17	3.6	-	H-71 L. Michigan	
	-	4.8	-	S-62 Minn.	
	-	4.8	-	S-62 Minn.	
8.0-8.9	-	3.5	-	R-78 Ohio -- Meander L.	
	561	3.73	-	B-30 Mich.	
	20	3.9	-	H-61 Md.	
	197	4.0	-	H-71 Green Bay	
	471	4.1	-	H-70 Saginow Bay	
	154	4.6	-	H-71 L. Michigan	
	341	4.6	-	M-20 Wisc.	
	43	4.7	2.6-6.6	C-35 Minn. L. Vermilion	
	-	6.3	-	S-62 Minn.	
	-	6.3	-	S-62 Minn.	
9.0-9.9	-	4.6	-	R-78 Ohio -- Meander L.	
	6	5.2	-	H-61 Md.	
	322	5.5	-	H-71 Green Bay	
	266	5.8	-	H-70 Saginow Bay	
	279	5.9	-	B-30 Mich.	
	105	6.1	-	H-71 L. Michigan	
	290	6.1	-	M-20 Wisc.	
	42	7.3	5.6-9.7	C-35 Minn. L. Vermilion	
	-	8.0	-	S-62 Minn.	
	-	8.0	-	S-62 Minn.	



## YELLOW PERCH, (Continued)

## Total length-weight relationship (Cont'd.)

T.L. in inches	No.	Weight in ounces		Location	
		Mean	Range		
10.0-10.9	-	7.0	-	R-78 Ohio -- Meander L.	
	1	7.3	-	H-61 Md.	
	63	7.7	-	H-71 Green Bay	
	273	7.9	-	H-70 Saginow Bay	
	281	8.1	-	B-30 Mich.	
	156	8.3	-	M-20 Wisc.	
	9	9.2	-	H-71 L. Michigan	
	47	9.3	7.6-12.7	C-35 Minn. L. Vermilion	
	-	11.2	-	S-62 Minn.	
	11.0-11.9	-	9.5	-	R-78 Ohio -- Meander L.
139		10.4	-	H-70 Saginow Bay	
160		10.6	-	B-30 Mich.	
12		10.7	-	H-71 Green Bay	
55		11.2	-	M-20 Wisc.	
13		12.2	9.2-14.5	C-35 Minn. L. Vermilion	
-		12.8	-	S-62 Minn.	
4		13.0	-	H-71 L. Michigan	
12.0-12.9		23	13.4	-	H-70 Saginow Bay
		103	14.0	-	B-30 Mich.
	6	14.7	-	H-71 Green Bay	
	3	14.8	12.7-16.9	C-35 Minn. L. Vermilion	
	14	15.1	-	M-20 Wisc.	
	-	16.0	-	S-62 Minn.	
13.0-13.9	-	17.6	-	S-62 Minn.	
	1	17.7	-	H-70 Saginow Bay	
	33	17.8	-	B-30 Mich.	
	4	20.3	-	M-20 Wisc.	
	3	22.2	-	H-71 L. Michigan	
	4	22.5	-	H-71 Green Bay	
14.0-14.9	-	19.2	-	S-62 Minn.	
	3	22.7	-	H-71 Green Bay	
	2	28.0	-	H-71 L. Michigan	
15.0-15.9	4	17.5	-	H-70 Saginow Bay	
	-	24.0	-	S-62 Minn.	
16.0-16.9	-	25.5	-	S-62 Minn.	

	Size of fish	No. of fish	Condition index K	
			Mean	Range
E-20 Mich. Howe L.	-	41	1.43	
E-16 Mich. S. Twin L.	-	3612	1.46	
S-6 Wisc. Weber L.	-	1083	1.52	
E-17 Mich. Section Four L.	-	1736	1.57	
H-62 Ind.	-	723	1.57	
S-6 Wisc. Silver L.	-	1404	1.59	
C-23 Minn. Lower Long L.	-	157	1.60	
S-6 Wisc. Nebish L.	-	632	1.65	
B-30 Mich.	43-291	-	-	1.69-2.49
H-70 Mich. Saginaw Bay	-	818	1.79	
P-26 Iowa, West Okoboji L.	-	85	1.80	
P-25 Iowa, Clear L., 1949	77-165	251	1.86	
H-71 Wisc. Green Bay	-	938	1.87	
E-17 Mich. Ford L.	-	249	1.89	
C-36 Iowa West Okoboji L.	130-210	14	1.90	1.10-2.49
H-70 L. Erie	-	-	1.91	
C-23 Minn. 1941-43	-	2774	1.95	
L-29 Iowa, East and Red Haw L.	40-209	183	2.00	
H-33 Wisc. L. Mendota	-	95	2.09	
V-20 L. Erie	-	-	2.10	
C-31 Minn. L. of Woods, 1941-43	-	340	2.12	1.39-2.90
C-34 Minn. Leech L.	100-299	155	2.16	



## YELLOW PERCH, (Continued)

	Size of fish	No. of fish	Condition index K Mean	Range
H-71 L. Michigan	-	294	2.18	
P-26 Iowa, East Okoboji L.	-	201	2.20	
C-35 Minn. L. Vermilion	-	350	2.20	
C-36 Iowa Clear L.	-	79	2.35	
P-25 Iowa, Clear L, 1947	76-214	70	2.37	
P-26 Iowa, Spirit L.	-	261	2.43	
C-36 Iowa, Spirit L.	120-277	211	2.46	1.56-3.94
V-20 Minn. Red L.	-	594	2.46	
E-3 Minn. 1936-41	76-355	2515	2.56	
C-17 Minn. L. of Woods, 1939-41	125-325	1064	2.58	

Condition index K(F.L.)  
1.68

S-65 Nova Scotia, L. Jesse

Condition index C(T.L.)  
35-42

B-30 Mich.

2.1-13.4

R-57 Ohio

H-33 Wisc. L. Mendota

C-23 Minn. standards for poor condition under 37, average 43-49, excellent over 53.

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group O-June									
F-5 L. Erie	P	182	-	-	X	0.2-0.6	-	-	-
C-30 Ia. Clear L.	P	8	-	-	0.98	-	-	-	-
P-25 Ia. Clear L.	P	69	25	-	-	20-35	-	-	-
B-3 Ia. Clear L.	P	25	26	-	-	24-29	-	-	-
C-91 Ia. Clear L.	P	61	-	-	1.4	1.2-1.7	-	-	-
L-29 Ia. East L.	P	3	44	-	-	-	-	-	-
H-86 Mich., Portage L.	0.63 mm. per day for the month								
Age Group O-July									
F-5 L. Erie	P	37	-	-	X	0.2-0.7	-	-	-
A-1 N.Y. Oneida L.	P	-	-	-	X	1.0-2.0	-	-	-
C-35 Minn. L. Vermilion	P	111	35	-	-	28-42	-	-	-
B-2 Ia. Okoboji L.	P	36	38	-	-	34-41	-	-	-
P-25 Ia. Clear L.	P	478	43	-	-	30-58	-	-	-
C-30 Ia. Clear L.	P	208	-	-	2.0	1.4-2.4	-	-	-
G-32 Ohio, Buckeye L.	P	-	-	-	X	1.7-2.4	-	-	-
C-91 Ia. Clear L.	P	100	-	-	2.2	1.7-2.8	-	-	-
B-3 Ia. Clear L.	P	170	41	-	-	30-51	-	-	-
H-62 Ind.	S	66	43	-	-	-	15	0.07	-
L-29 Ia. East L.	P	1	44	-	-	-	-	-	-
Age Group O-August									
F-5 L. Erie	P	844	-	-	1.6	-	-	-	-
C-30 Ia. Clear L.	P	168	-	-	2.4	1.9-2.8	-	-	-
C-15 Minn. L. Itasca	S	6	51	-	-	48-53	-	-	-
B-3 Ia. Clear L.	P	51	51	-	-	45-62	-	-	-
P-25 Ia. Clear L.	P	387	53	-	-	40-68	-	-	-
B-2 Ia. Okoboji L.	P	9	55	-	-	52-59	-	-	-
C-91 Ia. Clear L.	P	168	-	-	2.6	2.2-3.2	-	-	-
G-32 Ohio, Buckeye L.	P	-	-	-	X	2.7-2.9	-	-	-
L-29 Ia. East L.	P	1	64	-	-	-	-	-	-
Age Group O-September									
C-13 Mich. Deep L.	S	53	-	-	2.2	1.6-3.1	-	-	-
E-16 Mich. Howe L.	S	-	-	-	2.3	-	-	-	-
A-1 N.Y. Oneida L.	P	-	-	-	2.5	-	-	-	-
C-15 Minn. Ottertail L.	P	12,940	50	-	-	35-72	-	-	-
P-25;C-30 Ia. Clear L.	P	10	56	-	2.6X	2.4-3.1	-	-	-
G-32 Ohio, Buckeye L.	P	-	-	-	3.1	-	-	-	-
Age Group O-October									
P-25;B-4 Ia. Clear L.	P	48	66X	-	3.1	53-78	-	-	-
Age Group O									
W-14 Mich. Douglas L.	P	-	X	-	-	18-35	-	-	-
S-65 N.S. Jesse L.	S	42	-	1.4	-	-	42	0.02	-



## YELLOW PERCH, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
C-17 Minn. L. of Woods	S	474	41	-	-	32-70	-	-	-
H-12 L. Erie	S	1	44	2.0	-	-	1	0.10	-
E-16 Mich. South Twin L.	S	3	44	-	2.1	-	3	0.09	-
E-20 Mich. Howe L.	S	200	47	-	2.3	-	200	0.05	-
E-9 N.Y.	K	-	-	X	-	2.0-2.5	-	-	-
E-17 Mich., Sect 4., females	S	192	73	-	3.5	-	192	0.20	-
E-17 Mich. Sect 4, males	S	255	77	-	3.6	-	255	0.20	-
E-17 Mich. Ford L.	S	1	90	-	4.1	-	1	0.49	-
Age Group I									
W-14 Mich. Douglas L.	P	-	X	-	-	50-80	-	-	-
L-5 Ont. Costello L.	S	362	-	2.8	-	-	363	0.2	-
A-1 N.Y. Oneida L.	P	-	-	-	3.0	-	-	-	-
S-65 N.S. Jesse L.	S	216	-	3.1	-	-	216	0.2	-
E-9 N.Y.	K	-	-	X	-	3.0-4.0	-	-	-
E-20 Mich. Howe L., males	S	26	78	-	3.7	-	26	0.2	-
B-60 Ind. Winona L.	S	25	79	-	-	-	23	0.2	-
E-16 Mich. S. Twin, fem.	S	28	80	-	3.8	-	28	0.3	-
C-13 Mich. Deep L.	S	175	-	-	3.8	2.8-5.1	175	0.4	-
O-8 Ohio	S	-	-	-	X	3.5-4.3	-	-	-
C-30 Ia. Clear L.	P	13	-	-	3.9	3.2-4.5	-	-	-
C-15 Minn. L. Itasca	S	524	83	-	-	67-112	-	-	-
C-36 Ia. Clear L.	S	15	86	-	-	-	-	-	-
H-62 Ind.	S	400	87	-	-	-	358	0.4	-
B-31 Mich.	S	596	88	-	4.1	-	596	0.4	-
E-16 Mich. S. Twin, males	S	71	89	-	4.2	-	71	0.4	-
E-3 Minn.	S	2	89	-	-	76-102	-	-	-
M-1 Mass.	S	78	-	-	4.2	3.3-6.4	78	0.6	-
E-20 Mich. Howe L., fem.	S	15	92	-	4.3	-	15	0.4	-
M-87 Mass.	S	85	-	-	4.3	-	85	0.6	-
R-39 Ind. Wawasee L.	S	115	-	4.2	-	-	-	-	-
P-25 Ia. Clear L.	S	155	98	-	-	-	-	-	-
T-26 N.Y., males	K	-	-	-	4.5	-	-	-	-
T-26 N.Y., females	K	-	-	-	-	4.7-5.0	-	-	-
L-29 Ia. East L.	S	16	99	-	-	-	-	-	-
E-17 Mich. Sect 4, males	S	149	100	-	4.8	-	149	0.6	-
C-15 Minn. Ottertail L.	S	364	100	-	-	71-138	-	-	-
E-17 Mich. Sect 4, fem.	S	82	104	-	4.9	-	82	0.6	-
G-21,24,25 N.Y.	S	66	-	-	5.1	4.0-5.9	58	0.9	0.5-1.6
R-36 Ind. Muskellunge L.	S	82	-	5.1	-	4.5-5.9	-	-	-
P-26 Ia. W. Okoboji L.	S	28	109	-	-	-	-	-	-
C-35 Minn. L. Vermilion	S	3	109	-	-	108-110	-	-	-
S-6 Wisc. Weber L.	S	3	109	-	-	-	3	0.7	-
E-17 Mich. Ford L.	S	2	110	-	5.3	-	2	0.9	-
L-29 Ia. Red Haw L.	S	21	112	-	-	-	-	-	-
C-17 Minn. L. of Woods	S	51	112	-	-	70-127	1	1.0	-
H-33 Wisc. Mendota L.	S	19	123	-	5.5	-	19	1.3	-
S-6 Wisc. Nebish L.	S	159	124	-	-	-	159	1.2	-
P-26 Ia. Spirit L.	S	12	131	-	-	-	-	-	-
P-26 Ia. E. Okoboji L.	S	70	145	-	-	-	-	-	-
H-71 Wisc. Green Bay	S	2	156	-	7.2	-	2	2.5	-
J-4 L. Erie	S	246	161	-	-	-	176	2.9	-
Age Group II									
W-14 Mich. Douglas L.	S	-	X	-	-	66-99	-	-	-
E-16 Mich. S. Twin, males	S	1536	84	-	4.0	-	1536	8.4	-
L-15 Ont. Costello L.	S	184	-	3.5	-	-	188	0.4	-
S-65 N.S. Jesse L.	S	108	-	3.6	-	-	108	0.3	-
E-16 Mich. S. Twin, fem.	S	1238	87	4.1	-	-	1230	0.3	-
C-15 Minn. Itasca L.	S	64	106	-	-	87-136	-	-	-
C-13 Mich. Deep L.	S	30	-	-	5.1	4.2-7.2	30	0.9	-
S-6 Wisc. Silver L.	S	156	110	-	-	-	156	0.9	-
B-60 Ind. Winona L.	S	31	111	-	-	-	23	0.7	-
E-17 Mich. Ford L.	S	46	112	-	5.3	-	46	0.8	-
E-17 Mich. Sect 4, males	S	786	115	-	5.4	-	786	0.4	-
M-20 Wisc., south	S	16	-	-	5.6	-	16	1.2	-
C-35 Minn. L. Vermilion	S	171	123	-	-	104-166	44	1.6	1.2-3.4



## YELLOW PERCH, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
L-29 Ia. East L.	S	31	124	-	-	-	-	-	-
E-17 Mich. Sect. 4, fem.	S	171	124	-	5.8	-	171	1.0	-
B-31 Mich.	S	1576	125	-	5.8	-	1576	1.2	-
G-19,21,25 N.Y.	S	185	-	-	5.8	4.1-10.2	178	1.6	0.4-5.2
V-14 L. Erie, Presque Bay	S	-	-	-	5.8	-	-	-	-
C-17 Minn. L. of Woods	S	184	128	-	-	102-197	1	6.0	-
C-75,76 Wisc., Nebish L.	S	-	X	-	-	119-138	-	-	1.0-1.6
M-1 Mass.	S	71	-	-	5.9	4.5-7.4	71	1.4	-
M-87 Mass.	S	119	-	-	5.9	-	119	1.8	-
H-62 Ind.	S	240	129	-	-	-	231	1.2	-
S-6 Wisc. Weber L.	S	390	130	-	-	-	390	1.2	-
C-15 Minn. Ottertail L.	S	329	131	-	-	101-162	-	-	-
E-3 Minn.	S	109	132	-	-	76-229	-	-	-
P-25 Ia. Clear L.	S	488	134	-	-	-	-	-	-
C-37 Ia. Clear L.	S	420	137	-	-	-	-	-	-
R-36 Ind. Muskellunge L.	S	98	-	6.2	-	5.1-6.9	-	-	-
E-9 N.Y.	K	-	-	X	-	6.0-7.0	-	-	-
H-71 Wisc. Green Bay	S	58	141X	-	6.5	100-165	58	2.0	-
H-21 L. Erie	S	30	144	6.6	-	-	30	2.6	-
H-70 Saginaw Bay	S	20	147X	-	6.8	122-172	20	2.1	-
P-26 Ia. W. Okoboji L.	S	32	150	-	-	-	-	-	-
L-29 Ia. Red Haw L.	S	65	153	-	-	-	-	-	-
S-6 Wisc. Nebish L.	S	306	157	-	-	-	306	2.1	-
P-26 Ia. Spirit L.	S	31	168	-	-	-	-	-	-
H-33 Wisc. Mendota L.	S	29	174	-	7.8	-	29	4.0	-
H-71 North L. Michigan	S	25	177	-	8.2	-	25	4.2	-
J-4 L. Erie	S	815	178	-	-	-	815	4.1	-
V-14 L. Erie	S	-	-	-	8.5	-	-	-	-
P-26 Ia. E. Okoboji L.	S	28	191	-	-	-	-	-	-
Age Group III									
W-14 Mich. Douglas L.	S	-	X	-	-	83-123	-	-	-
S-65 N.S.L. Jesse	S	21	-	4.3	-	-	21	0.5	-
L-5 Ont. Costello L.	S	194	-	4.5	-	-	193	-	-
K-31 Man.	S	18	-	5.0	-	4.0-6.0	18	1.0	-
E-16 Mich. S. Twin, males	S	383	116	-	5.5	-	383	0.8	-
E-17 Mich. Ford L.	S	165	116	-	5.5	-	165	1.0	-
S-6 Wisc. Silver L.	S	631	121	-	-	-	631	1.2	-
E-16 Mich. S. Twin, fem.	S	99	125	-	5.9	-	99	1.1	-
E-17 Mich. Sect. 4, males	S	12	131	-	6.2	-	12	1.2	-
V-14 L. Erie, Presque B.	S	-	-	-	6.3	-	-	-	-
B-31 Mich.	S	1969	137	-	6.4	-	1969	1.7	-
E-17 Mich. Sect. 4, fem.	S	82	137	-	6.5	-	82	1.4	-
B-60 Ind. Winona L.	S	19	137	-	-	-	10	1.4	-
C-13 Mich. Deep L.	S	5	-	-	6.5	5.2-7.4	5	1.6	-
O-8 Ohio	S	-	-	-	X	5.7-7.3	-	-	-
C-15 Minn. Itasca L.	S	6	144	-	-	124-155	-	-	-
C-15 Minn. Ottertail L.	S	172	146	-	-	121-168	-	-	-
C-20,21,24,25, N.Y.	S	249	-	-	6.8	4.6-11.0	238	2.4	0.4-13.1
C-75,76 Wisc. Nebish L.	S	-	X	-	-	143-161	-	-	1.7-2.8
L-29 Ia. East L.	S	28	151	-	-	-	-	-	-
P-25 Ia. Clear L.	S	93	152	-	-	-	-	-	-
M-87 Mass.	S	253	-	-	7.1	-	253	2.6	-
C-35 Minn. L. Vermillion	S	159	156	-	-	111-215	81	3.1	1.0-7.1
S-6 Wisc. Weber L.	S	81	158	-	-	-	81	2.2	-
M-1 Mass.	S	139	-	-	7.4	5.7-10.3	139	3.0	-
H-71 Wisc. Green Bay	S	128	162X	-	7.5	115-205	128	3.0	-
R-36 Ind. Muskellunge	S	4	-	7.3	-	6.5-7.7	-	-	-
M-20 Wisc., South	S	190	-	-	7.6	-	190	3.5	-
C-37 Ia. Clear L.	S	56	167	-	-	-	-	-	-
H-62 Ind.	S	36	167	-	-	-	33	2.7	-
H-12 L. Erie	S	18	168	7.7	-	-	18	4.3	-
S-6 Wisc. Nebish L.	S	114	173	-	-	-	114	3.2	-
P-26 Ia. W. Okoboji L.	S	16	178	-	-	-	-	-	-
H-71 North L. Michigan	S	98	187	-	8.6	-	98	5.1	-



## YELLOW PERCH, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
H-70 Saginaw Bay	S	308	188X	-	8.6	142-237	308	4.0	-
E-3 Minn.	S	345	193	-	-	127-254	-	-	-
C-17 Minn. L. of Woods	S	164	196	-	-	108-266	36	6.0	3.0-10.0
J-4 L. Erie	S	98	197	-	-	-	98	5.4	-
H-33 Wisc. Mendota L.	S	34	201	-	8.9	-	34	6.0	-
P-26 Ia. E. Okoboji L.	S	94	210	-	-	-	-	-	-
V-14 L. Erie	S	-	-	-	9.5	-	-	-	-
L-29 Ia. Red Haw L.	S	1	216	-	-	-	-	-	-
P-26 Ia. Spirit L.	S	63	236	-	-	-	-	-	-
Age Group IV									
S-65 N.S.L. Jesse	S	3	-	-	4.9	-	3	0.8	-
C-75,76 Wisc. Muskellunge L.	S	-	X	-	-	104-118	-	-	0.6-0.9
W-14 Mich. Douglas L.	S	-	X	-	-	112-128	-	-	-
E-16 Mich. S. Twin, males	S	94	121	-	5.7	-	94	0.8	-
E-17 Mich. Ford L.	S	34	121	-	5.7	-	34	1.2	-
C-75,76 Wisc. Silver L.	S	-	X	-	-	118-137	-	-	0.9-1.6
E-16 Mich. S. Twin, fem.	S	141	134	-	6.3	-	141	1.3	-
S-6 Wisc. Silver L.	S	413	139	-	-	-	413	1.6	-
K-31 Man.	S	7	-	6.3	-	5.0-8.0	7	2.9	-
V-14 L. Erie, Presque Bay	S	-	-	-	6.7	-	-	-	-
R-36 Ind. Muskellunge L.	S	1	-	6.9	-	-	-	-	-
C-15 Minn. Itasca L.	S	1	154	-	-	-	-	-	-
E-17 Mich. Sect. 4 L.	S	7	158	-	7.4	-	7	3.2	-
C-20,21,24,25, N.Y.	S	221	-	-	7.4	4.8-12.4	216	3.1	0.4-15.2
C-13 Mich. Deep L.	S	13	-	-	7.5	6.4-9.3	13	2.4	-
B-31 Mich.	S	1390	160	-	7.5	-	1390	2.7	-
C-75,76 Wisc. Nebish L.	S	-	X	-	-	147-187	-	-	1.8-3.9
L-29 Ia. East L.	S	11	162	-	-	-	-	-	-
C-15 Minn. Ottortail L.	S	12	164	-	-	135-181	-	-	-
S-6 Wisc. Weber L.	S	283	174	-	-	-	283	2.9	-
B-60 Ind. Winona L.	S	1	175	-	-	-	1	3.5	-
M-87 Mass.	S	228	-	-	8.2	-	228	4.0	-
H-71 Wisc. Green Bay	S	241	183X	-	8.5	135-245	241	4.2	-
C-35 Minn. L. Vermilion	S	150	185	-	-	138-236	77	4.9	2.0-9.5
H-12 L. Erie	S	13	187	8.5	-	-	13	5.7	-
M-20 Wisc., south	S	262	-	-	8.8	-	262	5.5	-
M-1 Mass.	S	64	-	-	8.9	7.5-11.5	64	4.8	-
H-71 North L. Michigan	S	118	193	-	8.9	-	118	5.6	-
B-6 Wisc. Nebish L.	S	39	209	-	-	-	39	6.4	-
P-26 Ia. W. Okoboji L.	S	9	209	-	-	-	-	-	-
C-37;P-25 Ia. Clear L.	S	2	210	-	-	-	-	-	-
J-4 L. Erie	S	9	213	-	-	-	9	6.7	-
H-33 Wisc. Mendota L.	S	13	214	-	9.6	-	13	7.0	-
H-70 Wisc. Saginaw Bay	S	316	214X	-	9.8	157-257	316	6.4	-
L-37 Mass.	S	-	-	-	-	-	2	6.0	-
H-62 Ind.	S	21	217	-	-	-	19	7.4	-
E-3 Minn.	S	754	218	-	-	127-279	-	-	-
P-26 Ia. E. Okoboji L.	S	8	225	-	-	-	-	-	-
C-17 Minn. L. of Woods	S	244	227	-	-	171-266	65	8.4	5.0-16.0
V-14 L. Erie	S	-	-	-	10.4	-	-	-	-
P-26 Ia. Spirit L.	S	90	240	-	-	-	-	-	-
Age Group V									
W-14 Mich. Douglas L.	S	-	X	-	-	123-144	-	-	-
E-17 Mich. Ford L.	S	1	131	-	6.3	-	1	1.6	-
C-75,76 Wisc. Muskellunge L.	S	-	X	-	-	124-154	-	-	0.9-1.9
C-75,76 Wisc. Silver L.	S	-	X	-	-	131-159	-	-	1.3-2.5
C-15 Minn. Ottortail L.	S	1	146	-	-	-	-	-	-
S-6 Wisc. Silver L.	S	170	157	-	-	-	-	2.4	-
G-20,21,24 N.Y.	S	137	-	-	7.6	5.3-12.4	124	3.3	0.7-15.8
L-29 Ia. East L.	S	1	164	-	-	-	-	-	-
E-16 Mich. S. Twin L.	S	18	169	-	7.9	-	18	2.7	-
K-31 Man	S	55	-	7.9	-	6.0-9.0	55	5.2	-
B-31 Mich.	S	856	184	-	8.5	-	856	4.0	-
S-6 Wisc. Weber L.	S	248	191	-	-	-	248	4.0	-
H-71 North L. Michigan	S	27	193	-	8.9	-	27	5.7	-
M-1 Mass.	S	21	-	-	9.0	6.9-11.3	21	6.0	-



## YELLOW PERCH, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
M-87 Mass.	S	113	-	-	9.1	-	113	5.6	-
H-71 Wisc. Green Bay	S	212	203X	-	9.4	155-275	212	5.6	-
C-35 Minn. L. Vermilion	S	143	210	-	-	145-255	77	7.0	1.7-14.1
M-20 South Wisc.	S	139	-	-	9.6	-	139	7.2	-
H-12 L. Erie	S	4	217	9.9	-	-	4	9.2	-
H-62 Ind. Wawasee L.	S	3	220	-	-	-	3	6.4	-
E-3 Minn.	S	483	221	-	-	152-305	-	-	-
C-13 Mich. Deep L.	S	2	-	-	10.4	10.3-10.5	2	6.7	-
C-17 Minn. L. of Woods	S	123	238	-	-	178-291	88	12.2	5.0-21.0
H-70 Saginaw Bay	S	137	238X	-	10.7	192-287	137	8.9	-
S-6 Wisc. Nebish L.	S	13	245	-	-	-	13	9.2	-
J-4 L. Erie	S	2	250	-	-	-	2	10.5	-
P-26 Ia. Spirit L.	S	78	255	-	-	-	-	-	-
Age Group VI									
W-14 Mich. Douglas L.	S	-	X	-	-	155-170	-	-	-
S-6 Wisc. Silver L.	S	31	185	-	-	-	31	4.2	-
G-20,21,24 N.Y.	S	62	-	-	8.9	5.8-13.7	51	5.5	1.5-16.9
L-29 Ia. East L.	S	1	196	-	-	-	-	-	-
S-6 Wisc. Weber L.	S	64	198	-	-	-	64	4.4	-
K-31 Man.	S	98	-	8.8	-	8.0-10.0	98	6.9	-
B-31 Mich.	S	453	205	-	9.5	-	453	5.6	-
C-13 Mich. Deep L.	S	2	-	-	9.6	9.1-10.1	-	-	-
H-71 Wisc. Green Bay	S	98	212X	-	9.7	165-295	98	6.5	-
M-87 Mass.	S	68	-	-	10.0	-	68	7.5	-
M-1 Mass.	S	1	-	-	10.0	-	1	7.0	-
S-6 Wisc. Nebish L.	S	1	220	-	-	-	1	5.8	-
E-3 Minn.	S	125	224	-	-	152-305	-	-	-
C-35 Minn. L. Vermilion	S	86	225	-	-	185-275	51	8.9	5.0-16.9
H-71 North L. Michigan	S	8	225	-	10.4	-	8	9.5	-
H-62 Ind.	S	1	230	-	-	-	1	7.9	-
H-12 L. Erie	S	4	234	10.8	-	-	4	11.6	-
M-20 South Wisc.	S	39	-	-	11.1	-	39	12.0	-
C-17 Minn. L. of Woods	S	60	250	-	-	191-318	44	14.5	7.0-24.0
H-70 Saginaw Bay	S	17	256X	-	11.5	222-277	17	11.3	-
P-26 Ia. Spirit L.	S	2	265	-	-	252-277	-	-	-
E-16 Mich. S. Twin L.	S	1	274	-	12.5	-	1	15.7	-
Age Group VII									
W-14 Mich. Douglas L.	S	-	X	-	-	188-192	-	-	-
S-6 Wisc. Silver L.	S	3	194	-	-	-	3	3.6	-
G-20,21,24 N.Y.	S	27	-	-	8.9	6.9-12.4	25	5.7	2.1-14.3
S-6 Wisc. Weber L.	S	13	210	-	-	-	13	5.4	-
B-31 Mich.	S	246	225	-	10.4	-	246	7.6	-
K-31 Man.	S	99	-	10.0	-	8.0-11.0	99	8.7	-
H-71 Wisc. Green Bay	S	8	242X	-	11.2	195-275	8	10.2	-
H-12 L. Erie	S	4	244	11.0	-	-	4	12.8	-
E-3 Minn.	S	14	246	-	-	178-330	-	-	-
M-87 Mass.	S	12	-	-	11.6	-	12	10.8	-
C-17 Minn. L. of Woods	S	19	255	-	-	216-286	16	16.1	12.0-21.0
M-20 Wisc. south	S	5	-	-	12.1	-	5	14.5	-
H-70 Saginaw Bay	S	5	275X	-	12.4	262-287	5	12.8	-
C-13 Mich. Deep L.	S	1	-	-	13.4	-	1	14.5	-
Age Group VIII									
W-14 Mich. Douglas L.	S	-	X	-	-	218-230	-	-	-
G-20,21,24 N.Y.	S	15	-	-	9.9	7.4-12.2	14	8.0	2.7-15.7
S-6 Wisc. Weber L.	S	3	224	-	-	-	3	6.1	-
B-31 Mich.	S	155	233	-	10.8	-	155	8.5	-
K-31 Man.	S	5	-	10.8	-	9.0-13.0	53	11.0	-
C-35 Minn. L. Vermilion	S	22	239	-	-	203-256	12	11.4	7.0-14.5
C-17 Minn. L. of Woods	S	15	263	-	-	229-292	12	18.1	13.0-24.0
E-3 Minn.	S	2	279	-	-	-	-	-	-
H-71 Wisc. Green Bay	S	4	279X	-	12.8	245-305	4	18.8	-
Age Group IX									
B-31 Mich.	S	59	245	-	11.3	-	59	9.8	-
G-20,21,24, N.Y.	S	11	-	-	11.3	8.5-13.3	11	10.6	3.2-15.4
K-31 Man	S	3	-	11.6	-	11.0-12.0	-	-	-



## YELLOW PERCH, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
C-35 Minn. L. Vermilion	S	3	256	-	-	241-285	-	-	-
C-17 Minn. L. of Woods	S	2	276	-	-	273-279	2	19.5	18.0-21.0
H-71 Wisc. Green Bay	S	1	294	-	13.5	-	1	24.0	-
Age Group X									
G-20,24 N.Y.	S	3	-	-	11.3	10.4-11.8	3	12.1	9.0-13.9
B-31 Mich.	S	14	259	-	12.0	-	14	11.6	-
C-35 Minn. L. Vermilion	S	1	280	-	-	-	1	14.0	-
Age Group XI									
C-17 Minn. L. of Woods	S	1	279	-	-	-	1	24.0	-
Age Group XII									
G-24 N.Y.	S	1	-	-	12.1	-	1	14.4	-

F-7 Reports that specimens were kept 13 years in pounds, and 12 years in aquaria.

	No.	Average calculated standard lengths at each annulus										Code			
		1	2	3	4	5	6	7	8	9	10				
S-6 Wisc. Silver L.	1405	45	77	101	121	143	171	182							L
S-6 Wisc. Weber L.	1084	53	95	122	147	167	180	194	206						L
C-35 Minn. L. Vermilion															
1941 males	167	59	93	125	153	175	185	200	211						E
1941 females	194	60	94	128	159	182	199	212	230	245	271				E
H-71 L. Michigan	276	61	96	128	154	183	212								F
H-71 Green B. males	165	62	99	130	150	185	211	227							F
C-35 Minn. L. Vermilion West	141	63	99	133	161	185	203	217	232						E
H-71 Green Bay females	585	61	99	137	173	197	228	251	302						F
E-3 Minn.	3574	52	98	139	171	206	216	232	245						L
P-25 Ia. Clear L.	738	57	108	143	206										F
V-20 Minn. Red Lake	594	45	102	145	178	198	214	223	226						L
C-35 Minn. L. Vermilion, East	68	67	108	147	175	197	214	213	232						E
L-29 Ia. East L.	88	71	120	150	161	174	196								F
C-35 Minn. L. Vermilion 1942	41	65	110	151	175	197	215	234	236						E
S-6 Wisc. Nebish L.	632	56	110	152	196	225	212								L
C-31 Minn. L. of Woods	574	84	118	154	177	199	219	229	243	244	238	264			E
P-26 Ia. W. Okoboji L.	85	47	104	157	193										F
C-36 Ia. Clear L.	493	45	108	159	206										L
H-70 Saginaw Bay males	203	65	114	166	204	232	259	275							F
H-70 Saginaw B. females	600	65	116	174	211	236	270	293							F
J-4 L. Erie	1170	69	150	178	197	216									L
H-71 L. Erie males	-	76	143	181	203	220									F
H-71 L. Erie females	-	77	146	187	215	234	251								F
P-26 Ia. E. Okoboji L.	211	58	151	192	210										L
P-26 Ia. Spirit L.	266	55	147	204	235	254	259								L
L-29 Ia. Red Haw L.	87	77	152	216											F

	No.	Average calculated fork length at each annulus							Code
		1	2	3	4	5	6	7	
E-2 Minn.	2072	2.6	4.8	6.7	8.6	10.0	11.4	11.8	L
B-12 Man. L. Winnipeg	-	2.8	5.5	7.9	9.9	11.8	12.6	13.0	L

	No.	Average calculated Total length in inches at each annulus									Code
		1	2	3	4	5	6	7	8	9	
R-57 Ohio	-	2.0	4.1	5.5	6.6	7.5	8.4	9.0			A
V-17 L. Michigan	-	2.8	4.5	6.0	7.1	8.5	9.7				F
K-33 Minn.	4033	2.6	4.5	6.0	7.3	8.4	9.3	10.0	10.8	11.3	L
V-17 Green Bay	-	2.8	4.6	6.2	7.7	8.8	10.1	11.0			F
S-62 Minn.	-	2.4	4.5	6.3	7.7	9.2	9.6	10.4	10.9		L
V-20 Minn. Red Lake	594	2.1	4.8	6.8	8.4	9.3	10.1	10.5	10.7		L
L-29 Iowa, East L.	88	3.4	5.7	7.1	7.6	8.2	9.3				F
T-23,W-13, Conn.	224	3.7	6.0	7.7	9.0	9.9	10.6	11.2	11.6		A
V-17 Saginaw Bay	-	3.0	5.3	7.9	9.5	10.6	11.9	12.8			F
V-17 L. Erie	-	3.6	6.7	8.5	9.6	10.3					F
L-29 Iowa, Red Haw L.	87	3.7	7.2	10.3							F



## YELLOW PERCH, (Continued)

	Average calculated weight in ounces at each annulus									
	No.	1	2	3	4	5	6	7	8	9
H-70 Green B. males	165	0.1	0.6	1.4	2.5	4.2	6.3	7.9		
H-70 Green B. females	585	0.1	0.6	1.6	3.4	5.1	8.0	10.8	13.3	19.3
H-70 L. Michigan	276	0.2	0.8	1.7	2.9	4.7	7.2			
H-70 Saginaw B. males	203	0.1	0.9	2.9	5.5	8.2	11.6	13.9		
H-70 Saginaw B. females	600	0.1	0.9	3.4	6.1	8.7	13.2	17.0		
H-71 L. Erie males	-	0.3	2.0	4.0	5.7	7.2				
H-71 L. Erie females	-	0.3	2.1	4.4	6.7	8.7	10.7			

	Code	Size of females	No. of females	No. of eggs per female Mean	Range
C-17 Minn. L. of Woods	V	222 mm. S.L.	1	47,980	
E-4 Minn.	V	-	-	-	10,000-48,000
P-8 Wisc.	D	156-164 mm. S.L.	10	9,046	5,899-11,272
V-21 Minn.	V	2-4 oz.	7	17,000	13,000-38,000
	V	4-6 oz.	22	23,000	10,000-38,000
	V	6-8 oz.	18	27,000	17,000-37,000
	V	8-10 oz.	8	34,000	27,000-44,000
	V	10-12 oz.	5	34,000	30,000-38,000
	V	12-14 oz.	2	46,000	44,000-48,000

YELLOW PIKEPERCH, or WALLEYE, *Stizostedion vitreum*

	No. of fish	S.L. in mm.	F.L. S.L.	No. of fish	S.L. in mm.	T.L. S.L.
C-35 Minn. L. Vermilion	-	under 200	1.106	-	under 200	1.169
	-	200-399	1.097	-	200-399	1.159
	-	over 400	1.088	-	over 400	1.154
C-27 Minn. L. of Woods	3030	-	1.104	3030	-	1.159
C-37 Minn.	127	under 199	1.101	127	under 199	1.168
	2096	200-399	1.093	466	200-299	1.160
	344	over 400	1.088	2950	300-499	1.153
				24	over 500	1.142
C-37 Minn. Red Lake	85	260-360	1.132	85	260-260	1.205
	13	360-430	1.126	13	360-430	1.196
C-51 Iowa, Clear L.	25	-	1.127	215	-	1.198
C-30 Iowa, Clear L. 1948	178	-	1.12	179	-	1.19
S-4 Wisc. Trout L.						1.184
R-9 N.Y. young fish						1.181
S-100 Tenn. Norris L.				1169	100-660	1.184

## Standard length-weight relationship

S.L. in mm.	No.	Weight in grams Mean	Weight in grams Range	Weight in ounces	Location
90-109	6	13	7-20	0.5	C-30,51
110-129	5	19	10-25	0.7	C-25,51
130-149	15	48	-	1.7	C-20 Minn.
	1	57	-	2.0	C-30 Iowa
150-169	5	53	40-60	1.9	C-25 Minn. L. of Woods
	20	80	-	2.8	C-20 Minn.
170-189	10	99	70-115	3.5	C-25,30
190-209	7	109	97-123	3.8	C-25 Minn. L. of Woods
	16	136	-	4.8	C-20 Minn.
210-229	20	141	105-176	5.0	C-25,30,51
	45	153	-	5.4	C-20 Minn.
230-249	8	187	175-202	6.6	C-25 Minn. L. of Woods
	66	207	-	7.3	C-20 Minn.
	9	225	150-369	7.9	C-30 Iowa
250-269	13	250	162-324	8.8	C-16,25,51
	62	267	190-454	9.4	C-30 Iowa
	181	309	-	10.9	C-20 Minn.



## YELLOW PIKEPERCH, (Continued)

## Standard length-weight relationship (Cont'd.)

S.L. in mm.	No.	Mean	Range	Weight in ounces	Location
270-289	11	319	258-392	11.2	C-25 Minn. L. of Woods
	24	329	227-397	11.6	C-51 Ia. Clear L.
	7	354	305-453	12.5	C-30 Iowa
290-309	12	352	-	12.4	C-16 Minn. Red L.
	14	390	341-453	13.7	C-25 Minn. L. of Woods
	273	390	-	13.7	C-20 Minn.
	12	435	397-482	15.4	C-51 Iowa Clear L.
310-329	60	408	-	14.4	C-16 Minn. Red L.
	23	475	220-680	16.7	C-30 Iowa
	29	473	405-640	17.4	C-25 Minn. L. of Woods
	663	519	-	18.3	C-20 Minn.
	14	523	454-624	18.5	C-51 Iowa Clear L.
330-349	37	482	-	17.0	C-16 Minn. Red L.
	72	611	416-740	21.6	C-25 Minn. L. of Woods
	16	645	320-992	22.7	C-30 Iowa
	946	686	-	24.2	C-20 Minn.
350-369	5	539	-	19.0	C-16 Minn. Red L.
	30	670	482-950	23.6	C-51 Iowa Clear L.
	122	693	566-884	24.5	C-25 Minn. L. of Woods
	1267	774	-	27.3	C-20 Minn.
	6	824	680-1020	29.1	C-30 Iowa
370-389	92	794	688-944	28.0	C-25 Minn. L. of Woods
	4	805	723-907	28.4	C-51 Iowa Clear L.
390-409	790	879	-	31.0	C-20 Minn.
	49	886	720-1015	31.2	C-25 Minn. L. of Woods
	20	1089	794-1304	38.4	C-30 Iowa
410-429	17	969	885-1080	34.2	C-25 Minn. L. of Woods
	651	1046	-	36.9	C-20 Minn.
	7	1187	680-1531	38.4	C-51 Iowa Clear L.
430-449	321	1270	-	44.8	C-20 Minn.
	11	1301	1120-1460	45.9	C-25,30
450-469	4	1333	1296-1361	47.0	C-25,30
470-489	2	1406	1322-1490	49.6	C-25 Minn. L. of Woods
	160	1474	-	52.0	C-20 Minn.
	1	1928	-	68.0	C-30 Iowa
490-509	86	1713	-	60.4	C-20 Minn.
	1	1970	-	69.5	C-51 Iowa Clear L.
510-529	1	1999	-	70.5	C-51 Iowa Clear L.
	52	2038	-	67.9	C-20 Minn.
530-549	1	2000	-	70.5	C-25 Minn. L. of Woods
	22	2149	-	75.8	C-20 Minn.
570-589	17	2197	-	77.5	C-20 Minn.
	1	3288	-	116.0	C-25 Minn. L. of Woods
590-609	12	2447	-	86.3	C-20 Minn.
	2	3317	3147-3487	117.0	C-51 Iowa Clear L.
610-629	12	2509	-	88.5	C-20 Minn.
630-649	2	2041	-	72.0	C-20 Minn.
670-689	7	3090	-	109.0	C-20 Minn.
710-729	2	5613	-	198.0	C-20 Minn.
730-749	1	3997	-	141.0	C-20 Minn.
770-789	1	3402	-	120.0	C-20 Minn.



## YELLOW PIKEPERCH, (Continued)

Fork length-weight relationship, Minn. Lake of Woods, C-17

F.L. in inches	No.	Weight in ounces		F.L. in inches	No.	Weight in ounces	
		Mean	Range			Mean	Range
6.0-6.9	2	1.0	-	16.0-16.9	687	29.0	20-38
7.0-7.9	2	3.0	-	17.0-17.9	237	32.7	24-43
8.0-8.9	3	3.3	1-5	18.0-18.9	86	36.7	28-47
9.0-9.9	1	4.0	-	19.0-19.9	25	41.6	32-50
10.0-10.9	12	6.9	6-8	20.0-20.9	18	49.9	41-67
11.0-11.9	60	9.3	7-12	21.0-21.9	14	60.4	50-73
12.0-12.9	169	12.0	8-17	22.0-22.9	12	71.7	57-83
13.0-13.9	163	14.8	10-22	23.0-23.9	4	81.5	71-89
14.0-14.9	270	20.4	12-28	24.0-24.9	3	86.0	68-106
15.0-15.9	710	25.0	16-31	28.0-28.9	2	114.0	106-122

## Total length-weight relationship

T.L. in inches	No.	Weight in ounces		Weight in pounds	Location
		Mean	Range		
4.0-4.9	3	0.6	-	0.04	J-15 Wisc.
6.0-6.9	4	1.4	-	0.09	S-4 Wisc. Trout L.
	15	1.7	1.0-2.0	0.11	C-35 Minn. L. Vermilion
7.0-7.9	8	1.8	-	0.11	M-20 S-4 Wisc.
	48	2.0	-	0.13	J-15 Wisc.
	10	2.2	1.0-3.0	0.14	C-35 Minn. L. Vermilion
8.0-8.9	10	2.9	2.0-4.0	0.18	C-35 Minn. L. Vermilion
	2	3.0	-	0.19	M-20 South Wisc.
	10	3.7	-	0.23	S-4 Wisc. Trout L.
9.0-9.9	11	3.3	3.0-5.0	0.21	C-35 Minn. L. Vermilion
	26	4.5	-	0.28	S-4 Wisc. Trout L.
	3	4.7	-	0.29	M-20 South Wisc.
10.0-10.9	128	5.0	-	0.31	J-15 Wisc.
	10	5.7	4.0-7.0	0.35	C-35 Minn. L. Vermilion
	14	6.6	-	0.41	M-20 South Wisc.
11.0-11.9	17	6.0	-	0.38	S-4 Wisc. Trout L.
	15	7.0	6.0-9.0	0.44	C-35 Minn. L. Vermilion
	27	8.3	-	0.52	M-20 South Wisc.
12.0-12.9	7	8.7	-	0.54	S-4 Wisc. Trout L.
	22	9.7	6.0-13.0	0.60	C-35 Minn. L. Vermilion
	46	10.6	-	0.66	M-30 South Wisc.
13.0-13.9	11	11.7	-	0.73	S-4 Wisc. Trout L.
	162	12.0	-	0.75	J-15 Wisc.
	54	13.0	10.0-19.0	0.81	C-35 Minn. L. Vermilion
	46	13.0	-	0.81	M-20 South Wisc.
14.0-14.9	5	14.9	-	0.87	S-4 Wisc. Trout L.
	113	16.6	13.0-23.0	1.04	C-35 Minn. L. Vermilion
	30	17.3	-	1.08	M-20 South Wisc.
15.0-15.9	6	18.6	-	1.17	S-4 Wisc. Trout L.
	67	20.0	15.0-25.0	1.25	C-35 Minn. L. Vermilion
	28	20.5	-	1.28	M-20 South Wisc.
16.0-16.9	163	22.0	-	1.38	J-15 Wisc.
	81	23.8	-	1.49	M-20 South Wisc.
	86	24.2	17.0-32.0	1.51	C-35 Minn. L. Vermilion
	9	25.0	-	1.56	S-4 Wisc. Trout L.
17.0-17.9	64	28.5	-	1.78	M-20 South Wisc.
	37	28.8	20.0-37.0	1.80	C-35 Minn. L. Vermilion
18.0-18.9	13	32.0	-	2.00	S-4 Wisc. Trout L.
	26	32.5	27.0-46.0	2.03	C-35 Minn. L. Vermilio.
	51	34.1	-	2.13	M-20 South Wisc.
19.0-19.9	215	37.0	-	2.13	J-15 Wisc.
	24	40.0	-	2.50	S-4 Wisc. Trout L.



## YELLOW PIKEPERCH, (Continued)

T.L. in inches	No.	Weight in ounces		Weight in pounds	Location
		Mean	Range		
	34	41.0	-	2.58	M-20 South Wisc.
	5	42.4	39.0-47.0	2.65	C-35 Minn. L. Vermilion
20.0-20.9	31	44.0	-	2.75	S-4 Wisc. Trout L.
	21	46.0	-	2.88	M-20 South Wisc.
	5	47.8	43.0-52.0	2.99	C-35 Minn. L. Vermilion
21.0-21.9	2	42.0	-	2.63	C-35 Minn. L. Vermilion
	30	47.0	-	2.94	S-4 Wisc. Trout L.
	20	54.3	-	3.42	M-20 South Wisc.
22.0-22.9	19	30.0	-	3.13	S-4 Wisc. Trout L.
	166	54.0	-	3.38	J-15 Wisc.
	18	63.0	-	2.94	M-20 South Wisc.
	1	71.0	-	4.44	C-35 Minn. L. Vermilion
23.0-23.9	18	60.0	-	3.75	S-4 Wisc. Trout L.
	2	67.0	32.0-82.0	4.19	C-35 Minn. L. Vermilion
	7	70.7	-	4.42	M-20 South Wisc.
24.0-24.9	4	81.5	74.0-92.0	5.09	C-35 Minn. L. Vermilion
	4	79.9	-	4.99	M-20 South Wisc.
25.0-25.9	97	75.0	-	4.69	J-15 Wisc.
	10	62.0	-	3.88	S-4 Wisc. Trout L.
	1	98.0	-	6.13	C-35 Minn. L. Vermilion
	4	93.4	-	5.84	M-20 South Wisc.
26.0-26.9	13	82.0	-	5.13	S-4 Wisc. Trout L.
	1	96.0	-	6.00	C-35 Minn. L. Vermilion
	3	121.1	-	7.57	M-30 South Wisc.
27.0-27.9	4	91.0	-	5.69	S-4 Wisc. Trout L.
	4	133.5	-	8.34	M-20 South Wisc.
28.0-28.9	42	109.0	-	6.81	J-15 Wisc.
	1	96.0	-	6.00	S-4 Wisc. Trout L.
	1	120.0	-	7.50	C-35 Minn. L. Vermilion
	1	185.0	-	11.56	M-20 South Wisc.
29.0-29.9	1	108.0	-	6.75	S-4 Wisc. Trout L.
31.0-31.9	32	148.0	-	9.25	J-15 Wisc.
32.0-32.9	1	216.0	-	14.50	C-35 Minn. L. Vermilion
34.0-34.9	15	151.0	-	9.44	J-15 Wisc.
37.0-37.9	5	181.0	-	11.31	J-15 Wisc.
40.0-40.9	1	200.0	-	12.50	J-15 Wisc.

C-35 Minn. L. Vermilion  
 S-100 Tenn. Norris L.  
 C-51 Iowa Clear L.  
 C-27 Minn. L. of Woods

Log W = -4.85998 + 3.0083 Log S.L.  
 Log W = -5.08340 + 3.097 Log S.L.  
 Log W = -4.94082 + 3.0445 Log S.L.  
 Log W = -5.09963 + 3.099 Log S.L.

	Size of fish	No. of fish	Condition index K	
			Mean	Range
C-27 Minn. L. of Woods	-	368	1.47	-
S-4 Wisc. Trout L.	-	266	1.45	-
C-29 Iowa	146-570 mm. S.L.	202	1.64	-
E-3 Minn.	152-786 mm. S.L.	4805	1.57	-
V-20 Minn. L. Red L.	-	-	1.49	-
V-20 Minn. L. of Woods	-	-	1.46	-
V-20 N.Y. L. Champlain	-	-	1.42	-
V-20 Ont. L. Nipigon	-	-	1.39	-
V-20 Ont. L. Abitibi	-	-	1.33	-



## YELLOW PIKEPERCH, (Continued)

	Size of fish	No. of fish	Mean	Range
V-20 L. Erie	-	-	1.22	-
C-25 Minn. L. of Woods	-	462	1.47	-
S-100 Tenn. Norris L.	young of year	57	1.38	-
S-100 Tenn. Norris L.	older fish	1087	1.51	-
S-100 N.C. Hiwassee L.	-	30	1.29	-
C-51 Iowa, Clear L.	-	143	1.49	-
C-36 Iowa, Clear L. 1948	165-457 mm. S.L.	102	1.45	0.90-2.11
C-36 Iowa, Ahquabi L.	107-110 mm. S.L.	2	1.56	-
C-21 Minn. Mille Lacs	100-499 mm.	205	1.53	-
C-35 Minn. L. Vermilion	-	680	1.44	-
C-23 Minn. 1941-43	-	1573	1.43	-
C-34 Minn. Leech L.	-	102	1.34	-

C-23 Minn. standards for C(T.L.): poor, under 30; average 32-35; excellent, over 37

	Code	No.	S.L.	F.L.	T.L.	Range	No.	Weight in ounces Mean	Range
Age Group O-Hatching									
F-5 L. Erie	K	-	-	-	0.3	-	-	-	-
Age Group O-May									
S-63 Minn.	K	-	27	-	-	-	-	-	-
C-8 Mich.	K	-	-	-	1.4	-	-	-	-
Age Group O-June									
R-69 Ia. Diamond L.	K	-	-	-	1.4	-	-	-	-
C-91 Iowa, Clear L.	P	5	-	-	2.1	2.0-2.2	-	-	-
S-87 Ia. Diamond L.	K	-	-	-	2.5	-	-	-	-
S-63 Minn.	K	-	62	-	-	-	-	-	-
Age Group O-July									
R-9 N.Y. Oneida L.	P	253	50	-	2.3	1.4-3.2	-	-	-
R-69 Ia. Diamond L.	K	-	-	-	2.5	-	-	-	-
C-35 Minn. L. Vermilion	P	49	58	-	-	46-68	-	-	-
B-2 Ia. Okoboji L.	P	19	62	-	-	53-74	-	-	-
B-3 Ia. Clear L.	P	36	71	-	-	56-83	-	-	-
C-30 Ia. Clear L.	P	21	-	-	3.5	2.9-4.2	-	-	-
S-86 Ia. Diamond L.	K	-	-	-	X	3.6-4.4	-	-	-
S-63 Minn.	K	-	106	-	-	-	-	-	-
Age Group O-August									
R-69 Ia. Diamond L.	K	-	-	-	3.4	-	-	-	-
R-9 N.Y. Oneida L.	P	125	75	-	3.5	3.5-4.8	-	-	-
C-30 Ia. Clear L.	P	60	-	-	4.2	3.4-5.8	-	-	-
B-3 Ia. Clear L.	P	3	96	-	-	80-107	-	-	-
S-87 Ia. Diamond L.	K	-	-	-	4.6	-	-	-	-
C-91 Iowa, Clear L.	P	53	-	-	4.9	3.5-6.4	-	-	-
B-2 Ia. Okoboji L.	P	3	114	-	-	109-119	-	-	-
Age Group O-September									
R-69 Ia. Diamond L.	K	-	-	-	4.3	-	-	-	-
C-30 Ia. Clear L.	P	10	-	-	4.7	3.7-5.4	-	-	-
R-9 N.Y. Oneida L.	P	89	102	-	4.7	3.6-6.2	-	-	-
S-86 Iowa	K	3	253	-	13.5	-	-	-	-
Age Group O-October									
R-9 N.Y. Oneida L.	P	35	114	-	5.3	4.2-7.0	-	-	-
B-4 Ia. Clear L.	P	5	114	-	5.5	9.8-13.4	-	-	-
C-21 Minn. Mille Lacs	S	25	151	-	-	139-161	-	-	-
Age Group O									
S-4 Wisc. Trout L.	S	2	96	-	-	-	-	-	-
C-18,25 Minn. L. of Woods	S	34	98	-	-	51-169	7	1.9	1.0-3.0
C-29 Ia. Diamond L.	S	2	-	-	7.0	6.9-7.2	-	-	-
S-100 Tenn. Norris L.	S	58	160	-	-	110-250	-	-	-
E-26 Tenn. Norris L.	S	14	224	-	10.5	-	-	-	-
Age Group I									
H-22 Ont. Nipigon L.	S	4	123	5.5	-	-	4	1.5	-
E-3 Minn.	S	2	152	-	-	-	-	-	-



## YELLOW PIKEPERCH, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces			
							No.	Mean	Range	
C-35 Minn. L. Vermilion	S	48	159	-	-	136-194	28	2.2	1.0-4.0	
C-29 Iowa	S	49	-	-	8.0	6.9-10.7	-	-	-	
R-21 Sask.	I	8	-	7.9	-	-	8	4.0	-	
L-13 Ohio	S	6	-	-	-	-	-	-	-	
C-21 Minn. L. Mille Lacs	S	40	174	-	-	143-211	-	-	-	
S-4 Wisc. Trout L.	S	25	179	-	-	110-250	-	-	-	
G-25 N.Y. Ontario	S	14	-	-	9.3	8.4-10.2	14	4.0	3.0-5.0	
C-25 Minn. L. of Woods	S	31	181	-	-	146-222	13	3.2	2.0-5.0	
C-51 Iowa Clear L.	S	49	206	-	-	-	-	-	-	
D-7 L. Erie	S	493	216	-	-	-	-	-	-	
S-100 Tenn. Norris L.	S	190	305	-	-	150-390	-	-	-	
Age Group II										
H-15 Ont.	S	-	-	7.4	-	-	-	3.0	-	
H-22 Ont.	S	16	179	7.5	-	-	16	2.5	-	
A-4 L. Erie	S	15	182	-	-	147-211	15	3.2	2.0-5.0	
C-35 Minn. L. Vermilion	S	69	224	-	-	160-288	56	5.5	2.0-9.8	
S-4 Wisc. Trout L.	S	71	230	-	-	170-310	-	-	-	
C-21 Minn. Mille Lacs	S	83	240	-	-	160-312	-	-	-	
C-25 Minn. L. of Woods	S	121	242	-	-	178-313	62	7.4	4.0-12.0	
E-3 Minn.	S	159	246	-	-	178-406	-	-	-	
C-29 Iowa	S	68	-	-	11.3	8.6-14.4	-	-	-	
L-13 Ohio	S	52	-	-	11.3	-	-	-	-	
D-7 L. Erie	S	853	259	-	-	-	-	-	-	
H-53 Wisc. Wolf R.	S	-	-	-	-	-	12	10.0	-	
M-20 Wisc., south	S	75	-	-	11.8	-	75	10.9	-	
C-51 Iowa Clear L.	S	97	271	-	-	-	-	-	-	
G-25 N.Y. Ontario	S	19	-	-	13.0	10.4-15.5	19	12.0	5.5-22.4	
J-15 Wisc.	S	7	-	-	14.3	12.3-16.0	-	-	-	
E-22 Tenn. Norris L.	S	11	365	-	17.2	-	-	-	-	
S-100 Tenn. Norris L.	S	546	376	-	-	270-490	-	-	-	
E-26 Tenn. Norris L.	S	36	400	-	18.7	-	-	-	-	
Age Group III										
H-22 Ont. L. Nipigon	S	2	207	9.5	-	-	2	4.0	-	
H-15 Ont.	S	-	-	10.6	-	-	-	10.0	-	
K-31 Man. L. Manitoba	S	61	-	10.9	-	8.0-12.0	61	9.8	-	
C-35 Minn. L. Vermilion	S	213	251	-	-	175-348	68	10.5	4.0-17.8	
A-4 L. Erie	S	2	268	-	-	250-286	2	10.2	9.5-11.0	
L-13 Ohio	S	167	-	-	13.5	-	-	-	-	
C-21 Minn. L. Mille Lacs	S	78	294	-	-	235-372	-	-	-	
D-7 L. Erie	S	60	297	-	-	-	-	-	-	
C-25 Minn. L. of Woods	S	507	298	-	-	254-387	323	13.7	8.0-24.0	
M-20 Wisc., south	S	96	-	-	13.8	-	96	15.7	-	
L-33 Ont. Quetico	S	6	304	-	13.9	273-329	6	14.0	10.0-16.0	
H-53 Wisc. Wolf R.	S	-	-	-	-	-	61	14.0	-	
B-41 Wisc. Bearskin L.	S	12	-	-	13.9	-	12	15.2	-	
E-3 Minn.	S	1189	312	-	-	178-457	-	-	-	
C-29 Iowa	S	32	-	-	14.4	10.0-18.5	-	-	-	
J-15 Wisc.	S	66	-	-	15.0	10.8-21.6	-	-	-	
C-51 Iowa Clear L.	S	77	331	-	-	-	-	-	-	
S-4 Wisc. Trout L.	S	45	332	-	-	210-510	-	-	-	
G-25 N.Y. Ontario	S	14	-	-	17.0	13.4-20.0	14	27.2	12.0-54.3	
R-18 Sask.	I	9	-	X	-	15.0-18.0	-	-	24.0-40.0	
S-100 Tenn. Norris L.	S	190	414	-	-	330-510	-	-	-	
E-26 Tenn. Norris L.	S	60	469	-	21.6	-	-	-	-	
E-22 Tenn. Norris L.	S	14	483	-	22.1	-	-	-	-	
Age Group IV										
H-22 Ont. L. Abitibi	S	2	252	11.0	-	-	2	7.5	-	
H-22 Ont. L. Nipigon	S	8	275	12.3	-	-	8	9.5	-	
K-31 Man., L. Manitoba	S	207	-	12.3	-	10.0-14.0	207	14.0	-	
H-15 Ont.	S	-	-	12.3	-	-	-	16.0	-	
C-35 Minn. L. Vermilion	S	324	280	-	-	222-368	81	13.3	6.0-20.0	
A-4 L. Erie	S	3	312	-	-	305-335	3	16.5	14.0-22.0	
H-53 Wisc. Wolf R.	S	-	-	-	-	-	203	17.0	-	
C-25 Minn. L. of Woods	S	1246	338	-	-	267-395	682	21.8	9.0-32.6	



## YELLOW PIKEPERCH, (Continued)

		Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
								No.	Mean	Range
M-20	Wisc., south	S	182	-	-	16.2	-	182	23.4	-
C-21	Minn. L. Mille Lacs	S	63	349	-	-	285-413	-	-	-
E-3	Minn.	S	1296	353	-	-	279-533	-	-	-
D-7	L. Erie	S	19	355	-	-	-	-	-	-
L-33	Ont. Quetico	S	17	359	-	16.5	329-387	17	24.0	16.0-28.0
L-13	Ohio	S	75	-	-	16.7	-	-	-	-
J-15	Wisc.	S	102	-	-	16.9	10.5-24.6	-	-	-
C-51	Iowa Clear L.	S	53	369	-	-	-	-	-	-
C-29	Iowa	S	19	-	-	17.2	15.8-18.7	-	-	-
S-4	Wisc. Trout L.	S	39	392	-	-	310-490	-	-	-
G-25	N.Y. Ontario	S	4	-	-	17.9	16.3-19.5	4	36.4	25.1-43.2
S-100	Tenn. Norris L.	S	109	434	-	-	330-530	-	-	-
Age Group V										
H-22	Ont. L. Abitibi	S	1	260	11.5	-	-	1	8.0	-
H-22	Ont. L. Nipigon	S	9	312	13.8	-	-	9	14.5	-
C-35	Minn. L. Vermilion	S	386	313	-	-	254-384	71	18.9	10.0-32.0
K-31	Man., L. Manitoba	S	287	-	14.2	-	12.0-17.0	287	20.7	-
L-33	Ont. Quetico	S	6	359	-	16.5	329-387	6	24.0	20.0-28.0
H-53	Wisc. Wolf R.	S	-	-	-	-	-	254	27.0	-
C-25	Minn. L. of Woods	S	1670	371	-	-	305-425	1147	27.5	12.0-43.0
C-21	Minn. L. Mille Lacs	S	92	381	-	-	297-425	-	-	-
M-20	Wisc., south	S	144	-	-	18.3	-	144	33.7	-
J-15	Wisc.	S	139	-	-	18.4	-	-	-	-
C-51	Iowa Clear L.	S	26	401	-	-	-	-	-	-
E-3	Minn.	S	642	406	-	-	305-610	-	-	-
D-7	L. Erie	S	4	414	-	-	-	-	-	-
C-29	Iowa	S	15	-	-	19.0	17.2-20.9	-	-	-
S-4	Wisc. Trout L.	S	71	428	-	-	310-570	-	-	-
G-25	N.Y. Ontario	S	6	-	-	19.7	16.6-23.1	6	40.8	20.2-74.2
L-13	Ohio	S	23	-	-	19.9	-	-	-	-
S-100	Tenn. Norris L.	S	62	461	-	-	390-650	-	-	-
Age Group VI										
H-22	Ont. L. Abitibi	S	1	280	12.5	-	-	1	11.0	-
H-22	Ont. L. Nipigon	S	9	315	13.8	-	-	9	15.5	-
C-35	Minn. L. Vermilion	S	379	343	-	-	292-428	79	23.4	13.0-35.6
H-15	Ont.	S	-	-	15.3	-	-	-	35.0	-
K-31	Man., L. Manitoba	S	307	-	15.5	-	13.0-19.0	307	25.1	-
A-4	L. Erie	S	1	387	-	-	-	1	35.0	-
C-25	Minn. L. of Woods	S	608	401	-	-	341-459	469	31.7	17.0-50.0
C-21	Minn. L. Mille Lacs	S	104	401	-	-	367-467	-	-	-
L-33	Ont. Quetico	S	23	406	-	18.6	387-477	23	34.0	28.0-56.0
H-53	Wisc. Wolf R.	S	-	-	-	-	-	172	34.0	-
C-29	Iowa	S	16	-	-	19.7	18.2-21.7	-	-	-
J-15	Wisc.	S	108	-	-	19.9	11.8-37.5	-	-	-
M-20	South Wisc.	S	79	-	-	20.1	-	79	49.0	-
G-25	N.Y. Ontario	S	1	-	-	20.3	-	1	42.4	-
S-100	Tenn. Norris L.	S	31	447	-	-	390-650	-	-	-
E-3	Minn.	S	193	450	-	-	356-660	-	-	-
C-51	Iowa Clear L.	S	8	469	-	-	-	-	-	-
D-7	L. Erie	S	1	475	-	-	-	-	-	-
S-4	Wisc. Trout L.	S	56	478	-	-	350-610	-	-	-
L-13	Ohio	S	2	-	-	21.5	-	-	-	-
Age Group VII										
H-22	Ont. L. Abitibi	S	4	306	13.5	-	-	4	14.0	-
H-22	Ont. L. Nipigon	S	2	335	15.0	-	-	2	19.0	-
C-35	Minn. L. Vermilion	S	203	365	-	-	310-508	48	28.9	18.0-48.0
K-31	Man., L. Manitoba	S	180	-	16.3	-	14.0-23.0	180	30.7	-
C-21	Minn. L. Mille Lacs	S	52	417	-	-	381-504	-	-	-
C-25	Minn. L. of Woods	S	136	420	-	-	362-495	83	39.0	25.0-67.0
L-33	Ont. Quetico	S	17	441	-	20.2	397-487	17	42.0	32.0-56.0
C-29	Iowa	S	10	-	-	20.4	19.2-22.8	-	-	-
H-53	Wisc. Wolf R.	S	-	-	-	-	-	51	47.0	-
S-100	Tenn. Norris L.	S	13	470	-	-	390-670	-	-	-
C-51	Iowa Clear L.	S	2	474	-	-	-	-	-	-



## YELLOW PIKEPERCH, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
J-15 Wisc.	S	117	-	-	21.3	14.3-35.1	-	-	-
M-20 South Wisc.	S	32	-	-	21.9	-	-	62.0	-
S-4 Wisc. Trout L.	S	60	507	-	-	370-610	-	-	-
E-3 Minn.	S	58	513	-	-	406-610	-	-	-
L-13 Ohio	S	3	-	-	24.6	-	-	-	-
W-13 Conn.	S	1	623	-	28.0	-	1	128.0	-
Age Group VIII									
K-31 Man., L. Manitoba	S	89	-	17.0	-	15.0-20.0	89	34.4	-
C-35 Minn. L. Vermilion	S	69	381	-	-	330-473	10	39.4	28.0-53.0
H-22 Ont. L. Abitibi	S	7	386	17.3	-	-	7	27.0	-
H-22 Ont. L. Nipigon	S	4	407	18.0	-	-	4	31.0	-
C-21 Minn. Mille Lacs	S	16	432	-	-	381-535	-	-	-
C-25 Minn. L. of Woods	S	37	460	-	-	410-521	30	52.4	34.0-78.0
S-4 Wisc. Trout L.	S	40	492	-	-	410-630	-	-	-
H-53 Wisc. Wolf R.	S	-	-	-	-	-	34	59.0	-
L-33 Ont. Quetico	S	14	494	-	22.6	443-534	14	60.0	44.0-76.0
C-29 Iowa	S	3	-	-	22.6	20.5-24.8	-	-	-
J-15 Wisc.	S	78	-	-	22.9	15.5-33.9	-	-	-
S-100 Tenn. Norris L.	S	3	537	-	-	470-650	-	-	-
E-3 Minn.	S	30	561	-	-	483-686	-	-	-
M-20 South Wisc.	S	13	-	25.0	25.0	-	13	96.2	-
Age Group IX									
H-22 Ont. L. Abitibi	S	10	390	17.5	-	-	10	29.0	-
C-35 Minn. L. Vermilion	S	45	422	-	-	375-546	6	60.4	39.0-80.0
K-31 Man., L. Manitoba	S	40	-	18.7	-	16.0-22.0	40	47.4	-
H-22 Ont. L. Nipigon	S	3	426	18.8	-	-	3	33.5	-
C-35 Minn. L. Mille Lacs	S	3	465	-	-	452-480	-	-	-
H-15 Ont.	S	-	-	20.3	-	-	-	78.0	-
G-25 N.Y. Ontario	S	1	-	-	21.4	-	1	67.2	-
C-21 Minn. L. of Woods	S	18	491	-	-	445-565	11	67.8	48.0-124.3
J-15 Wisc.	S	49	-	-	22.8	15.3-33.9	-	-	-
S-4 Wisc. Trout L.	S	15	514	-	-	470-570	-	-	-
A-4 L. Erie	S	1	515	-	-	-	1	78.0	-
C-29 Iowa Spirit L.	S	1	-	-	23.8	-	-	-	-
L-33 Ont. Quetico	S	4	532	-	24.4	487-568	4	76.0	56.0-88.0
E-3 Minn.	S	11	561	-	-	508-686	-	-	-
M-20 South Wisc.	S	3	-	-	29.0	-	3	142.7	-
Age Group X									
H-22 Ont. L. Abitibi	S	3	401	18.0	-	-	3	32.0	-
K-31 Man., L. Manitoba	S	33	-	18.7	-	17.0-22.0	33	52.6	-
C-35 Minn. L. Vermilion	S	23	445	-	-	380-616	4	64.0	43.0-92.0
H-22 Ont. L. Nipigon	S	10	457	20.3	-	-	10	50.0	-
C-25 Minn. L. of Woods	S	13	525	-	-	485-572	7	79.8	47.0-100.0
S-4 Wisc. Trout L.	S	4	530	-	-	-	-	-	-
C-21 Minn. L. Mille Lacs	S	3	547	-	-	526-585	-	-	-
J-15 Wisc.	S	31	-	-	24.7	15.3-38.0	-	-	-
C-51 Iowa Clear L.	S	1	599	-	-	-	-	-	-
M-20 South Wisc.	S	3	-	-	26.3	-	3	155.0	-
E-3 Minn.	S	4	653	-	-	610-737	-	-	-
B-47 Wisc. Bearskin L.	S	1	-	-	44.5	-	1	128.0	-
Age Group XI									
H-22 Ont. L. Abitibi	S	2	382	17.0	-	-	2	23.0	-
C-21 Minn. L. Mille Lacs	S	1	439	-	-	-	-	-	-
K-31 Man., L. Manitoba	S	12	-	19.8	-	18.0-22.0	12	57.5	-
S-4 Wisc. Trout L.	S	1	460	-	-	-	-	-	-
H-22 Ont. L. Nipigon	S	10	472	20.8	-	-	10	50.0	-
C-35 Minn. L. Vermilion	S	6	549	-	-	462-610	2	95.0	82.0-108.0
C-25 Minn. L. of Woods	S	5	564	-	-	514-660	3	107.0	90.0-131.0
J-15 Wisc.	S	25	-	-	25.5	17.5-31.5	-	-	-
C-51 Iowa Clear L.	S	1	605	-	-	-	-	-	-
E-3 Minn.	S	8	673	-	-	610-762	-	-	-
Age Group XII									
K-31 Man., L. Manitoba	S	5	-	20.6	-	19.0-23.0	-	-	-
H-22 Ont. L. Nipigon	S	5	492	21.5	-	-	5	69.0	-



YELLOW PIKEPERCH, (Continued)

		Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
								No.	Mean	Range
C-35	Minn. L. Vermilion	S	6	515	-	-	460-572	-	-	-
C-25	Minn. L. of Woods	S	2	544	-	-	533-555	2	72.0	67.0-77.0
H-15	Ont.	S	-	-	24.1	-	-	-	142.0	-
A-4	L. Erie	S	1	605	-	-	-	1	142.0	-
C-29	Iowa Spirit L.	S	1	-	-	26.7	-	-	-	-
J-15	Wisc.	S	18	-	-	28.4	21.8-39.8	-	-	-
E-3	Minn.	S	1	711	-	-	-	-	-	-
Age Group XIII										
K-31	Man., L. Manitoba	S	2	-	21.5	-	21.0-22.0	-	-	-
H-22	Ont. L. Nipigon	S	1	508	22.5	-	-	1	70.0	-
C-35	Minn. L. Vermilion	S	7	538	-	-	450-622	-	-	-
J-15	Wisc.	S	3	623	-	-	543-675	1	100.0	-
A-4	L. Erie	S	1	635	-	-	-	1	172.0	-
H-15	Ont.	S	-	-	25.1	-	-	1	172.0	-
Age Group XIV										
H-22	Ont. L. Abitibi	S	1	470	21.0	-	-	1	55.0	-
K-31	Man., L. Manitoba	S	1	-	22.0	-	-	-	-	-
H-22	Ont. L. Nipigon	S	1	535	23.3	-	-	1	72.0	-
C-35	Minn. L. Vermilion	S	5	594	-	-	570-610	-	-	-
C-18	Minn. L. of Woods	S	1	597	-	-	-	-	-	-
J-15	Wisc.	S	9	-	-	28.2	21.5-38.0	-	-	-
Age Group XV										
H-22	Ont. L. Nipigon	S	1	572	25.0	-	-	1	136.0	-
J-15	Wisc.	S	3	-	-	27.5	25.0-31.5	-	-	-
C-35	Minn. L. Vermilion	S	3	627	-	-	580-711	-	-	-
Age Group XVI										
J-15	Wisc.	S	1	-	-	37.3	-	-	-	-
Age Group XVIII										
J-15	Wisc.	S	1	-	-	33.3	-	-	-	-

		Code	No.	Average calculated standard lengths at each annulus														
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
C-35	Minn. L. Vermilion	E	622	127	183	225	261	295	326	355	389	433	458	493	572	612	652	695
S-4	Wisc. Clear L.	L	77	86	171	229	271	301	337									
C-34	Minn. Leech L.	L	131	92	173	235	276	315	353	374	404	467	494	579				
V-20	Minn. L. Red L.	L	311	93	181	239	280	309	338									
D-7	L. Erie	L	1430	91	183	248	327	396	458									
C-16	Minn. Red L.	L	828	98	178	253	290	384										
C-27	Minn. L. of Woods 1936-41	E	2898	141	203	253	295	326	366	400	437	474	498	524	532	566	580	
C-22	Minn. L. of Woods 1942-43	E	384	142	204	255	296	330	358	388	419	456	492	523	575	656		
C-18	Minn. Mille Lacs	E	560	108	185	255	309	349	378	403	434	467	503	430				
E-3	Minn.	L	6978	101	187	263	329	396	449	501	551	585	644	679	625	706		
S-4	Wisc.	L	-	117	211	283	340	381	418	468	499	532	560	556	619			
S-4	Wisc. Trout L.	L	429	114	208	294	356	406	445	466	477	496	501	450				
C-51	Is. Clear L.	F	319	124	230	308	364	409	454	499	557	573	588	595				
S-100	N.C. Hiwassee	L	30	159	257	312	342	363										
S-4	Wisc. Bass L.	L	52	175	288	366	420	460	523									
S-100	Tenn. Norris	L	1245	213	352	408	435	449	453	478	539							
E-22	Tenn. Norris L.	L	25	176	353	489												
E-26	Tenn. Norris L.	L	96	178	346	471												
				Average calculated fork lengths in inches at each annulus														
				1	2	3	4	5	6	7	8	9	10	11				
B-12	Man.	L	-	6.3	9.0	11.4	13.0	14.2	15.4	16.4	16.9	17.1	17.4					
E-1	Minn. N.E. natives	L	-	4.3	8.3	11.6	14.7	18.2	20.6	23.8	26.0							
E-2	Minn.	L	6599	4.5	8.6	11.9	15.0	18.1	20.5	22.9	25.2	26.7	29.5	31.1				
E-1	Minn. N.E. introduced	L	-	5.0	9.3	13.4	16.6	19.2	23.9	24.9	27.7							
				Average calculated Total length in inches at each annulus														
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
V-20	Minn. Red L.	L	311	4.4	8.6	11.4	13.3	14.7	16.0									
V-17	Minn. L. of Woods	L	-	6.4	9.3	11.5	13.5	14.9	16.7	18.2	19.9	21.6						
S-62	Minn.	L	-	4.6	8.5	12.0	15.0	18.1	20.5	22.9	25.1	26.7	29.4	31.0	31.6			
V-17	L. Erie	L	-	6.0	9.7	12.1	15.1	18.0										
K-33	Minn.	L	5993	5.1	9.0	12.3	15.1	17.3	19.2	20.9	22.1	23.4	24.6	27.1	31.0	32.6	34.4	36.4
C-29	Iowa	L	216	5.0	9.2	12.4	15.0	17.1	18.6	19.9	21.5	23.2	24.7	25.9	26.9			
B-61	Ohio	A	-	4.0	9.0	13.0	16.0	18.0	21.0	23.0	24.0	25.0						
S-4	Wisc.	L	-	5.4	9.8	13.2	15.9	17.8	19.5	21.8	23.3	24.8	26.1	25.9	25.9	28.9		
V-17	Saginaw B.	L	-	6.8	10.8	13.6	15.7	17.2	18.5	19.3	20.0	20.6						
S-4	Wisc. Trout L.	L	429	5.3	9.7	13.7	16.6	19.0	20.7	21.7	22.3	23.1	23.3					
C-51	Is. Clear L.	F	319	5.9	10.9	14.5	17.2	19.3	21.4	23.6	26.3	27.0	27.7	28.1				
S-100	N.C. Hiwassee	L	30	7.6	12.2	14.6	15.9	16.9										
S-100	Tenn. Norris	L	1245	10.1	16.4	19.0	20.2	20.8	21.0	22.1	24.9							
E-26	Tenn. Norris	L	96	8.3	16.0	20.5												
E-22	Tenn. Norris L.	L	25	8.1	16.3	21.4												
				Average calculated weight in ounces at each annulus														
				1	2	3	4	5	6	7	8	9	10	11				
C-51	Is. Clear L.		319	0.9	6.3	15.2	25.4	36.2	49.7	66.3	92.6	109.9	109.2	115.8				



## YELLOW PIKEPERCH, (Continued)

	Code	Size of females	No. of females	No. of eggs per female	Mean	Range
L-13 L. Erie	V	20.5 " T.L.	1	112,550	-	-
L-14 Ohio	V	27.5 " T.L.	1	238,110	-	-
A-1 N.Y. Oneida L.	H	-	-	-	50,000-60,000	-
T-7 Tenn.	V	7.5 pounds	1	87,000	-	-
S-51 Tenn.	V	25.0-26.5" T.L.	3	-	77,500-87,400	-
S-51 Tenn.	V	33 inches T.L.	1	171,300	-	-
C-17 Minn. L. of Woods	V	349-374 mm. S.L.	3	-	35,355-41,966	-
C-17 Minn. L. of Woods	V	556 mm. S.L.	1	137,200	-	-
V-21 Minn. Cut Foot Siouy L.	V	1.5-2.0 pounds	8	53,000	39,000-67,000	-
	V	2.0-2.5	10	66,000	58,000-79,000	-
	V	2.5-3.0	11	82,000	65,000-101,000	-
	V	3.0-3.5	13	90,000	72,000-110,000	-
	V	3.5-4.0	10	106,000	91,000-116,000	-
	V	4.0-4.5	8	120,000	114,000-132,000	-
	V	4.5-5.0	2	123,000	118,000-128,000	-
V-21 Minn.	H	-	-	67,846	-	-
V-21 Gaspé	H	-	-	-	50,000-60,000	-
V-21 U.S.	H	-	-	86,000	-	-
H-117 -	H	-	-	50,000	-	-
B-23 N.Y.	U	-	-	-	200,000-300,000	-
J-13 U.S.	U	2 pounds	-	90,000	-	-
J-13 U.S.	U	20 pounds	-	900,000	-	-
L-20 U. Erie	U	-	-	90,000	-	-
E-4 Minn. Wolf L.	H	12 pounds	1	388,000	-	-
E-4 Minn. Bemidji L.	H	-	-	49,614	-	-
E-4 Minn.	H	3-3.5 pounds	-	-	72,000-110,000	-
N-39 Great Lakes	U	5 pounds	-	100,000	-	-

BLUE PIKEPERCH, *Stizostedion vitreum glaucum*

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group O									
A-4 L. Erie	S	1	74	-	-	-	-	-	-
Age Group I									
D-7 L. Erie	S	253	170	-	-	-	-	-	-
Age Group II									
A-4 L. Erie	S	4	168	-	-	150-181	4	2.5	2.0-3.0
D-7 L. Erie	S	450	217	-	-	-	-	-	-
Age Group III									
A-4 L. Erie	S	26	219	-	-	172-252	26	5.0	3.0-8.0
D-7 L. Erie	S	445	248	-	-	-	-	-	-
Age Group IV									
A-4 L. Erie	S	6	264	-	-	255-276	6	10.0	8.0-12.0
D-7 L. Erie	S	126	272	-	-	-	-	-	-
Age Group V									
A-4 L. Erie	S	7	288	-	-	280-298	7	14.0	10.0-17.0
D-7 L. Erie	S	1	330	-	-	-	-	-	-
Age Group VI									
A-4 L. Erie	S	3	304	-	-	302-305	3	16.3	15.0-17.0
Age Group VII									
A-4 L. Erie	S	3	319	-	-	309-330	3	16.7	16.0-17.0

	Code	No.	Calculated standard lengths at each annulus				
			1	2	3	4	5
D-7 L. Erie	L	1275	67	147	206	244	281

L-13 L. Erie 12.75 inch T.L. female, 8,170 eggs.



HYBRID, *Stizostedion vitreum* X *canadense*

S-98 Tenn. Norris Res.	Age group II	1 fish	336 mm. S.L.	20.2 oz.
	III	2 fish	401 mm. S.L.	34.5 oz.
	IV	1 fish	383 mm. S.L.	32.6 oz.
	V	1 fish	444 mm. S.L.	48.3 oz.

S-98 Tenn. Norris Res.	No.						
	5	188	330	395	411	444	S.L.
	5	8.7	15.3	18.3	19.0	20.6	T.L.

SAUGER, *Stizostedion canadense*

C-37 Minn. L. of Woods	1888 fish,	50-450 mm. S.L.	F.L. = 1.102 S.L.
C-31 Minn. L. of Woods	645 fish,	50-375 mm. S.L.	T.L. = 1.159 S.L.
S-100 Tenn. Norris Res.	121 fish,	150-439 mm. S.L.	T.L. = 1.183 S.L.

## Standard length-weight relationship, Lake of Woods, Minn. C-31

S.L. in mm.	No.	Weight in grams Mean	Weight in grams Range	Weight in oz.	S.L. in mm.	No.	Weight in grams Mean	Weight in grams Range	Weight in oz.
156	6	48	36-60	1.7	265	25	246	197-352	8.7
165	14	57	35-82	2.0	274	28	273	235-378	9.6
174	18	64	46-82	2.3	284	23	289	243-325	10.2
185	28	80	58-116	2.8	295	43	341	305-405	12.0
195	10	91	85-100	3.2	304	33	358	260-403	12.6
206	25	110	92-132	3.9	313	39	392	344-508	13.8
215	51	124	104-159	4.4	325	25	445	339-520	15.7
224	61	140	112-180	4.9	333	12	454	344-526	16.0
234	32	160	136-192	5.6	344	7	539	492-600	19.0
244	9	197	144-218	6.9	354	5	597	505-656	21.1
254	12	207	180-235	7.3	367	2	601	532-670	21.2

## Fork Length-weight relationship, Minn. Lake of the Woods C-17

F.L. in inches	No.	Weight in ounces Mean	Weight in ounces Range	F.L. in inches	No.	Weight in ounces Mean	Weight in ounces Range
6.0-6.9	8	2.13	2.0-3.0	12.0-12.9	450	12.4	6.0-17.0
7.0-7.9	17	2.2	1.0-3.0	13.0-13.9	497	14.6	8.0-21.0
8.0-8.9	12	3.0	2.0-4.0	14.0-14.9	179	16.4	9.0-22.0
9.0-9.9	12	5.0	3.0-7.0	15.0-15.9	24	21.0	16.0-25.0
10.0-10.9	15	6.7	4.0-7.9	16.0-16.9	5	27.6	27.0-29.0
11.0-11.9	115	10.3	7.0-13.0				

## Total length-weight relationship

T.L. in inches	Weight in oz.	Location	T.L. in inches	Weight in oz.	Location
8	5	R-62 Ohio	16	20	R-62 Ohio
	3	S-62 Minn.		18	S-62 Minn.
11.5	10	R-62 Ohio	18	30	R-62 Ohio
	6	S-62 Minn.		29	S-62 Minn.
14	15	R-62 Ohio			
	13	S-62 Minn.			

C-31 Minn. Lake of Woods  $\log W = -5.03387 + 3.058 \log S.L.$   
 H-59 L. Erie Weight increases as the 3.14 power of the standard length.  
 C-17 Minn. Lake of Woods  $\log W = -5.9242 + 2.985 \log S.L.$

E-24 Tenn. Chickamauga L.	46 yearlings	Average K 1.35
	Two year olds	1.4
E-24 Tenn. Clinch R.	22 yearlings	Average K 1.24
C-17 Minn. L. of Woods	1353 fish	Average K 1.46
C-31 Minn. L. of Woods	508 fish	150-375 mm. S.L. Average K 1.27



## SAUGER, (Continued)

S-100	Tenn. Cherokee	62 fish	Average K 1.45
	Douglas L.	45 fish	1.40
	Norris L.	2348 fish	1.43
E-28	Tenn. Chickamauga L.	71 fish	Average K 1.4
E-28	Tenn. Watts Bar	70 fish	Average K 1.6

							Weight in ounces			
	Code	No.	S.L.	F.L.	T.L.	Range	No.	Mean	Range	
Age Group O, June										
F-5	L. Erie	P	-	-	-	X	1.1-1.2	-	-	-
Age Group O, July										
F-5	L. Erie	P	1	-	-	0.6	-	-	-	-
Age Group O										
C-17	Minn. L. of Woods	S	1	86	-	-	-	-	-	-
Age Group I										
C-17	Minn. L. of Woods	S	5	144	-	-	130-150	1	2.0	-
D-7	L. Erie	S	79	181	-	-	-	1	-	-
E-24	Tenn. Chickamauga L.	S	-	-	-	10.2	-	-	-	-
E-24	Tenn. Clinch R.	S	22	-	-	11.4	10.0-12.4	-	-	-
E-26	Tenn. Norris L.	S	26	313	-	14.6	-	-	-	-
Age Group II										
C-17	Minn. L. of Woods	S	152	169	-	-	140-254	38	2.6	1.0-9.0
D-7	L. Erie	S	473	249	-	-	-	-	-	-
E-28	Tenn. Chickamauga L.	S	71	308	-	14.2	-	-	-	-
E-28	Tenn. Watts Bar L.	S	70	317	-	14.8	-	-	-	-
E-22	Tenn. Norris L.	S	1	-	-	14.8	-	-	-	-
E-26	Tenn. Norris L.	S	52	333	-	15.7	-	-	-	-
Age Group III										
H-22	Ont. L. Nipigon	S	5	206	9.0	-	-	5	3.5	-
K-31	Man., L. Manitoba	S	4	-	9.5	-	8.0-11.0	4	5.7	-
C-17	Minn. L. of Woods	S	201	229	-	-	165-298	28	7.6	3.0-12.0
D-7	L. Erie	S	273	279	-	-	-	-	-	-
C-17	Minn. Kabetogama L.	S	8	298	-	-	-	-	-	-
E-26	Tenn. Norris L.	S	6	379	-	17.6	-	-	-	-
E-22	Tenn. Norris L.	S	1	-	-	20.3	-	-	-	-
Age Group IV										
H-22	Ont., L. Nipigon	S	5	229	10.3	-	-	5	4.0	-
K-31	Man., L. Manitoba	S	41	-	11.5	-	9.0-14.0	41	11.3	-
C-17	Minn. L. of Woods	S	449	274	-	-	210-330	103	10.8	4.0-16.0
D-7	L. Erie	S	58	302	-	-	-	-	-	-
C-17	Minn. Kabetogama L.	S	14	326	-	-	-	-	-	-
Age Group V										
H-22	Ont., L. Nipigon	S	4	270	12.0	-	-	4	9.0	-
K-31	Man., L. Manitoba	S	558	-	12.7	-	11.0-15.0	558	14.9	-
C-17	Minn. L. of Woods	S	518	300	-	-	260-356	346	13.0	8.0-21.0
D-7	L. Erie	S	17	318	-	-	-	-	-	-
C-17	Minn. Kabetogama L.	S	12	332	-	-	-	-	-	-
Age Group VI										
H-22	Ont. L. Nipigon	S	6	274	12.0	-	-	6	9.0	-
C-17	Minn. L. of Woods	S	173	311	-	-	273-362	109	15.4	11.0-20.0
K-31	Man., L. Manitoba	S	309	-	13.5	-	12.0-15.0	309	18.1	-
D-7	L. Erie	S	5	351	-	-	-	-	-	-
C-17	Minn. L. Kabetogama	S	1	356	-	-	-	-	-	-
Age Group VII										
H-22	Ont. L. Nipigon	S	17	288	12.8	-	-	17	9.5	-
C-17	Minn. L. of Woods	S	47	330	-	-	305-375	32	18.7	13.0-28.0
K-31	Man., L. Manitoba	S	90	-	14.2	-	13.0-16.0	90	21.3	-
Age Group VIII										
H-22	Ont. L. Nipigon	S	6	318	14.0	-	-	6	15.0	-
C-17	Minn. L. of Woods	S	9	340	-	-	311-368	8	20.2	16.0-25.0
K-31	Man., L. Manitoba	S	22	-	15.0	-	13.0-16.0	22	26.2	-



## SAUGER, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group IX									
H-22 Ont. L. Nipigon	S	8	337	14.8	-	-	8	18.8	-
C-17 Minn. L. of Woods	S	2	365	-	-	362-368	2	26.0	25.0-27.0
K-31 Man., L. Manitoba	S	11	-	15.7	-	14.0-17.0	11	29.5	-
Age Group X									
H-22 Ont. L. Nipigon	S	5	300	12.5	-	-	5	15.5	-
C-17 Minn. L. of Woods	S	2	343	-	-	337-349	-	-	-
K-31 Man. L. Manitoba	S	5	-	16.8	-	16.0-17.0	-	-	-
Age Group XI									
H-22 Ont. L. Nipigon	S	1	330	14.5	-	-	1	14.0	-
K-31 Man., L. Manitoba	S	3	-	17.6	-	17.0-18.0	-	-	-
Age Group XII									
H-22 Ont. L. Nipigon	S	6	362	16.0	-	-	6	20.0	-
Age Group XIII									
H-22 Ont. L. Nipigon	S	1	362	16.3	-	-	1	23.0	-

	Code	No.	Average Calculated standard length at each annulus									
			1	2	3	4	5	6	7	8	9	10
C-31 Minn. L. of Woods	E	883	109	160	203	238	270	291	312	310	332	330
D-7 L. Erie	S	905	85	173	229	268	299	346				
E-3 Minn.	L	636	94	173	230	259	286	314	314			
E-28 Tenn. Watts Bar	L	70	185	271								
E-28 Tenn. Chickamauga	L	71	186	283								
E-26 Tenn. Norris	L	84	204	295	353							
S-100 Tenn. Cherokee	L	64	198	315	372							
S-100 Tenn. Douglas	L	39	211	333								

	Code	No.	Average Calculated fork length in inches at each annulus									
			1	2	3	4	5	6	7	8	9	10
B-12 Man.	-	-	3.6	6.3	8.7	10.2	11.0	12.2	13.4	14.2	14.6	15.0
E-2 Minn.	637	4.3	7.9	10.4	11.8	13.1	14.0	14.4				

	Code	No.	Average Calculated total lengths at each annulus									
			1	2	3	4	5	6	7	8	9	10
V-17 Minn. L. of Woods	L	-	4.9	7.3	9.2	10.8	12.3	13.2				
S-62 Minn.	L	-	4.3	7.9	10.4	11.8	13.0	14.2	14.3			
R-62 Ohio	A	-	3.5	7.5	10.5	12.8	14.1					
U-4 Ill. Miss. R.	L	44	5.3	10.8	10.8	14.5						
V-17 L. Erie	L	-	5.2	8.9	11.3	13.0	14.2	15.8				
E-28 Tenn. Watts Bar	L	70	8.6	12.6								
V-17 Tenn.	L	-	8.6	13.1	14.6							
E-28 Tenn. Chickamauga	L	71	8.6	13.1								
E-26 Tenn. Norris L.	L	84	9.6	13.8	16.5							
S-100 Tenn. Cherokee L.	L	64	9.3	14.7	17.4							
S-100 Tenn. Douglas L.	L	39	9.9	15.6								

	Code	Size of female	No. of females	No. of eggs per female	
				Mean	Range
L-13 L. Erie	V	13.1 " T.L.	1	32,312	-
C-17 Minn. L. of Woods	V	305-311 mm. S.L.	3	45,000	43,372-48,502
S-51 Tenn. Norris L.	V	18-28 ounces	2	38,500	36,000-41,000
	V	36 oz.	2	78,000	73,000-83,000

LOG PERCH, *Percina caprodes*

	Code	No.	S.L.	F.L.	T.L.	Range
H-86 Mich. reports 0.40 mm. per day for first month.						
Age Group O-						
F-5 L. Erie	P	-	-	-	X	0.2-1.1



## LOG PERCH, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range
Age Group I						
C-22 Minn. L. of Woods	S	10	50	-	-	45-62
Age Group II						
C-22 Minn., L. of Woods	S	3	75	-	-	73-78
W-36 Mich. Douglas L.	S	44	85	-	3.8X	3.4-4.3
Age Group III						
C-22 Minn., L. of Woods	S	3	85	-	-	-
E-6						100 mature eggs per female
E-32 Ind.						3172 eggs per female.

IOWA DARTER, Poecilichthys iowae

H-86 Mich. Portage L.	0.30 mm. per day for a month early in first summer.
E-32 Ind.	230 eggs per female.

SPOTTED DARTER, Poecilichthys maculatus

	Code	No.	Standard length	
			Mean	Range
Age Group O- Aug.				
R-7 Pa.	S	14	23	21-28
Age Group O- Oct.				
R-7 Pa.	S	26	25	22-28
Age Group I- Mar.				
R-7 Pa.	S	29	32	27-36
Age Group II- Mar.				
R-7 Pa. females	S	-	44	
males	S	-	48	
R-7 Pa.				40 mm. female, 200 eggs; 50 mm. female, 400 eggs.

CHANNEL DARTER, Cottogaster copelandi

F-5 L. Erie	Age group O- June	2 fish, 0.23 inches, T.L.
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BLACK-SIDED DARTER, Hadropterus maculatus

H-86 Mich. Portage L.	0.31 mm. per day for a month early in first summer.
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FANTAIL DARTER, Poecilichthys flabellaris

L-4 N.Y.	Age Group O Nov.	30 mm. S.L.
	Age Group O Nov. females	34 mm. S.L.
	Age Group I Nov. females	42 mm. S.L.
L-4 N.Y.	23 females, 33-49 mm. S.L., mean number of eggs 226, range 128-422	

Boleosoma longimanum

	No.	Standard lengths	
		Mean	Range
Age Group I			
R-10 Va. James R. females	20	35	30-42
R-10 Va. James R. males	19	38	30-44
Age Group II			
R-10 Va. James R. females	40	46	40-54
R-10 Va. James R. males	21	55	50-62



*Boleosoma longimanum*, (Continued)

	No.	Standard lengths	
		Mean	Range
Age Group III			
R-10 Va. James R. female	1	62	
Age Group IV			
R-10 Va. James R. female	1	62	

JOHNNY DARTER, *Boleosoma nigrum*

C-30 Iowa	2 fish	F.L. = 1.14 S.L.	T.L. = 1.17 S.L.
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	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group O-Hatching									
F-5 L. Erie	D	-	-	-	0.2	-	-	-	-
Age Group O									
C-22 Minn. L. of Woods	S	1	30	-	-	-	-	-	-
R-10 N.Y., females	S	54	33	-	-	26-40	-	-	-
R-10 N.Y., males	S	72	35	-	-	24-48	-	-	-
H-86 Mich.									
									reports 0.34 mm. per day for a month.
Age Group I									
C-22 Minn. L. of Woods	S	8	35	-	-	30-42	-	-	-
R-10 N.Y. Ontario, fem.	S	24	36	-	-	24-44	-	-	-
R-10 Mass. Miller R., fem.	S	33	38	-	-	32-48	-	-	-
R-10 N.Y., females	S	73	38	-	-	30-46	-	-	-
R-10 N.Y. Oneida, males	S	209	40	-	-	26-52	-	-	-
R-10 Mass. Miller R., males	S	18	41	-	-	34-48	-	-	-
R-10 N.Y. Ontario, males	S	29	43	-	-	34-54	-	-	-
R-10 N.Y. Susquehanna, fem.	S	74	43	-	-	36-52	-	-	-
R-10 Mass. Otter R. females	S	64	46	-	-	38-52	-	-	-
R-10 Mass. Otter R., males	S	22	50	-	-	42-56	-	-	-
R-10 N.Y. Susquehanna, males	S	88	51	-	-	40-62	-	-	-
Age Group II									
C-22 Minn. L. of Woods	S	5	47	-	-	42-51	-	-	-
R-10 N.Y. Ontario, fem.	S	6	47	-	-	42-52	-	-	-
R-10 N.Y. Susquehanna, fem.	S	29	49	-	-	44-58	-	-	-
R-10 Mass. Otter R., fem.	S	12	52	-	-	48-56	-	-	-
R-10 N.Y. Ontario, males	S	10	53	-	-	46-58	-	-	-
R-10 Mass. Otter R., males	S	5	57	-	-	54-60	-	-	-
R-10 N.Y. Susquehanna, males	S	21	58	-	-	54-62	-	-	-
Age Group III									
R-10 N.Y. Susquehanna, fem.	S	3	52	-	-	50-56	-	-	-
H-61 Md.									340 eggs in a 62 mm. female

SMALLMOUTH BLACK BASS, *Micropterus dolomieu*

T-6 Iowa	104 fish (103-299 mm.)	F.L. = 1.17 S.L.
C-22 Minn.	8 fish (54-419 mm.)	F.L. = 1.121 S.L.
B-40 Wisc.	188 fish (90-420 mm.)	T.L. = 1.18 S.L.
S-97 Tenn.	254 fish (50-400 mm.)	T.L. = 1.216 S.L.
B-30 Mich.	up to 64 mm.	T.L. = 1.250 S.L.
	65-320 mm.	T.L. = 1.211 S.L.
	over 320 mm.	T.L. = 1.220 S.L.
T-6 Iowa	104 fish (103-299 mm.)	T.L. = 1.216 S.L.

## Standard length-weight relationship

S.L. in mm.	No.	Mean	Range	Location	S.L. in mm.	No.	Mean	Range	Location
40-59	3	4	-	S-97 Tenn.	280-299	41	578	-	S-97 Tenn.
60-79	17	6	-	S-97 Tenn.		4	661	-	C-22 Minn.



## SMALLMOUTH BLACK BASS, (Continued)

S.L. in mm.	Weight in grams			Location	S.L. in mm.	Weight in grams			Location
	No.	Mean	Range			No.	Mean	Range	
80-99	12	13	-	S-97 Tenn.	300-319	21	700	-	S-97 Tenn.
100-119	7	24	-	S-97 Tenn.	320-339	23	773	-	S-97 Tenn.
120-139	7	45	-	S-97;R-24	340-359	17	906	-	S-97 Tenn.
140-159	6	71	-	S-97 Tenn.		1	1021	-	C-22 Minn.
160-179	5	100	-	S-97 Tenn.	360-379	13	1117	-	S-97 Tenn.
180-199	6	143	-	S-97 Tenn.		3	1139	1021-1247	C-22;R-24
200-219	2	199	170-227	C-22;R-24	380-399	6	1298	1106-1588	C-22;R-24;S-97
	11	219	-	S-97 Tenn.	400-419	6	1559	1446-1616	C-22;R-24
220-239	17	284	-	S-97 Tenn.	440-459	1	1984	-	C-22 Minn.
240-259	25	347	-	S-97 Tenn.	480-499	1	1304	-	C-22 Minn.
	2	349	-	C-22 Minn.					
260-279	8	477	-	C-22 Minn.					
	16	477	-	S-97 Tenn.					

S-97 Tenn.  
B-30 Mich.  
T-6 Iowa

Log W = -4.84409 + 3.08041 Log S.L.  
Log W = -4.725066 + 3.05150 Log S.L.  
Log W = -4.828 + 3.09353 Log S.L.

## Fork length-weight relationship, U.S.A., H-52

F.L. in inches	No.	Weight in ounces	F.L. in inches	No.	Weight in ounces		
18.0-18.9	2	66.5	57-76	22.0-22.9	7	109.8	86-140
19.0-19.9	3	83.0	77-89	23.0-23.9	2	126.0	112-140
20.0-20.9	7	80.0	66.96	25.0-25.9	3	160.0	136-184
21.0-21.9	7	83.0	72-100				

## Total Length-Weight Relationship

Length	Location	No.	Weight in ounces	
			Mean	Range
2.0-2.9	L-9 Ohio	78	0.1	-
	B-30;P-18	6	0.1	-
3.0-3.9	L-9 Ohio	322	0.3	-
	B-30 Mich.	10	0.3	-
4.0-4.9	J-15;W-39 Wisc.	58	0.5	0.3-0.8
	L-9 Ohio	332	0.7	-
	B-30 Mich.	17	0.7	-
	P-18 Ohio	1	1.0	-
5.0-5.9	B-30 Mich.	20	1.2	-
	T-6;P-18	8	1.2	-
	L-9 Ohio	367	1.4	-
	J-15;W-39, Wisc.	75	1.5	0.7-2.0
6.0-6.9	J-15;W-39 Wisc.	76	1.5	0.7-2.0
	L-9 Ohio	35	1.9	-
	T-6 Iowa	4	2.2	-
	B-30 Mich.	19	2.3	-
7.0-7.9	J-15;W-39 Wisc.	101	3.0	1.0-5.0
	B-30 Mich.	15	3.3	-
	T-6 Iowa	10	3.5	-
	L-9;M-20;P-18	4	4.2	-
	R-47 Ohio	-	5.0	-
8.0-8.9	J-15;W-39 Wisc.	105	4.0	2.0-8.0
	B-30 Mich.	43	5.0	-
	M-20 Wisc.	13	5.2	-
	T-6 Iowa	14	5.3	-
	P-18 Ohio	1	6.7	-



## SMALLMOUTH BLACK BASS, (Continued)

Total Length	Location	No.	Weight in ounces	
			Mean	Range
9.0-9.9	J-15;W-39 Wisc.	87	6.0	4.0-8.0
	B-30 Mich	104	6.9	
	M-20 Wisc.	14	6.5	
	T-6 Iowa	30	7.1	
	E-32 Ind.	1	8.7	
	R-47 Ohio	-	10.0	
10.0-10.9	J-15;W-39 Wisc.	131	8.0	4.0-11.0
	B-30 Mich.	253	8.9	
	M-20;E-32;P-18	8	9.4	
	T-6 Iowa	21	9.7	
11.0-11.9	J-15;W-39 Wisc.	161	11.0	6.0-14.0
	B-30 Mich.	75	11.6	
	M-20;T-6;E-32;P-18	16	12.4	
	R-47 Ohio	-	15.0	
12.0-12.9	B-30 Mich.	64	14.5	6.0-24.0
	J-15;W-39 Wisc.	124	15.0	
	E-32;T-6	6	15.5	
	M-20 Wisc.	11	15.6	
	R-47 Ohio	-	20.0	
13.0-13.9	B-30 Mich.	31	18.5	11.0-25.0
	J-15;W-39 Wisc.	92	19.0	
	E-32;M-20;P-18	11	21.2	
	R-47 Ohio	-	25.0	
14.0-14.9	B-30 Mich.	44	22.7	12.0-32.0
	J-51;W-39 Wisc.	69	23.0	
	E-32;M-20;P-18;T-6	18	25.5	
	R-47 Ohio	-	30.0	
15.0-15.9	J-15;W-39 Wisc.	67	27.0	14.0-40.0
	B-30 Mich.	26	29.8	
	E-32;M-20	9	31.6	
	R-47 Ohio	-	35.0	
16.0-16.9	J-15;W-39 Wisc.	62	34.0	19.0-52.0
	M-20 Wisc.	6	36.5	
	B-30 Mich.	31	37.0	
	R-47 Ohio	-	40.0	
17.0-17.9	J-15;W-39 Wisc.	42	40.0	22.0-64.0
	B-30 Mich.	18	41.5	
	E-32;M-20	5	45.7	
	R-47 Ohio	-	47.0	
18.0-18.9	J-15;W-39 Wisc.	36	45.0	24.0-80.0
	E-32;B-30;J-13;M-20	15	52.8	
	R-47 Ohio	-	55.0	
19.0-19.9	J-15;W-39 Wisc.	23	51.0	27.0-84.0
	B-30;M-20;E-32	4	64.1	
	R-47 Ohio	-	60.0	
20.0-20.9	E-32 Ind.	1	48.0	45.0-97.0
	J-15;W-39 Wisc.	21	67.0	
21.0-21.9	J-15;W-39;M-20 Wisc.	13	65.8	32.0-96.0
22.0-22.9	J-15;W-39 Wisc.	18	70.0	50.0-106.0
23.0-23.9	J-15;W-39 Wisc.	5	70.0	64.0-76.0
24.0-24.9	J-15;W-39 Wisc.	2	68.0	64.0-72.0
26.0-26.9	J-15;W-39 Wisc.	1	88.0	

	Size of female	No.	K Mean	Range
E-3 Minn.	203-507 mm.	11	1.94	-
B-40 Wisc.	Age group III	90	2.08	-
S-100 Tenn. Cherokee L.		5	2.16	-



## SMALLMOUTH BLACK BASS, (Continued)

		Size of female	No.	K Mean	Range
B-100	N.C. Hiwassee L.	-	21	2.16	-
B-40	Wisc. Muskellunge L.	100-259 mm.	171	2.20	2.00-2.56
S-97	Tenn. Norris L.	-	250	2.23	-
B-30	Mich.	44-401 mm.		2.43	2.29-2.56
T-6	Iowa	-	104	2.49	-
C-23	Minn. Hubert L.	250-390 mm.	4	2.53	-
W-25	Mich. Potogannissing Bay	-	23	2.64	-
C-22	Minn. Lake of the Woods	203-507 mm.	13	2.80	-
C (T.L.)					
B-30	Mich.	2.1-19.0		47	42-51
H-21	South Africa	-		58	52-65

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group O-May									
S-106	W. Va.	K	-	10	-	-	-	-	-
S-108	W. Va.	K	183	11	-	-	-	-	-
Age Group O-June									
R-15	Sask. Waskesiu L.	K	-	-	X	0.2-0.3	-	-	-
M-17	Ont.	K	-	-	X	0.3-0.7	-	-	-
D-21	Ont.	K	-	9	-	-	-	-	-
T-8	Ont. Nipissing L.	K	-	X	-	5-12	-	-	-
D-20	Ont. L. St. Clair	K	62	12	-	-	-	-	-
A-1	N.Y. Oneida L.	K	100	-	-	0.7	-	-	-
T-19	Ill. Fork L.	K	46	18	-	0.9	-	-	-
R-71	Ohio	K	-	X	-	25-35	-	-	-
S-108	W. Va.	K	209	35	-	24-54	-	-	-
S-106	W. Va.	K	-	42	-	-	-	-	-
Age Group O-July									
F-5	N.Y. L. Erie	K	7	-	-	X	0.4-0.8	-	-
R-15	Sask. Waskesiu L.	K	-	-	X	0.3-1.0	-	-	-
D-21	Ont. Georgian Bay	P	-	13	-	-	-	-	-
T-8	Ont. Nipissing L.	P	208	24	-	-	13-37	-	-
H-76	W. Va.	K	30	-	1.5	-	-	-	-
M-17	Ont.	K	-	-	X	1.2-2.0	-	-	-
D-21	Ont.	K	36	35	1.6	-	-	-	-
L-11	Ohio	K	-	-	-	1.7	-	-	-
E-32	Ind. L. Maxinkuckee	P	-	-	-	X	1.3-2.8	-	-
B-3	Ia. Clear L.	K	1	44	-	-	-	-	-
R-71	Ohio	K	-	X	-	-	43-47	-	-
T-19	Ill. Fork L.	P	11	53	-	2.5	-	-	-
S-108	W. Va.	K	177	53	-	-	37-80	-	-
S-106	W. Va.	K	-	-	2.5	-	-	-	-
T-27	N.Y. Hatcheries	K	-	-	X	-	2.0-3.8	-	-
H-86	Mich. reports 0.53 mm. growth per day								
Age Group O-August									
R-15	Sask. Waskesiu L.	P	-	-	X	1.0-2.0	-	-	-
E-32	Ind.	K	-	-	-	X	1.7-2.7	-	-
L-48	N.Y.	P	248	52	-	-	32-78	-	-
L-40	Ohio	K	-	-	-	X	2.0-3.0	-	-
D-21	Ont.	K	18	61	2.8	-	-	-	-
R-71	Ohio	K	-	X	-	-	61-85	-	-
L-11	Ohio	K	-	-	-	3.2	-6.0	-	-
M-17	Ont.	K	-	-	X	-	2.1-3.5	-	-
S-108	W. Va.	K	216	79	-	-	48-142	-	-
T-19	Ill. Fork L.	P	59	94	-	4.5	-6.0	-	-
Age Group O-September									
R-15	Sask. Waskesiu L.	P	-	-	2.1	-	1.6-3.1	-	-
S-106	W. Va.	K	-	-	X	-	2.7-4.3	-	-
M-14	N.J. Hatchery	K	-	74	-	-	-	0.3	-
S-108	W. Va.	K	190	78	-	-	57-120	-	-







## SMALLMOUTH BLACK BASS, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
N-37 Wisc. L. Geneva	S	17	203	-	-	-	-	-	-
E-3 Minn.	S	5	229	-	-	203-253	-	-	-
S-97 Tenn. Norris L.	S	55	243	-	-	120-340	-	-	-
H-19 S. Africa Berg R.	I	6	-	-	11.4	10.0-14.0	5	16.0	10.0-28.0
E-22 Tenn. Norris L.	S	18	260	-	12.5	-	-	-	-
J-10 Tenn. Norris L.	S	19	-	-	12.8	-	-	-	-
E-26 Tenn. Norris L.	S	185	303	-	14.5	-	-	-	-
Age Group III									
F-26 Me. St. Georges L.	S	8	132	-	-	109-147	8	1.8	1.0-2.1
H-15 Ont.	S	-	-	6.8	-	-	-	2.2	-
F-26 Me.	S	4	165	-	-	152-183	4	3.7	2.9-5.1
T-9 Ont.	S	78	172	7.9	-	149-207	77	4.2	2.5-8.0
P-17 Que.	S	-	-	-	-	-	-	5.0	-
M-87 Mass.	S	22	-	-	9.0	-	22	6.5	-
S-133 W. Va.	S	115	-	7.2	-	2.0-10.5	-	-	-
M-20 Wisc.	S	64	-	-	9.3	-	64	7.0	-
B-40 Wisc.	S	90	187	-	-	172-232	-	-	-
D-21 Ont.	S	234	198	9.5	-	-	223	8.2	-
S-66 N. Br. Potter's L.	S	6	-	9.6	-	-	6	8.2	-
B-53,54;G-19-23,25,27,N.Y.	S	508	-	-	9.8	5.7-15.0	198	7.2	1.6-28.65
M-1 Mass.	S	1	-	-	10.0	-	1	7.6	-
T-6 Iowa	S	54	-	-	10.4	-	-	-	-
L-14 Ohio	S	-	-	-	10.6	-	-	-	-
M-31 Mich.	S	158	223	-	11.2	-	158	11.1	-
J-15 Wisc.	S	148	-	-	11.3	7.5-16.4	-	-	-
N-37 Wisc. L. Geneva	S	5	229	-	-	-	-	-	-
J-10 Tenn. Norris L.	S	22	-	-	12.9	-	-	-	-
E-3 Minn.	S	12	262	-	-	203-356	-	-	-
H-21 S. Africa	I	5	-	-	13.6	13.0-14.0	5	22.0	18.0-28.0
S-97 Tenn. Norris L.	S	75	293	-	-	220-360	-	-	-
E-22 Tenn. Norris R.	S	72	304	-	14.5	-	-	-	-
J-10 Tenn. Norris L.	S	60	-	-	15.9	-	-	-	-
E-26 Tenn. Norris L.	S	126	345	-	16.5	-	-	-	-
Age Group IV									
F-26 Me. St. George's L.	S	153	160	-	-	119-193	153	3.1	1.4-5.4
H-15 Ont.	S	-	-	8.8	-	-	-	5.5	-
F,26 Me.	S	13	208	-	-	163-231	13	7.5	3.3-11.3
T-9 Ont.	S	26	214	9.8	-	-	26	9.0	-
T-6 Iowa	S	24	-	-	10.7	-	-	-	-
S-133 W. Va.	S	176	-	10.4	-	6.5-15.7	-	-	-
B-53,54;G-19-23,25,27,N.Y.	S	309	-	-	10.9	5.5-15.5	116	9.0	3.2-24.4
M-87 Mass.	S	13	-	-	11.2	-	13	12.1	-
S-66 N. Br. Potter's L.	S	15	-	10.9	-	-	15	12.2	-
D-21 Ont.	S	365	248	11.4	-	-	215	14.0	-
W-25 Mich. Potogannissing	S	3	248	-	12.0	-	3	14.9	-
M-20 Wisc.	S	64	-	-	12.5	-	64	18.3	-
J-15 Wisc.	S	190	-	-	12.5	8.3-18.1	-	-	-
E-3 Minn.	S	11	267	-	-	229-279	-	-	-
L-14 Ohio	S	-	-	-	12.7	-	-	-	-
M-1 Mass.	S	2	-	-	13.0	-	2	16.7	-
H-62 Ind. Wawasee L.	S	3	274	-	-	-	3	14.8	-
B-31 Mich.	S	128	278	-	13.3	-	128	19.0	-
N-37 Wisc. L. Geneva	S	4	307	-	-	-	-	-	-
S-97 Tenn. Norris L.	S	38	335	-	-	280-400	-	-	-
J-10 Tenn. Norris L.	S	37	-	-	16.0	-	-	-	-
E-22 Tenn. Norris L.	S	4	367	-	17.6	-	-	-	-
Age Group V									
F-26 Me. St. George's L.	S	17	201	-	-	175-231	17	6.2	4.0-9.2
P-17 Que.	S	-	-	-	-	-	-	8.5	-
T-9 Ont.	S	26	232	10.6	-	217-257	26	10.6	-
H-15 Ont.	S	-	-	10.6	-	-	-	10.9	-
F-26 Me.	S	8	244	-	-	213-292	8	11.9	6.3-17.2
B-53,54;G19-23,25,27 N.Y.	S	194	-	-	11.4	7.6-16.5	74	13.5	4.1-32.25
T-6 Iowa	S	3	-	-	11.7	-	-	-	-
S-133 W. Va.	S	88	-	11.4	-	7.5-19.5	-	-	-



## SMALLMOUTH BLACK BASS, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
S-66 N. Br. Potter's L.	S	16	-	11.9	-	-	16	14.2	-
H-62 Ind. Wawasee L.	S	1	273	-	-	-	1	14.1	-
D-21 Ont.	S	281	274	12.5	-	-	139	19.3	-
M-1 Mass.	S	3	-	-	13.6	-	3	22.3	-
J-15 Wisc.	S	94	-	-	13.8	10.5-20.0	-	-	-
M-87 Mass.	S	5	-	-	13.8	-	5	22.7	-
W-25 Mich. Potogannissing	S	2	299	-	14.3	-	2	25.0	-
L-14 Ohio	S	-	-	-	14.5	-	-	-	-
B-31 Mich.	S	79	312	-	15.0	-	79	26.8	-
M-20 Wisc.	S	23	-	-	15.3	-	-	30.5	-
H-21 S. Africa Berg R.	I	-	-	-	-	-16.8	-	-	-41.5
E-3 Minn.	S	3	363	-	-	279-406	-	-	-
S-97 Tenn. Norris L.	S	17	366	-	-	320-400	-	-	-
Age Group VI									
F-26 Me. St. George's L.	S	6	241	-	-	229-257	6	11.5	9.8-13.8
P-17 Que.	S	-	-	-	-	-	-	12.0	-
T-9 Ont.	S	25	256	11.7	-	246-296	23	15.1	13.5-25.0
H-15 Ont.	S	-	-	12.2	-	-	-	17.0	-
B-53,54;G-19,21,23,25,27 N.Y.	S	87	-	-	13.0	8.4-18.5	24	19.6	7.1-28.3
F-26 Me.	S	27	272	-	-	257-318	27	16.4	7.6-26.8
S-66 N. Br. Potter's L.	S	20	-	12.8	-	-	20	16.7	-
S-133 W. Va.	S	27	-	12.8	-	10.0-17.8	-	-	-
W-25 Mich. Potogannissing	S	9	287	-	13.7	-	-	21.9	-
D-21 Ont.	S	118	290	13.3	-	-	74	22.7	-
M-1 Mass.	S	1	-	-	14.2	-	1	23.0	-
M-87 Mass.	S	3	-	-	15.2	-	-	28.7	-
B-31 Mich.	S	45	318	-	15.3	-	45	28.8	-
V-2 Minn.	T	-	-	-	-	-	-	29.0	23.0-32.0
J-15 Wisc.	S	58	-	-	15.4	11.5-21.1	-	-	-
L-14 Ohio	S	-	-	-	15.5	-	-	-	-
H-62 Ind. Wawasee	S	4	323	-	-	-	4	20.5	-
M-20 Wisc.	S	9	-	-	17.0	-	-	46.8	-
S-97 Tenn. Norris L.	S	1	380	-	-	-	-	-	-
E-3 Minn.	S	2	457	-	-	432-483	-	-	-
Age Group VII									
T-9 Ont.	S	21	264	12.1	-	252-307	20	16.9	14.0-28.05
F-26 Me. St. George's L.	S	5	272	-	-	226-318	5	15.0	8.0-22.0
P-17 Que.	S	-	-	-	-	-	-	18.0	-
H-15 Ont.	S	-	-	13.2	-	-	-	22.0	-
S-66 N. Br. Potter's L.	S	5	-	13.5	-	-	5	20.4	-
S-133 W. Va.	S	3	-	-	14.1	-	-	-	-
T-6 Iowa	S	3	-	-	14.1	-	-	-	-
D-21 Ont.	S	48	306	14.3	-	-	25	25.5	-
F-26 Me.	S	12	307	-	-	224-356	12	23.6	8.7-32.4
B-54,G18,20,22,23,25,27 N.Y.	S	27	-	-	14.7	8.7-17.5	4	28.3	24.0-30.6
W-25 Mich. Potogannissing	S	4	319	-	14.9	-	4	31.8	-
J-15 Wisc.	S	51	-	-	16.1	11.0-23.9	-	-	-
B-31 Mich.	S	20	339	-	16.4	-	20	34.9	-
S-97 Tenn. Norris L.	S	3	387	-	-	380-400	-	-	-
M-20 Wisc.	S	11	-	-	17.9	-	11	56.8	-
Age Group VIII									
P-17 Que.	S	-	-	-	-	-	-	22.0	-
T-9 Ont.	S	16	295	13.5	-	278-328	13	24.3	15.0-34.0
F-26 Me. St. George's L.	S	18	300	-	-	277-330	18	28.8	12.0-29.0
H-15 Ont.	S	-	-	14.2	-	-	-	27.4	-
G-19,21,23,25,27, N.Y.	S	25	-	-	14.6	12.2-18.5	3	27.3	18.5-32.1
S-133 W. Va.	S	9	-	14.8	-	12.5-18.5	-	-	-
D-21 Ont.	S	9	317	15.0	-	-	5	30.1	-
W-25 Mich. Potogannissing	S	2	321	-	15.0	-	2	27.4	-
F-26 Me.	S	9	323	-	-	277-363	9	28.0	19.0-40.0
R-25 Mich.	S	1	-	-	15.3	-	1	36.0	-
T-6 Iowa	S	2	-	-	16.5	-	-	-	-
B-31 Mich.	S	9	351	-	16.8	-	9	38.7	-



## SMALLMOUTH BLACK BASS, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
J-15 Wisc.	S	50	-	-	18.2	12.0-23.1	-	-	-
H-72 Ind. Wawasee	S	1	410	-	-	-	1	56.1	-
M-20 Wisc.	S	6	-	-	18.9	-	6	58.3	-
Age Group IX									
P-17 Que.	S	-	-	-	-	-	-	26.0	-
T-9 Ont.	S	9	306	14.2	-	292-332	9	27.5	20.0-40.5
F-26 Me. St. George's L.	S	5	307	-	-	290-333	5	26.0	21.0-33.0
G-19, 22, 23, 27 N.Y.	S	24	-	-	15.1	13.2-20.5	9	27.5	20.0-40.5
H-15 Ont.	S	-	-	15.0	-	-	-	32.0	-
R-25 Mich. Loon L.	S	6	-	-	15.4	14.7-16.6	6	33.8	27.0-39.0
W-25 Mich. Potogammissing	S	2	341	-	15.8	-	2	38.6	-
D-21 Ont.	S	2	-	16.1	-	-	-	-	-
F-26 Me.	S	14	361	-	-	318-399	14	38.0	24.0-51.0
H-62 Ind. Wawasee L.	S	1	378	-	-	-	1	35.3	-
F-22 Ont.	S	1	-	18.3	-	-	1	66.0	-
J-15 Wisc.	S	47	-	-	18.7	13.5-26.5	-	-	-
M-20 Wisc.	S	2	-	-	19.9	-	2	60.8	-
S-133 W. Va.	S	1	-	21.5	-	-	-	-	-
Age Group X									
F-26 Me. St. George's L.	S	8	323	-	-	302-353	8	29.0	25.0-37.0
W-25 Mich. Potogammissing	S	1	333	-	15.4	-	1	32.0	-
R-25 Mich. Loon L.	S	5	-	-	15.4	14.0-16.4	5	33.0	26.0-36.5
T-9 Ont.	S	4	332	15.2	-	-	4	34.3	-
H-15 Ont.	S	1	-	15.7	-	-	-	36.3	-
D-21 Ont.	S	4	334	16.2	-	-	1	32.0	-
B-54; G-19, 20, 23 N.Y.	S	17	-	-	16.6	13.4-21.0	1	31.1	-
F-26 Me.	S	7	368	-	-	351-378	7	40.0	30-45.0
J-15 Wisc.	S	27	-	-	18.6	15.5-24.5	-	-	-
M-20 Wisc.	S	1	-	-	21.9	-	-	76.0	-
Age Group XI									
F-26 Me. St. George's L.	S	5	338	-	-	307-358	5	34.0	27.0-40.0
G-19 N.Y. Raquette R.	S	6	-	-	15.2	14.6-17.1	-	-	-
R-25 Mich. Loon L.	S	2	-	-	15.6	15.1-16.0	2	39.8	34.0-45.5
T-9 Ont.	S	4	349	15.7	-	330-373	3	50.8	44.5-56.0
F-26 Me.	S	2	363	-	-	340-386	2	43.0	36.0-49.0
D-21 Ont.	S	2	383	17.9	-	-	1	62.0	-
J-15 Wisc.	S	10	-	-	19.2	16.3-24.0	-	-	-
G-23 N.Y. Chautauqua L.	S	3	-	-	20.2	19.5-20.5	-	-	-
W-13 Conn.	S	1	428	-	22.0	-	1	92.0	-
Age Group XII									
T-9 Ont. Perch L.	S	2	332	15.1	-	-	2	33.0	-
G-25 N.Y. L. Ontario	S	2	-	-	16.8	16.6-17.1	-	-	-
H-15 Ont.	S	1	-	17.0	-	-	-	62.0	-
M-25 Mich. Loon L.	S	1	-	-	17.3	-	1	47.0	-
F-26 Me.	S	6	371	-	-	338-399	6	44.0	38.0-49.0
F-26 Me. St. George's L.	S	3	404	-	-	394-424	3	55.0	47.0-62.0
J-15 Wisc.	S	8	-	-	19.5	16.0-22.0	-	-	-
D-21 Ont.	S	1	422	19.0	-	-	-	-	-
G-23 N.Y. Chautauqua L.	S	2	-	-	20.0	19.5-20.5	-	-	-
Age Group XIII									
D-21 Ont.	S	1	374	17.0	-	-	1	46.0	-
G-22 N.Y. Kensico L.	S	1	-	-	19.2	-	-	-	-
J-15 Wisc.	S	3	-	-	19.8	18.3-21.1	-	-	-
Age Group XIV									
T-9 Ont.	S	2	365	16.6	-	-	1	47.0	-
F-26 Me.	S	3	394	-	-	386-404	3	46.0	39.0-51.0
J-15 Wisc.	S	1	-	-	21.0	-	-	-	-



## SMALLMOUTH BLACK BASS, (Continued)

	No.	AVERAGE CALCULATED LENGTHS AT EACH ANNULUS														Code
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	
STANDARD LENGTHS IN MILLIMETERS																
B-40 Wisc. Owen L.	11	40	92	145	193	225	255	268	300	343						L
T-6 Iowa	116	76	117	167	189	218	247	275	311							F
B-40 Wisc.	1322	51	115	176	229	269	303	330	378	407						L
E-3 Minn.	54	81	150	209	254	386	437									L
B-40 Wisc. Weber L.	41	68	148	219	294	359	410									L
S-99 N.C. Hiwassee L.	20	75	191	261	292	321										L
S-97 Tenn. Norris L.	599	97	212	294	339	365	376	389								L
S-99 Tenn. Cherokee L.	5	70														L
E-26 Tenn. Norris L.	382	116	222	299												L
E-22 Tenn. Norris L.	97	116	223	323												L
FORK LENGTHS IN INCHES																
E-2 Minn.	17	3.0	6.3	9.0	13.2											L
D-19 L. Erie	-	6.5	8.1	9.7	11.2	12.5	13.7	14.7								L
TOTAL LENGTHS IN INCHES																
R-47 Ohio	-	4.0	6.0	7.5	8.8	10.0	11.0	12.0	12.8	13.2	14.0	14.6	15.1	15.6	16.1	A
J-16 Wisc. Weber L.	41	3.2														L
S-99 Tenn. Cherokee L.	5	3.4														L
T-6 Iowa	116	3.7	5.7	7.8	9.8	11.7	14.0	15.4	16.4							F
B-40 Wisc.	1322	2.4	5.3	8.2	10.6	12.5	14.1	15.3	16.7	17.6	18.3	18.9				L
W-13;T-23 Conn.	172	4.0	7.2	9.5	11.4	13.1	14.6	15.8	16.9							A
S-62 Minn.	-	3.9	7.3	10.9	12.2	18.2	20.5									L
S-99 N.C. Hiwassee L.	20	3.6	9.1	12.5	14.0	15.4										L
H-21 South Africa	10	4.3	8.3	12.5	16.0	16.0										L
J-16 Wisc. Weber L.	110	4.4														L
S-97 Tenn. Norris L.	599	4.6	10.2	14.1	16.2	17.5	18.0	18.6								L
E-26 Tenn. Norris L.	382	5.6	10.9	14.3												L
E-22 Tenn. Norris L.	97	5.6	10.9	15.5												L
WEIGHT IN OUNCES																
T-6 Iowa	116	1.5	3.5	6.4	10.2	14.6	20.0	27.9								-
D-19 L. Erie	-	3.0	5.0	9.0	13.0	19.0	27.0	35.0								-

Location	Size of females	No.	Number of eggs per female		Code
			Mean	Range	
H-49 N.Y.	9.8 inches	1	5,148	-	V
	15.5	1	11,428	-	V
C-77 U.S.A.	17 oz.	1	20,825	-	V
	23 oz.	1	5,040	-	V
	(Tapeworm) 44 oz.	1	13,862	-	V
B-65 Mich.		-	-	2,000-10,000	U
L-14 Ohio	14.0 inches	1	5,440		U

N-25 Lists 7,000 eggs per pound of female.

SPOTTED BASS, *Micropterus punctatus*

S-97 Tenn. Norris L. 306 fish (70-370 mm.) T.L. = 1.209 S.L.

## Standard length-weight relationship, Tenn. Norris L., S-97

S.L. in mm.	No.	Weight in		S.L. in mm.	No.	Weight in	
		grams	ounces			grams	ounces
70	1	5	0.2	275	66	580	20.5
163	3	102	3.6	284	44	637	22.5
186	1	144	5.1	294	26	712	25.1
207	2	238	8.4	304	12	801	28.3
216	14	255	9.0	314	9	905	31.9
224	15	290	10.2	324	5	947	33.4
234	14	327	11.6	333	6	921	32.5
244	13	420	14.8	345	2	1132	39.9
256	24	491	17.3	354	2	1009	35.6
265	41	521	18.4	372	1	1358	47.9

S-97 Tenn. Norris L.  $\log W. = -5.05286 + 3.20319 \log S.L.$

S-100 N.C. Hiwassee L.	8 fish	average K 2.16
S-100 Tenn. Douglass L.	21 fish	average K 2.48
S-100 Tenn. Cherokee L.	53 fish	average K 2.62
S-97 Tenn. Norris L.	300 fish	average K 2.76



## SPOTTED BASS, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group O-June									
R-42 Ohio	S	-	-	-	1.2	-	-	-	-
Age Group O-August									
R-42 Ohio	S	-	-	-	X	1.2-3.8	-	-	-
Age Group O									
S-97 Tenn. Norris L.	S	1	75	-	-	-	-	-	-
E-26 Tenn. Norris L.	S	3	125	-	6.1	-	-	-	-
Age Group I									
R-83 Ohio, Vesuvius L.	S	9	-	-	3.1	-	-	-	-
R-42 Ohio	S	-	-	-	4.0	-	-	1.0	-
E-22 Tenn. Norris L.	S	3	125	-	6.1	-	-	-	-
S-97 Tenn. Norris L.	S	16	227	-	-	160-280	-	-	-
E-26 Tenn. Norris L.	S	25	241	-	11.6	-	-	-	-
Age Group II									
R-42 Ohio	S	-	-	-	6.5	-	-	2.0	-
E-22 Tenn. Norris L.	S	16	238	-	11.5	-	-	-	-
S-97 Tenn. Norris L.	S	191	264	-	-	160-320	-	-	-
E-26 Tenn. Norris L.	S	102	278	-	13.2	-	-	-	-
Age Group III									
R-42 Ohio	S	-	-	-	9.0	-	-	5.0	-
S-97 Tenn. Norris L.	S	79	285	-	-	160-325	-	-	-
E-22 Tenn. Norris L.	S	30	292	-	14.0	-	-	-	-
E-26 Tenn. Norris L.	S	44	312	-	14.7	-	-	-	-
Age Group IV									
R-42 Ohio	S	-	-	-	11.0	-	-	9.5	-
S-97 Tenn. Norris L.	S	16	329	-	-	288-380	-	-	-
E-26 Tenn. Norris L.	S	8	340	-	16.0	-	-	-	-
E-22 Tenn. Norris L.	S	2	353	-	16.9	-	-	-	-
Age Group V									
R-42 Ohio	S	-	-	-	13.0	-	-	15.0	-
S-97 Tenn. Norris L.	S	1	340	-	-	-	-	-	-
Age Group VII									
S-97 Tenn. Norris L.	S	1	360	-	-	-	-	-	-

	No.	Average calculated standard length at each annulus						
		1	2	3	4	5	6	7
S-100 N.C. Hiwassee L.	8	66	170	208				
S-100 Tenn. Douglas L.	23	55	165	236				
S-100 Tenn. Cherokee L.	53	77	180	237				
S-97 Tenn. Norris L.	486	102	216	277	314	338	345	352
E-26 Tenn. Norris L.	179	110	213	278	218			
E-22 Tenn. Norris L.	51	126	235	303				

	No.	Average calculated total length at each annulus						
		1	2	3	4	5	6	7
S-100 N.C. Hiwassee L.	8	3.1	8.1	9.9				
S-100 Tenn. Douglas L.	23	2.6	7.8	11.2				
S-100 Tenn. Cherokee L.	53	3.7	8.6	11.2				
S-97 Tenn. Norris L.	486	4.9	10.3	13.2	14.9	16.1	16.4	16.7
E-26 Tenn. Norris L.	179	5.3	10.1	13.1	14.9			
E-22 Tenn. Norris L.	51	6.1	11.4	13.5				

LARGEMOUTH BLACK BASS, *Micropterus salmoides*

	S.L. in mm.	No.	F.L.	S.L. in mm.	No.	T.L.
			S.L.			S.L.
C-37 Minn.				under 150	21	1.196
	under 249	191	1.132	150-249	170	1.170
	250-349	65	1.120	250-349	65	1.159
	over 349	9	1.111	over 349	9	1.150



## LARGEMOUTH BLACK BASS, (Continued)

	S.L. in mm.	No.	$\frac{F.L.}{S.L.}$	S.L. in mm.	No.	$\frac{T.L.}{S.L.}$
C-30 Iowa	-	16	1.15	-	22	1.21
C-33 Iowa ponds	40-259	33	1.168	40-259	33	1.206
L-29 Iowa, East and Red Haw	60-359	126	1.165	10-439	185	1.217
T-19 Ill. Fork L.				25-127	37	1.236
				128-203	49	1.226
				204-280	24	1.211
				281-357	25	1.205
				358-432	9	1.192
B-30 Mich.				under 212	527	1.220
				212-381	843	1.212
				over 381	86	1.199
S-97 Tenn. Norris Reservoir				50-450	789	1.205*

\*In this paper, the conversion factors were also given at 20 mm. intervals indicating a decline in the value of the conversion factor as the length of the fish increased.

## Standard length-weight relationship

S.L. in mm.	No.	Weight in grams Mean	Range	Location	S.L. in mm.	No.	Weight in grams Mean	Range	Location
40-59	6	4	-	S-97 Tenn.	260-279	92	424	-	C-20 Minn.
						34	453	397-539	C-30;L-29 Iowa
60-79	2	6	5-6	C-30;L-29 Ia		87	525	-	S-97 Tenn.
	18	7	-	S-97 Tenn.					
80-99	10	14	-	S-97 Tenn.	280-299	81	510	-	C-20 Minn.
	2	18	15-22	L-29 Iowa		13	571	520-694	C-30;L-29 Ia.
	2	42	-	C-20 Minn.		12	623	-	S-97 Tenn.
100-119	15	27	-	S-97 Tenn.	300-319	2	668	482-853	C-30;L-29 Ia.
	5	30	21-39	C-30;L-29 Ia.		62	733	-	S-97 Tenn.
	11	75	-	C-20 Minn.		61	746	-	C-20 Minn.
120-139	30	48	-	S-97 Tenn.	320-339	53	898	-	S-97 Tenn.
	5	49	39-58	L-29 Iowa		52	950	-	C-20 Minn.
	4	71	-	C-20 Minn.	340-359	50	1038	-	S-97 Tenn.
140-159	45	79	-	S-97 Tenn.		1	1134	-	L-29 Iowa
	8	100	65-227	C-30;L-29 Ia.	360-379	39	1191	-	C-20 Minn.
160-179	43	116	-	S-97 Tenn.		25	1342	-	S-97 Tenn.
	10	122	-	C-20 Minn.	380-399	1	1531	-	L-29 Iowa
	2	124	117-131	L-29 Iowa		10	1537	-	S-97 Tenn.
180-199	30	154	-	S-97 Tenn.		23	1619	-	C-20 Minn.
	8	205	151-245	C-30;L-29 Ia.	400-419	3	1618	-	S-97 Tenn.
	15	184	-	C-20 Minn.		19	1687	-	C-20 Minn.
200-219	10	221	210-255	C-30;L-29 Ia.	420-439	17	1935	1701-1985	C-20;L-29;S-97
	43	248	-	S-97 Tenn.	460-479	5	2098	-	C-20 Minn.
	24	255	-	C-20 Minn.	480-499	2	2122	1701-2542	C-20;S-97
220-239	22	293	241-369	C-30;L-29 Ia.	500-519	1	2041	-	C-20 Minn.
	84	301	-	S-97 Tenn.					
	46	387	-	C-20 Minn.					
240-259	37	376	300-482	C-30;L-29 Ia.					
	34	411	-	S-97 Tenn.					

B-30 Michigan  
S-97 Tennessee  
L-29 Iowa, Red Haw  
L-29 Iowa, East L.

Log W = -4.625223 + 2.99278 Log S.L.  
Log W = -4.87762 + 3.11512 Log S.L.  
Log W = -4.789 + 3.075 Log S.L.  
Log W = -4.777 + 3.058 Log S.L.



## LARGEMOUTH BLACK BASS, (Continued)

T.L. in inches	No.	Weight in oz.		Location
		Mean	Range	
2-2.9	4	0.1	-	B-30;C-33
3-3.9	12	0.2	-	C-33 Iowa
	74	0.7	-	B-30 Mich.
4-4.9	10	0.6	0.2-0.8	C-33;J-15;W-39
	58	0.7	-	B-30 Mich.
5-5.9	13	1.1	0.5-2.0	C-33;J-15;E-32;M-20
	48	1.1	-	B-30 Mich.
6-6.9	12	1.2	1-2	J-15;W-39 Wisc.
	-	1.6	-	S-62 Minn.
	-	1.9	-	R-80 Ohio.
	50	2.0	-	B-30 Mich.
	7	2.1	-	M-20 Wisc.
	10	2.1	1.7-2.5	E-32 Pa.
	9	2.2	-	H-61 U.S.A.
7-7.9	-	2.9	-	R-80 Ohio
	9	3.0	1-4	J-15;W-39 Wisc.
	64	3.1	-	B-30 Mich.
	21	3.2	2-4	E-32 Pa.
	3	3.2	-	C-33;H-61
	10	3.8	-	M-20 Wisc.
	-	5.0	-	R-48 Ohio
8-8.9	-	4.2	-	R-80 Ohio
	1	4.2	-	H-61 U.S.A.
	106	4.6	-	B-30 Mich.
	12	4.9	4-6	E-32 Pa.
	7	5.0	4-8	J-15;W-39 Wisc.
	88	5.0	-	M-20 Wisc. S.
	-	6.4	-	S-62 Minn.
-	6.6	-	R-48 Ohio	
9-9.9	-	6.2	-	R-80 Ohio
	75	6.2	-	B-30 Mich.
	125	6.6	-	M-20 Wisc.
	23	7.0	6-14	J-15;W-39 Wisc.
	13	7.1	5-9	E-32 Pa., Ind.
	-	8.3	-	R-48 Ohio
10-10.9	32	7.0	6-14	J-15;W-39 Wisc.
	-	8.0	-	S-62 Minn.
	143	8.5	-	B-30 Mich.
	-	8.6	-	R-80 Ohio
	36	8.9	7-11	E-32 Pa.
	119	9.1	-	M-20 Wisc.
	-	10.0	-	R-48 Ohio
11-11.9	151	11.5	-	B-30 Mich.
	20	11.5	10-13	E-32 Pa. Ind.
	49	12.0	6-24	J-15;W-39 Wisc.
	-	12.0	-	R-80 Ohio
	8	12.2	-	C-33 Iowa
	163	12.2	-	M-20 Wisc.
-	13.3	-	R-48 Ohio	
12-12.9	-	12.8	-	S-62 Minn.
	141	14.3	-	B-30 Mich.
	-	15.0	-	R-80 Ohio
	92	15.0	7-30	J-15;W-39 Wisc.
	94	15.2	-	M-20 Wisc. S.
	-	16.6	-	R-48 Ohio
	5	18.2	13-30	C-33;E-32;H-61;R-24
13-13.9	62	18.6	-	B-30 Mich.
	-	20.0	-	R-48,R-80 Ohio
	107	20.0	11-39	J-15;W-39 Wisc.
	66	20.2	-	M-20 S. Wisc.



## LARGEMOUTH BLACK BASS, (Continued)

T.L. in inches	No.	Weight in oz.		Location
		Mean	Range	
14-14.9	-	16.0	-	S-62 Minn.
	29	24.4	-	B-30 Mich.
	-	25.0	-	R-48;R-80 Ohio
	84	25.0	13-46	J-15;W-39 Wisc.
	55	25.4	-	M-20 S. Wisc.
	2	32.0	24-40	E-32;R-24
15-15.9	73	29.0	14-60	J-15;W-39 Wisc.
	-	30.0	-	R-48 Ohio
	23	30.3	-	B-30 Mich.
	1	32.0	-	E-32 Ind.
	-	32.0	-	R-80 Ohio
	62	32.8	-	M-20 S. Wisc.
16-16.9	-	30.4	-	S-62 Minn.
	-	35.0	-	R-48 Ohio
	77	36.0	17-74	J-15;W-39 Wisc.
	-	36.0	-	R-80 Ohio
	18	36.7	-	B-30 Mich.
	45	39.4	-	M-20 S. Wisc.
17-17.9	1	47.0	-	E-32 Ind.
	-	41.0	-	R-48;R-80 Ohio
	4	43.0	32-48	E-32 Ind.
	12	44.9	-	B-30 Mich.
	34	50.7	-	M-20 S. Wisc.
	18-18.9	-	44.8	-
-		48.0	-	R-48,R-80 Ohio
18		49.0	28-80	J-15;W-39 Wisc.
3		50.6	50-51	C-89;E-32
9		51.7	-	B-30 Mich.
15		63.8	-	M-20 S. Wisc.
19-19.9	-	56.0	-	R-48;R-80 Ohio
	28	59.0	31-96	J-15;W-39 Wisc.
	13	65.0	-	M-20 S. Wisc.
	3	69.0	64-72	C-89;E-32
20-20.9	-	60.8	-	S-62 Minn.
	16	65.0	42-96	J-15;W-39 Wisc.
	7	78.1	-	M-20 S. Wisc.
21-21.9	21	75.9	57-106	J-15;W-39;M-20 Wisc.
22-22.9	-	73.6	-	S-62 Minn.
	23	79.0	56-122	J-15;W-39;M-20 Wisc.
23-23.9	12	76.0	55-104	J-15;W-39 Wisc.
24-24.9	6	88.0	80-105	J-15;W-39 Wisc.
25-25.9	2	93.0	80-106	J-15;W-39 Wisc.
26-26.9	1	122.0	-	J-15;W-39 Wisc.
37-37.9	1	370.0	-	H-52; U.S.A.

Location	Length Range	No.	Mean	K Range
E-27 Tenn. Norris L.		108	1.90	-
E-20 Mich. Howe L.	70-100	36	1.93	-
C-33 Iowa	40-259	33	2.25	-
E-24 Tenn. Clinch R.	200-299	118	2.19	-
S-100		33	2.26	-
S-100 Tenn. Douglass L.		12	2.28	-
E-20 Mich. Howe L.	101-322	156	2.29	-
L-29 Iowa East L.	60-439	64	2.29	-
B-30 Michigan	46-392	-	-	2.27-2.31
S-100 Tenn. Cherokee L.		139	2.30	-
L-29 Iowa, Red Haw L.	96-291	62	2.35	-
C-23 Minn.	-	156	2.37	-



## LARGEMOUTH BLACK BASS, (Continued)

	Location	Length Range	No.	Mean	K Range
E-28	Tenn.	-	344	2.4	
C-34	Minn. Leech L.	-	3	2.40	
C-36	Iowa	58-274	25	2.40	1.54-3.21
E-3	Minn.	76-532	430	2.44	
E-24	Tenn. Chickamauga L.	II year olds	26	2.47	
S-97	S-100 Tenn. Norris L.	-	774	2.48	
E-24	Tenn. Chickamauga L.	yearlings	3	2.63	

C-23 Minn. standards: poor under 2.00, average 2.25-2.50, excellent over 2.65.

B-41	Ill. Fork Lake		C(T.L.)	36-65	
B-30	Michigan		C(T.L.)	46-47	
T-19	Ill.		ave. C(T.L.)	49.9	
C-89	Iowa	3 fish, 18-19" T.L.	ave. C(T.L.)	55.3	range 50-65
H-58	South Africa		ave. C(T.L.)	60.0	
R-58	Ohio		ave. C(T.L.)	60.0	

B-41 Ill. standards for C(T.L.): poor 35-45; average 46-85; good 56-65

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group O, May									
R-26	Ill. Illinois	P	-	-	X	-0.5	-	-	-
S-117	Ala. Ponds	K	-	-	-	-	-	0.004	-
M-32	Fla. Ponds	K	-	-	1.9	1.7-2.4	-	-	-
V-27	La. Ponds	K	-	-	-	-3.5	-	-	-0.02
Age Group O, June									
R-40	Ind. Foot's Pond	P	11	-	1.7	-	1.1-2.5	-	-
B-41	Ill. Fork L.	P	-	-	-	0.9	-	-	-
C-60	Mich. Ponds	K	957	22	-	-	15-61	0.0006	-
L-29	Ia. Red Haw L.	P	19	25	-	-	18-30	-	-
M-74	Ind. Ponds	K	300	-	1.1	-	-	-	-
D-5	Ia. Hatcheries	K	-	-	-	X	0.5-1.2	-	0.001-0.002
R-82	Ohio, L. Alma	P	30	-	-	1.2	-	-	-
R-42	Ohio	P	-	-	-	X	1.2-1.7	-	-
R-26	Ill. Illinois R.	P	-	-	-	X	1.5-2.5	-	-
E-28	Tenn. Chickamauga L.	P	195	-	-	1.5	0.8-3.2	-	-
R-83	Ohio, L. Vesuvius	P	1	-	-	1.6	-	-	-
C-92	Ky.	K	-	-	X	X	1.5-1.8	-	-
M-32	Fla. Ponds	K	-	-	-	2.5	2.4-2.6	-	-
S-117	Ala. Ponds	K	-	-	-	-	-	0.10	-
B-86	Ill. Onized L.	P	33	-	-	3.1	0.5-4.0	-	-
Age Group O, July									
B-2	Ia. Okoboji L.	P	5	27	-	-	25-29	-	-
L-29	Ia. East L.	P	12	28	-	-	21-38	-	-
C-91	Ia. Clear L.	P	49	-	-	1.4	1.1-1.7	-	-
R-71	Ohio	P	-	-	-	1.7	-	-	-
M-74	Ind. Ponds	K	600	-	1.6	-	-	-	-
G-32	Ohio, Buckeye L.	P	-	-	-	1.8	-	-	-
R-83	Ohio, L. Vesuvius	P	3	-	-	1.9	-	-	-
L-29	Ia. Red Haw L.	P	24	32	-	-	26-40	-	-
D-5	Ia. Ponds	K	-	-	-	X	1.2-1.7	-	0.001-0.006
R-26	Ill. Illinois R.	P	-	-	-	X	1.0-2.5	-	-
C-60	Mich. Ponds	K	2137	37	-	-	15-61	0.002	-
R-39	Indiana Ponds	K	187	-	1.9	-	-	-	-
R-39	Ind. L. Wawasee	P	-	-	X	-	1.6-2.6	-	-
C-60	Mich. Cannibals	K	105	49	-	-	38-88	0.008	-
R-82	Ohio, L. Alma	P	19	-	-	2.3	-	-	-
R-42	Ohio	P	-	-	-	X	2.4-2.7	-	-
R-40	Ind. Foot's P.	S	3	-	X	-	1.9-3.0	-	-
M-32	Fla. Ponds	K	-	-	-	2.8	2.5-3.3	-	-
E-28	Tenn. Chickamauga	S	306	-	-	2.2	1.1-4.6	-	-
B-3	Iowa Clear L.	P	102	41	-	-	22-73	-	-
C-92	Ky.	K	-	-	-	X	2.5-5.0	-	-
B-80	S. Ca. ponds	K	-	-	-	X	-6.0	-	-
B-44	Ind. Ponds	K	-	-	-	X	4.0-8.0	-	-
S-117	Ala. ponds	K	-	-	-	-	-	3.6	-



## LARGEMOUTH BLACK BASS, (Continued)

							Weight in ounces		
	Code	No.	S.L.	F.L.	T.L.	Range	No.	Mean	Range
Age Group O-August									
F-5	L. Erie	P	45	7	-	-	-	-	-
D-5	Iowa ponds	K	-	-	-	X	2.0-2.5	-	0.06-0.18
R-83	Ohio, L. Vesuvius	P	3	-	-	2.1	-	-	-
M-74	Ind. ponds	K	700	-	2.1	-	-	-	-
C-42	Ga. ponds	K	-	-	-	X	2.0-2.5	-	-
L-29	Iowa, Reservoirs	P	10	45	-	-	38-54	-	-
R-40	Ind. Foot's P.	S	12	-	2.4	-	1.9-2.9	-	-
H-40	N.J. ponds	K	-	-	-	X	2.0-3.0	-	-
G-32	Ohio, Buckeye L.	P	-	-	-	2.5	-	-	-
B-3	Iowa Clear L.	P	20	51	-	-	40-68	-	-
C-60	Mich. Ponds	K	230	52	-	-	40-69	0.1	-
B-2	Iowa, Okoboji L.	P	4	53	-	-	38-67	-	-
M-32	Fla. Ponds	K	-	-	-	2.8	2.6-3.3	-	-
R-71	Ohio	K	-	-	-	3.0	-	-	-
E-28	Tenn. Chickamauga	P	112	-	-	3.2	1.6-6.0	-	-
C-91	Iowa, Clear L.	P	62	-	-	3.3	1.7-5.0	-	-
R-82	Ohio, L. Alma	P	5	-	-	3.4	-	-	-
B-11	Mich.	K	-	-	-	X	4.3-4.9	-	0.5-1.0
C-60	Mich. Cannibals	K	20	91	-	-	70-119	0.6	-
S-117	Ala. Ponds	K	-	-	-	-	-	-	6.9-7.0
Age Group O, Sept.									
E-20	Mich. Howe L.	P	-	-	-	2.1	-	-	-
S-124	W. Va	K	-	-	2.1	-	1.6-5.0	-	-
R-83	Ohio, L. Vesuvius	P	4	-	-	2.3	-	-	-
G-32	Ohio, Buckeye L.	P	-	-	-	2.7	-	-	-
E-28	Tenn. Chickamauga	P	448	-	-	2.9	1.4-6.8	-	-
R-42	Ohio	P	-	-	-	X	2.7-3.4	-	-
L-29	Iowa, East L.	P	1	65	-	-	-	-	-
C-42	Ga. Ponds	K	-	-	-	X	3.0-4.0	-	-
R-82	Ohio L. Alma	P	4	-	-	3.7	-	-	-
R-71	Ohio	K	-	-	-	5.4	-	-	-
B-80	S. Ca. ponds	K	-	-	-	X	-9.0	-	-8.0
D-5	Iowa, ponds	K	-	-	-	X	2.1-11.8	-	0.1-0.3
S-117	Ala. ponds	K	-	-	-	-	-	-	6.9-10.6
Age Group O, Oct. to Dec.									
R-39	Ind. L. Wawasee	K	361	-	2.6	-	-	-	-
C-13	Mich. Deep L.	S	59	-	-	2.7	1.6-4.0	569	0.1
M-32	Fla. ponds	K	-	-	-	2.8	2.6-3.4	-	-
R-38	Ind. Ponds	K	-	-	2.8	-	-	-	-
E-24	Tenn. Chickamauga	S	276	-	-	3.0	2.1-7.9	-	-
K-23	Ind. 2 ponds	K	-	-	X	-	2.9-3.2	-	0.2-0.3
S-86	Iowa, ponds	K	-	62	-	-	-	0.6	-
C-60	Mich. Ponds	K	341	63	-	-	41-72	0.2	-
E-28	Tenn. Chickamauga	P	282	-	-	3.1	2.1-7.9	-	-
D-5	Iowa, ponds	K	-	-	-	X	2.9-5.7	-	0.2-0.35
A-10	Okla. ponds	K	-	-	-	-	-	-	0.2-3.7
S-124	W. Va. ponds	K	-	-	3.6	-	1.6-6.0	-	-
R-39	Ind. L. Wawasee	K	-	-	X	-	2.7-6.3	-	-
R-40	Ind. Foot's P.	S	5	-	X	-	3.0-5.1	-	-
R-39	Ind. ponds	K	268	-	3.9	-	-	-	-
R-82	Ohio, L. Alma	P	2	-	-	4.4	-	-	-
B-3	Iowa, Clear L.	P	30	101	-	4.9	69-147	-	-
B-73	Ponds	K	-	-	-	X	4.0-8.0	-	-
S-29	Utah, Utah L.	I	-	-	-	6.0	-	8.0	-
S-121	Ala. ponds	K	-	-	-	-	-	8.0	-
C-60	Mich. Cannibals	K	248	127	-	-	71-171	1.8	-
B-41	Ill. Fork L.	P	82	-	-	6.3	-	-	-
L-22	Tex. ponds	K	-	-	-	X	6.0-8.0	-	-
D-31	Kans. ponds	K	-	-	-	7.5	6.8-8.0	6.5	4.5-8.5
S-117	Ala. ponds	K	-	-	-	-	-	-	5.5-10.3
V-27	La. ponds	K	-	-	-	X	7.0-10.8	-	5.3-16.0
H-77	Ark. Cannibals	K	-	-	-	X	8.0-10.0	-	10.0-12.0
S-86	Iowa Cannibals	K	-	-	-	X	8.0-11.0	-	-9.0







## LARGEMOUTH BLACK BASS, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
R-17 Ind. Ponds, Oct.	K	-	7.0	-	-	-	-	-	
V-23 La. ponds	K	11	-	-	7.5	-	4.0	-	
E-20 Mich. Howe L.	S	13	175	-	8.3	-	4.3	-	
W-48 Ohio, Gilbert L.	S	-	-	-	X	7.5-9.5	-	-	
E-20 Mich. Wintergreen L.	S	-	-	-	8.7	-	-	-	
S-18; E-22 Tenn. Norris L.	S	49	170	-	8.7	-	-	-	
M-20 Wisc. Stewart L.	I	-	-	-	9.0	-	-	-	
T-20 Ill.	S	20	-	-	9.2	4.9-14.0	-	-	
T-13 Africa	I	4	-	-	9.8	9.0-11.0	4	7.5	7.0-8.0
V-27 Tex. ponds	K	-	-	-	X	-10.0	-	-	-
S-97 Tenn. Norris L.	S	200	205	-	-	70-320	-	-	-
B-41 Ill. Fork L.	I	16	-	-	10.0	-	16	12.6	-
M-67 Nev. L. Mead	S	7	-	-	10.3	-	-	10.2	-
M-80 N. Mex. Conchas	S	16	-	-	10.7	-	-	10.4	-
S-124 W. Va. fall	K	-	-	10.7	-	7.4-13.1	-	-	-
S-117 Ala. ponds, Nov.	K	-	-	-	-	-	-	15.2	-
B-61 Tex. Pond	I	10	-	-	11.8	-	-	17.0	-
H-52 Ponds	K	-	-	-	X	10.0-13.0	-	-	-
V-27 La. ponds	K	-	-	-	X	-13.0	-	-	20.0-35.0
E-26 Tenn. Norris L.	S	352	267	-	12.7	-	-	-	-
B-73 Mo. ponds	K	-	-	-	-	-	-	25.4	-
H-18 South Africa	I	-	-	-	16.0	-	-	48.0	-
Age Group II									
B-77 Mich. Third Sister	S	20	-	6.5	6.5	5.9-7.0	20	1.8	-
B-60 Ind. Winona L.	S	1	140	-	-	-	-	-	-
H-97 N. Ca. L. Waccama	S	-	-	-	7.0	-	-	-	-
M-1 Mass	S	20	-	-	7.0	-	20	3.3	-
B-39 Wisc.	S	30	-	-	7.1	-	-	-	-
H-62 Ind.	S	4	150	-	-	-	4	2.5	-
L-14 Ohio	S	157	-	-	7.3	-	-	-	-
M-87 Mass	S	34	-	-	7.4	-	34	3.8	-
M-20 Wisc. South	S	74	-	-	8.0	-	74	4.8	-
T-18 Ill. Sportsman L.	S	47	-	-	8.1	6.5-11.0	-	-	-
G-22 N.Y. Hudson R.	S	16	-	-	8.6	6.1-10.7	15	5.1	1.8-8.3
B-31 Mich.	S	419	184	-	8.7	-	419	4.9	-
G-24 N.Y. Long Is.	S	32	-	-	8.9	5.2-12.4	30	5.8	2.5-17.1
E-9 N.Y. ponds	K	-	-	-	X	8.0-10.0	-	-	-
E-20 Mich. Watkins L.	S	-	-	-	9.5	-	-	-	-
C-13 Mich. Deep L.	S	16	-	-	9.5	8.1-10.5	16	6.1	3.3-9.3
W-7 Okla L. Duncan	S	6	230	-	9.5	-	7	8.3	-
G-25 N.Y. Ontario	S	1	-	-	9.5	-	-	-	-
S-11 Tenn. Reelfoot L.	S	1	-	-	9.7	-	1	7.0	-
L-29 Iowa, Red Haw L.	S	7	201	-	-	-	-	-	-
T-20 Ill.	S	45	-	-	9.9	7.4-15.0	-	-	-
O-8 Ohio	S	-	-	-	X	7.0-11.0	-	-	-
R-42 Ohio	S	2	-	-	10.0	-	2	7.5	-
D-13 Calif. Colo R.	S	13	-	9.6	-	-	13	8.3	-
E-3 Minn.	S	67	214	-	-	127-279	-	-	-
E-20 Mich. Howe L.	S	9	216	-	10.2	-	9	8.3	-
L-29 Iowa East L.	S	4	218	-	-	-	-	-	-
S-124 W. Va.	K	-	-	10.3	-	7.8-13.0	-	-	-
E-20 Mich. Wintergreen L.	S	-	-	-	11.3	-	-	-	-
J-15 Wisc.	S	70	-	-	11.3	4.8-14.0	-	-	-
R-40 Ind. Foot's P.	S	7	-	10.9	-	-	-	-	-
E-28 Tenn. Chickamauga	S	360	242	-	-	-	-	-	-
S-18 Tenn. Reelfoot L.	S	27	-	-	11.8	10.0-13.0	-	-	-
B-41 Ill. Fork L.	S	-	-	-	X	10.0-14.0	-	-	-
B-41 Ill. Fork L.	S	4	-	-	12.0	-	4	18.7	-
J-10 Tenn. Norris L.	S	64	-	-	12.4	-	-	-	-
D-13 Calif. Gila R.	S	10	-	11.9	-	-	10	16.0	-
M-67 Nev. L. Mead	S	21	-	-	12.6	-	21	16.0	-
B-86 Ill. Onized L.	S	17	-	-	12.8	-	-	-	-
B-86 Ill. Onized L.	S	24	-	-	X	11.5-14.5	-	-	-
S-97 Tenn. Norris L.	S	253	272	-	-	170-340	-	-	-
E-22 Tenn. Norris L.	S	132	272	-	13.0	-	-	-	-



## LARGEMOUTH BLACK BASS, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
M-80 N. Mex. Conchas L.	S	58	-	-	13.4	-	58	21.3	-
W-11 Washington	S	1	-	-	13.6	-	1	21.0	-
T-13 Africa	S	11	-	-	14.3	12.0-17.0	11	30.0	12.0-52.0
E-26 Tenn. Norris L.	S	351	312	-	14.7	-	-	-	-
V-27 La. pond	S	1	-	-	19.3	-	1	76.0	-
Age Group III									
C-85 Wisc. (stunted)	S	-	-	-	7.0	-	-	-	-
L-14 Ohio	S	73	-	-	8.7	-	-	-	-
B-77 Mich. Third Sister	S	85	-	-	8.7	7.0-11.0	85	4.3	-
G-24 N.Y. Long Is.	S	62	-	-	8.8	7.4-12.6	52	5.1	2.4-14.5
M-1 Mass.	S	10	-	-	9.3	-	10	4.7	-
C-85 Wisc. (thinned)	S	-	-	-	9.5	-	-	-	-
L-29 Iowa, Red Haw L.	S	3	204	-	-	-	-	-	-
B-31 Mich.	S	505	211	-	10.0	-	505	7.5	-
M-20 Wisc. South	S	230	-	-	10.1	-	230	8.8	-
H-97 N.Ca. L. Waccama	S	-	-	-	10.5	-	-	-	-
M-87 Mass.	S	21	-	-	10.5	-	21	9.6	-
C-13 Mich. Deep L.	S	25	-	-	10.6	9.3-11.6	25	8.7	6.0-12.0
G-22 N.Y. Hudson R.	S	18	-	-	10.7	7.9-13.9	14	9.5	3.7-18.0
E-20 Mich. Watkins L.	S	-	-	-	10.7	-	-	-	-
R-40 Ind. Foot's P.	S	8	-	10.3	-	-	-	-	-
T-18 Ill. Sportsman's L.	S	10	-	-	11.0	8.5-14.0	-	-	-
R-42 Ohio	S	-	-	-	11.0	-	-	12.0	-
G-25 N.Y. Ontario	S	7	-	-	11.1	8.3-12.8	7	12.8	4.9-16.3
S-26 W. Va. L. Wataga	S	-	-	-	11.4	-	-	-	-
H-62 Ind.	S	8	242	-	-	-	8	11.0	-
E-20 Mich. Howe L.	S	58	242	-	11.5	-	58	12.0	-
B-60 Ind. Winona L.	S	3	243	-	-	-	1	6.2	-
C-78 Que. L. Opinicon	S	-	-	-	11.6	-	-	14.3	-
B-39 Wisc.	S	70	-	-	11.6	-	-	-	-64.0
T-20 Ill.	S	46	-	-	11.7	9.2-17.5	-	-	-
E-20 Mich. Wintergreen	S	-	-	-	11.7	-	-	-	-
S-11 Tenn. Reelfoot	S	16	-	-	11.8	10.6-12.6	16	14.3	10.0-18.0
O-8 Ohio	S	-	-	-	X	11.0-13.5	-	-	-
L-29 Iowa, East L.	S	14	251	-	-	-	-	-	-
E-3 Minn.	S	315	257	-	-	152-381	-	-	-
J-15 Wisc.	S	83	-	-	12.3	6.3-18.4	-	-	-
J-10 Tenn. Norris L.	S	72	-	-	12.7	-	-	-	-
S-18 Tenn. Reelfoot L.	S	43	-	-	13.2	11.0-15.0	-	-	-
M-67 Nev. Mead L.	S	35	-	-	13.4	-	35	20.5	-
D-13 Calif. Colorado R.	S	23	-	13.0	-	-	23	17.6	-
E-22 Tenn. Norris L.	S	4	299	-	14.1	-	-	-	-
B-41 Ill. Fork L.	S	34	-	-	14.2	13.5-14.5	34	28.2	-
T-13 Africa	S	4	-	-	14.3	12.0-15.0	4	28.0	18.0-34.0
W-7 Okla. L. Duncan	S	6	274	-	14.5	-	9	22.5	-
M-97 Wisc. Stewart L.	I	-	-	-	X	13.0-16.0	-	-	-
R-40 Ind. Grassy P.	S	1	-	14.2	-	-	-	-	-
S-97 Tenn. Norris L.	S	88	313	-	-	240-380	-	-	-
J-10 Tenn. Norris L.	S	73	-	-	15.0	-	-	-	-
S-39 Utah, Utah L.	I	-	-	-	-	-	-	-	16.0-48.0
M-80 N. Mex. Conchas L.	S	57	-	-	16.2	-	57	42.9	-
B-86 Ill. Onized L.	S	8	-	-	16.6	14.0-18.5	-	-	-
V-27 Ga. Ponds	K	-	-	-	-	-	-	-	-88.0
Age Group IV									
G-24 N.Y. Long Is.	S	14	-	-	9.4	7.5-10.7	12	6.1	2.5-8.8
B-77 Mich. 3rd Sister L.	S	68	-	-	11.2	7.6-14.4	68	9.5	-
M-20 Wisc. South	S	262	-	-	11.3	-	262	12.6	-
C-13 Mich. Deep L.	S	43	-	-	11.5	10.8-13.1	42	10.9	7.0-14.0
G-22 N.Y. Hudson R.	S	10	-	-	11.7	9.5-13.9	9	11.9	7.1-19.1
E-20 Mich. Wintergreen	S	-	-	-	12.0	-	-	-	-
B-31 Mich.	S	368	252	-	12.1	-	-	12.8	-
G-25 N.Y. Ontario	S	3	-	-	12.2	9.2-15.8	2	10.8	5.9-15.7
L-29 Iowa, Red Haw L.	S	19	254	-	-	-	-	-	-
L-29 Iowa, East L.	S	32	259	-	-	-	-	-	-
H-97 N.Ca. White L.	S	-	-	-	X	11.0-14.0	-	-	-



## LARGEMOUTH BLACK BASS, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces			
							No.	Mean	Range	
M-1	Mass.	S	4	-	-	12.4	-	4	15.4	-
T-18	Ill. Sportsman's	S	10	-	-	12.4	10.5-14.5	-	-	-
L-14	Ohio	S	41	-	-	12.6	-	-	-	-
E-20	Mich. Howe L.	S	2	266	-	12.6	-	2	15.6	-
T-20	Ill.	S	33	-	-	12.8	7.9-17.2	-	-	-
M-87	M-87	S	10	-	-	12.8	-	10	17.4	-
B-39	Wisc.	S	135	-	-	12.9	-	-	-	-
H-62	Ind.	S	29	263	-	-	-	29	14.0	-
B-60	Ind. Winona L.	S	9	269	-	-	-	4	16.5	-
R-42	Ohio	S	-	-	-	13.5	-	-	16.5	-
C-78	Que. L. Opinicon	S	-	-	-	13.5	-	-	22.0	-
H-97	N. Ca. L. Waccama	S	-	-	-	13.5	-	-	-	-
S-11	Tenn. Reelfoot L.	S	24	-	-	13.6	12.2-14.6	24	23.5	16.0-35.0
C-77	Wisc. Ponds	K	1	-	-	-	-	-	19.0	-
E-3	Minn.	S	319	301	-	-	178-457	-	-	-
O-8	Ohio	S	-	-	-	X	13.5-15.5	-	-	-
C-78	Que. L. Opinicon	S	3	-	-	14.2	13.5-14.5	3	24.0	-
J-15	Wisc.	S	119	-	-	14.3	10.4-22.0	-	-	-
W-7	Okla. L. Duncan	S	2	297	-	14.5	-	4	28.6	-
M-67	Nev. L. Mead	S	99	-	-	14.6	-	99	25.5	-
S-97	Tenn. Norris L.	S	75	339	-	-	240-385	-	-	-
C-77	Iowa Ponds	K	1	-	-	-	-	-	26.0	-
S-18	Tenn. Reelfoot L.	S	49	-	-	15.1	13.0-17.0	-	-	-
J-10	Tenn. Norris L.	S	109	-	-	15.3	-	-	-	-
D-13	Calif. Colo. R.	S	8	-	14.8	-	-	-	-	-
T-13	Africa	S	1	-	-	17.0	-	-	40.0	-
B-86	Ill. Onized L.	S	7	-	-	17.3	15.5-19.0	-	-	-
M-80	N. Mex. Conchas L.	S	54	-	-	18.1	-	54	69.3	-
R-40	Ind. Foot's P.	S	1	-	17.8	-	-	-	-	-
Age Group V										
G-24	N.Y. Long Is.	S	8	-	-	11.1	9.7-13.3	8	10.1	6.0-17.2
G-25	N.Y. Ontario	S	2	-	-	11.7	8.9-14.4	2	17.3	5.6-28.9
G-22	N.Y. Hudson R.	S	9	-	-	12.4	9.8-14.4	7	16.4	6.3-25.8
M-20	Wisc. South	S	163	-	-	12.5	-	163	17.8	-
E-20	Mich. Wintergreen	S	-	-	-	12.7	-	-	-	-
C-13	Mich. Deep L.	S	18	-	-	12.9	11.4-13.9	18	17.8	8.0-22.0
T-20	Ill.	S	18	-	-	12.9	10.0-18.5	-	-	-
L-29	Iowa, Red Haw L.	S	13	265	-	-	-	-	-	-
B-77	Mich. 3rd Sister L.	S	17	-	-	13.1	11.8-15.2	17	15.9	-
L-29	Iowa, East L.	S	3	276	-	-	-	-	-	-
E-20	Mich. Watkins L.	S	-	-	-	13.6	-	-	-	-
B-31	Mich.	S	285	287	-	13.7	-	285	19.0	-
H-97	N. Ca. L. Waccama	S	-	-	-	14.1	-	-	-	-
M-1	Mass.	S	3	-	-	14.2	-	3	24.7	-
B-39	Wisc.	S	126	-	-	14.3	-	-	-	-
T-18	Ill. Sportsman L.	S	19	-	-	14.4	11.5-17.0	-	-	-
B-60	Ind. Winona L.	S	4	301	-	-	-	3	20.0	-
J-15	Wisc.	S	110	-	-	14.7	10.0-21.1	-	-	-
H-62	Ind.	S	13	312	-	-	-	12	23.0	-
M-87	Mass.	S	7	-	-	15.0	-	7	27.3	-
S-11	Tenn. Reelfoot L.	S	23	-	-	15.0	13.8-15.9	23	33.7	24.0-40.0
M-67	Nev. L. Mead	S	67	-	-	15.2	-	67	28.2	-
E-20	Mich. Howe L.	S	2	322	-	15.2	-	2	28.3	-
C-77	Mich. Pond	K	1	-	-	-	-	-	28.0	-
L-14	Ohio	S	18	-	-	15.4	-	-	-	-
C-78	Que. L. Opinicon	S	-	-	-	15.5	-	-	-	-
E-3	Minn.	S	215	331	-	-	178-508	-	-	-
C-78	Que. L. Opinicon	S	4	-	-	15.7	13.0-17.0	4	37.0	20.0-44.0
O-8	Ohio	S	-	-	-	X	15.0-16.0	-	-	-
R-42	Ohio	A	-	-	-	16.0	-	-	30.0	-
S-97	Tenn. Norris L.	S	36	366	-	-	320-420	-	-	-
W-7	Okla. L. Duncan	S	6	416	-	16.3	-	8	64.0	-
S-18	Tenn. Reelfoot	S	39	-	-	17.3	15.0-19.0	-	-	-
D-13	Calif. Colo. R.	S	4	-	16.2	-	-	-	-	-
B-86	Ill. Onized L.	S	8	-	-	19.2	16.5-22.0	-	-	-
S-29	Utah, Utah L.	I	-	-	-	-	-	-	72.0	-
M-80	N. Mex. Conchas L.	S	20	-	-	20.6	-	20	86.6	-



## LARGEMOUTH BLACK BASS, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces			
							No.	Mean	Range	
Age Group VI										
G-22	N.Y. Cohasset L.	S	2	-	-	9.4	8.9-9.8	2	5.6	4.5-6.8
L-29	Iowa, Red Haw L.	S	4	253	-	-	-	-	-	-
G-24	N.Y. Long Is.	S	4	-	-	13.4	10.4-17.6	4	22.3	7.0-56.0
C-13	Mich. Deep L.	S	7	-	-	13.7	12.5-15.0	7	18.2	14.0-25.0
T-20	Ill.	S	35	-	-	14.0	10.6-18.5	-	-	-
G-25	N.Y. Ontario	S	5	-	-	14.4	8.7-17.4	5	30.8	5.5-43.2
M-20	Wisc. South	S	99	-	-	14.6	-	-	28.6	-
B-31	Mich.	S	111	314	-	15.1	-	-	24.9	-
B-39	Wisc.	S	75	-	-	14.8	-	-	-	-
B-77	Mich. 3rd Sister	S	11	-	-	14.9	14.0-17.1	11	24.6	-
J-15	Wisc.	S	81	-	-	15.2	10.0-22.5	-	-	-
E-3	Minn.	S	78	359	-	-	254-488	-	-	-
B-60	Ind. Winona L.	S	1	365	-	-	-	-	-	-
M-87	Mass.	S	4	-	-	15.9	-	4	32.6	-
T-18	Ill. Sportsmans L.	S	10	-	-	16.1	13.0-18.5	-	-	-
O-8	Ohio	S	-	-	-	16.3	-	-	-	-
M-67	Nev. L. Mead	S	19	-	-	16.4	-	19	36.8	-
S-11	Tenn. Reelfoot L.	S	14	-	-	16.4	15.7-17.3	14	43.1	35.0-54.0
C-78	Que. L. Opinicon	S	-	-	-	16.5	-	-	44.8	-
C-78	Que. L. Opinicon	S	6	-	-	16.6	16.0-18.0	6	46.3	35.1-60.8
M-1	Mass.	S	1	-	-	17.1	-	1	30.2	-
L-14	Ohio	S	10	-	-	17.5	-	-	17.5	-
W-7	Okla. L. Duncan	S	2	-	-	17.8	-	2	62.2	-
S-97	Tenn. Norris L.	S	10	402	-	-	360-440	-	-	-
S-18	Tenn. Reelfoot L.	S	6	-	-	18.5	18.0-19.0	-	-	-
S-29	Utah, Utah L.	I	-	-	-	-	-	-	92.0	-
M-80	N. Mex. Conchas L.	S	7	-	-	21.3	-	7	101.6	-
Age Group VII										
L-29	Iowa, Red Haw L.	S	1	267	-	-	-	-	-	-
T-20	Ill.	S	24	-	-	14.5	12.1-19.9	-	-	-
J-15	Wisc.	S	69	-	-	15.2	11.5-22.8	-	-	-
C-13	Mich., Deep L.	S	1	-	-	15.4	-	1	31.5	-
B-39	Wisc.	S	36	-	-	15.7	-	-	-	-
G-22	N.Y. Kensico L.	S	1	-	-	15.8	-	-	-	-
M-20	Wisc. South	S	68	-	-	16.0	-	68	38.3	-
B-31	Mich.	S	71	348	-	16.1	-	71	34.7	-
B-77	Mich. 3rd Sister	S	40	-	-	16.7	15.9-18.1	4	40.5	-
L-29	Iowa, East L.	S	1	359	-	-	-	-	-	-
H-62	Ind.	S	2	360	-	-	341-406	2	42.7	23.3-62.2
M-87	Mass.	S	3	-	-	17.1	-	3	44.4	-
C-78	Que. L. Opinicon	S	-	-	-	17.2	-	-	51.1	-
O-8	Ohio	S	-	-	-	17.3	-	-	-	-
C-78	Que. L. Opinicon	S	2	-	-	17.8	-	2	54.3	48.0-60.7
E-3	Minn.	S	14	397	-	-	305-482	-	-	-
T-18	Ill. Sportsman L.	S	4	-	-	18.0	17.0-18.5	-	-	-
S-11	Tenn. Reelfoot L.	S	6	-	-	18.1	17.8-18.5	6	50.5	48.0-64.0
L-14	Ohio	S	1	-	-	19.0	-	-	-	-
S-18	Tenn. Reelfoot L.	S	11	-	-	19.1	18.0-20.0	-	-	-
S-97	Tenn. Norris L.	S	4	435	-	-	400-480	-	-	-
M-67	Nev. L. Mead	S	2	-	-	20.1	-	2	76.8	-
S-29	Utah, L. Utah	I	-	-	-	-	-	-	104.0	-
M-80	N. Mex. Conchas L.	S	2	-	-	23.0	-	2	116.0	-
Age Group VIII										
T-20	Ill.	S	16	-	-	15.5	12.1-20.5	-	-	-
H-54	Wisc. (deformed)	S	1	-	-	16.5	-	1	30.0	-
J-15	Wisc.	S	57	-	-	16.7	12.3-23.4	-	-	-
M-20	Wisc. South	S	42	-	-	16.9	-	42	47.6	-
C-77	Ind. pond	S	1	-	-	-	-	-	40.0	-
E-3	Minn.	S	5	366	-	-	254-483	-	-	-
C-78	Que. L. Opinicon	S	2	-	-	17.5	17.2-17.8	2	52.0	-
B-39	Wisc.	S	34	-	-	17.5	-	-	-	-
B-31	Mich.	S	33	372	-	17.7	-	33	42.0	-
H-62	Ind.	S	4	384	-	-	372-406	4	42.1	37.0-44.1
C-78	Que. L. Opinicon	S	-	-	-	18.0	-	-	56.0	-



## LARGEMOUTH BLACK BASS, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
C-18 Mich. Deep L.	S	1	-	-	18.0	-	1	48.5	-
L-29 Iowa, East L.	S	2	412	-	-	-	-	-	-
S-11 Tenn., Reelfoot L.	S	7	-	-	18.8	18.1-19.3	7	67.6	60.0-80.0
L-29 Iowa, Red Haw L.	S	1	464	-	-	-	-	-	-
S-18 Tenn., Reelfoot L.	S	6	-	-	20.2	19.0-21.0	-	-	-
T-18 Ill.	S	2	-	-	20.3	20.0-20.5	-	-	-
L-14 Ohio	S	-	-	-	20.5	-	-	-	-
B-60 Ind. Winona L.	S	1	590	-	-	-	1	58.0	-
M-80 N. Mex. Conchas L.	S	1	-	-	23.5	-	1	124.0	-
Age Group IX									
G-25 N.Y. Ontario	S	1	-	-	15.4	-	1	36.2	-
T-20 Ill.	S	2	-	-	16.6	-	-	-	-
B-31 Mich.	S	20	386	-	17.9	-	20	46.3	-
J-15 Wisc.	S	30	-	-	18.1	11.5-22.7	-	-	-
B-38 Wisc.	S	31	-	-	18.3	-	-	-	-
M-20 Wisc. South	S	24	-	-	18.4	-	24	60.8	-
T-18 Ill. Sportsman's	S	2	-	-	19.5	-	-	-	-
S-11 Tenn. Reelfoot L.	S	4	-	-	20.3	19.7-20.5	4	72.0	69.0-78.0
S-18 Tenn. Reelfoot L.	S	5	-	-	20.5	20.0-21.0	-	-	-
C-13 Mich. Deep L.	S	1	-	-	20.7	-	1	79.0	-
Age Group X									
T-20 Ill.	S	3	-	-	13.6	-	-	-	-
B-39 Wisc.	S	22	-	-	18.6	-	-	-	-
J-15 Wisc.	S	22	-	-	19.1	12.3-22.0	-	-	-
L-29 Iowa, East L.	S	1	432	-	-	-	-	-	-
M-20 Wisc. South	S	11	-	-	19.4	-	11	68.8	-
S-11 Tenn. Reelfoot L.	S	5	-	-	20.6	20.5-20.9	5	77.0	66.0-88.0
E-3 Minn.	S	1	483	-	-	-	-	-	-
Age Group IX									
B-39 Wisc.	S	19	-	-	19.8	-	-	-	-
J-15 Wisc.	S	27	-	-	19.8	13.5-23.4	-	-	-
M-20 Wisc. South	S	5	-	-	19.8	-	5	77.2	-
E-3 Minn.	S	1	533	-	-	-	-	-	-
Age Group XII									
M-20 Wisc. South	S	2	-	-	19.2	-	2	75.1	-
T-20 Ill.	S	3	-	-	19.6	-	-	-	-
B-39 Wisc.	S	21	-	-	20.2	-	-	-	-
J-15 Wisc.	S	18	-	-	20.8	16.0-26.8	-	-	-
S-18 Tenn. Reelfoot	S	1	-	-	21.5	-	-	-	-
W-13 Conn.	S	1	533	-	24.0	-	1	120.0	-
Age Group XIII									
B-39 Wisc.	S	8	-	-	20.5	-	-	-	-
J-15 Wisc.	S	10	-	-	20.7	15.5-22.0	-	-	-
Age Group XIV									
J-15 Wisc.	S	1	-	-	17.5	-	-	-	-
B-39 Wisc.	S	2	-	-	21.0	-	-	-	-
W-13 Conn.	S	1	-	-	23.0	-	1	99.0	-
Age Group XV									
T-20 Ill.	S	1	-	-	20.5	-	-	-	-
J-15 Wisc.	S	2	-	-	20.5	19.5-21.5	-	-	-
B-39 Wisc.	S	1	-	-	21.0	-	-	-	-
Age Group XVI									
H-62 Ind.	S	1	445	-	-	-	-	74.8	-

	Code	No.	Calculated Standard length at each annulus										
			1	2	3	4	5	6	7	8	9	10	11
L-29 Iowa, Red Haw L.	L	57	78	142	192	237	257	276	357	464			
R-40 Ind. Foot's P.	E	25	82	149	194	307							
L-29 Iowa, East L.	L	64	91	166	218	254	302	350	372	417	415	432	
E-3 Minn.	L	2128	81	156	222	267	323	358	360	384	424	461	497
E-22 Tenn. Norris L.	L	136	148	214									
S-100 N.C. Hiwassee L.	L	29	117	216	273	302	320						



LARGEMOUTH BLACK BASS, (Continued)

	Code	No.	1	2	3	4	5	6	7
E-28 Tenn. Chickamauga	L	360	145	223					
S-100 Tenn. Cherokee L.	L	97	163	247					
S-97 Tenn. Norris L.	L	1589	146	262	311	340	370	407	428
E-26 Tenn. Norris L.	L	722	149	263	313				
S-100 Tenn. Douglas L.	L	8	157	285	308				

Calculated Fork length at each annulus

	Code	No.	1	2	3	4	5	6	7	8	9	10	11
R-40 Ind. Foots P.	L	25	3.9	7.1	9.2	14.3							
E-2 Minn.	L	1417	3.6	6.8	10.1	12.1	14.2	15.7	16.9	17.3	19.4	31.0	22.6
R-40 Ind. Grassy P.	L	1	3.9	9.3	13.3								

Calculated total length at each annulus

	Code	No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
V-27 Mo. Ozarks L.	L	16	2.3	4.1	5.8												
E-30 Ohio, (Slow)	L		2.3	5.2	8.0	10.0	12.8	14.0	16.0								
R-40 Ind. Foot's Pond	L	25	4.0	7.2	9.4	14.6											
K-33 Minn.	L	577	3.5	6.7	9.3	11.5	13.1	15.1	16.3	17.6	18.1						
B-39 Wisc. North	L		2.8	6.5	9.7	11.7	13.2	13.9	15.2	16.7	17.7	18.5	19.3	19.1	19.3		
R-83 Ohio, L. Vesuvius	A	-	3.5	7.0	9.8	11.7	14.0	15.4	16.4	18.0							
R-79 Ohio, L. Meander	A	-	3.6	7.5	9.9	14.1	15.5										
R-82 Ohio, L. Alma	A	-	4.0	7.8	10.1	11.7	14.3	16.5	17.7								
E-30 Ohio (Ave.)	L		3.5	7.0	10.1	12.5	14.5	16.1	17.7	18.9	19.8						
B-39 Wisc. (Ave.)	L	618	3.3	7.4	10.5	12.5	14.0	15.1	16.3	17.4	18.1	18.7	19.5	19.9	20.2	20.6	21.0
V-27 Mo. Ozarks	L	55	4.8	7.7	10.5												
V-13, T-23. Conn.	A	142	5.1	8.3	10.7	12.9	14.7	16.2	17.5								
B-39 Nebr.	L	25	3.6	7.6	10.9	13.5	15.8	17.6	18.9	19.8	20.4	22.1					
U-4 Ill. Mississippi	L	119	4.4	8.6	11.1	12.9	14.2										
T-19 Ill. Sportsman's	L	144	3.8	8.1	11.4	13.3	14.9	16.6	19.6	19.5							
S-62 Minn.	L		3.9	6.2	11.5	13.8	15.3	16.3	16.9	18.0	19.8	21.7	23.3				
R-48 Ohio	A		4.0	8.0	11.5	13.9	16.0	17.5	19.0	20.0	21.0						
B-39 Wisc. South	L		3.7	8.7	11.9	13.7	14.9	16.2	17.3	18.3	19.1	19.7	19.3	20.0			
S-100 Tenn. Hiwassee L.	L	29	5.6	10.2	12.9	12.9	14.3	15.2									
E-30 Ohio (Fast)	L		6.7	10.5	13.1	14.2	16.0										
E-28 Tenn. Chickamauga	L	360	6.9	10.5													
E-22 Tenn. Norris L.	L	136	7.0	10.3													
B-86 Ill. Onized L.	L	81	3.4	10.6	14.0	16.5	18.6										
S-100 Tenn. Cherokee L.	L	97	7.8	11.7													
T-16 Ill. Horseshoe L.	A		8.5	12.5	14.2	15.7	16.7	17.0									
B-39 La.	L	30	7.6	11.3	14.5	18.8	20.9	23.5	24.8	25.9	27.1	27.8	28.3				
E-26 Tenn. Norris L.	L	722	7.0	12.4	14.6												
S-100 Tenn. Douglas L.	L	8	7.5	13.5	14.6												
S-97 Tenn. Norris L.	L	1589	6.9	12.4	14.7	16.1	17.5	19.3	20.8								
T-13 Africa	L	20	10.3	14.0	15.2	16.6											

F-6 largemouth black bass was kept in captivity 11 years.

C-40 Fla. additional life history data.

Location	Size of females	No.	Number of eggs per female		Code
			Mean	Range	
S-57 N. Ca.				2,000-10,000	U
E-4				2,000-26,000	U
B-73				2,000-10,000	U
T-7				4,000-8,000	U
V-21 Minnesota	13 oz.	1	7,000		V
O-8 Ohio				11,000-15,000	U
V-21 Minnesota	15 oz.	1	15,000		V
B-73	37 oz.	1	17,000		
C-77	16-28 oz.	3	27,930	22,300-31,008	V
V-21 Minnesota	40 oz.	2	30,500	29,000-32,000	V
V-21 Minnesota	48-50 oz.	2	33,100	26,200-41,000	V
C-77	40-44 oz.	2	94,157	79,000-109,314	V

N-25 Lists 2000-7,000 eggs per pounds of female as average

C-6 Found 4375 fry per nests, in 5 nests with the range from 751-11,457

GREEN SUNFISH, *Lepomis cyanelus*

C-30 Iowa	73 fish (34-152 mm.)	F.L. = 1.18 S.L.	T.L. = 1.23 S.L.
C-38 Ia. L. Wall L.	304 fish (45-101 mm.)		T.L. = 1.239 S.L.
	52 fish (101-135 mm.)		T.L. = 1.209 S.L.
	24 fish (136-180 mm.)		T.L. = 1.192 S.L.

Standard length-weight relationship, Iowa, C-30

S.L. in mm.	Weight in grams No.	Mean	Range	Weight in oz.	S.L. in mm.	Weight in grams No.	Mean	Range	Weight in oz.
34	1	1	-	0.04	36	11	32	22-43	1.14
45	3	3	2-3	0.10	106	4	41	37-45	1.45



## GREEN SUNFISH, (Continued)

S.L. in mm.	No.	Weight in grams		Weight in oz.	S.L. in mm.	No.	Weight in grams		Weight in oz.
		Mean	Range				Mean	Range	
55	13	5	2-7	0.18	116	2	77	68-85	2.71
64	21	8	6-11	0.28	122	1	69	-	2.45
75	16	14	10-17	0.49	134	1	85	-	3.00
85	17	21	15-27	0.74	152	1	184	-	6.49

## Total length-weight relationship

T.L. in inches	No.	Weight in oz.	Location	T.L. in inches	No.	Weight in oz.	Location
2.0-2.9	39	0.2	C-38 Iowa	6.0-6.9	29	3.8	C-38 Iowa
					-	4.0	R-54 Ohio
3.0-3.9	200	0.4	C-38 Iowa	7.0-7.9	5	5.8	C-38 Iowa
4.0-4.9	65	0.8	C-38 Iowa		-	7.5	R-54 Ohio
	-	0.9	R-54 Ohio	8.0-8.9	5	7.6	C-38 Iowa
5.0-5.9	37	2.0	C-38 Iowa				
	-	2.0	R-54 Ohio				

C-23 Minn.	20 fish, 80-170 mm. S.L.	average K 2.46
C-38 Iowa L. Wall L.	380 fish, 45-180 mm. S.L.	average K 3.46
C-36 Iowa	30 fish, 42-152 mm. S.L.	average K 3.66, range 2.55-4.84

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group 0-September									
C-13 Mich. Deep L.	S	10	-	-	1.5	1.2-1.7	-	-	-
Age Group 0-October									
R-32 Indiana	P	-	-	1.0	-	-	-	-	-
R-38 Indiana Ponds	K	600	-	-	-	1.2-2.2	-	-	-
R-38 Indiana Ponds	K	52	-	2.4	-	1.5-3.0	-	0.1	-
Age Group 0									
H-90 Mich., south	S	6	11	-	X	0.4-0.7	-	-	-
H-90 Mich., north	S	80	20	-	X	0.7-1.6	-	-	-
Age Group I									
H-94 Mich. Willow R.	S	20	33	-	-	22-45	-	-	-
B-7 N.Y.	S	87	40	-	-	31-48	-	-	-
H-90 Mich., south	S	45	41	-	X	1.0-3.1	-	-	-
H-90 Mich., north	S	129	44	-	X	1.3-3.4	-	-	-
H-93 Mich. Aquarium	S	8	49	-	-	35-60	-	-	-
R-38 Ind. Ponds-July	K	31	-	2.1	-	1.7-3.9	-	0.1	-0.7
R-32 Indiana	S	-	-	2.2	-	-	-	-	-
C-13 Mich. Deep L.	S	124	-	-	2.4	1.8-3.0	-	-	-
H-93 Mich. Wiards Pond	S	20	54	-	-	40-65	-	-	-
H-94 Mich. Range	S	1	60	-	-	-	-	-	-
R-38 Indiana-Oct.	K	12	-	X	-	2.4-4.7	-	-	-
B-86 Ill. Onized L.	S	187	-	-	X	2.5-5.0	-	-	-
Age Group II									
B-7 N.Y.	S	87	52	-	-	43-60	-	-	-
H-90 Mich., north	S	57	60	-	X	2.2-4.6	-	-	-
H-90 Mich., south	S	83	66	-	X	2.2-5.5	-	-	-
C-13 Mich. Deep L.	S	12	-	-	3.7	3.1-4.5	-	-	-
H-94 Mich.	S	30	75	-	-	58-107	-	-	-
B-86 Ill. Onized L.	S	49	-	-	4.6	4.0-5.0	-	-	-
R-32 Indiana	S	-	-	X	-	2.4-7.7	-	-	-
R-38 Ind. Ponds	K	1	-	5.0	-	-	-	-	-
Age Group III									
B-7 N.Y.	S	55	61	-	-	54-71	-	-	-
H-90 Mich., north	S	22	81	-	X	2.8-5.2	-	-	-
H-90 Mich., south	S	45	89	-	X	3.4-5.5	-	-	-
C-13 Mich. Deep L.	S	25	-	-	4.8	3.7-5.8	-	-	-
W-7 Okla. Duncan L.	S	1	133	-	-	-	1	3.0	-
B-86 Ill. Onized L.	S	8	-	-	6.8	6.0-8.5	-	-	-



## GREEN SUNFISH, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group IV									
B-7 N.Y.	S	38	71	-	-	60-82	-	-	-
H-90 Mich., north	S	11	92	-	X	3.4-5.5	-	-	-
H-90 Mich., south	S	7	118	-	X	4.0-6.4	-	-	-
C-13 Mich., Deep L.	S	12	-	-	5.4	4.4-5.9	-	-	-
B-86 Ill. Onized L.	S	1	-	-	6.2	-	-	-	-
Age Group V									
B-7 N.Y.	S	9	84	-	-	72-94	-	-	-
H-90 Mich., north	S	3	114	-	X	4.6-6.7	-	-	-
C-13 Mich. Deep L.	S	1	-	-	5.9	-	-	-	-
H-90 Mich., south	S	13	128	-	X	4.9-7.3	-	-	-
Age Group VI									
B-7 N.Y.	S	1	112	-	-	-	-	-	-
H-90 Mich., north	S	5	114	-	X	5.2-6.1	-	-	-
H-90 Mich., south	S	6	147	-	X	5.6-7.3	-	-	-
Age Group VII									
H-90 Mich.	S	2	152	-	-	145-158	-	-	-
Age Group IX									
B-7 N.Y.	S	1	206	-	-	-	-	-	-

F-6 reports that an individual lived 7.5 years in captivity.

	Average calculated standard length at each annulus							
	No.	1	2	3	4	5	6	7
H-93 Mich. Wiards P.	20	27	54					
E-3 Minn.	33	40	76	92	115	131		

	Average calculated total length at each annulus							
	No.	1	2	3	4	5	6	7
C-65 Ohio, Armstrong L.	-	2.4	2.7	3.1	3.4	4.7	6.4	
K-33 Minn.	184	1.7	2.9	3.9	5.0	5.9	6.6	7.2
R-54 Ohio	-	2.3	4.3	5.6	6.3	6.8		
B-86 Ill. Onized L.	95	2.0	4.2	6.1	5.9			

YELLOWBELLY SUNFISH, *Lepomis auritus*

W-13 Conn. Age group VIII 1 fish, 196 mm. S.L., 9.4 inches T.L., 11.0 oz.

SPOTTED SUNFISH, OR STUMPKNCKER, *Lepomis punctatus*

C-41 Fla. at 9 days of age 6.5-7.0 mm. S.L.

ORANGESPOTTED SUNFISH, *Lepomis humilis*

C-30 Iowa 67 fish F.L. = 1.15 S.L. T.L. = 1.22 S.L.

Standard length-weight relationship, Ia. L. LaVerne, C-30

S.L. in mm.	No.	Weight in grams Mean	Range	S.L. in mm.	No.	Weight in grams Mean	Range
38	1	1		70	3	11	10-11
48	8	2	1-3	85	3	19	17-23
56	29	5	2-7	94	1	30	
64	31	7	4-10				

C-36 Ia. L. LaVerne 2 fish 31-32 mm. Average K 3.48

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group O-June									
B-19 Louisiana	S	26	18	-	-	-	-	-	-



## ORANGESPOTTED SUNFISH, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group O-July									
B-19 Louisiana	S	22	20	-	-	-	-	-	-
B-19 Iowa	S	4	21	-	-	-	-	-	-
Age Group O-August									
B-19 Iowa	S	97	19	-	-	-	-	-	-
B-19 Louisiana	S	75	23	-	-	-	-	-	-
Age Group O-September									
B-19 Iowa	S	3	24	-	-	-	-	-	-
B-19 Louisiana	S	32	26	-	-	-	-	-	-
Age Group O-November									
B-19 Louisiana	S	8	35	-	-	-	-	-	-
Age Group I									
B-19 Iowa	S	120	30	-	-	25-45	-	-	-
B-19 Louisiana	S	16	38	-	-	-	-	-	-
Age Group II									
B-19 Iowa	S	120	49	-	-	39-55	-	-	-
B-19 Louisiana	S	1	51	-	-	-	-	-	-
Age Group III									
B-19 Iowa	S	29	61	-	-	49-74	-	-	-
Age Group IV									
B-19 Iowa	S	10	89	-	-	-	-	-	-
B-19 La.		13 fish	30-49 mm. S.L.				50-752 eggs per female		
		7 females	50-66 mm. S.L.				300-2680 eggs per female		
		6 females	80-88 mm. S.L.				520-3000 eggs per female		
		6 females	90-105 mm. S.L.				1340-4700 eggs per female		

LONGEAR SUNFISH, Lepomis megalotis

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group I									
H-90 Mich., north	S	490	31	-	-	22-52	-	-	-
H-90 Mich., south	S	59	44	-	-	22-67	-	-	-
H-62 Indiana	S	1	64	-	-	-	1	0.3	-
Age Group II									
H-90 Mich., north	S	180	50	-	-	32-77	-	-	-
H-90 Mich., south	S	142	57	-	-	42-87	-	-	-
H-62 Indiana	S	18	79	-	-	-	20	0.6	-
Age Group III									
H-90 Mich., north	S	88	57	-	-	42-82	-	-	-
H-90 Mich., south	S	55	73	-	-	57-92	-	-	-
H-62 Indiana	S	9	97	-	-	-	8	1.2	-
W-1 Okla. L. Duncan	S	1	-	-	7.5	-	1	8.0	-
Age Group IV									
H-90 Mich., north	S	83	62	-	-	52-77	-	-	-
H-90 Mich., south	S	28	78	-	-	62-102	-	-	-
H-62 Indiana	S	3	98	-	-	-	3	1.4	-
Age Group V									
H-90 Mich., north	S	14	63	-	-	47-107	-	-	-
H-90 Mich., south	S	1	110	-	-	-	-	-	-
H-62 Indiana	S	3	104	-	-	-	3	1.6	-
Age Group VI									
H-90 Mich., north	S	4	89	-	-	77-107	-	-	-
H-90 Mich., south	S	2	105	-	-	97-112	-	-	-
Age Group VII									
H-90 Mich., north	S	2	80	-	-	77-82	-	-	-
Age Group IX									
H-90 Mich., north	S	1	74	-	-	-	-	-	-



BLUEGILL, *Lepomis macrochirus*

	No.	S.L. in mm.	F.L. S.L.	No.	S.L. in mm.	T.L. S.L.
R-33 Ind.	-	to last scale	1.17	-		
	-	to hyplural	1.22			
C-37 Minn.	136	10-99	1.178	136	10-99	1.247
	155	100-159	1.164	155	100-159	1.225
	45	160-189	1.152	45	160-189	1.205
	17	190-219	1.137	17	190-219	1.193
C-30 Iowa	321	-	1.20	387	-	1.28
C-33 Iowa ponds	195	40-154	1.208	195	40-154	1.271
L-29 Iowa, Red Haw L.	107	27-212	1.191	142	19-212	1.265
L-29 Iowa, East L.	98	20-169	1.204	144	10-169	1.270
C-38 Ia. Little Wall L.				88	71-90	1.291
				34	91-105	1.271
				5	106-120	1.223
B-30 Mich.				2335	under 102	1.278
				3715	102-163	1.261
				1253	over-163	1.246
R-33 Ind.		under 4.0 inches F.L.				T.L. = 1.064 F.L.
		4.05-5.9 inches F.L.				T.L. = 1.053 F.L.
		5.9-7.0 inches F.L.				T.L. = 1.042 F.L.

## Standard length-weight relationship

S.L. in mm.	No.	Weight in grams		Weight in ounces	Location
		Mean	Range		
30-49	26	1.7	0.5-4.0	0.06	C-30 Iowa
	7	2.7	2-5	0.13	L-29 Iowa
50-69	75	7	2-14	0.25	C-30 Iowa
	45	9	4-13	0.32	L-29 Iowa
70-89	84	17	5-28	0.6	C-30 Iowa
	34	17	11-27	0.6	L-29 Iowa
	-	28	-	1.0	R-24 Mich.
	8	68	-	2.4	C-20 Minn.
90-109	23	38	22-55	1.4	C-30 Iowa
	53	40	23-66	1.4	L-29 Iowa
110-129	-	42	-	1.5	R-24 Mich.
	21	71	45-102	2.5	C-30 Iowa
	9	71	55-95	2.5	L-29 Iowa
	162	105	-	3.7	C-20 Minn.
130-149	47	117	91-156	4.1	L-29 Iowa
	26	119	85-140	4.2	C-30 Iowa
	233	130	-	4.6	C-20 Minn.
150-169	63	153	124-191	5.4	L-29 Iowa
	10	165	108-227	5.8	C-30 Iowa
	210	173	-	6.1	C-20 Minn.
	-	193	-	6.8	R-24 Mich.
170-189	22	216	187-278	7.6	L-29 Iowa
	11	263	231-300	9.3	C-30 Iowa
190-209	58	275	-	9.7	C-20 Minn.
	9	385	288-510	13.6	C-30 Iowa
210-229	-	312	-	11.0	R-24 Mich.
	15	386	-	13.6	C-20 Minn.
	3	459	439-483	16.2	C-30, L-29 Iowa
230-249	3	303	-	10.7	C-20 Minn.
250-269	2	680	-	24.0	C-20 Minn.
310-329	2	851	-	30.0	C-20 Minn.



## BLUEGILL, (Continued)

## Total length-weight relationship

T.L. in inches	No.	Weight in ounces	Location
1.0-1.9	125	0.05	B-30 Mich.
2.0-2.9	987	0.16	B-30 Mich.
	50	0.16	C-33 Iowa
	-	0.36	R-79 Ohio
3.0-3.9	98	0.38	C-33,38 Iowa
	215	0.46	B-30 Mich.
	-	0.6	R-79 Ohio
	7	0.80	M-20 Wisc., South
4.0-4.9	555	0.87	B-30 Mich.
	108	0.91	C-33,38 Iowa
	-	1.0	R-79 Ohio
	-	1.2	O-7 Ohio Buckeye L.
	102	1.2	M-20 Wisc. South
5.0-5.9	46	1.6	C-33,38 Iowa
	868	1.63	B-30 Mich.
	-	1.7	R-79 Ohio
	-	2.0	O-7 Ohio Buckeye L.
	-	2.2	O-7 Ohio Indian L.
	741	2.2	M-20 Wisc., South
6.0-6.9	960	2.7	B-30 Mich.
	-	2.7	O-7 Ohio Indian L.
	-	2.8	O-7 Ohio Buckeye L.
	-	3.0	R-79 Ohio
	5	3.1	C-33 Iowa
	981	3.4	M-20 Wisc., South
7.0-7.9	-	3.7	O-7 Ohio Indian L.
	-	4.0	O-7 Ohio Buckeye L.
	915	4.6	B-30 Mich.
	14	4.7	C-33 Iowa
	1315	5.4	M-20 Wisc., South
8.0-8.9	-	4.9	O-7 Ohio Indian L.
	-	5.3	O-7 Ohio Buckeye L.
	787	6.5	B-30 Mich.
	681	7.5	M-20 Wisc., South
-	8.0	R-79 Ohio	
9.0-9.5	335	9.3	B-30 Mich.
	112	12.0	M-20 Wisc., South
	-	13.0	R-79 Ohio
10.0-10.1	11	15.7	M-20 Wisc., South
	-	18.0	R-79 Ohio
15.0-15.9	1	69.0	F-11 Alabama

B-30 Mich.

L-29 Ia. Red Haw L.

L-29 Ia. East L.

Log W = -4.651316 + 3.11037 Log S.L.

Log W = -4.572 + 3.090 Log S.L.

Log W = -4.238 + 2.920 Log S.L.

	S.L. in mm.	No.	Mean K	Range
M-19 Wisc.	108-255	3528	1.83	
H-62 Ind.	-	618	3.17	
C-33 Ia. ponds	40-154	194	3.45	
C-34 Minn. Leech L.	-	2	3.72	
C-23 Minn. 1941-43	50-229	498	3.72	
C-36 Iowa	34-221	136	3.72	2.80-5.67
B-30 Mich.	29-202	-	-	3.23-4.00
L-29 Ia. East and Red Haw L.	45-212	179	3.95	
C-38 Ia. Little Wal L.	71-120	127	3.95	
E-28 Tenn. Chickamauga L.	-	114	4.2	
E-3 Minn. 1936-41	76-329	655	5.39	

C-23 Minn. 1941-43 standards for K: poor, under 3.0; average 3.3-4.0; excellent over 4.5



## BLUEGILL, (Continued)

	T.L. in inches	No.	C(T.L.)	
B-42 Ill. Homewood L.	2-3	-	40	
	3-4	-	50	
	4-5	-	60	
	5-6	-	70	
B-30 Mich.	1.4-10.0	-	-	56-75
R-44 Ohio	-	-	60	
B-41 Ill. Fork L.	5-8	-	-	51-91
H-58 South Africa	-	-	75	
B-42 Ill. Fork L.	-	830	82	
B-41 Ill. Standards: poor, under 50; average 51-80; good over 80.				
C-23 Minn. Standards: poor, under 60; average 66-81; excellent, over 91.				

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group O-May									
K-24 Mich.	K	-	-	-	X	0.20-2.23	-	-	-
Age Group O-June									
R-82 Ohio, L. Alma	P	18	-	-	1.3	-	-	-	-
H-20 S. Africa	K	-	-	-	X	1.5-2.0	-	-	-
S-110 W. Va.	P	-	-	X	-	2.0-2.7	-	-	-
B-86 Ill. Onized L.	S	236	-	-	2.5	2.0-3.0	-	-	-
Age Group O-July									
R-83 Ohio, L. Vesuvius	P	5	-	-	0.8	-	-	-	-
L-29 Iowa Red Haw	P	33	17	-	-	14-21	-	-	-
L-29 Iowa East L.	P	32	18	-	-	12-25	-	-	-
B-3 Iowa Clear L.	P	39	18	-	-	15-22	-	-	-
G-32 Ohio, Buckeye	P	-	-	-	X	0.9-1.1	-	-	-
B-16 Mich. Drayton H.	K	-	-	-	X	1.9-2.5	-	-	0.07-0.09
Age Group O-August									
S-124 W. Va.	K	-	-	0.8	-	0.6-1.4	-	-	-
B-3 Iowa Clear L.	P	51	20	-	-	16-29	-	-	-
L-29 Iowa Red Haw	P	34	21	-	-	15-29	-	-	-
L-29 Iowa East L.	P	35	25	-	-	16-37	-	-	-
G-32 Ohio, Buckeye	P	-	-	-	X	1.3-1.4	-	-	-
R-83 Ohio, L. Vesuvius	P	-	-	-	-	1.1-1.8	-	-	-
C-91 Ia. Clear L.	P	152	-	-	1.5	0.8-2.9	-	-	-
Age Group O-September									
S-54 Alabama	K	-	-	-	-	-	-	0.01	-
R-83 Ohio, Vesuvius L.	P	-	-	-	X	1.1-1.3	-	-	-
G-32 Ohio, Buckeye L.	P	-	-	-	1.5	-	-	-	-
C-13 Mich. Deep L.	P	73	-	-	1.8	0.6-2.6	-	-	-
S-124 W. Va.	K	-	-	2.6	-	1.0-4.4	-	-	-
B-42 Ill. Fork L.	S	3	-	-	4.5	-	-	-	-
Age Group O-October									
L-29 Iowa, Red Haw L.	P	15	28	-	-	23-33	-	-	-
B-4 Iowa, Clear L.	P	23	28	-	1.4	19-48	-	-	-
K-23 Indiana	K	-	X	-	-	40-57	-	-	0.04-0.14
K-24 Mich.	K	-	-	-	X	1.0-3.9	-	-	0.01-0.6
S-124 W. Va.	K	-	-	1.8	-	0.6-4.5	-	-	-
S-110 W. Va.	K	-	-	X	-	2.0-3.4	-	-	-
K-23 Mich.	K	-	X	-	-	26-100	-	-	0.01-0.6
B-42 Ill. Fork L.	S	1	-	-	5.0	-	-	-	-
Age Group O-Nov.-Dec.									
S-54 Alabama	K	-	-	-	-	-	-	0.03	-
H-87 Mich.	P	-	X	-	-	22-56	-	-	-
S-124 W. Va.	K	-	-	2.3	-	0.9-4.6	-	-	-
S-53 Alabama	K	-	-	-	-	-	-	0.13	-
B-42 Ill. Fork L.	S	-	-	-	5.0	-	-	-	-
Age Group O									
P-12 Iowa, Okoboji L.	S	5	32	-	-	17-47	-	-	-
B-31 Mich.	S	13	33	-	1.7	-	13	0.03	-
H-94 Mich. Crystal L.	S	56	37	-	-	30-45	-	-	-
M-31 Louisiana	K	-	X	-	-	25-60	-	-	0.01-0.07



## BLUEGILL, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
E-9 N.Y.	K	-	-	X	-	2.0-2.5	-	-	-
A-10 Okla.	K	-	-	-	-	-	-	-	0.45-0.46
S-18 Tenn. Reelfoot L.	S	2	-	-	5.8	-	-	-	-
Age Group I									
B-77 Mich., 3rd Sister L.	S	28	-	-	1.4	1.1-1.8	28	0.03	-
R-83 Ohio, L. Vesuvius	S	65	-	-	1.5	-	-	-	-
B-61 Texas	S	-	-	-	X	0.5-2.3	-	-	-
R-40 Ind. Foot's P.	S	3	-	1.7	-	-	-	-	-
B-7 N.Y.	S	49	42	-	-	36-50	-	-	-
L-29 Iowa, Red Haw L.	S	43	48	-	-	-	-	-	-
H-34 Wisc. Hollister L.	S	-	-	-	X	1.1-2.4	-	-	-
R-31 Indiana	S	4	-	2.1	-	-	-	-	-
L-29 Iowa East L.	S	25	54	-	-	-	-	-	-
R-33 Indiana, north	S	272	-	2.3	-	2.0-3.2	-	-	-
B-75 Mich. Hopkins L.	S	6	-	-	2.4	-	6	0.2	-
L-14 Ohio, poorest L.	S	1	-	-	2.5	-	-	-	-
C-13 Mich. Deep. L.	S	224	-	-	2.5	1.8-3.8	-	-	-
O-8 Ohio	S	-	-	-	X	2.3-3.0	-	-	-
K-24 Mich.-April	K	-	-	-	X	1.4-4.0	-	-	0.01-0.6
P-12 Iowa, Okoboji L.	S	2	58	-	-	53-62	-	-	-
B-60 Ind. Winona L.	S	16	59	-	-	-	14	0.1	-
E-22 Tenn. Norris L.	S	13	60	-	3.1	-	-	-	-
B-31 Mich.	S	470	61	-	3.1	-	470	0.3	-
H-97 N. C. Wacomow L.	S	-	-	-	3.1	-	-	-	-
H-62 Indiana	S	26	66	-	-	-	10	0.5	-
H-87 Mich.	P	-	X	-	-	52-83	-	-	-
H-94 Mich.	S	184	68	-	-	46-97	-	-	-
M-31 Louisiana	S	-	X	-	-	67-85	-	-	0.3-0.8
E-9 N.Y.	K	-	-	X	-	3.0-4.0	-	-	-
L-14 Ohio	S	213	-	-	3.7	-	-	-	-
B-28 Mich. Pasinski L.	S	-	-	-	X	2.7-4.3	-	-	-
S-124 W. Va.	K	-	-	X	-	1.0-5.4	-	-	-
M-97 Wisc. Stewart's L.	P	-	-	-	X	3.0-5.0	-	-	-
F-2 Wisc. Big Sand L.	S	-	-	-	4.2	-	-	0.6	-
K-24 Mich.-Oct.	K	-	-	-	X	2.3-6.0	-	-	0.1-2.3
S-53 Alabama	K	-	-	-	-	-	-	-	0.01-2.8
S-54 Alabama	K	-	-	-	-	-	-	-	0.5-4.1
R-34 Ind. Muskellunge L.	S	1	-	4.5	-	-	-	-	-
B-86 Ill. Onized L.	S	4190	-	-	X	2.5-3.5	-	-	-
F-2 Wisc., N. W.	S	-	-	-	4.7	-	-	1.4	-
E-28 Tenn. Chickamauga L.	S	14	-	-	4.7	-	-	-	-
W-7 Okla. L. Duncan	S	1	108	-	-	-	1	1.8	-
K-23 Indiana	K	-	X	-	-	45-126	-	-	0.05-1.6
K-23 Mich.	K	-	X	-	-	30-152	-	-	0.01-0.6
M-19 Wisc., South	S	19	-	-	4.9	-	19	1.3	-
M-20 Wisc., South	S	97	-	-	5.0	-	97	0.9	-
B-41 Ill. Fork L.	S	-	-	-	X	3.1-6.6	-	-	-
L-14 Ohio best lake	S	18	-	-	5.3	-	-	-	-
B-42 Ill. Fork L.	S	773	-	-	5.5	2.0-7.0	-	-	-
S-11 Tenn. Reelfoot L.	S	3	-	-	5.6	5.3-5.7	3	1.8	1.7-2.0
K-24 Mich.-Oct., fem.	K	356	-	-	5.7	4.7-6.7	-	-	-
S-18 Tenn. Reelfoot L.	S	77	-	-	6.1	5.5-6.5	-	-	-
S-19 Tenn. Reelfoot L.	S	10	-	-	6.4	6.0-6.6	10	3.6	3.0-3.8
Age Group II									
H-94 Mich.	S	2	52	-	-	51-52	-	-	-
B-7 N.Y.	S	17	63	-	-	55-69	-	-	-
H-34 Wisc. Hollister L.	S	-	-	-	X	2.5-3.5	-	-	-
R-31 Indiana	S	43	-	3.0	-	-	-	-	-
B-77 Mich. 3rd Sister L.	S	107	-	-	3.4	2.5-4.4	107	0.3	-
R-57 Ohio, Jackson L.	S	-	-	-	3.5	-	-	-	-
E-22 Tenn. Norris L.	S	72	72	-	3.7	-	-	-	-
R-57 Ohio, L. Alma	S	-	-	-	3.7	-	-	-	-
R-34 Ind. Shoe L.	S	7	-	3.7	-	3.5-4.1	-	-	-
H-97 N. C. Waccamaw L.	S	-	-	-	3.9	-	-	-	-
B-75 Mich. Hopkins L.	S	14	-	-	3.9	-	14	0.6	-



## BLUEGILL, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
L-14 Ohio poorest lake	S	1	-	-	4.0	-	-	-	
F-2 Wisc., Big Sand L.	S	-	-	-	4.2	-	0.6	-	
C-13 Mich. Deep L.	S	36	-	-	4.2	3.6-4.8	16	0.8	
L-29 Iowa, Red Haw L.	S	51	83	-	-	-	-	-	
P-12 Iowa, Okoboji L.	S	2	85	-	-	81-88	-	-	
B-31 Mich.	S	944	86	-	4.3	-	944	0.8	
R-33 Indiana, north	S	414	-	4.3	-	2.7-7.0	-	-	
L-29 Iowa East L.	S	43	94	-	-	-	-	-	
R-40 Ind. Foot's P.	S	2	-	5.0	-	-	-	-	
F-2 Wisc., N.W.	S	-	-	-	5.3	-	-	2.1	
E-28 Tenn. Chickamauga L.	S	114	104	-	5.3	-	-	-	
B-60 Ind. Winona L.	S	29	105	-	-	-	13	1.5	
L-14 Ohio	S	719	-	-	5.4	-	-	-	
M-31 Louisiana	S	-	X	-	-	100-120	-	1.5	
B-60 Ind. Shoe L.	S	30	113	-	-	-	-	-	
H-62 Indiana	S	192	114	-	-	-	167	1.7	
M-20 Wisc., south	S	127	-	-	5.5	-	127	1.6	
B-41 Ill. Fork L.	S	193	-	-	5.5	4.7-7.4	-	-	
B-61 Texas	S	-	-	-	5.5	-	-	-	
E-9 N.Y.	K	-	-	X	-	5.0-6.0	-	-	
W-7 Okla. L. Duncan	S	2	121	-	-	-	2	2.5	
E-3 Minn.	S	71	123	-	-	76-178	-	-	
M-20 Wisc., South	S	529	-	-	5.6	-	529	2.2	
R-40 Ind. Grassy P.	S	1	-	5.6	-	-	-	-	
B-86 Ill. Onized L.	S	2998	-	-	X	4.0-7.5	-	-	
R-39 Indiana	K	645	-	5.7	-	-	-	-	
O-8 Ohio	S	-	-	-	X	5.0-6.5	-	-	
U-1 Indiana	S	7	130	-	-	-	7	1.8	
R-34 Ind. Muskellunge L.	S	292	-	5.8	-	4.7-7.5	-	-	
S-11 Tenn. Reelfoot L.	S	80	-	-	6.0	5.5-6.7	80	2.8	
L-14 Ohio, best lake	S	6	-	-	6.1	-	-	-	
S-54 Alabama-Jan.	K	-	-	-	-	-	43	3.2	
S-124 W. Va.	K	-	-	6.1	-	4.8-7.8	-	-	
R-53 Ohio	S	-	-	-	X	3.6-8.0	-	-	
G-25 N.Y.	S	2	-	-	6.5	5.7-7.2	2	3.4	
M-97 Wisc. Stewart's L.	I	-	-	-	-	5.0-8.0	-	-	
S-18 Tenn. Reelfoot L.	S	504	-	-	6.7	6.0-7.5	-	-	
S-19 Tenn. Reelfoot L.	S	65	-	-	7.0	6.5-7.4	64	4.7	
B-42 Ill. Fork L.	S	54	-	-	7.5	-	-	-	
S-54 Ala.-July	K	-	-	-	-	-	-	4.0-6.0	
C-77 Mich.	K	-	-	-	-	-	1	6.5	
F-2 Wisc. Big Sand L.	S	-	-	-	7.6	-	-	7.0	
Age Group III									
R-31 Indiana	S	2	-	3.3	-	-	-	-	
B-7 N.Y.	S	16	74	-	-	66-79	-	-	
F-2 Wisc., Big Sand L.	S	-	-	-	4.1	-	-	0.5	
E-22 Tenn. Norris L.	S	148	88	-	4.5	-	-	-	
H-34 Wisc. Hollister L.	S	-	-	-	X	4.3-5.3	-	-	
R-58 Ohio	S	-	-	-	X	3.7-5.8	-	-	
B-77 Mich. 3rd Sister L.	S	59	-	-	5.2	4.4-6.9	59	1.1	
R-34 Ind. Shoe L.	S	108	-	5.2	-	3.9-6.7	-	-	
B-31 Mich.	S	1933	109	-	5.4	-	1933	1.7	
B-75 Mich. L. Hopkins	S	6	-	-	5.4	-	6	1.6	
C-13 Mich. Deep L.	S	125	-	-	5.4	4.5-6.7	118	1.6	
H-97 N. C. Waccamaw L.	S	-	-	-	5.5	-	-	-	
L-15 Ohio, poorest lake	S	1	-	-	5.5	-	-	-	
P-12 Iowa Okoboji L.	S	3	115	-	-	100-130	-	-	
R-33 Indiana, north	S	1021	-	6.0	-	3.6-8.7	-	-	
E-3 Minn.	S	187	128	-	-	102-229	-	-	
F-2 Wisc., N.W.	S	-	-	-	6.2	-	-	3.5	
M-20 Wisc., South	S	150	-	-	6.3	-	150	3.2	
M-19 Wisc., South	S	1424	-	-	6.4	-	1424	3.7	
R-40 Ind. Foot's P.	S	3	-	6.3	-	-	-	-	
W-7 Okla. L. Duncan	S	3	135	-	-	-	3	2.3	
L-29 Iowa, East L.	S	12	136	-	-	-	-	-	
L-14 Ohio	S	3412	-	-	6.5	-	-	-	



## BLUEGILL, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
B-41 Ill. Fork L.	S	35	-	-	6.6	6.3-8.2	-	-	-
L-29 Iowa, Red Haw L.	S	13	141	-	-	-	-	-	-
B-60 Indiana	S	14	142	-	-	-	-	-	-
U-1 Indiana	S	9	148	-	-	-	9	2.5	-
O-8 Ohio	S	-	-	-	X	6.0-7.8	-	-	-
S-11 Tenn. Reelfoot L.	S	533	-	-	6.8	5.7-7.7	533	4.5	2.5-7.0
B-86 Ill. Onized L.	S	121	-	-	X	6.0-7.5	-	-	-
R-34 Ind. Muskellunge L.	S	147	-	6.7	-	4.3-7.5	-	-	-
H-62 Indiana	S	261	159	-	-	-	248	4.5	-
G-25 N.Y.	S	7	-	-	7.3	6.4-8.1	7	5.6	3.5-7.6
B-42 Ill. Fork L.	S	72	-	-	7.5	-	-	-	-
L-15 Ohio, best lake	S	581	-	-	7.5	-	-	-	-
S-18 Tenn. Reelfoot	S	264	-	-	7.6	7.0-8.5	-	-	-
F-2 Wisc., Big Sand L.	S	-	-	-	8.5	8.0-9.1	-	11.5	8.4-14.7
S-26 W. Va. L. Watoga	S	-	-	8.8	-	-	-	-	-
Age Group IV									
R-31 Ind. Springwood L.	S	113	-	3.5	-	-	-	-	-
H-94 Mich. 3rd Sister L.	S	57	74	-	-	60-100	-	-	-
B-7 N.Y.	S	13	83	-	-	76-91	-	-	-
F-2 Wisc., Big Sand L.	S	-	-	-	4.7	-	-	1.0	-
G-25 N.Y.	S	1	-	-	4.8	-	1	1.0	-
E-22 Tenn. Norris L.	S	4	97	-	4.9	-	-	-	-
R-53 Ohio, Kiser L.	S	-	-	-	5.7	-	-	2.1	-
H-34 Wisc. Hollister L.	S	-	-	-	X	5.8-6.8	-	-	-
R-58 Ohio	S	-	-	-	X	4.8-7.2	-	-	-
R-34 Ind. Shoe L.	S	17	-	6.2	-	5.3-6.9	-	-	-
C-13 Mich. Deep L.	S	103	-	-	6.4	4.9-8.4	104	3.1	1.1-8.3
B-77 Mich. 3rd Sister L.	S	72	-	-	6.5	4.7-7.3	72	2.9	-
L-14 Ohio, poorest lake	S	2	-	-	6.5	-	-	-	-
M-20 Wisc., South	S	143	-	-	6.5	-	143	3.2	-
B-31 Mich.	S	1774	132	-	6.6	-	1774	3.1	-
W-7 Okla. L. Duncan	S	5	132	-	-	-	5	2.4	-
R-33 Indiana, North	S	822	-	6.9	-	5.1-8.7	-	-	-
H-97 N. C. Waccamaw L.	S	-	-	-	7.1	-	-	-	-
P-12 Iowa, Okoboji L.	S	1	140	-	-	-	-	-	-
E-3 Minn.	S	338	144	-	-	102-254	-	-	-
L-29 Iowa, East L.	S	41	146	-	-	-	-	-	-
R-40 Ind. Foot's P.	S	3	-	7.1	-	-	-	-	-
M-19 Wisc., south	S	1170	-	-	7.3	-	1170	5.3	-
F-2 Wisc., N. W.	S	-	-	-	7.4	-	-	5.6	-
R-34 Ind. Greenwood L.	S	54	-	7.3	-	6.1-8.3	-	-	-
B-42 Ill. Fork L.	S	21	-	-	7.5	-	-	-	-
L-14 Ohio	S	720	-	-	7.5	-	-	-	-
L-29 Iowa Red Haw L.	S	8	157	-	-	-	-	-	-
S-11 Tenn. Reelfoot L.	S	292	-	-	7.7	7.1-8.3	296	6.6	4.0-10.0
B-41 Ill. Fork L.	S	7	-	-	8.0	-	-	-	-
B-86 Ill. Onized L.	S	2	-	-	8.0	-	-	-	-
B-60 Ind. Winona L.	S	2	168	-	-	-	1	4.1	-
H-62 Indiana	S	182	170	-	-	-	165	5.5	-
O-8 Ohio	S	-	-	-	X	8.1-8.3	-	-	-
S-18 Tenn. Reelfoot L.	S	33	-	-	8.4	8.0-10.7	-	-	-
S-19 Tenn. Reelfoot L.	S	34	-	-	8.5	8.0-8.9	34	7.8	6.0-9.5
U-1 Indiana	S	2	187	-	-	-	2	7.0	-
L-14 Ohio, best lakes	S	215	-	-	8.6	-	-	-	-
F-2 Wisc., Big Sand L.	S	-	-	-	8.8	8.1-9.5	-	14.2	8.5-20.0
Age Group V									
R-31 Ind. Springwood L.	S	2	-	4.1	-	-	-	-	-
B-7 N.Y.	S	1	97	-	-	-	-	-	-
F-2 Wisc., Big Sand L.	S	-	-	-	4.9	-	-	1.0	-
G-25 N.Y.	S	5	-	-	6.0	4.9-7.1	5	2.9	1.4-4.9
R-34 Ind. Shoe L.	S	19	-	6.5	-	5.7-7.9	-	-	-
R-58 Ohio	S	-	-	-	X	5.8-8.1	-	-	-
R-40 Ind. Foot's P.	S	1	-	7.1	-	-	-	-	-
H-34 Wisc. Hollister L.	S	-	-	-	X	7.0-8.2	-	-	-
B-31 Mich.	S	1308	146	-	7.3	-	1308	4.2	-



## BLUEGILL, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
B-77 Mich. 3rd Sister L.	S	63	-	-	7.4	6.1-8.4	63	4.2	-
P-12 Iowa, Okoboji L.	S	1	151	-	-	-	-	-	-
M-20 Wisc., South	S	65	-	-	7.5	-	65	4.8	-
L-14 Ohio, poorest lake	S	4	-	-	7.5	-	-	-	-
B-42 Ill. Fork L.	S	5	-	-	7.6	-	-	-	-
R-34 Ind. Muskellunge L.	S	20	-	7.4	-	6.1-7.9	-	-	-
L-29 Iowa East L.	S	14	156	-	-	-	-	-	-
B-60 Indiana, Winona L.	S	2	161	-	-	153-170	1	6.0	-
R-33 Ind., Northern	S	313	-	7.6	-	5.6-10.3	-	-	-
F-2 Wisc., N. W.	S	-	-	-	7.8	-	-	6.7	-
M-19 Wisc., Southern	S	422	-	-	8.0	-	422	7.0	-
L-14 Ohio	S	10	-	-	8.0	-	-	-	-
L-29 Iowa, Red Haw L.	S	12	170	-	-	-	-	-	-
E-3 Minn.	S	127	171	-	-	127-254	-	-	-
C-17 Mich. Deep L.	S	20	-	-	8.1	7.0-9.3	16	7.1	4.0-10.0
F-2 Wisc., Big Sand L.	S	-	-	-	8.2	-	-	8.8	-
W-7 Okla. L. Duncan	S	1	175	-	-	-	1	7.1	-
H-62 Indiana	S	37	183	-	-	-	34	7.4	-
S-11 Tenn. Reelfoot L.	S	6	-	-	8.4	8.1-10.6	6	8.6	8.0-10.0
H-97 N. C. Waccamaw L.	S	-	-	-	8.5	-	-	-	-
L-14 Ohio, best lake	S	6	-	-	8.5	-	-	-	-
S-19 Tenn. Reelfoot L.	S	6	-	-	9.5	9.1-9.9	6	11.8	9.5-14.0
O-8 Ohio	S	-	-	-	9.5	-	-	-	-
S-18 Tenn. Reelfoot L.	S	1	-	-	10.8	-	-	-	-
Age Group VI									
F-2 Wisc., Big Sand L.	S	-	-	-	5.0	-	-	1.0	-
R-34 Ind. Shoe L.	S	3	-	6.9	-	-	-	-	-
G-25 N.Y.	S	3	-	-	7.4	7.0-8.1	3	5.1	4.2-6.5
R-34 Ind. Muskellunge L.	S	7	-	7.5	-	7.3-8.1	-	-	-
B-31 Mich.	S	934	154	-	7.7	-	934	5.0	-
R-58 Ohio	S	-	-	-	X	6.6-8.8	-	-	-
L-29 Iowa East L.	S	10	159	-	-	-	-	-	-
B-77 Mich. 3rd Sister L.	S	68	-	-	8.0	6.8-8.7	68	5.4	-
H-34 Wisc. Hollister L.	S	-	-	-	X	7.9-8.2	-	-	-
F-2 Wisc., N. W.	S	-	-	-	8.1	-	-	7.3	-
L-29 Iowa, Red Haw L.	S	5	170	-	-	-	-	-	-
W-7 Okla. L. Duncan	S	1	175	-	-	-	1	7.1	-
R-33 Indiana, Northern	S	137	-	8.2	-	6.0-9.6	-	-	-
E-3 Minn.	S	73	178	-	-	152-305	-	-	-
M-20 Wisc., South	S	22	-	-	8.6	-	22	6.4	-
H-62 Indiana	S	7	185	-	-	-	28	7.6	-
F-2 Wisc., Big Sand L.	S	-	-	-	8.7	-	-	9.1	-
M-19 Wisc., South	S	109	-	-	8.8	-	109	10.2	-
C-13 Mich. Deep L.	S	48	-	-	8.9	8.1-9.9	59	9.2	6.7-13.0
H-97 N. C. Waccamaw L.	S	-	-	-	9.2	-	-	-	-
S-11 Tenn. Reelfoot	S	22	-	-	10.2	10.0-10.4	22	18.0	16.0-20.0
Age Group VII									
G-25 N.Y.	S	3	-	-	7.3	6.5-7.7	3	5.1	3.3-6.0
R-34 Ind. Greenwood L.	S	2	-	7.1	-	6.9-7.2	-	-	-
R-58 Ohio	S	-	-	-	X	7.3-7.7	-	-	-
B-60 Ind. Shoe L.	S	1	155	-	-	-	-	-	-
B-31 Mich.	S	425	166	-	8.2	-	425	6.3	-
B-77 Mich. 3rd Sister L.	S	63	-	-	8.3	7.6-9.0	63	6.0	-
F-2 Wisc., Big Sand L.	S	-	-	-	8.4	-	-	8.7	-
H-34 Wisc. Hollister L.	S	1	-	-	8.5	-	-	-	-
F-2 Wisc., N. W.	S	-	-	-	8.5	-	-	8.1	-
M-20 Wisc., South	S	7	-	-	8.8	-	7	8.0	-
R-33 Indiana, North	S	53	-	9.0	-	6.7-9.8	-	-	-
C-13 Mich. Deep L.	S	42	-	-	9.4	8.6-10.0	50	11.4	7.3-14.7
H-62 Indiana	S	1	191	-	-	-	1	7.7	-
E-3 Minn.	S	18	198	-	-	178-305	-	-	-
S-19 Wisc., South	S	44	-	-	9.7	-	-	11.2	-
Age Group VIII									
G-25 N.Y.	S	3	-	-	8.0	7.7-8.5	3	6.8	5.8-8.4
B-31 Mich.	S	260	171	-	8.4	-	260	7.0	-



## BLUEGILL, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces			
							No.	Mean	Range	
R-34 Ind. Greenwood L.	S	1	-	8.3	-	-	-	-	-	
B-77 Mich. 3rd Sister L.	S	49	-	-	8.6	6.6-9.1	49	6.5	-	
P-12 Iowa, Okoboji L.	S	1	185	-	-	-	-	-	-	
R-33 Indiana, North	S	15	-	8.9	-	6.3-9.9	-	-	-	
M-19 Wisc., South	S	10	-	-	9.8	-	10	14.1	-	
C-17 Mich. Deep L.	S	2	-	-	9.9	9.6-10.7	3	12.6	10.3-16.8	
L-29 Iowa, Red Haw L.	S	1	212	-	-	-	-	-	-	
E-3 Minn.	S	6	216	-	-	178-305	-	-	-	
Age Group IX										
B-31 Mich.	S	79	176	-	8.7	-	79	7.6	-	
B-77 Mich. 3rd Sister L.	S	17	-	-	8.7	8.2-9.3	17	6.8	-	
R-33 Indiana, North	S	3	-	9.3	-	8.8-10.1	-	-	-	
M-19 Wisc., South	S	5	-	-	10.2	-	5	16.2	-	
Age Group X										
B-31 Mich.	S	19	180	-	8.9	-	19	7.9	-	
B-77 Mich. 3rd Sister L.	S	4	-	-	9.0	8.1-9.6	4	7.4	-	

F-6 reports that a bluegill was kept in captivity for 8 years.

	Code	No.	Average calculated standard length at each annulus							
			1	2	3	4	5	6	7	8
H-94 Mich. Crystal L.	L	183	26	42						
L-29 Ia. East L.	F	145	34	73	112	140	150	158		
E-3 Minn.	L	1609	46	81	112	140	164	194	227	247
R-40 Ind. Foots P.	L	12	32	82	119	138	138			
L-39 Ia. Red Haw L.	F	133	28	69	123	145	163	172	195	206

	Code	No.	Average calculated total length at each annulus							
			1	2	3	4	5	6	7	8
R-31 Ind. Springwood L.	L	117	1.2	2.0	2.6	3.2	4.0			
R-31 Ind. Gravel pit	L	47	1.2	2.0						
R-33 Ind. poorest lake	L	10	1.4	2.2	3.0	3.7	4.7	5.1		
R-33 Ind. ave. of 56 lakes	L	-	1.5	3.0	4.8	6.5	7.4	8.1	9.2	8.9
R-40 Ind. Foots P.	L	12	1.7	3.9	5.7	6.7	6.7			
R-40 Ind. Grassy P.	L	1	1.8	3.9						
R-33 Ind. best lake	L	10	2.0	4.5	6.9					
E-2 Minn.	L	444	1.9	3.4	4.9	6.0	7.3	9.2		
R-34 Ind. Muskellunge L.	L	-	1.8	3.7	5.7	6.7	7.3	7.7		

	Code	No.	Average calculated total length at each annulus							
			1	2	3	4	5	6	7	8
W-27 Mo. L. of Ozarks	L	21	1.0	1.8	2.6					
E-30 Ohio, poorest lake	L	-	1.4	2.7	3.2	3.9	4.6	5.0	5.2	
R-83 Ohio, L. Vesuvius	A	-	1.8	3.1	4.0	5.0	6.0			
R-55 Ohio, Kiser L.	A	-	1.1	2.9	4.4	5.2				
R-78 Ohio, L. Meander 1947	A	-	1.3	3.0	4.5	5.7	6.6	7.2	8.0	
B-86 Ill. 5 lakes	L	592	1.3	3.5	4.9	6.0	6.8	8.0	8.2	8.0
K-33 Minn.	L	2248	1.9	3.4	4.9	6.1	7.1	7.8	8.3	6.6 9.1 9.6
E-30 Ohio, Ave.	L	1000	1.6	3.6	5.1	6.0	6.8	7.5	7.6	8.5
S-62 Minn.	L	-	2.2	3.8	5.3	6.6	7.7	9.2	10.7	11.7
B-42 Ill. Homewood L.	L	152	2.8	4.5	5.3	5.6	5.8			
R-82 Ohio, L. Alma	A	0	1.6	3.6	5.5	7.0	8.0			
R-44 Ohio	A	-	2.0	3.9	5.7	7.1				
R-40 Ind. Foots P.	L	12	1.8	4.1	5.9	6.9	6.9			
B-86 Ill. Onized L.	L	329	1.9	4.6	6.5	7.4				
E-28 Tenn. Chickamauga	L	138	2.1	4.8						
E-30 Ohio, best lake	L	-	1.9	5.2	6.6	7.6				
U-4 Ill. Miss. R.	L	-	3.0	5.3	6.6	7.3	7.8			
R-78 Ohio L. Meander 1938	A	-	4.0	5.2	6.6					

	Code	Size of females	No. of females	No. of eggs per female
				Mean Range
L-13 Ohio	V	5.5 " T.L.	1	11,267
O-8 Ohio	U	-	-	8,000-12,000



## BLUEGILL, (Continued)

	Code	Size of females	No. of females	No. of eggs per female Mean	Range
C-77 -	V	6.5 oz.	1	32,950	-
U-1 Ind.	V	2 year olds	7	3,820	2,360-5,066
	V	3 year olds	7	9,264	6,518-13,137
	V	4 year olds	2	19,169	16,220-22,119
C-54 Ind.	V	140 mm. S.L.	1	11,257	-
C-6 Mich.		lists 17,914 fry per nest on a count of 17 nests ranging from 4,670-61,815			
C-54 Ind.		lists 86,631 young per nest on a count of 4 nests ranging from 11,257-224,900			

REDEAR SUNFISH, *Lepomis microlophus*

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group I									
R-34 Ind. Shoe L.	S	2	-	3.6	-	-	-	-	-
S-12 Tenn. Reelfoot L.	S	2	-	-	4.3	-	2	1.3	1.0-1.5
Age Group II									
R-34 Ind. Shoe L.	S	18	-	4.3	-	3.6-4.9	-	-	-
S-12 Tenn. Reelfoot L.	S	31	-	-	6.0	5.8-6.2	31	2.6	2.2-3.0
Age Group III									
R-34 Ind. Shoe L.	S	64	-	5.4	-	4.7-6.3	-	-	-
W-7 Okla. Duncan L.	S	5	148	-	-	-	5	3.5	-
S-12 Tenn. Reelfoot L.	S	389	-	-	6.9	6.0-7.7	389	4.4	2.2-6.4
Age Group IV									
R-24 Ind. Shoe L.	S	51	-	6.1	-	5.1-6.7	-	-	-
W-7 Okla. Duncan L.	S	5	167	-	-	-	5	4.8	-
S-12 Tenn. Reelfoot L.	S	124	-	-	7.5	6.5-8.3	124	5.3	3.4-7.5
Age Group V									
R-24 Ind. Shoe L.	S	2	-	6.6	-	6.5-6.7	-	-	-
S-12 Tenn. Reelfoot L.	S	17	-	-	8.1	7.8-8.7	17	6.4	5.5-7.8
W-7 Okla. Duncan L.	S	3	197	-	-	-	3	9.6	-
Age Group VI									
R-24 Ind. Shoe L.	S	1	-	6.9	-	-	-	-	-
W-7 Okla. Duncan L.	S	2	200	-	-	-	-	-	-
Age Group VIII									
R-24 Ind. Shoe L.	S	1	-	6.7	-	-	-	-	-

PUMPKINSEED, *Lepomis gibbosus*

C-37 Minn.	155 fish (70-129 mm.)	F.L. = 1.146 S.L.	T.L. = 1.196 S.L.
	218 fish (130-189 mm.)	F.L. = 1.129 S.L.	T.L. = 1.181 S.L.
C-30 Iowa	31 fish	F.L. = 1.16 S.L.	T.L. = 1.22 S.L.
B-30 Mich.	843 fish (under 95 mm.)		T.L. = 1.259 S.L.
	1460 fish (over 95 mm.)		T.L. = 1.239 S.L.

## Standard length-weight relationship

S.L. in mm.	No.	Wt. in grams		Wt. in oz.	Location	S.L. in mm.	No.	Wt. in grams		Wt. in oz.	Location
		Mean	Range					Mean	Range		
50-59	2	7	6-8	0.2	C-30 Iowa	152-177	3	113	-	4.0	R-24 Mich.
							22	196	-	6.9	C-20 Minn.
70-79	1	14	-	0.5	C-30 Iowa	178-202	1	42	-	1.5	R-24 Mich.
80-89	2	35	28-42	1.2	C-30 Iowa		6	235	-	8.3	C-20 Minn.
90-99	2	42	-	1.5	C-30 Iowa	203-228	6	227	-	8.0	C-20 Minn.
110-119	37	94	-	3.3	C-20 Minn.	229-253	2	397	-	14.0	C-20 Minn.
	2	97	80-113	3.4	C-30 Iowa						
120-129	4	87	79-98	3.1	C-30 Iowa	254-278	1	454	-	16.0	C-20 Minn.
						279-304	1	340	-	12.0	C-20 Minn.



## PUMPKINSEED, (Continued)

S.L. in mm.	No.	Wt. in grams		Wt. in oz.	Location	S.L. in mm.	No.	Wt. in grams		Wt. in oz.	Location
		Mean	Range					Mean	Range		
130-139	2	96	79-113	3.4	C-30 Iowa	279-304	1	340	-	12.0	C-20 Minn.
127-151	1	85	-	3.0	R-24 Mich.	305-329	1	454	-	16.0	C-20 Minn.
	40	113	-	4.0	C-20 Minn.						

## Total length-weight relationship

T.L. in inches	No.	Wt. in oz.	Location	T.L. in inches	No.	Wt. in oz.	Location
1.0-1.9	9	0.06	B-30 Mich.	7.0-7.9	-	4.8	S-62 Minn.
2.0-2.9	202	0.17	B-30 Mich.		281	5.4	B-30 Mich.
3.0-3.9	280	0.49	B-30 Mich.		50	6.8	M-20 Wisc.
	5	0.5	H-61 Md.	8.0-8.9	-	6.4	S-62 Minn.
	3	0.6	M-20 Wisc.		154	8.2	B-30 Mich.
4.0-4.9	324	1.0	B-30 Mich.		8	8.5	M-20 Wisc.
	29	1.1	H-61 Md.	9.0-9.9	-	8.0	S-62 Minn.
	65	1.5	M-20 Wisc.		16	10.3	B-30 Mich.
	-	1.6	S-62 Minn.		2	11.5	M-20 Wisc.
5.0-5.9	22	1.8	H-61 Md.				
	361	1.9	B-30 Mich.				
	188	2.4	M-20 Wisc.				
	-	2.4	S-62 Minn.				
6.0-6.9	4	3.1	H-61 Md.				
	-	3.2	S-62 Minn.				
	445	3.5	B-30 Mich.				
	85	3.8	M-20 Wisc.				

B-30 Mich.  $\text{Log } W = -4.789026 + 3.19857 \text{ Log } S.L.$

E-20 Mich. Howe L.	16 yearlings	average K 3.09
	11 adults	average K 4.68
C-34 Minn. Leech L.	69 fish (70-189 mm.)	average K 3.98
C-23 Minn. 1941-43	502 fish (70-209 mm.)	average K 4.06
C-36 Iowa	11 fish (56-135 mm.)	average K 4.20
E-3 Minn. 1936-41	123 fish (76-329 mm.)	average K 4.98
W-25 Mich.	48 fish	average K 5.14

range 3.41-4.70

B-30 Mich. value of K increased from 3.29 to 4.66 as length of fish increased.

C-23 Minn. standards: poor, under 3.1; average 3.6-4.5; excellent, over 5.0

B-30 Mich. value of C(T.D.) increased from 59 to 88 as length of fish increased.

C-23 Minn. standards for C(T.L.): poor, under 68; average, 79-99; excellent, over 109

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group O-Hatching									
B-72 N.J.	K	-	3	-	-	-	-	-	-
Age Group O-5 days									
B-72 N.J.	K	-	5	-	-	-	-	-	-
Age Group O-July									
R-22 N.B. Chamcook L.	P	103	-	0.6	-	-	-	-	-
G-32 Ohio, Buckeye L.	P	-	-	-	X	0.9-1.2	-	-	-
Age Group O-August									
G-32 Ohio, Buckeye L.	P	-	-	-	X	1.4-1.6	-	-	-
Age Group O-September									
R-22 N.B. Chamcook L.	P	-	-	1.0	-	-	-	-	-
C-13 Mich. Deep L.	P	36	-	-	1.6	0.8-1.8	-	-	-
G-32 Ohio, Buckeye L.	P	-	-	-	1.7	-	-	-	-
Age Group O-October									
B-4 Iowa, Clear L.	P	3	45	-	2.3	43-48	-	-	-







## PUMPKINSEED, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group IV									
H-94 Mich. 3rd Sister L.	S	3	72	-	-	66-79	-	-	-
B-7 N.Y.	S	28	76	-	-	63-85	-	-	-
G-25 N.Y.	S	3	-	-	3.9	2.6-5.6	3	1.0	0.2-2.7
B-75 Mich. Hopkins L.	S	15	-	-	4.2	-	15	1.0	-
R-22 N.B. Chamcook L.	S	-	-	X	-	4.2-4.4	-	-	-
U-1 Indiana	S	3	92	-	-	-	3	1.2	-
C-13 Mich. Deep L.	S	59	-	-	5.3	4.3-6.7	63	1.8	0.8-3.5
H-94 Mich. Sunken L.	S	1	114	-	-	-	-	-	-
B-31 Mich.	S	681	116	-	5.7	-	681	2.3	-
M-20 Wisc., south	S	31	-	-	5.9	-	31	3.2	-
C-72 Mich. Douglas L.	S	12	121	-	-	-	-	-	-
O-8 Ohio	S	-	-	-	X	6.0-6.4	-	-	-
S-120 Alabama	K	-	-	-	-	-	-	X	1.3-6.6
W-25 Mich. Potoganassing	S	25	143	-	7.0	-	25	5.3	-
E-3 Minn.	S	60	154	-	-	102-229	-	-	-
C-72 Mich. Houghton L.	S	6	161	-	X	7.5-8.1	-	-	-
Age Group V									
U-1 Indiana	S	2	92	-	-	-	2	1.2	-
B-7 N.Y.	S	2	94	-	-	87-101	-	-	-
R-22 N.B. Chamcook L.	S	-	-	X	-	4.0-4.6	-	-	-
S-120 Alabama	K	-	-	-	-	-	-	1.2	-
B-75 Mich. Hopkins L.	S	4	-	-	4.4	-	4	1.3	-
C-13 Mich. Deep L.	S	12	-	-	5.9	-	14	2.5	1.6-3.9
B-31 Mich.	S	455	126	-	6.2	-	455	3.0	-
M-20 Wisc., south	S	3	-	-	6.2	-	3	3.5	-
C-72 Mich. Douglas L.	S	17	134	-	-	-	-	-	-
W-25 Mich. Potogannissing	S	9	151	-	7.4	-	9	6.4	-
E-3 Minn.	S	23	174	-	-	152-229	-	-	-
C-72 Mich. Houghton L.	S	5	178	-	X	8.5-9.1	-	-	-
Age Group VI									
S-120 Alabama	K	-	-	-	-	-	-	1.4	-
B-75 Mich. Hopkins L.	S	2	-	-	4.7	-	2	1.6	-
R-22 N.B. Chamcook L.	S	-	-	X	-	4.5-4.8	-	-	-
C-13 Mich. Deep L.	S	12	-	-	6.6	6.2-7.5	14	3.2	1.9-4.2
B-31 Mich.	S	231	139	-	6.8	-	231	4.2	-
C-72 Mich. Douglas L.	S	3	142	-	-	-	-	-	-
C-72 Mich. Houghton L.	S	2	178	-	X	8.6-9.0	-	-	-
E-3 Minn.	S	3	212	-	-	178-254	-	-	-
M-20 Wisc., south	S	1	-	-	8.0	-	1	11.2	-
Age Group VII									
R-22 N.B. Chamcook L.	S	-	-	X	-	4.9-5.1	-	-	-
C-13 Mich. Deep L.	S	2	-	-	6.7	6.4-6.9	2	3.7	3.2-4.3
C-72 Mich. Douglas L.	S	1	146	-	-	-	-	-	-
B-31 Mich.	S	77	149	-	7.3	-	77	5.2	-
C-72 Mich. Houghton L.	S	1	185	-	9.4	-	-	-	-
W-13 Conn.	S	1	230	-	10.8	-	1	17.0	-
Age Group VIII									
R-22 N.B. Chamcook L.	S	-	-	5.2	-	-	-	-	-
B-31 Mich.	S	26	159	-	7.8	-	26	6.3	-
C-72 Mich. Douglas L.	S	2	161	-	-	151-171	-	-	-

F-7 reports that a pumpkinseed lived 12 years in captivity.

## Average calculated standard length at each annulus

Code	No.	1	2	3	4	5	6	7
H-94 Mich. Crystal L.	L	206	25	43				
H-93 Mich. Wiards P.	L	133	23	44				
C-72 Mich. Houghton L.	E	573	30	60	95	133	158	172
E-3 Minn.	L	456	38	87	109	138	162	204

## Average calculated fork length at each annulus

E-2 Minn.	L	262	1.9	3.5	5.0	6.0	6.1
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## PUMPKINSEED, (Continued)

	Code	No.	Average calculated total length at each annulus								
			1	2	3	4	5	6	7	8	9
K-33 Minn.	L	1582	1.7	3.1	4.4	5.5	6.4	7.2	7.7	8.1	8.5
S-62 Minn.	L	-	1.8	4.1	5.1	6.5	7.7	9.6			
B-26 Mich.	A	4184	3.3	4.9	5.9	6.8	7.5	8.0	8.1	8.4	8.6

U-1 Ind.	8 two year old females	1,034 eggs per female,	range 600-1684
	11 three year old females	1,491 eggs per female	range 1108-2366
	3 four year old females	2,422 eggs per female	
	2 five year old females	2,436 eggs per female	range 1950-2923

C-6 Mich. found 1,509 and 14,639 fry per nest in two nests.

PUMPKINSEED X BLUEGILL HYBRID, *Lepomis macrochirus x gibbosus*

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group O									
H-94 Mich. Crystal L.	B	135	49	-	-	34-69	-	-	-
C-13 Mich.-Sept.	P	11	-	-	1.6	1.4-1.9	-	-	-
Age Group I									
C-13 Mich.	S	269	-	-	2.7	1.7-3.8	-	-	-
H-94 Mich. Crystal L.	S	84	99	-	-	66-121	-	-	-
Age Group II									
C-13 Mich.	S	56	-	-	4.1	3.1-5.3	56	0.9	-
Age Group III									
H-94 Mich. 3rd Sister L.	S	1	60	-	-	-	-	-	-
B-7 N.Y.	S	5	71	-	-	62-77	-	-	-
C-13 Mich.	S	40	-	-	5.1	4.3-6.4	-	1.5	-
Age Group IV									
B-7 N.Y.	S	2	85	-	-	68-92	-	-	-
H-94 Mich., 3rd Sister L.	S	6	85	-	-	56-111	-	-	-
C-13 Mich.	S	25	-	-	6.0	4.5-8.1	25	2.3	-
H-94 Mich., Sunken L.	S	4	149	-	-	120-160	-	-	-
Age Group V									
B-7 N.Y.	S	2	94	-	-	89-98	-	-	-
C-13 Mich.	S	5	-	-	7.1	6.1-8.9	5	4.8	-
Age Group VI									
C-13 Mich.	S	3	-	-	8.4	8.3-8.5	3	8.1	-

	No.	Calculated S.L. in mm.	
H-94 Mich. Crystal L.	83	1	2
		32	67

PUMPKINSEED X GREEN SUNFISH HYBRID, *Lepomis gibbosus X cyanelus*

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group O									
H-93 Mich. Wiard's P.	P	14	35	-	-	28-45	-	-	-
H-93 Mich. Aquaria	K	41	54	-	-	39-95	-	-	-
Age Group I									
H-94 Mich. Willow R.	S	44	37	-	-	22-49	-	-	-
B-7 N.Y.	S	48	44	-	-	34-54	-	-	-
C-13 Mich.	S	6	-	-	2.2	2.0-2.4	-	-	-
H-93 Mich. Wiards P.	K	14	63	-	-	50-75	-	-	-
H-93 Mich. Aquarium	K	12	67	-	-	50-90	-	-	-
H-94 Mich. Middle Range R.	S	55	75	-	-	63-92	-	-	-
Age Group II									
B-7 N.Y.	S	29	56	-	-	49-71	-	-	-
H-94 Mich. Willow R.	S	8	70	-	-	58-85	-	-	-
H-94 Mich. Range R.	S	27	94	-	-	78-112	-	-	-
H-93 Mich. Wiard's P.	K	1	107	-	-	-	-	-	-



## PUMPKINSEED X GREEN SUNFISH HYBRID, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group III									
B-7 N.Y.	S	10	75	-	-	67-86	-	-	-
H-94 Mich. Range R.	S	5	113	-	-	98-138	-	-	-
Age Group IV									
B-7 N.Y.	S	8	85	-	-	68-92	-	-	-
C-13 Mich.	S	1	-	-	6.7	-	-	-	-
Age Group V									
B-7 N.Y.	S	17	99	-	-	33-111	-	-	-
Age Group VI									
B-7 N.Y.	S	1	115	-	-	-	-	-	-
							Calculated S.L. in mm.		
		No.			1			2	
H-93 Mich. Wiard's pond		14			29			63	

BLUEGILL X GREEN SUNFISH HYBRIDS, Lepomis macrochirus X cyanelus

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group I									
C-13 Mich.	S	1	-	-	2.0	-	-	-	-
B-7 N.Y.	S	18	46	-	-	36-49	-	-	-
Age Group II									
B-7 N.Y.	S	6	60	-	-	49-68	-	-	-
H-94 Mich.	S	41	97	-	-	-	-	-	-
Age Group III									
B-7 N.Y.	S	9	70	-	-	59-81	-	-	-
C-13 Mich.	S	1	-	-	4.3	-	-	-	-

BLUEGILL X REDEAR SUNFISH HYBRIDS, Lepomis macrochirus X microlophus

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group 0-July									
R-38 Indiana, small	K	130	-	0.8	-	0.5-1.0	-	0.1	-
R-38 Indiana, large	K	194	-	1.0	-	0.9-1.3	-	0.3	-
Age Group 0-August									
R-38 Indiana, small	K	94	-	1.1	-	0.0-1.3	-	0.4	-
R-38 Indiana, Large	K	32	-	1.5	-	1.3-1.8	-	1.1	-
Age Group 0-September									
R-38 Indiana, small	K	62	-	1.2	-	1.1-1.4	-	0.6	-
R-38 Indiana, large	K	23	-	1.6	-	1.5-1.8	-	1.1	-
Age Group 0-October									
R-28 Indiana, small	K	48	-	1.4	-	1.1-1.6	-	0.8	-
R-28 Indiana, large	K	101	-	1.9	-	1.6-2.3	-	2.0	-
Age Group I									
R-28 Indiana	K	1078	-	3.5	-	2.3-7.7	1078	18.9	5-198
Age Group II									
R-28 Indiana	K	17	-	5.6	-	3.3-8.1	17	70	12-223

F<sub>2</sub> HYBRID SUNFISH, Bluegill-redear X Bluegill-Readear

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group 0-October									
R-38 Indiana		39	-	X	-	1.1-4.5	-	X	0.7-25.5



BLUESPOT SUNFISH, *Enneacanthus gloriosus*

B-72 N.Y.		2.3 mm. at hatching.		4.5 mm. at 120 hours.
B-72 N.Y.	Age Group V.	3 fish	mean 62 mm.	range 55-71
Average calculated standard length at each annulus				
B-72 N.Y.	No.	1	2	3
		15	30	40-50

MUD SUNFISH, *Acantharchus pomotis*

Average calculated standard length at each annulus								
B-72 N.Y. Post Brook	No.	1	2	3	4	5	6	7
	10	39	52	69	82	94	106	115

SACRAMENTO PERCH, *Archoplites interruptus*

Fork length-weight relationship, Cal. Clear L. M-85

F.L. in inches	No.	Weight in oz.		Fork length in inches	No.	Weight in oz.	
		Mean	Range			Mean	Range
6	1	2	-	9	7	7	5-9
7	12	3.5	2-5	10	6	10	9-11
8	12	6	5-7	11	1	12.5	

		No.	Fork length in inches	
			Mean	Range
M-85 Cal. Clear L.				
Age Group 0-July		-	1.9	-
Age Group 0-Aug.		-	2.0	-
Age Group I		10	6.8	6.0-7.6
II		22	8.0	6.7-9.7
III		16	8.9	7.9-10.3
IV		7	10.0	8.9-11.0
M-85 Cal. Clear L.	10.5 inch female	84,000 eggs.		

WARMOUTH, *Chaenobryttus coronarius*

L-32 Ia. Red Haw L.	65 fish 40-177 mm. S.L.	Fork length equals 1.179 S.L.
L-32 Ia. Red Haw L.	72 fish 40-177 mm. S.L.	Total length equals 1.248 S.L.

Total length-weight relationship, Iowa, Red Haw L. L-32

T.L. in inches	No.	Weight in oz.	T.L. in inches	No.	Weight in oz.
2.0-2.9	3	0.14	6.0-6.9	25	3.09
3.0-3.9	3	0.49	7.0-7.9	19	4.66
4.0-4.9	5	0.97	8.0-8.9	1	6.56
5.0-5.9	15	1.61			

L-32 Ia. Red Haw L.		Log W = -4.683 + 3.138 Log S.L.
L-32 Ia. Red Haw L.	76 fish (40-177 mm.)	average K 3.95

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group 0-10 Days									
C-39 Florida	K	-	X	-	-	5.5-6.0	-	-	-
Age Group I									
B-86 Ill. Onized L.	S	1165	-	-	2.9	2.0-4.0	-	-	-
L-32 Iowa, Red Haw L.	S	5	59	-	-	-	-	-	-
S-13 Tenn. Reelfoot L.	S	16	-	-	5.0	4.3-5.9	16	1.8	1.0-2.5
Age Group II									
B-86 Ill. Onized L.	S	466	-	-	4.9	3.5-7.0	-	-	-
R-34 Ind. Muskellunge L.	S	10	-	4.7	-	4.3-4.9	-	-	-



## WARMOUTH, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
L-32 Iowa, Red Haw L.	S	17	106	-	-	-	-	-	-
S-13 Tenn. Reelfoot L.	S	44	-	-	6.3	5.5-6.9	44	3.5	1.7-4.8
W-7 Okla. Duncan L.	S	1	171	-	-	-	1	6.1	-
Age Group III									
L-32 Iowa, Red Haw L.	S	23	133	-	-	-	-	-	-
R-34 Ind. Muskellunge L.	S	10	-	5.8	-	4.9-7.1	-	-	-
W-7 Okla. Duncan L.	S	3	140	-	-	-	3	2.6	-
B-86 Ill. Onized L.	S	7	-	-	6.6	6.0-7.5	-	-	-
S-13 Tenn. Reelfoot L.	S	254	-	-	7.0	6.3-7.7	254	5.0	3.0-8.5
Age Group IV									
R-34 Ind. Muskellunge L.	S	25	-	6.2	-	5.1-7.3	-	-	-
R-40 Ind. Grassy P.	S	1	-	6.5	-	-	-	-	-
L-32 Iowa, Red Haw L.	S	3	155	-	-	-	-	-	-
W-7 Okla. Duncan L.	S	1	165	-	-	-	1	4.8	-
S-13 Tenn. Reelfoot L.	S	130	-	-	7.7	6.7-8.7	130	6.6	4.7-10.0
Age Group V									
R-34 Ind. Muskellunge L.	S	7	-	6.7	-	6.1-7.3	-	-	-
L-32 Iowa, Red Haw L.	S	2	159	-	-	-	-	-	-
S-13 Tenn. Reelfoot L.	S	49	-	-	8.1	7.7-9.3	49	7.8	6.5-10.0
Age Group VI									
L-32 Iowa, Red Haw L.	S	4	160	-	-	-	-	-	-
R-34 Ind. Muskellunge L.	S	2	-	7.6	-	6.9-8.3	-	-	-
Age Group VII									
L-32 Iowa, Red Haw L.	S	1	177	-	-	-	-	-	-

	Code	No.	Average calculated standard length at each annulus						
			1	2	3	4	5	6	7
L-32 Ia. Red Haw L.	F	55	32	73	118	142	153	162	177
Average calculated fork length in inches at each annulus									
R-40 Ind. Grassy P.	L	1	1.6	3.2	4.2	5.5			
Average calculated total length at each annulus									
L-32 Ia. Red Haw L.	F	55	1.6	3.6	5.8	7.0	7.5	8.0	8.7
B-86 Ill. Onized L.	L	101	1.4	4.0	6.1				
U-4 Ill. Miss R.	L	26	1.8	4.8	6.2	7.1			
Average calculated weight in grams at each annulus									
L-32 Ia. Red Haw L.		55	1	15	68	129	175	214	242

SOUTHERN ROCK BASS, *Ambloplites ariommus*

	No.	Standard length	Total length	Weight in ounces
V-25 Mississippi				
Age group III	2	107-124	5.1-5.9	1.7-2.5
IV	4	130-137	6.2-6.6	2.7-3.5
V	2	150-157	7.1-7.5	4.0-4.5

ROCK BASS, *Ambloplites rupestris*

C-37 Minn.	80 fish (100-149 mm.)	F.L. = 1.157 S.L.	T.L. = 1.207 S.L.
	337 fish (150-249 mm.)	F.L. = 1.157 S.L.	T.L. = 1.193 S.L.
C-22 Minn. L. of Woods,	101 fish (140-229 mm.)	F.L. = 1.164 S.L.	T.L. = 1.200 S.L.
C-35 Minn. L. Vermilion		F.L. = 1.174 S.L.	T.L. = 1.22 S.L.
C-30 Iowa	1 fish	F.L. = 1.16 S.L.	T.L. = 1.222 S.L.
H-65 Wisc. Nebish L.	29 fish (under 100 mm.)		T.L. = 1.217 S.L.
	136 males (over 100 mm.)		T.L. = 1.217 S.L.
	109 females (100-159 mm.)		T.L. = 1.206 S.L.
	32 females (over 160 mm.)		T.L. = 1.268 S.L.
B-30 Mich.	1066 fish (under 118 mm.)		T.L. = 1.247 S.L.
	925 fish (over 118 mm.)		



## ROCK BASS, (Continued)

## Standard length-weight relationship

S.L. in mm.	No.	Weight in grams	Weight in ounces		Location
			Mean	Range	
64	5	40	1.4	-	C-20 Minn.
89	1	28	1.0	-	R-24 Mich.
	5	51	1.8	-	C-20 Minn.
114	6	43	1.5	1.0-2.0	R-24 Mich.
	11	77	2.7	-	C-20 Minn.
140	3	71	2.5	2.0-3.5	R-24 Mich.
	22	122	4.3	-	C-20 Minn.
165	29	176	6.2	-	C-20 Minn.
	1	184	6.5	-	R-24 Mich.
190	3	204	7.2	6.5-8.0	A-24 Mich.
	122	281	9.9	-	C-20 Minn.
216	3	284	10.0	9.0-12.0	R-24 Mich.
	101	357	12.6	-	C-20 Minn.
249	1	269	13.0	-	R-24 Mich.
	12	391	13.8	-	C-20 Minn.
267	1	595	21.0	-	C-20 Minn.

## Fork length-weight relationship, Indiana, S-130

F.L. in inches	No.	Weight in oz.	F.L. in inches	No.	Weight in oz.
4.0-4.9	35	1.4	8.0-8.9	61	8.4
5.0-5.9	318	2.6	9.0-9.9	7	11.2
6.0-6.9	448	4.0	10.0-10.9	1	15.6
7.0-7.9	3.6	5.9			

## Total length-weight relationship

T.L. in inches	No.	Weight in ounces	Location
1.0-1.9	8	0.05	B-30 Mich.
2.0-2.9	2	0.1	H-66 Wisc. Muskellunge L.
	14	0.2	B-30 Mich.
3.0-3.9	264	0.5	H-66 Wisc. Muskellunge L.
	105	0.5	H-66 Wisc.
	96	0.6	B-30 Mich.
	54	0.6	H-65 Wisc., Nebish L.
	3	0.8	M-20 Wisc., south
4.0-4.9	177	0.8	H-65 Wisc. Nebish L.
	420	0.9	H-66 Wisc. Muskellunge L.
	313	1.0	B-30 Mich.
	111	1.1	H-66 Wisc.
	41	1.2	M-20 Wisc., south
5.0-5.9	204	1.6	H-66 Wisc., Muskellunge L.
	126	1.6	H-65 Wisc. Nebish L.
	230	1.9	H-66 Wisc.
	319	1.9	B-30 Mich.
	99	2.1	M-20 Wisc., south
6.0-6.9	77	2.6	H-65 Wisc. Nebish L.
	249	2.7	H-66 Wisc. Muskellunge L.
	204	2.9	H-66 Wisc.
	316	3.1	B-30 Mich.
	89	3.6	M-20 Wisc., south
7.0-7.9	287	3.9	H-66 Wisc. Muskellunge L.
	251	4.0	H-65 Wisc. Nebish L.
	95	4.7	H-66 Wisc.
	193	4.7	B-30 Mich.
	63	5.8	M-20 Wisc. south



## ROCK BASS, (Continued)

T.L. in inches	No.	Weight in ounces	Location
8.0-8.9	485	5.6	H-65 Wisc. Nebish L.
	189	6.0	H-66 Wisc. Muskellunge L.
	140	6.9	B-30 Mich.
	68	6.9	H-66 Wisc.
	2	7.5	E-32 Indiana
	74	8.2	M-20 Wisc., south
9.0-9.9	24	7.4	H-65 Wisc. Nebish L.
	32	8.5	H-66 Wisc. Muskellunge L.
	2	9.1	E-32 Indiana
	26	9.4	H-66 Wisc.
	33	10.6	M-20 Wisc., south
	80	11.1	B-30 Mich.
10.0-10.9	1	10.5	E-32 Indiana
	13	13.5	M-20 Wisc., south
	37	13.6	B-30 Mich.
	2	13.9	H-66 Wisc.
11.0-11.9	1	13.0	E-32 Indiana
	7	16.6	E-30 Mich.
	1	20.0	M-20 Wisc., south

H-66 Wisc. 3 lakes	Log W = -4.57398 + 3.057 Log S.L.
H-66 Wisc. Muskellunge L.	Log W = -4.48057 + 2.986 Log S.L.
H-65 Wisc. Nebish L.	Log W = -4.54000 + 3.003 Log S.L.
B-29 Mich. Booth L.	Log W = -4.44406 + 3.025 Log S.L.
B-30 Mich.	Log W = -4.319450 + 2.96914 Log S.L.

S-130 Ind. Tippecanoe R. 1134 fish (127-211 mm.) Log W = -4.4255 + 2.923 Log F.L.

	No.	S.L. in mm.	Average K
H-65 Wisc. Nebish L.	1035	72-200	2.92
H-62 Ind.	30	-	3.28
B-29 Mich. Booth L.	before thinning	-	3.07
	after thinning	-	4.10
C-34 Minn. Leech L.	81	100-249	3.72
C-23 Minn. 1941-43	457	-	3.83
C-35 Minn. L. Vermilion	22	-	4.03
E-3 Minn. 1936-41	289	51-278	4.18
V-20 Minn. Red Lake	5	170-176	4.19
C-36 Iowa	1	162	4.23
B-30 Mich.	-	20-231	4.07-4.32
C-23 Minn. standards for K: poor under 3.1; average 3.5-4.1; excellent, over 4.3			
S-130 Ind.	1134 fish	average K(F.L.)	2.55
B-30 Mich. C(T.L.) varies for 74-77			
C-23 Minn. standards for C(T.L.); poor, under 65; average 73-86; excellent, over 90			

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group O-June									
R-71 Ohio	P	-	X	-	-	15-19	-	-	-
Age Group O-July									
E-32 Indiana	P	-	-	-	1.2	-	-	-	-
R-71 Ohio	P	-	X	-	-	30-33	-	-	-
Age Group O-August									
R-71 Ohio	P	-	X	-	-	37-47	-	-	-
Age Group O-September									
A-1 N.Y. Oneida L.	P	18	-	-	X	1.2-1.4	-	-	-
C-13 Mich., Deep L.	P	7	-	-	1.6	1.3-2.0	73	0.1	-
R-71 Ohio	P	-	53	-	-	-	-	-	-
Age Group O									
B-31 Mich.	S	17	30	-	1.5	-	17	0.04	-
E-9 N.Y.	K	-	-	1.5	-	-	-	-	-
B-73	K	-	-	-	2.0	-	-	-	-



## ROCK BASS, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group I									
E-9 N.Y.	K	-	-	2.0	-	-	-	-	-
A-1 N.Y. Oneida L.	P	26	-	-	X	1.7-2.5	-	-	-
H-62 Indiana	S	24	55	-	-	-	18	0.3	-
B-25 Mich. Standard L.	S	18	57	-	-	-	-	-	-
C-13 Mich. Deep L.	S	19	-	-	3.0	2.4-3.7	396	0.3	0.2-0.7
B-31 Mich.	S	176	65	-	3.2	-	176	0.4	-
E-3 Minn.	S	8	76	-	-	51-127	-	-	-
B-25 Mich., Standard L.	S	38	86	-	-	-	-	-	-
M-20 Wisc., south	S	3	-	-	5.2	-	3	1.6	-
Age Group II									
E-9 N.Y.	K	-	-	3.0	-	-	-	-	-
B-25 Mich., Standard L.	S	22	72	-	-	-	-	-	-
B-31 Mich.	S	348	86	-	4.3	-	348	0.9	-
B-25 Mich., Standard L.	S	47	88	-	-	-	-	-	-
H-65 Wisc., Nebish L.	S	156	92	-	4.4	82-112	156	0.8	-
N-37 Wisc., L. Geneva	S	1	94	-	-	-	-	-	-
C-13 Mich., Deep L.	S	42	-	-	4.8	4.2-5.9	43	1.2	0.5-2.2
E-22 Tenn. Norris L.	S	1	-	-	5.0	-	-	-	-
L-14 Ohio	S	8	-	-	5.3	-	-	-	-
H-62 Indiana	S	17	109	-	-	-	16	1.4	-
E-3 Minn.	S	19	112	-	-	51-178	-	-	-
M-20 Wisc., South	S	61	-	-	5.5	-	61	1.9	-
L-38 Ill. Kaskaskia R.	D	-	127	-	-	114-140	-	-	-
Age Group III									
B-25 Mich., Standard L.	S	30	82	-	-	-	-	-	-
B-25 Mich., Standard L.	S	35	97	-	-	-	-	-	-
B-31 Mich.	S	498	104	-	5.2	-	498	1.7	-
H-65 Wisc., Nebish, fem.	S	67	114	-	5.5	97-127	67	1.5	-
N-37 Wisc., L. Geneva	S	9	117	-	-	-	-	-	-
H-65 Wisc., Nebish, males	S	49	120	-	5.7	102-137	49	1.8	-
M-20 Wisc., south	S	278	-	-	5.8	-	278	2.6	-
C-13 Mich., Deep L.	S	22	-	-	6.0	5.2-6.9	22	2.3	1.1-3.5
C-35 Minn. L. Vermilion	S	2	131	-	-	127-134	2	3.2	3.0-3.3
L-14 Ohio	S	48	-	-	6.6	-	-	-	-
E-22 Tenn. Norris L.	S	4	-	-	7.0	-	-	-	-
H-62 Indiana	S	9	151	-	-	-	11	3.6	-
E-3 Minn.	S	62	152	-	-	76-229	-	-	-
L-38 Ill. Kaskaskia R.	P	-	165	-	-	152-190	-	-	-
Age Group IV									
B-25 Mich., Standard L.	S	41	86	-	-	-	-	-	-
B-25 Mich., Standard L.	S	52	105	-	-	-	-	-	-
B-31 Mich.	S	630	126	-	6.2	-	630	2.9	-
H-65 Wisc., Nebish, fem.	S	31	128	-	6.1	122-147	31	2.3	-
H-65 Wisc., Nebish, males	S	24	133	-	6.4	122-152	24	2.5	-
C-13 Mich., Deep L.	S	14	-	-	6.5	5.6-7.0	18	2.9	1.8-4.2
M-20 Wisc., south	S	310	-	-	6.8	-	310	3.7	-
N-37 Wisc., L. Geneva	S	14	147	-	-	-	-	-	-
C-35 Minn. L. Vermilion	S	6	147	-	-	121-158	2	5.1	4.2-6.0
L-14 Ohio	S	37	-	-	7.6	-	-	-	-
E-3 Minn.	S	169	178	-	-	127-229	-	-	-
H-62 Indiana	S	8	182	-	-	-	8	7.0	-
Age Group V									
B-25 Mich., Standard L.	S	2	90	-	-	-	-	-	-
W-45 Wisc., Muskellunge L.	S	63	103	-	-	-	-	-	-
W-45 Wisc. Trout L.	S	39	114	-	-	-	-	-	-
B-25 Mich., Standard L.	S	41	115	-	-	-	-	-	-
H-65 Wisc. Nebish, fem.	S	58	138	-	6.6	117-152	58	3.1	-
H-65 Wisc. Nebish, males	S	53	148	-	7.1	132-162	53	3.7	-
B-31 Mich.	S	338	148	-	7.3	-	338	4.7	-
C-13 Mich. Deep L.	S	7	-	-	7.4	6.7-8.0	9	4.4	2.7-5.6
M-20 Wisc., south	S	215	-	-	7.6	-	215	5.9	-
C-35 Minn. L. Vermilion	S	7	166	-	-	143-178	4	-	5.0-9.0
L-14 Ohio	S	1	-	-	7.8	-	-	-	-



## ROCK BASS, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces			
							No.	Mean	Range	
N-37 Wisc., L. Geneva	S	16	173	-	-	-	-	-	-	
E-3 Minn.	S	109	191	-	-	127-229	-	-	-	
H-62 Indiana	S	7	194	-	-	-	6	8.6	-	
Age Group VI										
B-25 Mich. Standard L.	S	124	-	-	-	-	-	-	-	
W-45 Wisc. Muskellunge L.	S	74	125	-	-	-	-	-	-	
W-45 Wisc. Trout L.	S	42	131	-	-	-	-	-	-	
H-65 Wisc. Nebish, fem.	S	34	150	-	7.2	137-167	34	3.6	-	
H-65 Wisc. Nebish, males	S	15	157	-	7.5	142-167	15	4.2	-	
B-31 Mich.	S	183	160	-	7.9	-	183	5.9	-	
C-13 Mich. Deep L.	S	2	-	-	8.2	8.1-8.3	2	5.9	5.6-6.2	
M-20 Wisc., south	S	72	-	-	8.5	-	72	8.0	-	
C-35 Minn. L. Vermilion	S	5	186	-	-	172-193	4	8.9	7.0-12.0	
E-3 Minn.	S	72	208	-	-	152-254	-	-	-	
H-62 Indiana	S	1	233	-	-	-	1	12.9	-	
N-37 Wisc. L. Geneva	S	8	246	-	-	-	-	-	-	
Age Group VII										
W-45 Wisc. Muskellunge L.	S	57	139	-	-	-	-	-	-	
W-45 Wisc. Trout L.	S	27	146	-	-	-	-	-	-	
H-65 Wisc. Nebish, fem.	S	76	153	-	7.3	137-172	76	3.8	-	
C-13 Mich. Deep L.	S	2	-	-	7.4	-	2	5.3	4.9-5.6	
A-65 Wisc. Nebish, Males	S	47	173	-	8.3	152-187	47	5.3	-	
B-31 Mich.	S	129	178	-	8.8	-	129	8.1	-	
C-35 Minn. L. Vermilion	S	3	192	-	-	190-195	3	9.3	8.0-10.0	
M-20 Wisc., south	S	35	-	-	9.5	-	35	11.2	-	
E-3 Minn.	S	26	218	-	-	178-254	-	-	-	
W-13 Conn.	S	1	219	-	10.6	-	1	17.0	-	
H-62 Indiana	S	3	229	-	-	-	4	12.3	-	
Age Group VIII										
H-65 Wisc. Nebish, fem.	S	125	161	-	7.6	142-177	125	4.4	-	
H-65 Wisc. Nebish, males	S	128	177	-	8.5	152-197	128	5.8	-	
B-31 Mich.	S	92	183	-	9.0	-	92	8.9	-	
C-35 Minn. L. Vermilion	S	4	194	-	-	190-196	4	10.6	10.0-11.0	
M-20 Wisc., south	S	6	-	-	9.8	-	-	11.5	-	
N-37 Wisc. L. Geneva	S	2	239	-	-	-	-	-	-	
E-3 Minn.	S	3	246	-	-	203-279	-	-	-	
Age Group IX										
E-3 Minn.	S	1	203	-	-	-	-	-	-	
H-65 Wisc., Nebish, males	S	61	182	-	8.7	172-197	61	6.3	-	
H-65 Wisc., Nebish, fem.	S	123	169	-	8.0	152-192	123	5.1	-	
B-31 Mich.	S	42	202	-	9.9	-	42	11.8	-	
C-35 Minn. L. Vermilion	S	2	216	-	-	208-223	1	14.0	-	
M-20 Wisc., south	S	1	-	-	10.2	-	1	12.6	-	
Age Group X										
H-65 Wisc. Nebish, males	S	15	187	-	9.0	177-202	15	7.8	-	
H-65 Wisc. Nebish, fem.	S	51	175	-	8.3	152-187	51	5.6	-	
B-31 Mich.	S	13	213	-	10.5	-	13	13.9	-	
C-35 Minn. L. Vermilion	S	1	215	-	-	-	1	14.0	-	
M-20 Wisc., south	S	1	-	-	10.1	-	1	11.2	-	
Age Group XI										
H-65 Wisc. Nebish, males	S	3	195	-	9.3	192-202	3	7.9	-	
H-65 Wisc. Nebish, fem.	S	16	180	-	8.6	167-187	16	6.3	-	
C-35 Minn. L. Vermilion	S	1	211	-	-	-	1	16.0	-	
Age Group XII										
H-65 Wisc. Nebish, fem.	S	4	180	-	8.6	172-192	4	6.3	-	
M-20 Wisc. south	S	1	-	-	11.0	-	1	14.7	-	
Age Group XIII										
H-65 Wisc. Nebish, fem.	S	1	193	-	9.2	-	1	7.7	-	

F-7 reports that a rock bass lived 12 years in captivity.

B-69 reports that a rock bass lived 18 years in captivity.



## ROCK BASS, (Continued)

	Code	No.	Average calculated standard length at each annulus											
			1	2	3	4	5	6	7	8	9	10	11	
W-45 Wisc. Trout L.	L	108	20	37	55	76	101	123	142					
W-45 Wisc. Muskellunge	L	194	20	37	55	76	98	120	137					
B-29 Mich. Booth L. 1943	F	266	31	50	66	77	85							
H-65 Wisc. Muskellunge	E	533	33	51	68	87	105	122	138	152	166	175	182	
H-65 Wisc. Silver L.	E	154	31	48	69	87	115	138	160	176	184			
B-25 Mich. Standard L.	F	113	32	52	70	76	83							
H-65 Wisc. Trout L.	E	77	32	51	71	93	121	147	162	177	186	183		
H-65 Wisc. Allequash L.	E	20	36	55	72	91	114	134	147	156	159	165		
B-25 Mich. Standard L.	F	159	31	53	73	95	120	146						
H-65 Wisc. Nebish L.	E	981	34	62	91	116	134	147	156	163	169	176	182	
C-35 Minn. L. Vermilion	L	31	32	61	95	128	154	171	183	192	204	205	208	
B-29 Mich. Booth L.	F	289	34	66	101	128	153	175						
E-3 Minn.	L	923	47	84	122	151	173	200	216	243	194			

	Code	No.	Average calculated fork length at each annulus											
			1	2	3	4	5	6	7	8	9	10	11	12
S-130 Ind. Tippecanoe R.	L	1291	1.7	3.1	4.9	6.5	7.6	7.9						
S-130 Ind. Sugar C.	L	52	1.8	3.2	5.1	6.6	8.1							
E-2 Minn.	L	324	1.9	3.6	5.3	6.8	8.0	9.2	9.4					

	Code	No.	Average calculated fork length at each annulus											
			1	2	3	4	5	6	7	8	9	10	11	12
R-49 Ohio	A	-	1.3	2.7	3.7	5.0	6.0	7.0	7.5	8.2	9.8			
K-33 Minn.	L	907	1.6	3.0	4.5	5.9	7.1	8.3	9.1	9.6	10.1	10.5	10.8	10.8
S-62 Minn.														

	Code	No.	Average calculated weight in grams at each annulus											
			1	2	3	4	5	6	7	8	9	10	11	12
B-29 Mich. Booth L.	-	266	1	4	9	15	19							
H-65 Wisc. Muskellunge L.	-	533	1	4	10	20	36	56	82	108	141	165	187	
H-65 Wisc. Silver L.	-	154	1	5	11	22	53	92	146	195	222			
H-65 Wisc. Allequash L.	-	20	2	6	12	26	51	84	113	137	143	160		
H-65 Wisc. Trout L.	-	77	1	4	12	28	62	113	154	200	232			
H-65 Wisc. Nebish L.	-	981	1	7	22	46	72	95	113	128	143	160	179	
B-29 Mich. Booth L.	-	289	2	12	43	87	148	221						

E-4 Minn.	average of 5000 eggs per female.	one female had 11,000 eggs
V-21 Minn.	10 females 4-8 oz.	mean 3,000 eggs range 3,000-5,000
	24 female 8-12 oz.	mean 5,000 eggs range 2,000-7,000
	17 females 12-16 oz.	mean 5,500 eggs range 3,000-8,000
	3 females, 16-20 oz.	mean 8,500 eggs range 8,000-11,000

WHITE CRAPPIE, *Pomoxis annularis*

L-29 Iowa, East L.	60 fish (30-229 mm.)	F.L. = 1.209 S.L.
C-30 Iowa	46 fish	F.L. = 1.21 S.L.
L-29 Iowa, Red Haw L.	15 fish (88-251 mm.)	F.L. = 1.228 S.L.
H-10 Ill. Horseshoe L.	96 fish (40-250 mm.)	T.L. = 1.25 S.L. to 1.50 S.L.
S-100 Tenn.	8 fish (140-179 mm.)	T.L. = 1.279 S.L.
	46 fish (180-219 mm.)	T.L. = 1.259 S.L.
	7 fish (220-259 mm.)	T.L. = 1.246 S.L.
L-29 Iowa, East L.	85 fish (30-229 mm.)	T.L. = 1.285 S.L.
L-29 Iowa, Red Haw L.	29 fish (88-251 mm.)	T.L. = 1.288 S.L.
C-30 Iowa	60 fish	T.L. = 1.29 S.L.

## Standard length-weight relationship, Iowa, C-30; L-29

S.L. in mm.	No.	Weight in grams Mean	Weight in grams Range	Weight in oz.	S.L. in mm.	No.	Weight in grams Mean	Weight in grams Range	Weight in oz.
91	25	15	4-44	0.5	187	25	167	133-219	5.9
109	24	26	17-41	0.9	212	6	226	181-262	8.0
129	11	51	29-71	1.1	234	7	329	272-390	11.6
148	4	120	99-142	4.2	253	3	440	366-494	15.5
172	64	129	105-170	4.5	266	1	545	-	19.2



WHITE CRAPPIE, (Continued)

T.L. in inches	Weight in ounces	Location	T.L. in inches	Weight in ounces	Location
4.5	0.5	R-81 Ohio	9.5	5.2	0-7 Ohio, St. Mary L.
5.5	0.9	R-81 Ohio		5.3	R-78 Ohio, Meander L.
	1.2	0-7 Ohio, Indian L.		5.6	0-7 Ohio, Indian L.
	1.2	0-7 Ohio, Buckeye L.		6.3	0-7 Ohio, Buckeye L.
6.5	1.0	R-78 Ohio, Meander L.	10.5	6.8	R-81 Ohio
	1.6	R-81 Ohio		7.5	R-78 Ohio, Meander L.
	1.8	C-89 Iowa		7.9	0-7 Ohio, Indian L.
	1.8	0-7 Ohio, Indian L.		9.1	0-7 Ohio, Buckeye L.
	1.9	0-7 Ohio, Buckeye L.		10.5	R-81 Ohio
7.5	1.5	R-78 Ohio, Meander L.	11.5	10.5	0-7 Ohio, Indian L.
	2.4	C-89 Iowa		11.0	R-78 Ohio, Meander L.
	2.7	R-81 Ohio		14.0	R-81 Ohio
	2.9	0-7 Ohio, Buckeye L.		12.5	0-7 Ohio, Indian L.
	2.9	0-7 Ohio, St. Mary		15.8	R-78 Ohio, Meander L.
	3.2	0-7 Ohio, Indian L.		19.0	R-81 Ohio
8.5	3.5	R-78 Ohio, Meander L.	13.5	20.5	R-78 Ohio, Meander L.
	4.1	0-7 Ohio, Indian L.		25.0	R-81 Ohio
	4.1	0-7 Ohio, St. Mary			
	4.2	R-81 Ohio			

	No.	S.L. in mm.	Mean K	Range
C-23 Minn.	18	125-210	1.48	
C-36 Iowa	58	82-266	2.08	
H-10 Ill. Senachwine L.	16	36-51	2.20	2.01-2.46
S-100 N.C., Hiwassee L.	25	-	2.37	
L-29 Iowa, Red Haw L.	29	88-251	2.50	
L-29 Iowa, East L.	90	30-259	2.52	
E-28 Tenn. Chickamauga L.	434	-	2.6	
S-100 Tenn. Douglas L.	8	-	2.61	
H-10 Ill. Horseshoe L.	94	127-305	2.77	2.42-3.32
H-10 Ill. L. Decatur	3327	76-279	2.80	2.0-3.7
H-10 Ill. Senachwine L.	266	102-203	2.84	2.66-3.12
S-100 Tenn. Cherokee L.	25	-	2.93	
H-10 Ill. Craborchard L.	13	203-279	3.88	3.66-4.18
C-89 Iowa, 5 fish		6-7.5 inches	average C(T.L.)	38
R-48 Ohio		-	average C(T.L.)	50
				range 36-40

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group O-June									
R-40 Ind. Foot's P.	P	-	-	1.2	-	0.7-1.8	-	-	-
E-28 Tenn. Chickamauga L.	P	392	-	-	1.5	0.7-2.1	-	-	-
Age Group O-July									
R-40 Ind. Foot's P.	P	-	-	1.3	-	0.9-1.9	-	-	-
G-32 Ohio, Buckeye L.	P	-	-	-	X	1.0-1.6	-	-	-
E-28 Tenn. Chickamauga L.	P	58	-	-	2.1	1.4-2.8	-	-	-
Age Group O-August									
R-40 Ind. Foot's P.	P	-	-	1.9	-	1.2-2.6	-	-	-
G-32 Ohio, Buckeye L.	P	-	-	-	X	1.7-2.1	-	-	-
E-28 Tenn. Chickamauga L.	P	92	-	-	2.6	1.9-3.4	-	-	-
Age Group O-Sept.-Nov.									
G-32 Ohio, Buckeye L.	P	-	-	-	2.2	-	-	-	-
A-10 Oklahoma	K	-	-	-	-	-	-	-	0.06-0.3
E-28 Tenn. Chickamauga L.	P	62	-	-	2.8	1.9-3.7	-	-	-
H-10 Ill.	S	152	-	-	2.9	2.6-3.7	-	-	-
R-40 Ind. Foot's P.	P	-	-	2.8	-	2.0-3.2	-	-	-
H-10 Ill. L. Decatur	S	2	-	-	4.2	3.8-4.5	-	-	-
S-118 Alabama	K	-	-	-	-	-	-	1.5	-8.0



## WHITE CRAPPIE, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group I									
L-14 Ohio, poorest	S	2	-	-	3.1	-	-	-	-
L-29 Iowa East L.	S	1	84	-	-	-	-	-	-
T-18 Ill. Lincoln L.	S	2	-	-	4.6	-	-	-	-
E-28 Tenn. Chickamauga L.	S	128	102	-	5.2	-	-	-	-
U-4 Ill. Mississippi R.	S	-	-	-	5.3	-	-	-	-
L-29 Iowa, Red Haw L.	S	21	110	-	-	-	-	-	-
R-58 Ohio	S	-	-	-	X	4.0-5.5	-	-	-
R-40 Ind. Foot's P.	S	17	-	5.3	-	-	-	-	-
W-7 Okla. L. Duncan	S	7	116	-	-	-	5	1.3	-
R-34 Ind. Muskegon L.	S	17	-	5.4	-	3.9-7.5	-	-	-
L-14 Ohio	S	2421	-	-	5.7	-	-	-	-
O-9 Ohio, Sandusky L.	S	1774	-	-	5.8	-	-	-	-
H-10 Ill.	S	1360	-	-	6.3	3.5-9.2	-	-	-
L-14 Ohio, best	S	67	-	-	6.5	-	-	-	-
R-40 Ind. Grassy P.	S	2	-	6.7	-	-	-	-	-
J-8 Ind. Greenwood L.	S	77	-	6.7	-	-	-	-	-
H-10 Ill. L. Decatur	S	1863	-	-	7.2	4.1-8.9	-	-	-
Age Group II									
L-29 Iowa East L.	S	2	100	-	-	-	-	-	-
H-96 Ohio Meander L.	S	2	-	-	4.6	-	2	1.7	-
T-18 Ill. Lincoln L.	S	46	-	-	5.2	-	-	-	-
L-14 Ohio, poorest	S	72	-	-	6.0	-	-	-	-
R-58 Ohio	S	-	-	-	X	4.8-8.5	-	-	-
O-9 Ohio, Sandusky L.	S	1427	-	-	6.8	-	-	-	-
L-14 Ohio	S	5497	-	-	7.0	-	-	-	-
W-7 Okla. Duncan L.	S	14	139	-	-	-	14	2.7	-
U-4 Ill. Mississippi R.	S	-	-	-	7.2	-	-	-	-
E-28 Tenn. Chickamauga L.	S	436	146	-	7.4	-	-	-	-
R-34 Ind. Muskegon L.	S	18	-	7.4	-	6.9-8.7	-	-	-
J-8 Ind. Greenwood L.	S	28	-	7.5	-	-	-	-	-
H-10 Ill.	S	1414	-	-	7.5	6.1-9.9	-	-	-
T-16 Ill. Horseshoe L.	P	-	-	-	X	7.0-8.8	-	-	-
R-40 Ind. Foot's P.	S	113	-	7.8	-	-	-	-	-
L-14 Ohio, best	S	25	-	-	8.4	-	-	-	-
L-29 Iowa, Red Haw L.	S	5	173	-	-	-	-	-	-
R-40 Ind. Grassy P.	S	2	-	8.4	-	-	-	-	-
H-10 Ill. L. Decatur	S	1350	-	-	9.2	6.0-10.0	-	-	-
Age Group III									
H-96 Ohio Meander L.	S	257	-	-	5.0	-	257	2.0	-
T-18 Ill. Lincoln L.	S	63	-	-	5.9	-	-	-	-
W-7 Okla. L. Duncan	S	10	149	-	-	-	9	2.5	-
L-14 Ohio, poorest	S	6	-	-	7.3	-	-	-	-
O-8 Ohio	S	-	-	-	X	7.5-8.5	-	-	-
R-40 Ind. Foot's P.	S	63	-	7.8	-	-	-	-	-
L-29 Iowa	S	2	168	-	-	165-170	-	-	-
R-58 Ohio	S	-	-	-	X	6.3-10.6	-	-	-
O-9 Ohio, Sandusky L.	S	286	-	-	8.4	-	-	-	-
U-4 Ill. Mississippi R.	S	-	-	-	8.4	-	-	-	-
H-10 Ill.	S	735	-	-	8.6	6.0-12.9	-	-	-
L-14 Ohio	S	1978	-	-	8.8	-	-	-	-
J-8 Ind. Greenwood L.	S	2	-	8.7	-	-	-	-	-
R-40 Ind. Grassy P.	S	5	-	9.1	-	-	-	-	-
R-34 Ind. Muskegon L.	S	12	-	9.2	-	8.7-9.9	-	-	-
S-13 Tenn. Reelfoot L.	S	153	-	-	9.4	7.7-9.9	153	6.4	5.0-9.0
H-10 Ill. L. Decatur	S	264	-	-	10.2	8.1-11.5	-	-	-
L-14 Ohio, best	S	21	-	-	11.6	-	-	-	-
Age Group IV									
H-96 Ohio Meander L.	S	15	-	-	5.4	-	15	2.4	-
T-18 Ill. Lincoln L.	S	30	-	-	6.1	-	-	-	-
L-14 Ohio, poorest	S	15	-	-	8.9	-	-	-	-
W-7 Okla. L. Duncan	S	10	195	-	-	-	10	8.7	-
U-4 Ill. Mississippi R.	S	-	-	-	9.8	-	-	-	-
H-10 Ill.	S	375	-	-	9.8	6.9-14.6	-	-	-
R-58 Ohio	S	-	-	-	X	6.7-12.3	-	-	-



## WHITE CRAPPIE, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces			
							No.	Mean	Range	
L-29 Iowa	S	2	217	-	-	183-251'	-	-	-	
S-13 Tenn. Reelfoot L.	S	114	-	-	10.1	9.4-11.0	114	8.8	7.0-14.0	
0-9 Ohio, Sandusky L.	S	22	-	-	10.7	-	-	-	-	
R-40 Ind. Foot's P.	S	24	-	10.3	-	-	-	-	-	
L-14 Ohio	S	527	-	-	10.9	-	-	-	-	
H-10 Ill. L. Decatur	S	32	-	-	11.2	9.8-12.4	-	-	-	
T-16 Ill. Horseshoe L.	P	-	-	-	11.5	-	-	-	-	
R-34 Ind. Muskellunge L.	S	13	-	11.3	-	10.4-12.2	-	-	-	
L-14 Ohio, best	S	14	-	-	12.9	-	-	-	-	
Age Group V										
T-18 Ill. Lincoln L.	S	40	-	-	6.6	-	-	-	-	
H-96 Ohio Meander L.	S	1	-	-	6.8	-	1	5.2	-	
L-29 Iowa East L.	S	6	169	-	-	-	-	-	-	
U-4 Ill. Mississippi R.	S	-	-	-	10.2	-	-	-	-	
L-14 Ohio, poorest	S	15	-	-	10.7	-	-	-	-	
R-58 Ohio	S	-	-	-	X	7.4-11.4	-	-	-	
S-13 Tenn. Reelfoot L.	S	61	-	-	11.3	10.6-12.0	61	13.0	9.5-24.0	
H-10 Ill.	S	101	-	-	11.5	6.8-14.1	-	-	-	
R-40 Ind. Foot's P.	S	13	-	11.5	-	-	-	-	-	
W-7 Okla. L. Duncan	S	2	243	-	-	-	2	15.7	-	
L-14 Ohio	S	102	-	-	12.1	-	-	-	-	
H-10 Ill. L. Decatur	S	18	-	-	12.1	9.8-14.0	-	-	-	
0-9 Ohio, Sandusky L.	S	1	-	-	13.5	-	-	-	-	
T-16 Ill. Horseshoe L.	S	-	-	-	14.0	-	-	-	-	
L-14 Ohio, best	S	2	-	-	14.5	-	-	-	-	
Age Group VI										
L-29 Iowa, East L.	S	73	180	-	-	-	-	-	-	
R-58 Ohio	S	-	-	-	X	7.6-12.3	-	-	-	
U-4 Ill. Mississippi R.	S	-	-	-	11.0	-	-	-	-	
L-14 Ohio, poorest	S	2	-	-	11.7	-	-	-	-	
H-10 Ill.	S	12	-	-	12.0	8.9-15.4	-	-	-	
H-10 Ill. L. Decatur	S	6	-	-	12.2	11.5-13.4	-	-	-	
S-13 Tenn. Reelfoot L.	S	45	-	-	12.4	12.2-13.4	45	17.0	14.0-24.0	
L-14 Ohio	S	26	-	-	13.1	-	-	-	-	
L-14 Ohio, best	S	1	-	-	14.0	-	-	-	-	
Age Group VII										
L-29 Iowa, East L.	S	1	212	-	-	-	-	-	-	
S-13 Tenn. Reelfoot L.	S	10	-	-	13.7	13.4-14.0	10	23.7	21.0-25.0	
H-10 Ill.	S	6	-	-	13.9	7.9-15.9	-	-	-	
W-7 Okla. L. Duncan	S	1	305	-	-	-	1	26.1	-	
Age Group VIII										
S-13 Tenn. Reelfoot L.	S	8	-	-	14.2	13.8-14.6	8	30.1	22.0-30.5	

	Code	No.	Average calculated standard length at each annulus							
			1	2	3	4	5	6	7	8
L-29 Ia. East L.	F	85	41	104	132	151	166	180	212	
E-3 Minn.	L	16	52	93	134					
E-28 Tenn. Chickamauga L.	L	564	47	110						
L-29 Ia. Red Haw L.	F	28	62	150	166	196	222	238		
R-40 Ind. Foot's P.	F	230	52	113	171	203	229			
S-100 Tenn. Douglas L.	L	11	58	147	185					
S-100 N.C. Hiwassee L.	L	25	48	138	191	192				
S-100 Tenn. Cherokee L.	L	25	31	175	232					

## Average calculated fork length at each annulus

J-9 Ind. Greenwood L.	L	105	4.6	7.0	7.9				
R-40 Ind. Grassy P.	F	9	2.4	6.0	8.1				
R-40 Ind. Foot's P.	F	230	2.6	5.5	8.3	11.1			

## Average calculated total length at each annulus

E-30 Ohio, poorest lake	L	-	1.9	3.4	4.8	5.8	8.8		
W-27 Mo. L. of Ozarks	L	65	2.2	4.8	6.4				
L-29 Ia. East L.	F	85	2.1	5.3	6.7	7.7	8.4	9.1	10.7



## WHITE CRAPPIE, (Continued)

	Code	No.	1	2	3	4	5	6	7	8
W-27 Mo. L. of Ozarks	L	35	2.1	5.0	7.2					
K-33 Minn.	L	273	2.5	5.5	8.7	9.9	10.8			
E-30 Ohio, average	L	1200	2.6	5.6	7.8	11.1	12.1	13.8	15.4	
E-28 Tenn. Chickamauga L.	L	564	2.4	5.6						
R-78 Ohio, Meander L.	A	-	5.1	6.4	7.9	11.5				
L-29 Ia. Red Haw L.	F	28	3.1	7.6	8.4	9.9	11.2	12.1		
S-100 Tenn. Douglas L.	L	11	2.9	7.3						
S-100 N.C. Hiwassee L.	L	25	2.4	6.8	9.5	9.5				
R-48 Ohio	A	-	4.0	7.5	9.6	11.3	12.8	13.2	14.2	15.1
R-78 Ohio, Meander L., '48	A	-	4.3	7.6	11.3	12.8	13.6			
S-100 Tenn. Cherokee L.	L	25	1.5	8.7	11.6					
E-30 Ohio, best lake	L	-	3.7	8.3	11.8	13.6	14.5			
L-14 Ohio		7.5 inch T.L.	female 14,750 eggs							
H-96 Ohio		42 females,	average 7,120 eggs, range 2,900-14,750.							

BLACK CRAPPIE, *Pomoxis nigromaculatus*

	No.	S.L. in mm.	F.L.	No.	S.L. in mm.	T.L. S.L.
C-22 Minn. L. of Woods	199	20-286	1.176	7	30-50	1.263
C-35 Minn., L. Vermilion	-	-	1.182	5	-	1.204
C-37 Minn.	40	90-130	1.247	40	90-130	1.308
	70	131-170	1.242	70	131-170	1.299
	40	171-210	1.229	40	171-210	1.289
C-37 Minn. S.L. to end of flesh	60	under 100	1.200	60	under 100	1.270
	91	100-149	1.186	91	100-149	1.241
	283	150-249	1.172	208	150-199	1.230
	75	250-299	1.154	75	200-249	1.216
				9	250-	1.209
J-8 Ind. Greenwood L.	-	-	1.228	-	-	
C-30 Iowa	76	-	1.21	123	-	1.28
C-33 Iowa, ponds	10	81-163	1.223	10	80-163	1.285
L-29 Iowa, East L.	19	70-189	1.203	30	40-189	1.274
L-29 Iowa, Red Haw L.	96	70-189	1.218	132	30-279	1.284
C-22 Minn. L. of Woods	7 fish (30-50 mm. S.L.)			T.L. = 1.058 F.L.		
J-8 Ind. Greenwood L.	-			T.L. = 1.04 F.L.		
C-35 Minn. L. Vermilion	5 fish			T.L. = 1.018 F.L.		

## Standard-length-weight relationship

S.L. in mm.	No.	Weight in grams		Weight in ounces	Location
		Mean	Range		
50-69	12	6	3-9	0.2	L-29 Iowa
	20	8	-	0.3	S-97 Tenn.
	2	28	-	1.0	C-30 Iowa
70-89	29	14	8-20	0.5	L-29 Iowa
	68	14	-	0.5	S-97 Tenn.
	12	21	15-30	0.7	C-30 Iowa
	3	76	-	2.7	C-20 Minn.
90-109	35	28	-	1.0	S-97 Tenn.
	28	29	17-40	1.0	C-30 Iowa
	31	31	15-43	1.1	L-29 Iowa
110-129	4	36	26-49	1.3	C-30 Iowa
	5	50	-	1.8	S-97 Tenn.
	21	53	46-70	1.9	L-29 Iowa
	70	60	-	2.1	C-20 Minn.
130-149	8	82	56-115	2.9	C-30 Iowa
	171	82	-	2.9	C-20 Minn.
	4	91	-	3.2	S-97 Tenn.
	14	92	65-103	3.2	L-29 Iowa
150-169	25	123	-	4.3	S-97 Tenn.
	5	125	97-170	4.4	C-30 Iowa



## BLACK CRAPPIE, (Continued)

## Standard length-weight relationship

S.L. in mm.	No.	Weight in grams		Weight in ounces	Location
		Mean	Range		
	31	125	79-164	4.4	L-29 Iowa
	265	139	-	4.9	C-20 Minn.
170-189	17	160	136-207	5.6	L-29 Iowa
	59	179	-	6.3	S-97 Tenn.
	27	207	110-293	7.3	C-30 Iowa.
190-209	657	201	-	7.1	C-20 Minn.
	161	256	-	9.0	S-97 Tenn.
	6	268	189-312	9.5	C-30 Iowa
	1	269	-	9.5	L-29 Iowa
210-229	717	301	-	10.6	C-20 Minn.
	7	320	294-355	11.3	L-29 Iowa
	140	350	-	12.3	S-97 Tenn.
	6	374	312-439	13.2	C-30 Iowa
230-249	5	396	343-425	14.0	L-29 Iowa
	118	417	-	14.7	C-20 Minn.
	86	421	-	14.8	S-97 Tenn.
	6	460	369-524	16.2	C-30 Iowa
250-269	2	482	482-483	17.0	L-29 Iowa
	54	520	-	18.3	S-97 Tenn.
	104	553	-	19.5	C-20 Minn.
	5	593	454-699	20.9	C-30 Iowa
270-289	2	667	569-765	23.5	C-30 Iowa
	11	667	-	23.5	S-97 Tenn.
290-309	9	675	-	23.8	C-20 Minn.
	1	724	-	25.5	S-97 Tenn.
310-329	7	550	-	19.4	C-20 Minn.
	1	942	-	33.2	S-97 Tenn.
330-349	3	1097	-	38.7	C-20 Minn.
350-369	3	1352	-	47.7	C-20 Minn.

## Total length-weight relationship

T.L. in inches	No.	Weight in oz.	Location	T.L. in inches	No.	Weight in oz.	Location
4.0-4.9	1	0.3	C-33 Iowa	9.0-9.9	-	6.2	0-7 Ohio
	-	0.5	R-81 Ohio		530	7.6	M-20 Wisc.
	4	1.2	M-20 Wisc.		-	8.2	R-81 Ohio
5.0-5.9	1	0.9	C-33 Iowa	10.0-10.9	189	10.4	M-20 Wisc.
	-	1.0	0-7 Ohio, Indian L.		-	12.0	R-81 Ohio
	-	1.3	R-81 Ohio				
	83	1.8	M-20 Wisc.	11.0-11.9	-	10.7	0-7 Ohio
	-	1.9	0-7 Ohio, Buckeye L.		67	13.2	M-20 Wisc.
					-	17.0	R-81 Ohio
6.0-6.9	-	2.2	R-81 Ohio	12.0-12.9	24	17.2	M-20 Wisc.
	1	2.2	C-89 Iowa		-	23.0	R-81 Ohio
	-	2.3	0-7 Ohio				
	401	2.5	M-20 Wisc.	13.0-13.9	7	23.4	M-20 Wisc.
7.0-7.9	13	2.9	C-33;C-89 Iowa	14.0-14.9	2	25.3	M-20 Wisc.
	-	3.2	0-7 Ohio				
	-	3.6	R-81 Ohio	15.0-15.9	1	32.3	M-20 Wisc.
	427	3.9	M-20 Wisc.	16.0-16.9	1	43.2	M-20 Wisc.
8.0-8.9	1	3.4	C-33 Iowa				
	-	4.3	0-7 Ohio				
	428	5.4	M-20 Wisc.				
	-	5.8	R-81 Ohio				







## BLACK CRAPPIE, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces			
							No.	Mean	Range	
L-29 Iowa, East L.	S	7	96	-	-	-	-	-	-	
L-14 Ohio	S	36	-	-	5.0	-	-	-	-	
E-3 Minn.	S	28	102	-	-	76-127	-	-	-	
R-34 Ind. Muskellunge L.	S	1	-	4.7	-	-	-	-	-	
R-34 Ind. Shoe L.	S	9	-	5.2	-	4.1-6.1	-	-	-	
M-20 Wisc., south	S	83	-	-	6.3	-	83	1.9	-	
J-9 Ind. Greenwood L.	S	709	-	6.3	-	4.0-7.4	-	-	-	
B-86 Ill. Onized L.	S	338	-	-	7.0	3.0-	-	-	-	
E-22 Tenn. Norris L.	S	1	-	-	8.2	-	-	-	-	
E-26 Tenn. Norris L.	S	172	208	-	10.2	-	-	-	-	
Age Group II										
B-75 Mich. Hopkins L.	S	2	-	-	4.8	-	2	0.9	-	
E-9 N.Y.	K	-	-	X	-	5.0-6.0	-	-	-	
U-4 Ill. Mississippi R.	S	-	-	-	5.7	-	-	-	-	
T-16 Ill. Horseshoe L.	S	-	-	-	5.9	4.0-9.0	-	-	-	
B-31 Mich.	S	430	118	-	5.9	-	-	-	-	
E-28 Tenn. Chickamauga L.	S	132	120	-	6.2	-	-	-	-	
C-35 Minn. L. Vermilion	S	3	128	-	-	108-153	-	-	-	
G-25 N.Y.	S	16	-	-	6.7	5.4-8.1	16	2.8	1.2-5.2	
L-14 Ohio	S	511	-	-	6.9	-	-	-	-	
M-87 Mass.	S	13	-	-	6.9	-	13	3.1	-	
H-97 N. C. Waccamaw L.	S	-	-	-	7.0	-	-	-	-	
R-40 Ind. Foot's P.	S	10	-	6.9	-	-	-	-	-	
J-9 Ind. Greenwood L.	S	935	-	7.0	-	5.4-10.7	-	-	-	
L-29 Iowa East L.	S	7	144	-	-	-	-	-	-	
M-20 Wisc., south	S	434	-	-	7.2	-	434	3.4	-	
H-62 Indiana	S	2	153	-	-	149-156	2	2.8	2.6-2.9	
L-29 Iowa, Red Haw L.	S	31	156	-	-	-	-	-	-	
R-34 Ind. Muskellunge L.	S	51	-	7.4	-	6.5-8.3	-	-	-	
R-34 Ind. Shoe L.	S	19	-	7.4	-	5.5-8.9	-	-	-	
S-13 Tenn. Reelfoot L.	S	25	-	-	7.8	7.0-9.3	25	4.1	3.0-6.5	
F-15 Wisc., spring	S	149	X	-	-	135-185	-	-	-	
F-15 Wisc., fall	S	218	X	-	-	165-205	-	-	-	
E-3 Minn.	S	60	174	-	-	76-203	-	-	-	
B-86 Ill. Onized L.	S	14	-	-	9.7	8.0-	-	-	-	
S-97 Tenn. Norris L.	S	381	204	-	-	130-300	-	-	-	
E-22 Tenn. Norris L.	S	4	-	-	12.2	-	-	-	-	
E-26 Tenn. Norris L.	S	36	267	-	13.1	-	-	-	-	
Age Group III										
B-75 Mich. Hopkins L.	S	26	-	-	6.3	-	26	2.0	-	
G-25 N.Y.	S	5	-	-	7.5	6.6-8.7	5	4.1	3.0-6.4	
U-4 Ill. Mississippi R.	S	-	-	-	7.6	-	-	-	-	
J-9 Ind. Greenwood L.	S	219	-	7.5	-	7.0-8.4	-	-	-	
L-29 Iowa, Red Haw L.	S	3	153	-	-	-	-	-	-	
M-20 Wisc., south	S	708	-	-	7.8	-	708	5.0	-	
L-14 Ohio	S	159	-	-	7.9	-	-	-	-	
D-28 France	I	-	-	-	7.9	-	-	-	-	
M-87 Mass.	S	32	-	-	7.9	-	32	4.4	-	
B-31 Mich.	S	336	161	-	8.0	-	-	-	-	
L-29 Iowa East L.	S	3	166	-	-	-	-	-	-	
R-40 Ind. Foot's P.	S	7	-	8.2	-	-	-	-	-	
H-97 N.C. Waccamaw L.	S	-	-	-	8.5	-	-	-	-	
R-34 Ind. Muskellunge L.	S	30	-	8.6	-	7.9-9.9	-	-	-	
E-3 Minn.	S	243	177	-	-	102-279	-	-	-	
F-15 Wisc., Waubesa L.	S	188	X	-	-	165-215	-	-	-	
S-13 Tenn. Reelfoot L.	S	134	-	-	8.9	8.3-10.0	134	6.6	4.5-9.5	
R-34 Ind. Shoe L.	S	27	-	8.8	-	8.1-10.2	-	-	-	
H-62 Ind.	S	72	185	-	-	-	78	5.3	-	
U-1 Ind.	S	5	195	-	-	-	5	5.9	-	
S-97 Tenn. Norris L.	S	105	235	-	-	140-300	-	-	-	
B-86 Ill. Onized L.	S	1	-	-	12.3	-	-	-	-	
E-26 Tenn. Norris L.	S	3	279	-	13.5	-	-	-	-	
Age Group IV										
B-75 Mich. Hopkin's L.	S	1	-	-	6.8	-	1	2.3	-	
T-16 Ill. Horse Shoe L.	S	-	-	-	7.8	5.0-11.0	-	-	-	



## BLACK CRAPPIE, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
U-4 Ill. Mississippi R.	S	-	-	-	8.6	-	-	-	
L-29 Iowa, East L.	S	14	173	-	-	-	-	-	
B-31 Mich.	S	253	181	-	9.0	-	-	-	
M-20 Wisc., south	S	636	-	-	9.2	-	636	6.9	
R-40 Ind. Foot's P.	S	1	-	9.3	-	-	-	-	
S-13 Tenn. Reelfoot L.	S	109	-	-	9.6	8.7-10.8	109	8.3	6.0-11.0
M-87 Mass.	S	18	-	-	9.7	-	18	7.8	-
G-25 N.Y.	S	11	-	-	9.8	8.2-10.6	11	9.3	5.8-11.9
H-62 Indiana	S	63	198	-	-	-	50	7.2	-
R-34 Ind. Muskellunge L.	S	6	-	9.7	-	8.3-10.8	-	-	-
L-14 Ohio	S	48	-	-	9.9	-	-	-	-
E-3 Minn.	S	325	215	-	-	152-305	-	-	-
H-97 N. C. Waccamaw L.	S	-	-	-	10.5	-	-	-	-
L-29 Iowa, Red Haw L.	S	8	226	-	-	-	-	-	-
U-1 Indiana	S	5	230	-	-	-	5	9.9	-
C-35 Minn. L. Vermilion	S	3	232	-	-	210-255	-	-	-
B-47 Wisc. Bearskin L.	S	16	-	-	11.4	-	16	22.9	-
S-97 Tenn. Norris L.	S	47	256	-	-	180-320	-	-	-
Age Group V									
T-16 Ill. Horseshoe L.	S	-	-	-	X	6.0-11.0	-	-	-
R-34 Ind. Muskellunge L.	S	2	-	9.0	-	8.8-9.1	-	-	-
U-4 Ill. Mississippi R.	S	-	-	-	9.6	-	-	-	-
B-31 Mich.	S	743	199	-	9.9	-	-	-	-
M-20 Wisc., south	S	206	-	-	10.0	-	206	9.9	-
H-62 Indiana	S	12	209	-	-	-	12	8.5	-
S-13 Tenn. Reelfoot L.	S	16	-	-	10.4	9.4-11.2	16	10.6	8.0-13.0
G-25 N.Y.	S	4	-	-	10.6	9.7-12.1	4	12.4	7.4-16.5
M-87 Mass.	S	12	-	-	10.8	-	12	11.9	-
L-14 Ohio	S	7	-	-	11.8	-	-	-	-
E-3 Minn.	S	160	237	-	-	178-305	-	-	-
L-29 Iowa, Red Haw L.	S	3	250	-	-	-	-	-	-
H-97 N.C. Waccamaw L.	S	-	-	-	12.5	-	-	-	-
S-97 Tenn. Norris L.	S	1	260	-	-	-	-	-	-
Age Group VI									
T-16 Ill. Horseshoe L.	S	-	-	-	X	6.5-11.0	-	-	-
M-20 Wisc., south	S	81	-	-	10.0	-	81	9.3	-
B-31 Mich.	S	113	215	-	10.7	-	-	-	-
U-4 Ill. Mississippi R.	S	-	-	-	11.0	-	-	-	-
H-62 Indiana	S	4	224	-	-	-	4	9.7	-
L-29 Iowa Red Haw L.	S	1	235	-	-	-	-	-	-
S-13 Tenn. Reelfoot L.	S	26	-	-	11.7	11.0-12.8	26	14.2	9.0-19.8
M-87 Mass.	S	4	-	-	11.7	-	4	14.3	-
E-3 Minn.	S	48	251	-	-	178-356	-	-	-
C-35 Minn. L. Vermilion	S	2	259	-	-	242-276	-	-	-
L-14 Ohio	S	2	-	-	13.6	-	-	-	-
H-97 N.C. Waccamaw L.	S	-	-	-	13.9	-	-	-	-
B-47 Wisc. Bearskin L.	S	1	-	-	14.0	-	1	32.0	-
Age Group VII									
M-20 Wisc., south	S	19	-	-	10.9	-	19	12.2	-
B-31 Mich.	S	40	227	-	11.3	-	-	-	-
E-3 Minn.	S	35	271	-	-	229-256	-	-	-
S-13 Tenn. Reelfoot L.	S	9	-	-	13.6	13.2-14.2	9	21.2	21.0-23.5
C-35 Minn. L. Vermilion	S	1	280	-	-	-	-	-	-
B-47 Wisc. Bearskin L.	S	1	-	-	15.0	-	1	32.0	-
Age Group VIII									
M-20 Wisc., south	S	5	-	-	11.4	-	5	14.4	-
B-31 Mich.	S	8	233	-	-	-	-	-	-
L-29 Iowa, Red Haw L.	S	1	234	-	-	-	-	-	-
E-3 Minn.	S	8	279	-	-	254-330	-	-	-
C-35 Minn. L. Vermilion	S	9	287	-	-	259-303	-	-	-
Age Group IX									
M-20 Wisc., south	S	2	-	-	12.4	-	2	16.8	-
C-35 Minn. L. Vermilion	S	4	290	-	-	275-307	-	-	-

F-6 Reports that a black crappie was kept 7.5 years in captivity.



## BLACK CRAPPIE, (Continued)

		Code	No.	Average calculated standard length at each annulus								
				1	2	3	4	5	6	7	8	9
C-35	Minn. L. Vermilion	L	23	59	103	146	186	216	241	260	275	282
E-3	Minn.	L	1783	57	105	147	185	221	249	277	277	
R-40	Ind. Foot's P.	F	18	56	113	148	185					
L-29	Ia. East L.	F	31	57	110	148	168					
E-28	Tenn. Chickamauga L.	L	132	43	93							
S-100	Tenn. Douglas L.	L	28	93	141	163						
L-29	Ia. Red Haw L.	F	132	61	137	186	222	235	222	229	234	
S-100	N.C. Hiwasee L.	L	9	56	150	203	231					
S-100	Tenn. Cherokee L.	L	85	34	144	207						
S-97	Tenn. Norris L.	L	925	64	191	237	255	284				
E-26	Tenn. Norris L.	L	211	101	223	251						

		Code	No.	Average calculated total length at each annulus										
				1	2	3	4	5	6	7	8	9	10	
R-40	Ind. Foot's P	F	18	2.7	5.5	7.2	9.0							
J-8	Ind. Greenwood L.	F	1876	4.3	6.6	7.3								
E-2	Minn.	L	1224	2.6	4.9	7.0	8.6	10.4	11.1	12.9	14.0			

		Code	No.	Average calculated total length at each annulus										
				1	2	3	4	5	6	7	8	9	10	
E-30	Ohio, poorest lake	L	-	1.4	3.5	5.0	6.6	8.3	9.0					
E-30	Ohio, average	L	500	2.2	4.7	6.3	7.8	9.2	9.9	11.5	11.9			
E-28	Tenn. Chickamauga L.	L	132	2.2	4.8									
K-33	Minn.	L	2166	2.4	4.8	6.8	8.3	9.5	10.5	11.6	12.3	12.8	13.5	
S-62	Minn.	L	-	2.7	5.0	6.9	8.7	10.4	11.8	13.1				
R-40	Ind. Foot's P.	F	18	2.9	5.8	7.6	9.3							
E-30	Ohio, best lake	L	-	2.7	5.2	7.8	10.1	13.0						
S-100	Tenn. Douglas L.	L	28	4.7	7.0	8.1								
R-59	Ohio	A	-	4.7	7.5	9.2	11.0	12.0	13.0	13.7	14.4			
S-100	N.C. Hiwassee L.	L	9	2.9	7.5	10.2	11.5							
S-100	Tenn. Cherokee L.	L	85	1.8	7.2	10.3								
B-86	Ill. Onized L.	L	353	3.4	8.0	11.4								
S-97	Tenn. Norris L.	L	925	3.2	9.5	11.8	12.7	13.7						
E-26	Tenn. Norris L.	L	211	5.0	10.9	12.2								

U-1	Ind.	5 three year old females		average 33,712 eggs	range 26,700-41,562
		5 four year old females		average 41,879 eggs	range 30,139-65,520
C-77	--	eight oz female	16,950 eggs		
		one pound female	158,696 eggs		
V-21	Minn.	2 females 1-4 oz.	19,000	eggs per female	range 16,000-21,000
		24 females 4-8 oz.	30,000		11,000-48,000
		20 females 8-20 oz.	45,000		22,000-66,000
		5 females 20-24 oz.	137,000		77,000-188,000
E-4	Minn.	0.5 pound females	20,000-60,000 Eggs.		
		1.5 pound female	140,000 eggs.		

BANDED SUNFISH, *Elassoma zonatum*

B-18	La.	at hatching	2.7 mm. S.L.	
		Age Group 0-April	200 fish	6 mm. S.L.
		0-May	158	11
		0-June	93	12
		0-July	138	13
		0-Aug.	254	15
		0-Sept-Nov.	273	17
		I-Mar.	404	25
		II	-	34
B-18	La.	5 females, 22-27 mm. S.L.	233 eggs per female	range 96-325
		3 female, 29-35 mm. S.L.	682 eggs per female	range 500-970

WHITE BASS, *Lepibema chrysops*

	No.	S.L. in mm.	F.L. S.L.	T.L. S.L.	T.L. F.L.
C-30	Iowa	14	-	1.17	-
		29	-	-	1.30
V-12	L. Erie	-	-	1.1699	1.2534
S-45	Ia. Spirit L.	359	39-347	1.1134	-
		1163	39-347	-	1.2910
H-85	Tenn. Wheeler L.	-	-	-	1.07



WHITE BASS, *Lepibema chrysops*

## Standard length-weight relationship

S.L. in mm.	No.	Mean	Range	Weight in ounces	Location
30-49	66	2	-	0.07	S-45 Ia. Spirit L.
50-69	120	5	-	0.2	S-45 Ia. Spirit L.
	1	8	-	0.3	W-7 Okla. L. Duncan
70-89	65	12	-	0.4	S-45 Ia. Spirit L.
	4	14	-	0.5	W-7 Okla. L. Duncan
90-109	11	22	-	0.8	S-45 Ia. Spirit L.
110-129	1	57	-	2.0	W-7 Okla. L. Duncan
130-149	5	82	-	2.9	S-64 Ia. Spirit L.
150-169	2	90	-	3.2	W-7 Okla. L. Duncan
	62	122	-	4.3	S-64 Ia. Spirit L.
	1	150	-	5.3	C-30 Iowa
170-189	3	142	-	5.0	W-7 Okla. L. Duncan
	129	171	-	6.0	S-64 Ia. Spirit L.
190-209	9	201	-	7.1	W-7 Okla. L. Duncan
	91	230	-	8.1	S-64 Ia. Spirit L.
210-229	39	249	-	8.8	W-7 Okla. L. Duncan
	1	255	-	9.0	C-30 Iowa
	10	272	-	9.6	S-64 Ia. Spirit L.
230-249	21	340	-	12.0	W-7 Okla. L. Duncan
	2	397	383-411	14.0	S-64 Ia. Spirit L.
	2	461	411-510	16.3	C-30 Iowa
250-269	27	414	-	14.6	W-7 Okla. L. Duncan
	5	561	482-652	19.8	C-30 Iowa
	13	600	-	21.2	S-64 Ia. Spirit L.
270-289	24	522	-	18.4	W-7 Okla. L. Duncan
	381	723	-	25.5	S-64 Ia. Spirit L.
	7	736	624-794	26.0	C-30 Iowa
290-309	11	672	-	23.7	W-7 Okla. L. Duncan
	387	838	-	29.6	S-64 Ia. Spirit L.
	6	874	794-971	30.8	C-30 Iowa
310-329	7	819	-	28.9	W-7 Okla. L. Duncan
	2	1000	978-1021	35.3	C-30 Iowa
	107	1002	-	35.3	S-64 Ia. Spirit L.
330-349	3	930	-	32.8	W-7 Okla. L. Duncan
	10	1222	-	43.1	S-64 Ia. Spirit L.
350-369	2	1084	-	38.6	W-7 Okla. L. Duncan

## Total length-weight relationship

T.L. in inches	No.	Weight in ounces	Location
4.0-4.9	11	0.7	V-12 L. Erie
5.0-5.9	196	1.2	V-12 L. Erie
	-	2.8	R-43 Ohio, Buckeye L.
6.0-6.9	582	1.8	V-12 L. Erie
	-	3.5	R-78 Ohio, Buckeye L.
7.0-7.9	-	2.2	R-78 Ohio, Meander L.
	753	2.8	V-12 L. Erie
	-	3.4	O-7 Ohio, Indian L.
	-	4.5	R-78 Ohio, Buckeye L.
	-	5.0	R-52 Ohio
8.0-8.9	-	3.8	O-7 Ohio, Indian L.
	1298	4.0	V-12 L. Erie
	-	4.4	R-78 Ohio, Meander L.
	-	5.9	R-78 Ohio, Buckeye L.



## WHITE BASS, (Continued)

T.L. in inches	No.	Weight in ounces	Location
9.0-9.9	-	5.2	0-7 Ohio, Indian L.
	866	5.5	V-12 L. Erie
	-	6.0	R-78 Ohio, Meander L.
	-	7.0	R-78 Ohio, Buckeye L.
	1	7.5	S-44 Ia. Storm L.
	-	7.6	0-7 Ohio, Buckeye L.
10.0-10.9	581	8.3	V-12 L. Erie
	-	8.3	0-7 Ohio, Buckeye L.
	3	9.1	S-44 Ia. Storm L.
	-	9.4	R-78 Ohio, Meander L.
	-	9.7	R-78 Ohio, Buckeye L.
	-	10.0	R-52 Ohio
11.0-11.9	61	10.9	S-44 Ia. Storm L.
	-	11.3	0-7 Ohio, Buckeye L.
	398	11.3	V-12 L. Erie
	-	12.0	R-78 Ohio, Meander L.
	-	12.5	R-78 Ohio, Buckeye L.
12.0-12.9	1	12.3	S-44 Ia. Storm L.
	-	13.9	0-7 Ohio, Buckeye L.
	189	14.0	V-12 L. Erie
	-	14.3	R-78 Ohio, Meander L.
	-	15.0	R-78 Ohio, Buckeye L.
13.0-13.9	-	17.5	0-7 Ohio, Buckeye L.
	11	17.9	V-12 L. Erie
	-	18.3	R-78 Ohio, Meander L.
	-	19.0	R-78 Ohio, Buckeye L.
	10	19.3	S-44 Ia. Storm L.
14.0-14.9	15	21.2	V-12 L. Erie
	17	23.1	S-44 Ia. Storm L.
15.0-15.9	3	26.2	V-12 L. Erie
	3	27.9	S-44 Ia. Storm L.
16.0-16.9	1	27.5	V-12 L. Erie
	2	36.3	S-44 Ia. Storm L.

V-12 L. Erie  
S-45 Ia. Spirit L.

Log W = -4.9186623 + 3.132 Log S.L.  
Log W = -5.01377 + 3.296 Log S.L.

V-12 L. Erie	1755 fish	average K 2.37
E-24 Tenn. Clinch R.	yearlings	average K 2.7
L-28 Ia. Clear L.	71 fish	average K 2.89
E-27 Tenn. Clinch R.	133 fish	average K 2.72
H-85 Tenn. Wheeler L.	522 fish	average K 2.5 range 1.1-3.6
W-7 Okla, Duncan L.	154 fish, 65-355 mm. S.L.	average K 2.45 range 1.59-3.57
S-44 Ia. Storm L.	98 fish, 181-326 mm. S.L.	average K 2.85
S-45 Ia. Spirit L.	261 fish, 30-100 mm. S.L.	average K 2.33
	263 fish, 100-199 mm. S.L.	average K 2.87
	662 fish, 200-299 mm. S.L.	average K 3.11
	283 fish, 300-349 mm. S.L.	average K 3.13
C-36 Ia. Clear L., 1948	7 fish, 97-320 mm. S.L.	average K 2.85 range 1.98-3.31

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group 0-June									
F-5 L. Erie	P	-	X	-	-	4-14	-	-	-
C-91 Ia. Clear L.	P	47	-	-	1.3	0.8-1.5	-	-	-
E-28 Tenn. Chickamauga L.	P	94	-	-	1.4	0.9-1.9	-	-	-
Age Group 0-July									
C-30 Iowa, Clear L.	P	1173	-	-	1.5	1.1-2.6	-	-	-
S-45 Iowa, Spirit L.	S	176	31	-	-	19-46	15	0.06	-
B-2 Iowa, Okoboji L.	P	5	34	-	-	30-36	-	-	-
C-91 Ia. Clear L.	P	55	-	-	2.4	1.8-3.4	-	-	-
E-28 Tenn. Chickamauga L.	P	16	-	-	2.9	2.2-3.7	-	-	-
B-3 Iowa, Clear L.	P	2	47	-	-	41-53	-	-	-



## WHITE BASS, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group O-August									
C-30 Iowa, Clear L.	P	438	-	-	2.3	1.6-3.3	-	-	-
S-45 Iowa, Spirit L.	S	184	52	-	-	38-76	133	0.15	-
C-91 Ia. Clear L.	P	231	-	-	3.3	2.4-4.9	-	-	-
B-2 Iowa, Okoboji L.	P	23	74	-	-	64-87	-	-	-
H-85 Tenn. Wheeler L.	S	93	119	5.6	-	100-235	93	1.9	-
Age Group O-September									
C-30 Iowa, Clear L.	P	100	-	-	3.3	2.8-3.6	-	-	-
S-45 Iowa, Spirit L.	S	78	67	-	-	50-100	78	0.3	-
E-24 Tenn. Chickamauga L.	P	5	-	-	6.4	-	-	-	-
E-28 Tenn. Chickamauga L.	P	5	-	-	6.6	-	-	-	-
H-85 Tenn. Howell L.	S	128	162	7.5	-	135-185	44	3.4	-
Age Group O-Oct.-Dec.									
S-45 Iowa, Spirit L.	S	209	79	-	-	57-112	36	0.6	-
E-28 Tenn. Chickamauga L.	S	59	-	-	4.7	2.7-6.9	-	-	-
B-4 Iowa, Clear L.	P	4	102	-	5.2	86-123	-	-	-
V-12 L. Erie	S	16	112	-	5.5	72-125	16	1.1	-
E-24 Tenn. Chickamauga L.	S	3	-	-	6.7	-	-	-	-
H-85 Tenn. Howell L.	S	125	162	7.6	-	125-285	39	4.2	-
E-24 Tenn. Clinch R.	S	700	-	-	8.6	6.4-10.9	-	-	-
Age Group O									
W-7 Okla. L. Duncan	S	10	92	-	-	65-125	10	0.7	-
L-28 Iowa, Clear L.	S	1	135	-	-	-	-	-	-
Age Group I									
C-30 Iowa, Clear L.	P	7	-	-	4.8	4.5-5.4	-	-	-
W-7 Okla.-May	K	7	120	-	-	-	7	1.4	-
L-28 Iowa, Clear L.	S	2	131	-	-	97-165	-	-	-
0-9 Ohio, Sandusky Bay	S	473	-	-	6.2	-	-	-	-
V-12 L. Erie	S	1256	159	-	-	-	-	-	-
V-12 L. Erie, fall	S	608	173	-	8.5	135-215	608	4.3	-
S-45 Iowa, Spirit L.	S	137	184	-	-	-	-	-	-
F-15 Wisc. Kegonsa L.	S	-	X	-	-	175-225	-	-	-
E-28 Tenn. Chickamauga L.	S	4	-	-	8.8	-	-	-	-
W-7 Okla.-Oct.	K	14	191	-	-	-	14	6.4	-
W-7 Okla. L. Duncan	S	16	191	-	-	155-229	16	6.6	-
H-85 Tenn. Wheeler L.	S	199	192	8.9	-	-	199	7.2	-
S-44 Iowa, Storm L.	S	68	222	-	-	-	-	-	-
E-27 Tenn. Norris, males	S	77	230	-	11.3	-	77	11.7	-
E-27 Tenn. Norris, females	S	56	252	-	12.4	-	56	15.9	-
Age Group II									
0-9 Ohio, Sandusky Bay	S	72	-	-	9.8	-	-	-	-
S-45 Iowa, Spirit L. males	S	9	203	-	-	-	-	-	-
F-15 Wisc. Waubesa L.	S	-	X	-	-	185-240	-	-	-
V-12 L. Eire	S	509	207	-	-	-	-	-	-
S-45 Ia. Spirit L., females	S	20	209	-	-	-	-	-	-
V-12 L. Erie, fall	S	100	215	-	10.6	165-255	100	9.1	-
H-62 Indiana	S	3	231	-	-	-	-	-	-
W-7 Okla. L. Duncan	S	62	234	-	-	200-295	62	11.9	-
H-85 Tenn. Wheeler	S	147	236	11.2	-	-	147	12.0	-
L-28 Iowa, Clear L.	S	13	242	-	-	229-251	-	-	-
S-44 Iowa, Storm L.	S	26	274	-	-	-	-	-	-
Age Group III									
F-15 Wisc. Kegonsa L.	S	138	X	-	-	205-255	-	-	-
V-12 L. Erie	S	73	235	-	-	-	-	-	-
V-12 L. Erie, fall	S	29	248	-	12.2	215-265	29	13.7	-
W-7 Okla. L. Duncan	S	66	269	-	-	215-355	66	17.1	-
S-45 Ia. Spirit L., males	S	4	272	-	-	-	-	-	-
H-62 Indiana	S	6	273	-	-	-	4	18.0	-
L-28 Ia. Clear L.	S	47	275	-	-	236-325	-	-	-
S-45 Ia. Spirit L., females	S	8	279	-	-	-	-	-	-
S-44 Ia. Storm L.	S	6	305	-	-	-	-	-	-
0-9 Ohio Sandusky Bay	S	12	-	-	13.4	-	-	-	-
H-85 Tenn. Wheeler L.	S	79	-	13.7	-	-	-	-	-



## WHITE BASS, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group IV									
V-12 L. Erie	S	3	250	-	-	-	-	-	-
0-9 Ohio, Sandusky Bay	S	3	-	13.3	-	-	-	-	-
V-12 L. Erie, fall	S	1	273	-	13.5	-	1	15.3	-
L-28 Iowa, Clear L.	S	45	281	-	-	245-312	-	-	-
S-45 Ia. Spirit L., males	S	195	285	-	-	-	-	-	-
S-45 Ia. Spirit L., females	S	210	300	-	-	-	-	-	-
W-7 Okla. L. Duncan	S	7	327	-	-	295-355	-	-	-
Age Group V									
F-15 Wisc. Kegonsa L.	S	126	X	-	-	225-305	-	-	-
V-17 L. Erie	S	1	285	-	14.1	-	1	19.3	-
L-28 Ia. Clear L.	S	8	289	-	-	268-351	-	-	-
S-45 Ia. Spirit L., males	S	220	294	-	-	-	-	-	-
S-45 Ia. Spirit L.	S	156	306	-	-	-	-	-	-
Age Group VI									
V-12 L. Erie	S	4	283	-	14.0	275-285	4	19.7	-
S-45 Spirit L. Ia., males	S	28	297	-	-	-	-	-	-
L-28 Ia. Clear L.	S	2	305	-	-	290-320	-	-	-
S-45 Ia. Spirit L., females	S	25	313	-	-	-	-	-	-
Age Group VII									
F-15 Wisc. Waubesa L.	S	-	X	-	-	245-295	-	-	-
V-12 L. Erie, fall	S	5	287	-	14.2	285-295	5	22.0	-
V-12 L. Erie	S	7	289	-	-	-	-	-	-
S-45 Ia. Spirit L., males	S	14	307	-	-	-	-	-	-
S-45 Ia. Spirit L., females	S	3	316	-	-	-	-	-	-
N-37 Wisc. L. Geneva	S	1	323	-	-	-	1	22.9	-
Age Group VIII									
S-45 Ia. Spirit L., males	S	24	307	-	-	-	-	-	-
S-45 Ia. Spirit L., females	S	5	328	-	-	-	-	-	-
Age Group IX									
S-45 Ia. Spirit L., males	S	1	320	-	-	-	-	-	-

	Code	No.	Average calculated standard length at each annulus									
			1	2	3	4	5	6	7	8	9	
E-3 Minn.	L	66	79	141	200	239	268					
V-12 L. Erie	F	1869	96	166	221	252	268	276	283			
S-45 Ia. Spirit L. males	F	569	99	192	248	275	286	294	302	308	320	
L-28 Ia. Clear L.	F	118	117	204	251	273	288	302				
S-45 Ia. Spirit L. females	F	490	103	192	253	288	302	311	316	327		
S-44 Ia. Storm L.	F	100	110	224	277	305						
H-85 Tenn. Wheeler L.	L	346	133	222								
E-27 Tenn. Clinch R.	L	133	180									

## Average calculated fork length at each annulus

E-2 Minn.	L	69	3.1	5.9	8.7	10.4	11.8					
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## Average calculated total length at each annulus

S-62 Minn.	L	-	3.6	6.4	9.1	10.9	12.2					
V-17 L. Erie	F	-	4.7	8.2	10.9	12.4	13.2	13.6	14.0			
U-4 Ill. Miss. R.	L	120	6.5	10.0	11.1	14.4						
V-17 Tenn. Norris L.	L	-	6.3	10.5	12.2							
H-85 Tenn. Wheeler L.	L	346	6.3	10.5								
S-45 Ia. Spirit L. males	F	569	5.0	9.7	12.6	14.0	14.5	14.9	15.3	15.6	16.2	
S-45 Ia. Spirit females	F	490	5.2	9.7	12.8	14.6	15.3	15.8	16.0	16.6		
L-28 Ia. Clear L.	F	118	6.0	10.5	12.9	14.0	14.8	15.5				
R-43 Ohio, Buckeye L.	A	-	6.0	10.0	13.0							
S-44 Ia. Storm L.	F	100	5.6	11.4	14.1	15.5						
R-52 Ohio	A	-	5.5	10.6	14.4							

0-6 Ohio 11.0-11.5 inch (T.L.) females 18,000-32,000 eggs per female  
 S-45 Ia. Spirit L. 3 females 650,000 to 970,000 eggs per female



YELLOW BASS, *Morone interrupta*

C-30 Iowa	464 fish (104-234 mm.)	F.L. = 1.16 S.L.	T.L. = 1.24 S.L.
S-96 Tenn. Norris L.	160 fish		T.L. = 1.223 S.L.
L-30 Iowa, Clear L.	290 fish		T.L. = 1.2451 S.L.

## Standard length-weight relationship, Ia. Clear L. C-30

S.L. in mm.	No.	Weight in grams Mean	Weight in grams Range	Weight in oz.	S.L. in mm.	No.	Weight in grams Mean	Weight in grams Range	Weight in oz.
107	2	60	30-90	2.1	173	72	149	100-250	5.3
114	1	90	-	3.2	185	20	192	152-257	6.8
127	4	80	68-90	2.8	197	13	215	175-250	7.6
135	43	77	50-110	2.7	205	18	236	210-270	8.4
143	144	89	50-170	3.1	213	12	252	230-270	8.9
152	25	96	70-120	3.4	224	17	278	250-340	9.8
166	57	135	68-180	4.8	232	3	289	270-320	10.2

L-30 Ia. Clear L.

$$\text{Log } W = -5.47237 + 2.548 \text{ Log } S.L.$$

## Total length-weight relationship

T.L. in inches	No.	Mean	Range	Location	T.L. in inches	No.	Mean	Range	Location
3.6	3	0.3	0.2-0.3	C-89 Iowa	6.5	7	1.9	1.3-2.2	C-89 Iowa
4.0	2	0.3	-	C-89 Iowa	7.2	17	2.6	2.2-2.9	C-89 Iowa
5.8	10	1.3	-	C-89 Iowa	11.5	4	12.5	8.0-14.4	B-86 Ill.

S-96 Tenn. Norris.	141 fish	average K 2.49	range 1.97-2.97
C-36 Ia. Clear L., 1948	423 fish, 104-234 mm.	average K 2.87	
L-30 Ia. Clear L. 1941-44	191 fish	average K 3.18	
C-89 Ia. Ruth's Pond	39 fish (3.0-7.5 inches)	C(T.L.) 40	range 25-47

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group O-3 Weeks									
B-83 Arkansas	K	-	-	-	1.0	-	-	-	-
Age Group O-July									
B-3, L-30 Ia. Clear L.	P	351	32	-	-	22-48	-	-	-
B-83 Arkansas	K	-	-	-	1.5	-	-	-	-
C-91 Ia. Clear L.	P	47	-	-	1.7	1.3-2.0	-	-	-
Age Group O-August									
L-30 Iowa, Clear L.	P	44	42	-	-	32-56	-	-	-
C-91 Ia. Clear L.	P	115	-	-	2.5	2.0-3.2	-	-	-
B-83 Arkansas	K	-	-	-	3.0	-	-	-	-
Age Group O-September									
L-30 Iowa, Clear L.	P	36	56	-	-	47-69	-	-	-
Age Group O-Oct.-Dec.									
B-5, L-30 Ia. Clear L.	P	99	64	-	3.3	52-82	-	-	-
S-96 Tenn.	S	1	85	-	4.1	-	-	0.4	-
B-83 Arkansas	K	-	-	-	6.0	-	-	-	-
Age Group I									
R-40 Indiana, Foot's P.	S	1	-	3.3	-	-	-	-	-
S-96 Tenn.	S	51	118	-	5.7	105-145	44	1.5	0.9-1.9
S-13 Tenn. Reelfoot L.	S	44	-	-	7.8	6.8-8.7	44	4.1	2.0-6.0
B-83 Arkansas	K	-	-	-	8.0	-	-	-	-
Age Group II									
S-96 Tenn.	S	60	147	-	7.1	115-185	54	2.9	1.2-5.1
R-40 Indiana Foot's P.	S	17	-	6.4	-	-	-	-	-
S-13 Tenn. Reelfoot L.	S	45	-	-	8.7	7.9-9.5	45	5.9	4.5-7.5
L-30 Iowa, Clear L.	S	93	184	-	-	-	-	-	-
Age Group III									
S-96 Tenn.	S	22	168	-	8.0	145-195	14	4.5	3.0-7.9
R-40 Indiana, Foot's P.	S	10	-	7.5	-	-	-	-	-
L-30 Iowa, Clear L.	S	159	190	-	-	-	-	-	-
S-13 Tenn. Reelfoot	S	28	-	-	10.0	9.5-10.5	28	9.2	7.5-12.3



## YELLOW BASS, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group IV									
S-96 Tenn.	S	17	178	-	8.6	155-205	14	4.9	3.3-6.9
R-40 Indiana, Foot's P.	S	2	-	8.4	-	-	-	-	-
L-30 Iowa, Clear L.	S	28	213	-	-	-	-	-	-
S-13 Tenn. Reelfoot L.	S	-	-	-	11.7	10.7-12.6	12	14.1	9.0-18.0
Age Group V									
S-96 Tenn.	S	9	186	-	-	165-225	7	5.7	4.4-7.9
R-40 Indiana, Foot's P.	S	1	-	8.9	-	-	-	-	-
L-30 Iowa, Clear L.	S	10	232	-	-	-	-	-	-

	Code	No.	Average calculated standard length at each annulus						
			1	2	3	4	5	6	7
R-40 Ind. Foot's P.	F	31	60	106	145	167	180		
S-96 Tenn.	L	160	65	119	148	166	177		
L-13 Ia. Clear L. 1947-49	F	765	68	123	165	194	205	208	209
L-30 Ia. Clear L. 1939	F	277	84	141	181	203			
L-30 Ia. Clear L. 1937	F	13	91	173	206	224	232		
Average calculated fork length at each annulus									
R-40 Ind. Foot's P.	F	31	2.8	5.0	6.8	7.9	8.4		
Average calculated total length at each annulus									
R-40 Ind. Foot's P.	F	31	3.0	5.3	7.1	8.2	8.7		
S-96 Tenn.	L	160	3.1	5.7	7.1	8.0	8.5		
L-30 Ia. Clear L., 1939	F	277	4.1	6.9	8.9	10.0			
B-86 Ill. Onized L.	L	6	1.9	8.2	9.8	10.8	11.2		
L-30 Ia. Clear L., 1937	F	13	4.5	8.5	10.1	11.0	11.4		

WHITE PERCH, *Morone americana*

S-65 N.S. L. Jesse	Fork length equals 1.153 S.L.
C-61 Me.	Total length equals S.L. plus 1.3 inches at 6"; plus 1.8 at 7 inches; and plus 2.1 inches at 9 inches.

## Total length-weight relationship, Md. H-61

T.L. in inches	No.	Weight in oz.	T.L. in inches	No.	Weight in ounces
3.75	2	0.4	8.0-8.9	61	4.8
4.0-4.9	27	0.7	9.0-9.9	27	7.3
5.0-5.9	88	1.2	10.0-10.9	6	10.0
6.0-6.9	137	2.1	12.25	1	18.0
7.0-7.9	117	3.2			

S-65 N.S. L. Jesse	Log W = -1.90413 + 3.02 Log F.L.
S-65 N.S. L. Jesse	221 fish average K(F.L.) 1.25

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group O									
H-61 Maryland	P	-	X	-	-	55-65	-	-	-
S-57 North Carolina	K	-	-	-	X	2.0-3.0	-	-	-
Age Group I									
S-65 N.S.L. Jesse	S	75	-	3.6	-	-	75	0.3	-
H-61 Maryland	P	-	X	-	-	70-140	-	-	-
Age Group II									
S-65 N.S.L. Jesse	S	81	-	4.3	-	-	81	0.6	-
M-87 Mass.	S	11	-	-	5.4	-	11	1.5	-
G-22 N.Y.	S	53	-	-	5.7	4.5-7.1	53	1.3	0.5-3.2
F-26 Maine	S	-	135	-	-	-	-	2.0	-
C-63 Maine	S	10	145	-	-	112-180	10	3.0	1.2-5.9



## WHITE PERCH, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group III									
S-65 N.S.L. Jesse	S	49	-	5.0	-	-	49	0.9	-
F-26 Maine, poorest L.	S	-	119	-	-	-	-	1.4	-
C-63 Maine	S	236	140	-	-	124-211	236	2.4	1.4-8.5
H-97 N.C. Waccamaw L.	S	-	-	-	6.5	-	-	-	-
F-26 Maine	S	-	145	-	-	-	-	2.6	-
M-87 Mass.	S	34	-	-	7.1	-	34	3.0	-
G-22 N.Y.	S	58	-	-	7.5	4.1-9.3	56	3.5	0.5-7.0
C-61 Maine	S	10	165	-	-	150-190	10	3.9	3.0-6.4
F-26 Maine, best lake	S	-	175	-	-	-	-	5.3	-
Age Group IV									
S-65 N.S.L. Jesse	S	15	-	5.4	-	-	15	1.2	-
F-26 Maine, poorest lake	S	-	130	-	-	-	-	1.7	-
F-26 Maine	S	-	160	-	-	-	-	3.6	-
H-97 N.C. Waccamaw L.	S	-	-	-	7.7	-	-	-	-
C-63 Maine	S	146	165	-	-	119-239	146	4.3	1.4-12.7
M-87 Mass.	S	83	-	-	8.3	-	83	4.3	-
G-22 N.Y.	S	65	-	-	8.4	5.8-11.2	65	5.6	1.8-13.5
F-26 Mo., best lake	S	-	203	-	-	-	-	7.4	-
C-61 Maine	S	16	201	-	-	-	16	8.1	-
Age Group V									
F-26 Mo., poorest lake	S	-	119	-	-	-	-	1.9	-
S-65 N.S.L. Jesse	S	7	-	6.1	-	-	7	1.7	-
C-63 Maine	S	326	170	-	-	124-254	326	4.7	1.4-1.6
F-26 Maine	S	-	173	-	-	-	-	5.1	-
G-22 N.Y.	S	33	-	-	9.3	6.4-12.7	33	7.4	2.8-22.4
M-87 Mass.	S	77	-	-	9.5	-	77	7.3	-
C-61 Maine	S	73	203	-	-	-	73	8.8	-
H-97 N.C. Waccamaw L.	S	-	-	-	9.9	-	-	-	-
F-26 Maine, best lake	S	-	236	-	-	-	-	13.0	-
Age Group VI									
F-26 Maine, poorest lake	S	140	-	-	-	-	-	2.0	-
C-63 Maine	S	276	180	-	-	119-269	276	6.0	1.4-20.3
F-26 Maine	S	-	183	-	-	-	-	6.1	-
C-61 Maine	S	76	196	-	-	-	76	6.6	-
G-22 N.Y.	S	31	-	-	9.6	5.9-11.7	31	9.0	1.8-15.7
M-87 Mass.	S	51	-	-	10.1	-	51	9.3	-
F-26 Maine, best lake	S	-	241	-	-	-	-	14.0	-
H-97 N.C. Waccamaw L.	S	-	-	-	11.0	-	-	-	-
Age Group VII									
F-26 Maine, poorest lake	S	-	150	-	-	-	-	2.5	-
C-61 Maine	S	112	193	-	-	-	112	6.5	-
C-63 Maine	S	254	193	-	-	124-290	254	7.3	1.3-23.5
F-26 Maine	S	-	198	-	-	-	-	7.8	-
M-87 Mass.	S	-	-	-	-	-	-	-	-
G-22 N.Y.	S	9	-	-	11.1	8.1-12.3	9	13.0	3.9-17.7
F-26 Maine, best lake	S	-	257	-	-	-	-	17.6	-
Age Group VIII									
F-26 Maine, poorest lake	S	-	152	-	-	-	-	2.5	-
C-61 Maine	S	39	196	-	-	-	39	6.8	-
C-63 Maine	S	218	203	-	-	124-297	218	7.6	1.6-24.4
F-26 Maine	S	-	203	-	-	-	-	8.2	-
M-87 Mass.	S	8	-	-	11.4	-	8	13.1	-
G-22 N.Y.	S	13	-	-	11.6	9.0-13.5	13	14.8	8.2-21.8
F-26 Maine, best lake	S	-	264	-	-	-	-	18.5	-
Age Group IX									
F-26 Maine, poorest lake	S	-	155	-	-	-	-	2.9	-
C-63 Maine	S	161	211	-	-	130-272	161	8.5	1.5-21.8
F-26 Maine	S	-	221	-	-	-	-	10.3	-
C-61 Maine	S	9	226	-	-	183-277	9	10.9	-
G-22 N.Y.	S	6	-	-	12.1	9.7-13.5	6	17.4	7.6-24.5
M-87 Mass.	S	3	-	-	12.2	-	3	14.9	-
F-26 Maine, best lake	S	-	267	-	-	-	-	20.4	-



## WHITE PERCH, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in ounces		
							No.	Mean	Range
Age Group X									
F-26 Maine, poorest lake	S	-	196	-	-	-	-	5.9	-
C-63 Maine	S	115	221	-	-	132-274	115	9.6	1.8-16.5
F-26 Maine	S	-	236	-	-	-	-	11.9	-
C-61 Maine	S	8	239	-	-	-	8	10.8	-
G-22 N.Y.	S	5	-	-	12.6	11.8-13.7	5	17.6	10.9-24.9
F-26 Maine, best lake	S	-	259	-	-	-	-	18.1	-
Age Group XI									
C-61 Maine	S	5	218	-	-	-	5	8.7	-
C-63 Maine	S	42	241	-	-	196-297	42	12.9	5.5-27.2
F-26 Maine	S	-	251	-	-	-	-	15.5	-
Age Group XII									
F-26 Maine	S	-	239	-	-	-	-	11.3	-
C-61 Maine	S	5	246	-	-	213-287	5	12.6	6.8-19.6
C-63 Maine	S	22	249	-	-	196-302	22	13.8	5.9-25.8
Age Group XIII									
F-26 Maine	S	-	287	-	-	-	-	19.5	-
C-63 Maine	S	14	254	-	-	198-297	14	13.6	6.9-24.5
Age Group XIV									
C-63 Maine	S	5	249	-	-	203-290	5	14.5	7.1-26.2
F-26 Maine	S	-	272	-	-	-	-	15.3	-
Age Group XV									
C-63 Maine	S	1	244	-	-	-	1	11.0	-
Age Group XVI									
C-63 Maine	S	1	254	-	-	-	1	14.6	-
B-73 40,000 eggs per female									

FRESHWATER DRUM, *Aplodinotus grunniens*

	No.	S.L. in mm.	T.L. S.L.
C-30 Iowa			
	52	228-350	1.28
	23	360-447	1.24
V-9 L. Erie	5	75-99	1.302
	1130	125-199	1.271
	153	200-299	1.253
	272	300-399	1.232
	10	400-424	1.217
S-14 Tenn. Reelfoot L.	48	157-224	1.315
	110	225-299	1.284
	134	300-349	1.253
	57	350-399	1.289
	20	400-449	1.213
	2	450-474	1.192

## Standard length-weight relationship, Iowa C-30

S.L. in mm.	No.	Mean	Range	Weight in pounds	S.L. in mm.	No.	Mean	Range	Weight in pounds
190	1	190	-	0.42	350	9	1023	680-1304	2.25
205	7	218	184-255	0.48	367	4	1272	1021-1531	2.80
231	13	320	255-361	0.71	388	7	1806	1389-2404	3.98
247	15	485	411-556	0.87	410	15	2070	1814-2495	4.56
271	13	485	411-556	1.07	432	5	2126	1899-2396	4.69
287	18	553	474-613	1.22	446	3	2655	2452-2849	5.85
310	3	663	636-680	1.46					
331	2	907	-	2.00	660	1	6974	-	15.37



## FRESHWATER DRUM, (Continued)

Total length-weight relationship, L. Erie, V-9

T.L. in inches	No.	Weight in pounds	T.L. in inches	No.	Weight in pounds
4.0-4.9	4	0.03	13.0-13.9	47	1.05
5.0-5.9	26	0.05	14.0-14.9	71	1.32
6.0-6.9	14	0.13	15.0-15.9	106	1.75
7.0-7.9	289	0.17	16.0-16.9	139	2.12
8.0-8.9	970	0.23	17.0-17.9	121	2.60
9.0-9.9	265	0.30	18.0-18.9	46	3.05
10.0-10.9	62	0.45	19.0-19.9	15	3.65
11.0-11.9	65	0.58	20.0-20.9	1	5.95
12.0-12.9	31	0.08			

V-19 L. Erie.	630 fish	Average K 2.16
C-36 Ia.	116 fish, 193-660 mm. S.L.	Average K 2.60 range 1.60-3.63
E-28 Tenn. Chickamauga L.	187 fish	Average K 2.2

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in pounds		
							No.	Mean	Range
Age Group O-July									
B-2 Iowa, Okoboji L.	P	100	25	-	-	20-31	-	-	-
E-28 Tenn. Chickamauga L.	S	-	-	-	2.5	-	-	-	-
Age Group O-August									
F-5 L. Erie	P	1	-	-	0.5	-	-	-	-
B-2 Iowa, Okoboji L.	P	22	52	-	-	45-58	-	-	-
Age Group O-September									
E-28 Tenn. Chickamauga L.	S	-	-	-	3.5	-	-	-	-
Age Group O									
V-9 L. Erie	S	72	103	-	5.3	85-125	30	0.05	-
Age Group I									
U-4 Ill. Mississippi R.	S	-	-	-	5.5	-	-	-	-
E-28 Tenn. Chickamauga L.	S	17	126	-	6.6	-	-	-	-
R-40 Indiana, Foot's P.	S	2	-	6.5	-	-	-	-	-
O-9 Ohio, Sandusky Bay	S	173	-	-	7.0	-	-	-	-
V-9 L. Erie	S	441	171	-	8.6	130-209	391	0.23	-
S-14 Tenn. Reelfoot L.	S	48	202	-	10.4	180-225	48	0.49	0.31-0.63
Age Group II									
O-9 Ohio, Sandusky Bay	S	47	-	-	7.4	-	-	-	-
E-28 Tenn. Chickamauga L.	S	191	152	-	7.8	-	-	-	-
R-40 Indiana, Foot's P.	S	1	-	8.4	-	-	-	-	-
U-4 Ill. Mississippi R.	S	-	-	-	8.9	-	-	-	-
V-9 L. Erie	S	102	211	-	10.4	165-245	78	0.44	-
E-3 Minn.	S	7	220	-	-	178-254	-	-	-
S-14 Tenn. Reelfoot L.	S	79	268	-	13.4	215-305	79	1.15	0.63-1.75
Age Group III									
O-9 Ohio, Sandusky Bay	S	19	-	-	10.6	-	-	-	-
U-4 Ill. Mississippi R.	S	-	-	-	11.2	-	-	-	-
V-9 L. Erie	S	27	238	-	11.8	205-275	25	0.66	-
S-14 Tenn. Reelfoot L.	S	70	304	-	15.1	280-335	70	1.76	1.13-2.88
R-40 Indiana, Foot's P.	S	2	-	15.0	-	-	-	-	-
E-3 Minn.	S	4	330	-	-	279-356	-	-	-
Age Group IV									
U-4 Ill. Mississippi R.	S	-	-	-	12.5	-	-	-	-
V-9 L. Erie	S	14	269	-	13.2	245-295	14	0.96	-
O-9 Ohio, Sandusky Bay	S	30	-	-	13.2	-	-	-	-
S-14 Tenn. Reelfoot L.	S	114	326	-	15.9	255-375	114	2.04	1.25-3.25
E-3 Minn.	S	14	345	-	-	305-406	-	-	-
R-40 Indiana Foot's P.	S	1	-	16.6	-	-	-	-	-
Age Group V									
U-4 Ill. Mississippi R.	S	-	-	-	14.3	-	-	-	-
V-9 L. Erie	S	33	292	-	14.3	245-355	32	1.26	-
O-9 Ohio, Sandusky Bay	S	23	-	-	14.7	-	-	-	-
S-14 Tenn. Reelfoot L.	S	44	373	-	18.1	285-420	44	3.03	200-4.19
E-3 Minn.	S	40	386	-	-	330-457	-	-	-



## FRESHWATER DRUM, (Continued)

	Code	No.	S.L.	F.L.	T.L.	Range	Weight in pounds		
							No.	Mean	Range
Age Group VI									
V-9 L. Erie	S	36	332	-	16.1	285-385	34	1.89	-
O-9 Ohio, Sandusky Bay	S	3	-	-	16.3	-	-	-	-
E-3 Minn.	S	21	419	-	-	381-483	-	-	-
S-14 Tenn. Reelfoot L.	S	16	421	-	20.1	380-460	16	4.16	2.50-5.81
Age Group VII									
V-9 L. Erie	S	24	336	-	16.3	297-375	24	2.02	-
E-3 Minn.	S	1	508	-	-	-	-	-	-
Age Group VIII									
V-9 L. Erie	S	35	365	-	17.6	305-435	31	2.76	-
S-14 Tenn. Reelfoot L.	S	5	496	-	23.3	480-530	5	6.84	6.06-7.50
Age Group X									
S-14 Tenn. Reelfoot L.	S	2	575	-	27.2	570-580	2	11.25	11.00-11.50
Age Group XIII									
E-3 Minn.	S	1	686	-	-	-	-	-	-

	Code	No.	Average calculated standard length at each annulus													
			1	2	3	4	5	6	7	8	9	10	11	12	13	
E-28 Tenn. Chickamauga	L	208	83	139												
V-9 L. Erie	L	712	94	162	206	242	272	303	325	349						
E-3 Minn.	L	168	91	157	242	289	370	382	471	527	563	596	618	657	683	
R-40 Ind. Foot's	F	6	86	176	261	313										
Average calculated fork length at each annulus																
E-2 Minn.	L	158	4.3	8.1	10.8	13.3	16.2	17.4	21.9	24.1	27.3	28.2	30.0	31.2		
R-40 Ind. Foot's P.	F	6	4.1	8.5	12.6	15.0										
Average calculated total length at each annulus																
E-28 Tenn. Chickamauga	L	4.2	7.2													
K-33 Minn.	L	73	4.4	8.1	10.5	12.3	13.5	14.3								

SCULPIN, Cottus bairdii

F-5 L. Erie      Age Group O, June-July      44 fish      0.2-0.5 inches T.L.

SCULPIN, Cottus cognatus

F-5 L. Erie      Age Group O-Aug.      7 fish      0.7-1.4 inches, T.L.

SCULPIN, Cottus ricei

F-5 L. Erie      Age Group O-Aug.      1 fish      1.1 inches T.L.

SCULPIN, Trigloopsis thompsoni

F-5 L. Erie      Age Group O-July-Aug.      5 fish      0.5-0.6 inches T.L.



CREEL CENSUS

Catch per man-hour is a convenient and frequently used measure of the success of angling. At best it is a rough index since it varies with the skill of the angler, the weather, the season, and many other conditions. In some situations a better measure of angling success may be catch-per-trip or catch-per-boat (see W-46, F-21; C-84, S-34).

Some of the data summarized in these tables are based upon small samplings of the angling while others represent all of the fishing on a given lake. In general, data from each lake and each year are considered as separate figures. Numbers in parenthesis behind the citations indicate the number of bodies of water or seasons in the category. The letter S indicates a state wide average, or one covering many bodies of water or many seasons. The data given on the separate species or in the comparison of angling gear are not included in the general tables.

## CATCH OF MUSKELLUNGE PER HOUR.

H-48, N-45 N.Y.L. Chautauqua 0.006; 0.009; 0.013; 0.015

CATCH OF OTHER ESOX SPECIES PER HOUR.

Catch per hour	No. of lakes or seasons	Locations
0.0-0.09	2+3S	E-37 Mich.; H-72 Minn. (3S); T-22 Conn.
0.1-0.19	1+5S	H-72 (5S); T-22 Conn.
2.3-2.39	1	F-9 Conn.
5.2-5.29	1	F-9 Conn.

## CATCH OF BULLHEADS PER HOUR.

0.0-0.09	1+2S	E-37 Mich.; H-72 Minn. (2S).
0.1-0.19	3S	H-72 Minn. (3S).
0.5-0.59	S	H-72 Minn. (S).
1.8-1.89	1	T-31 Mich.
3.7-3.79	1	T-31 Mich.

## CATCH OF YELLOW PERCH PER HOUR.

0.0-0.09	2+3S	H-72 Minn. (3S); T-22 Conn.
0.1-0.19	S	H-72 Minn. (S).
0.2-0.29	1+2S	E-38 Mich.; H-72 Minn. (2S).
0.5-0.59	1+S	E-37 Mich.; H-72 Minn. (S).
1.2-1.29	S	H-72 Minn. (S).

## CATCH OF YELLOW PIKEPERCH PER HOUR.

0.2-0.29	6S	H-72 Minn. (6S).
0.3-0.39	S	H-72 Minn. (S).
0.4-0.49	S	H-72 Minn. (S).

## CATCH OF LARGEMOUTH BLACK BASS PER HOUR.

0.0-0.09	4+7S	E-37 Mich.; E-38 Mich.; H-72 Minn. (7S); T-22 Conn. (2).
0.1-0.19	3+S	H-72 Minn. (S); R-32 Ind.; R-36 Ind. (2).
0.3-0.39	2	R-36 Ind.; T-31 Mich.
1.4-1.49	1	T-31 Mich.

## CATCH OF SMALLMOUTH BLACK BASS PER HOUR.

0.0-0.09	5	E-38 Mich.; T-22 Conn. (2), S-133 W.Va. (2).
0.1-0.19	2	E-37 Mich.; S-133 W.Va.
0.4-0.49	1	S-108 W.Va.
0.6-0.69	1	S-108 W.Va.
0.9-0.99	1	S-108 W.Va.
1.1-1.19	1	S-25 W.Va.
1.3-1.39	1	D-21 Ont.

## CATCH OF SUNFISHES PER HOUR.

0.0-0.09	2S	H-72 Minn. (2S).
0.1-0.19	1	R-36 Ind.
0.3-0.39	1	R-37 Mich.
0.5-0.59	1	E-38 Mich.
0.8-0.89	1	R-36 Ind.



## CATCH OF SUNFISHES PER HOUR. (Continued)

Catch per hour	No. of lakes or seasons	Locations
0.9-0.99	1	R-36 Ind.
1.0-1.09	S	H-72 Minn.(S).
1.1-1.19	2S	H-72 Minn.(2S).
1.4-1.49	1+S	H-72 Minn.(S); R-32 Ind.
4.4-4.49	1	T-31 Mich.
12.8-12.89	1	T-31 Mich.

## CATCH OF ROCK BASS PER HOUR

0.2-0.29	2	E-37 Mich.; E-38 Mich.
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## CATCH OF CRAPPIES PER HOUR

0.1-0.19	1	R-36 Ind.
0.4-0.49	3S	H-72 Minn.(3S)
0.6-0.69	S	H-72 Minn.(S).
1.0-1.09	1	R-36 Ind.
1.1-1.19	S	H-72 Minn.(S).
1.3-1.39	2S	H-72 Minn.(2S).
1.5-1.59	2S	H-72 Minn.(2S).

## CATCH OF WHITE BASS PER HOUR

1.3-1.39	1	S-42 Ia.
4.3-4.39	1	M-92 Ala.

## CATCH OF TROUT PER HOUR IN LAKES.

0.-0.09	2	T-22 Conn.(2).
0.1-0.19	3	B-84 Ore.; H-118 Ore.; S-68 N.B.
0.2-0.29	15	B-84 Ore.(3); H-35 Ore.(2); H-46 Mich.(3); H-118 Ore.(4); H-123 Colo.(2); L-34 Ore.; N-28 Cal.
0.3-0.39	8	B-84 Ore.; H-35 Ore.; H-46 Mich.(2); H-118 Ore.; H-123 Colo.; W-1 Cal.; W-2 Cal.
0.4-0.49	8	B-84 Ore.; H-46 Mich.; H-118 Ore.(2); L-39 Colo.; W-1 Cal.; W-2 Cal.(2).
0.5-0.59	14+S	C-81 Cal.; C-86 Cal.; H-46 Mich.; H-123 Colo.(S); S-68 N.B.(8); S-68 N.B.; V-22 Cal. (2).
0.6-0.69	5+S	H-123 Colo.(S); L-39 Colo.; O-17 Ore.; V-22 Cal.(2); W-1 Cal.
0.7-0.79	6+S	C-81 Cal.; C-86 Cal.(2); H-118 Ore.; H-123 Colo.(S); W-1 Cal.; W-2 Cal.
0.8-0.89	5	C-81 Cal.; C-86 Cal.; H-35 Ore.; H-123 Colo.; N-42 Ore.
0.9-0.99	6+2S	C-81 Cal.; C-86 Cal.; H-123 Colo.(2S); W-2 Cal.(2); W-2 Cal.(2).
1.0-1.09	1	L-39 Colo.
1.1-1.19	1	F-25 Mich.
1.3-1.39	1	L-39 Colo.
1.4-1.49	1	L-39 Colo.
1.5-1.59	1	W-46 Utah.
2.0-2.09	1	W-46 Utah.
2.1-2.19	1	L-39 Colo.
2.2-2.29	1	S-71 P.E.I.
2.5-2.59	2	B-84 Ore.; S-71 P.E.I.
4.1-4.19	1	N-30 Utah.

## CATCH OF TROUT PER HOUR IN STREAMS

0.0-0.09	4	N-45 N.Y.; O-16 Ore.(3).
0.1-0.19	1	S-107 Va.
0.2-0.29	9	C-81 Cal.; C-86 Cal.; N-45 N.Y.; S-25 W.Va.; S-34 Mich.; S-107 W.Va.; S-115 W.Va.; S-116 W.Va.; S-126 Ore.
0.3-0.39	1+S	S-38 Mich.; S-114 Mass.(S).
0.4-0.49	13	K-15 N.C.; L-45 Vt.; N-45 N.Y.; O-16 Ore.(3); S-36 Mich.; S-38 Mich.(6).



## CATCH OF TROUT PER HOUR IN STREAMS. (Continued)

Catch per hour	No. of streams or seasons	Location
0.5-0.59	15	B-20 Mich.; C-81 Cal.(2); C-86 Cal.(2); H-123 Colo.(2); K-15 N.C.(3); L-45 Vt. 0-16 Ore.; S-25 W.Va.; S-38 Mich.; S-107 Va.
0.6-0.69	10	C-83 Ore.; H-123 Colo.; K-15 N.C.(4); L-45 Vt.(2); S-35 Mich.; S-36 Mich.
0.7-0.79	14	C-81 Cal.; C-86 Cal.; H-47 Mich.; H-123 Colo.(2); L-45 Vt.; N-48 Ore.; O-16 Ore.(2); S-35 Mich.(2); S-38 Mich.; S-104 Va.; S-105 Va.
0.8-0.89	8+3S	E-5 Alaska; F-24 Mich.(S); F-25 Mich.(S); H-123 Colo.(S); H-123 Colo.; K-15 N.C.(3); N-48 Ore.; S-35 Mich.; S-116 W.Va.
0.9-0.99	5	C-83 Ore.; K-15 N.C.; S-25 W.Va.; S-35 Mich.; T-1 Mich.
1.0-1.09	4	K-15 N. C.; S-34 Mich.; S-35 Mich.; S-105 Va.
1.1-1.19	3+S	C-83 Ore.; H-123 Colo.(S); K-15 N.C.; S-105 Va.
1.2-1.29	2+3S	H-123 Colo.(3S); K-15 N.C.; S-25 W.Va.
1.3-1.39	6+S	A-6 Ia.; F-25 Mich.; K-15 N.C.(2); T-3 N.M.(2); D-35 Man.(S).
1.4-1.49	4	G-4 N.M.; K-15 N.C.(2); T-3 N.M.
1.5-1.59	4	O-3 Wisc.; R-1 Cal.; S-105 Va.; T-1 Mich.
1.6-1.69	3	R-1 Cal.(2); T-3 N.M.
1.7-1.79	6	M-80 Vt.(5); O-3 Wisc.
2.1-2.19	1	C-86 Cal.
2.2-2.29	1	C-81 Cal.
2.4-2.49	3	N-30 Cal.; R-85 Cal.; S-46 Utah.
2.5-2.59	2	R-1 Cal.; D-35 Man.

## CATCH OF FISH PER HOUR BY ANGLING IN WARM WATER LAKES

Catch per hour	No. of lakes or seasons	Location
0.0-0.09	1	P-16 Mich.
0.1-0.19	8+S	E-37 Mich.; H-121 Mich.(S); P-16 Mich.(4); S-128 Minn.(S).
0.2-0.29	12+S	B-86 Ill.; E-23 Tenn.; E-29 Tenn.; E-42 Tenn.; H-9 Ill.(2); M-81 N.M.; P-16 Mich.(3); R-83 Ohio; S-128 Minn.(S); W-33 Ohio.
0.3-0.39	15+S	B-20 Mich.; B-86 Ill.; F-27 Mo.(S); H-120 Mich.; H-121 Mich.; K-19 Mich.(2); N-45 N.Y.; P-16 Mich.(4); R-30 N.C.; R-37 Ind.; R-83 Ohio; T-36 Tenn.
0.4-0.49	36+S	E-16 Mich.; E-29 Tenn.; E-42 Tenn.; H-121 Mich.(2); M-83 Minn.(18); P-16 Mich.(7); R-83 Ohio; T-36 Tenn.; W-33 Ohio.(4).
0.5-0.59	9	B-86 Ill.; M-70 N.Y.; M-93 N.Y.; P-16 Mich.(3); R-50 Ohio; R-64 Ohio; W-33 Ohio.
0.6-0.69	37	C-50 Ohio; C-78 Que.(18); H-120 Mich.; K-19 Mich.; K-30 N.C.; P-16 Mich.(10); R-56 Ohio; W-33 Ohio.(3); W-50 Ohio.
0.7-0.79	41	B-86 Ill.; E-42 Tenn.; H-9 Ill.; K-19 Mich.(3); K-30 N.C.; P-16 Mich.(18); S-25 W.Va.; T-4 Tenn.(4); W-33 Ohio(10).
0.8-0.89	18	H-9 Ill.; H-121 Mich.(2); K-19 Mich.(2); K-30 N.C.(2); P-16 Mich.(9); W-33 Ohio(2).
0.9-0.99	18	C-35 Minn.(3); C-50 Ohio; H-121 Mich.; H-123 Colo.; P-16 Mich.(9); S-115 W.Va.; T-36 Tenn.; W-50 Ohio.
1.0-1.09	17+S	E-15 Mich.(S); H-9 Ill.; H-121 Mich.; H-123 Colo.(2); K-19 Mich.(2); K-30 N.C.; P-16 Mich.(6); R-64 Ohio(3); S-25 W.Va.
1.1-1.19	28	C-35 Minn.(3); F-15 Wisc.; M-83 Minn.; P-16 Mich.(5); W-33 Ohio(3); W-49 Ohio; W-50 Ohio(2).
1.2-1.29	12+4S	E-36 Minn.(S); E-38 Mich.; F-14 Wisc.; F-24 Mich.(S); F-25 Mich.(S); H-72 Minn.; K-30



## CATCH OF FISH PER HOUR BY ANGLING IN WARM WATER LAKES. (Continued)

Catch per hour	No. of lakes or seasons	Location
1.2-1.29	12+4S	N.C. (2); P-16 Mich. (2); R-64 Ohio; T-36 Tenn.; W-33 Ohio (3); W-49 Ohio.
1.3-1.39	31+2S	B-41 Ill.; E-33 Minn.; H-121 Mich.; H-123 Colo.; H-124 Minn. (S); M-83 Minn. (22); O-6 Ohio; P-16 Mich. (3); S-128 Minn. (S); W-33 Ohio (L).
1.4-1.49	15+4S	E-33 Minn.; E-37 Mich.; H-72 Minn. (2S); H-124 Minn. (S); P-16 Mich. (5); R-32 Ind.; S-128 Minn. (S); T-36 Tenn.; W-33 Ohio (3); W-49 Ohio (2); W-50.
1.5-1.59	16+2S	H-9 Ill. (8); H-72 Minn. (S); H-121 Mich. (2); H-123 Colo.; K-19 Mich.; O-6 Ohio; P-16 Mich.; R-64 Ohio (2); S-128 Minn. (S).
1.6-1.69	24+2S	B-47 Wisc.; H-72 Minn. (S); H-124 Minn. (S); K-26 Tenn.; K-30 N.C.; M-83 Minn. (16); P-16 Mich.; R-56 Ohio; S-42 Ia.; W-49 Ohio; W-50 Ohio.
1.7-1.79	13+6S	E-36 Minn. (2S); E-37 Mich.; H-72 Minn. (4S); H-121 Mich.; O-6 Ohio; P-16 Mich. (2); R-50 Ohio; R-70 Iowa (7).
1.8-1.89	30	F-14 Wisc.; M-83 Minn. (26); P-16 Mich. (3).
1.9-1.99	5+S	E-33 Minn.; F-24 Great Lakes; P-16 Mich. (3); W-50 Ohio.
2.0-2.09	3	B-51 Ohio; P-16 Mich. (2).
2.1-2.19	4+S	B-52 Ohio; E-27 Tenn.; E-36 Minn. (S); P-16 Mich.; W-49 Ohio.
2.2-2.29	1	F-15 Wisc.
2.3-2.39	2	K-19 Mich.; P-16 Mich.
2.5-2.59	22	M-83 Minn. (21); P-16 Mich.
2.6-2.69	2	K-19 Mich. (2).
2.7-2.79	1	P-16 Mich.
2.8-2.89	1	O-6 Ohio
2.9-2.99	3+S	B-41 Ill.; E-27 Tenn.; F-25 Great Lakes; P-16 Mich.
3.0-3.09	2	O-6 Ohio; P-16 Mich.
3.2-3.29	2	B-41 Ill.; W-50 Ohio.
3.3-3.39	1	E-16 Mich.
3.5-3.59	1	O-6 Ohio.
3.6-3.69	2	D-22 L. Erie; P-16 Mich.
4.3-4.39	2	B-42 Ill.; D-22 L. Erie
4.7-4.79	1	O-6 Ohio.
5.2-5.29	1	R-86 Iowa.
6.6-6.69	1	S-128 Minn.
7.0-7.09	1	S-128 Minn.
8.1-8.19	1	S-128 Minn.
8.8-8.89	1	S-128 Minn.

## CATCH PER HOUR OF WARM WATER FISH IN STREAMS.

0.0-0.09	1	K-20 Ind.
0.1-0.19	1	B-20 Mich.
0.2-0.29	1	K-20 Ind.
0.5-0.59	1	S-133 W.Va.
0.6-0.69	1	S-133 W.Va.
0.8-0.89	1	S-133 W.Va.

## COMPARISON OF CATCH PER HOUR ON VARIOUS GEAR.

	Species	Bait	Catch per hour
T-12 Ill.	Various	Artificial	0.68
		doughballs	1.06
		worms	1.13
		minnows	1.15
D-30 Ill.	Bass	casting lures	0.17-0.55
		flyrod lures	0.53-0.94
		insects	0.08-0.10
		minnows	0.25



## COMPARISON OF CATCH PER HOUR ON VARIOUS GEAR. (Continued)

	Species	Bait	Catch per hour
D-30 Ill.	Bass	crayfish	0.8
		worms	1.2
E-38 Mich.	Various	plugs	0.4
		spinners	0.5
		flies	1.1
		minnows	1.2
		insects	1.6
		worms	1.7
H-125 Colo.	Trout	grasshoppers	0.28
		worms	0.84
		salmon eggs	0.97
		flies	0.98
		stoneflies	1.28
		spinners	1.48
R-36 Ind.	Various	plugs	0.09-0.38
		minnows	0.19
		cone pole	0.73-2.00
L-46 Ia.	Bass	plugs	0.05-0.09
		minnows	0.03-0.04
		worms	0.01
	Various	minnows	0.34-1.06
		mixed	0.45-0.61
		worms	0.94-0.95

## POUNDS OF FISH PER HOUR

	Species	
B-20 Mich.	Rock bass	0.045-0.18
B-20 Mich.	Smallmouth bass	0.04-0.54
S-95 Minn.	Yellow pikeperch	0.9-1.5
R-32 Ind.	Sunfish	0.2
	Bass	0.26
	Crappies	0.32
R-36 Ind.	Sunfish	0.19-0.29
	Bass	0.11-0.33
	Crappies	0.07
N-45 N.Y.	Trout	0.045-0.21
H-123 Colo.	Trout, streams.	0.27
	lakes	0.28
D-22 L. Erie	Perch and pikeperch	3.67-4.34
S-34 Mich.	Trout, streams	0.067-0.348
R-37 Ind.	Various	0.1
L-34 Ore.	Trout from lakes	0.4
F-15 Wisc	Various	0.9-1.53
D-35 Man.	Trout from streams	1.9 (best 3.9)

## CATCH OF TROUT PER TRIP IN STREAMS.

Catch per trip	No. of streams or seasons	Location
0.6-1.0	2	C-81 Cal.; C-86 Cal.
1.6-2.0	4	C-81 Cal.(2); C-86 Cal.(2).
2.1-2.5	2	C-81 Cal.; O-3 Wisc.
2.6-3.0	2	C-44 Va.; N-48 Ore.
4.1-4.5	2	D-3 Wisc.; S-60
4.6-5.0	2	N-48 Ore.; S-60 Mich.
5.1-5.5	1	S-60 Mich.
5.6-6.0	1	C-44 Va.
7.1-7.5	3	C-86 Cal.; L-44 Vt.; R-85 Cal.
8.1-8.5	1	H-119 Wash.
11.1-11.5	3	C-81 Cal.; C-86 Cal.; S-129 N.H.
12.1-12.5	1	H-119 Wash.



## CATCH OF TROUT PER TRIP IN LAKES.

Catch per trip	No. of lakes or seasons	Location
1.1-1.5	1	W-1 Cal.
2.1-2.5	3	C-81 Cal.; C-86 Cal.; W-1 Cal.
2.6-3.0	7	C-81 Cal.(2); C-86 Cal.(2); V-22 Cal.(2); W-1 Cal.
3.1-3.5	5	C-81 Cal.; C-86 Cal.; V-22 Cal.(2); W-1 Cal.
3.6-4.0	1	W-1 Cal.
5.1-5.5	2	C-81 Cal.; C-86 Cal.
5.6-6.0	5	D-14 Cal.(5).
7.6-8.0	1	H-119 Wash.
9.1-9.5	1	H-119 Wash.

## CATCH OF WARMWATER FISH PER TRIP.

0.6-1.0	1	B-85 Tenn.
1.1-1.5	3	B-85 Tenn.; E-39 Tenn.; E-41 Tenn.
2.1-2.5	2	B-85 Tenn.; E-39 Tenn.
2.6-3.0	5	B-85 Tenn.; E-40 Tenn.(3); E-42 Tenn.
3.1-3.5	7	B-85 Tenn.; E-38 Mich.; E-39 Tenn.; E-40 Tenn.(3); E-42 Tenn.
3.6-4.0	3	E-40 Tenn.; E-41 Tenn.(2).
4.1-4.5	1	0-6 Ohio.
5.1-5.5	2	B-85 Tenn.(2).
7.6-8.0	1	0-6 Ohio.
8.1-8.5	2	B-85 Tenn.; 0-6 Ohio.
10.0-10.9	1	0-6 Ohio.
11.0-11.9	1	0-6 Ohio.
18.0-18.9	1	0-6 Ohio.
23.0-23.9	1	R-86 Iowa.
29.0-29.9	1	R-86 Iowa.

## POUNDS OF FISH PER TRIP.

E-40 Tenn.	Various	0.9; 1.0; 1.1; 2-9; 3.2; 3.4; 4.0.
E-41 Tenn.	Various	1.7; 2.9; 3.3.
B-85 Tenn.	Various	0.3; 0.5; 1.7; 1.7; 2.0; 2.6; 2.6; 3.7.

## CATCH OF TROUT PER BOAT HOUR IN LAKES.

F-21 Ontario	0.16-3.12
F-23 Ontario	0.59-0.79

## NUMBER OF FISH PER MAN-HOUR OF SPEARING.

H-124 Minn.	0.44; 0.46; 0.38; 0.52; 0.63.
H-121 Mich.	0.11; 0.09; 0.06; 0.04; 0.08; 0.13.

## MAN-HOURS OF ANGLING PER ACRE PER YEAR.

B-86 Ill.	1415; 1647.
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## MAN-DAYS OF ANGLING PER ACRE PER YEAR.

T-37 Tenn. Pickwick L.	3.3
F-14 Wisc.	4.2
T-37 Tenn. Wilson L.	4.9
E-21 Mich. Fife L.	3.5-6.6
T-37 Tenn. Wheeler L.	6.4
H-45 Mich. Waterloo Area	7.0

## ANNUAL YIELD AND STANDING CROP.

Measures of production or productivity of various bodies of water are extremely important in fishery management. The accurate determination of production requires knowledge of growth rate, mortality rates, and population density (R-87, R-88). In many papers there is considerable confusion between production, productivity, yield, and standing crop (K-23). The standing crop may be defined as the total amount of fish (or other organism) present at a given moment while the other three terms apply over stated periods of time (usually an annual period).

Numerous methods have been used to estimate the standing crop (or total number or poundage) of fish in a body of water. The most accurate method probably is that of



## ANNUAL YIELD AND STANDING CROP. (Continued)

draining the body and recovering all fish. Where draining is not possible, poisoning may give fairly accurate measurements but the percentage of the fish which may be recovered after poisoning may vary greatly (B-14, C-90). Electric shockers and nets intensively used may also give a measure of the standing crop; but except under ideal conditions these estimates are subject to considerable error. The marking and recovery technique of estimating fish populations has been quite widely used, but its efficiency is also quite variable. The following tables should be used with an understanding of the probable variation and error.

Rounsefell (R-73) prepared a compilation of much of the data on standing crop and yield and demonstrated a negative correlation between standing crop and the area of the lake. The data are here tabulated without relationship to the area of the body of water but present the overall picture.

## ANNUAL YIELD OF TROUT PER ACRE BY ANGLING IN STREAMS.

Pounds per acre	No. of streams or years	Locations
0-4	1	S-34 Mich.
5-9	76	H-57 N.Y. (74 yrs.); 0-3 Wisc.; S-34 Mich.
10-14	5	S-34 Mich. (3).
15-19	1	S-34 Mich.
20-29	6	H-37 N.Y.; S-34 Mich. (2); S-104 Va.; S-105 Va.; T-3 N. Mex.
30-39	4	S-34 Mich.; S-105 Va. (3).
40-49	2	T-2 N. Mex. (2).
50-59	2	T-3 N. Mex. (2).
60-69	1	S-34 Mich.

## ANNUAL YIELD OF TROUT PER ACRE BY ANGLING IN LAKES.

Pounds per acre	No. of lakes or years	Locations
0.-0.9	11	F-21 Ont. (2); S-68 N.B.; S-75 N.B. (8).
1.0-4.9	9+S	E-19 Mich.; F-21 Ont. (3); H-57 Norway(S); H-57 Norway(S); H-57 Scotland(3); S-68 N.B.; V-24 Norway.
5-9	13	E-19 Mich.; H-57 England; H-57 Scotland(10); S-74 N.B.
10-14	7	C-86 Cal.; H-57 Scotland(3); M-90 B.C.; W-1 Cal. (2).
15-19	5	E-19 Mich.; H-119 Wash.; N-35 Cal. (2); R-17 Alb.
20-29	7	E-19 Mich. (2); H-119 Wash.; N-28 Ore.; N-30 Utah; N-35 Cal.; N-45 N.Y.
30-39	6	C-86 Cal.; D-14 Cal.; E-19 Mich.; H-14 Ont.; H-43 Utah; S-71 P.E.I.
40-49	7	D-14 Cal. (4); S-71 P.E.I. (3).
50-59	2	H-14 Ont.; H-118 Ore.
70-79	2	H-118 Ore.; N-42 Ore.

H-14 Ont. small ponds lists annual yields of trout from 21-250 pounds per acre, but not by angling alone. V-24 lists an annual yield of 175 pounds of trout per acre for Norwegian lakes.

## ANNUAL YIELD PER ACRE BY ANGLING FOR WARM WATER FISHES.

0.-0.9	5	D-21 Ont. (3); H-27 Ont.; H-78 N.C.
1.0-4.9	15	E-33 Minn. (2); E-34 Wisc. (3); F-14 Wisc.; H-27 Ont.; H-121 Mich. (2); J-19 Wisc.; K-26 Tenn.; K-30 N.C.; R-73 Mich. (3).
5.0-9.9	10	C-50 Ohio; E-15 Mich.; E-34 Wisc.; F-14 Wisc.; H-121 Mich.; J-14 Wisc.; K-30 N.C. (4).
10-14	9	B-47 Wisc.; C-50 Ohio; E-35 Mich.; F-14 Wisc.; H-121 Mich. (2); R-36 Ind.; R-73 Mich.; W-49 Ohio.
15-19	7	E-15 Mich.; E-33 Minn.; F-14 Wisc.; J-14 Wisc.; K-30 N.C.; R-73 Mich.; V-24 Europe.
20-29	5	K-30 N.C.; R-36 Ind.; R-73 Mich. (3).
30-39	5	E-15 Mich.; K-30 N.C.; R-36 Ind. (3).



## ANNUAL YIELD PER ACRE BY ANGLING FOR WARM WATER FISHES. (Continued)

Pounds per acre	No. of lakes or years	Locations
40-49	10	K-25 Tenn. (5); K-30 N.C.; R-32 Ind.; R-36 Ind.; R-73 Mich.; V-24 Europe.
50-59	3	K-25 Tenn.; R-73 Mich. (2).
60-69	2	R-73 Mich. (2).
90-99	1	H-121 Mich.
100-124	2	H-121 Mich.; W-49 Ohio.
125-149	1	B-86 Ill.
150-174	1	K-25 Tenn.
350	1	B-86 Ill.

## ANNUAL YIELD PER ACRE BY ANGLING IN ARTIFICIAL LAKES AND RESERVOIRS.

0-9	1	E-23 Tenn.
10-19	6	E-39 Tenn.; L-39 Colo. (2); S-121 Ala.; T-4 Tenn.
20-29	7	S-121 Ala. (3); T-36 Tenn. (4).
30-39	13	S-47 Tex. (10); S-121 Ala.; T-4 Tenn.; T-17 Ill.
40-49	1	L-39 Colo.
50-59	2	T-17 Ill.; V-24 Ill.
60-69	1	T-17 Ill.
80-89	2	T-13 Ill.; W-49 Ohio.
90-99	3	B-41 Ill.; L-39 Colo.; T-13 Ill.
100-124	4	L-39 Colo. (2); S-121 Ala.* T-13 Ill.
125-149	1	B-41 Ill.
150-174	1	B-41, 42, 87 Ill.
175-199	1	S-121 Ala.*
274	1	S-121 Ala.*
377	1	T-13 Ill.

## NUMBERS OF FISH PER ACRE CAUGHT ANNUALLY BY ANGLERS IN WARM WATER LAKES.

No. of fish per acre	No. of lakes or years	Locations
0-4	1	J-19 Wisc.
5-9	1	R-83 Ohio.
10-19	4	E-21 Mich. (4).
30-39	2	H-45 Mich.; K-19 Mich.
50-59	12	E-15 Mich. (12).
60-69	1	K-19 Mich.
80-89	2	K-19 Mich. (2).
125-149	1	K-19 Mich.
200-249	1	K-19 Mich.
250-299	1	K-19 Mich.
300-349	1	W-49 Ohio.
350-399	1	W-49 Ohio.

## ANNUAL YIELD PER ACRE OF FISH BY ANGLING IN WARM WATER STREAMS.

V-24 La. 100 pounds per acre

## NUMBERS OF FISH ANNUALLY CAUGHT PER ACRE IN WARM WATER STREAMS.

S-108 Va. 1.4; 7.0; 7.2; 8.3.  
S-133 W.Va. 30.

## ANNUAL YIELD OF ROUGH FISH PER ACRE.

Pounds per acre	No. of lakes or years	Locations
0-9	1	H-78 N.C.
25-49	S	S-78 Poland lakes (S).
75-99	S	M-84 Minn. (14 lakes, 25 yrs.).
100-124	4+S	S-78 Poland ponds(S); M-91 Minn. (4).
125-149	5	M-81 Minn. (5).
175-199	5	J-14 Wisc. (5).

\*Fertilized artificially.



## ANNUAL YIELD PER ACRE OF ROUGH FISH. (Continued)

Pounds per acre	No. of lakes or years	Locations
250-299	6	J-15 Wisc.(5); S-78 Galacia pond.
350-399	1	J-18 Wisc.

J-17 Minn. reports annual sustained yields of carp from 98 to 522 pounds per acre.

## ANNUAL YIELD PER ACRE TO COMMERCIAL FISHERIES.

0-0.9	S	R-73 Great Lakes.
1.0-1.9	2+S	R-73 Great Lakes(2); R-76 Great Lakes; R-76 Nipigon (25 yrs.).
3.0-3.9	1	C-87 Man.
5.0-9.9	3	C-87 Man.; R-73 Great Lakes(2).
10-14	1	C-87 Man.
15-19	2	T-4 Tenn.(2).
25-29	1	C-88 Iowa.
30-34	1	T-4 Tenn.
50-74	1	C-88 Minn.
100-149	15	V-24 Ill.; V-24 Japan(14).
150-199	2	V-24 Ill.(2).
200-249	1	V-24 La.
250-299	1	V-24 La.
300-350	S	V-24 Ponds.
400	1	V-24 La.
500	S	V-24 Fertilized ponds.
1517	1	V-24 Germany.

V-28 Lists annual yields from Japanese carp ponds as 221-13,500 pounds per acre, and from Japanese eel ponds as 191-3333 pounds per acre with artificial feeding and from German carp ponds as 100-1338 pounds per acre.

## NUMBERS OF FISH PRODUCED PER ACRE IN REARING PONDS DURING FIRST YEAR OF LIFE.

C-58 Mich.	bluntnosed minnows	100,000		
	golden shiners	100,000-250,000		
	fathead minnows	200,000		
	red-bellied dace	125,000		
	killifish	80,000		
0-5 Wisc.	muskellunge	5,600-77,000		
R-77 Ohio.	bass	6,000		
H-126 Texas.	crappie (2.5")	31,950		
D-5	bluegills	114,000-300,000		
	crappies	13,000		
	smallmouth black bass	7,092		
	largemouth black bass	8,527		
	blackhead minnow	215,000		
	golden shiners	32,000-250,000		
S-63 Minn.	yellow pikeperch	21-8,790	Mean	2,111
	largemouth black bass	10-56,700	Mean	7,415
	bluegill	1,250-140,000	Mean	33,383
	crappie	300-81,600	Mean	18,939
C-49 Ohio.	creek chub	63,910-134,772		
M-25 Ill.	brassy minnow	35,200		

## STANDING CROP OF FISH IN POUNDS PER ACRE FOR TROUT LAKES AND PONDS.

(Population determined by D-draining; E-electric shocker; M-marking and recovery; P-poison; N-netting).

Pounds per acre	No. of lakes	Locations
0-4	3	K-12 Ont.(3).
5-9	1	M-95 N.S.(P).
40-49	1	R-65 Wyo.(M).



## STANDING CROP OF FISH IN POUNDS PER ACRE FOR TROUT STREAMS.

Pounds per acre	No. of streams	Locations
0-4	1	S-37 Mich.
5-9	3	G-30 N.Y.; N-43 N.Y.(E); S-37 Mich.
10-19	4	N-43 N.Y.(E); S-21 N.Y.(E); S-37 Mich.(2).
20-29	12	H-83 N.H.(10); N-43 N.Y.(E); S-37 Mich.
30-39	1	S-37 Mich.
40-49	2	L-42 Prussia(E)(2).
50-59	4	L-42 Prussia(E); M-95 N.S.(P); S-37 Mich.; S-61 Minn.(E).
60-69	8	E-25 Mich.; H-83 N.H.(6); N-32 Cal.
70-79	2	E-12 N.Y.(N); G-30 N.Y.
90-99	1	M-71 N.Y.
100-124	7	L-42 Prussia(E)(3); S-39 Mich.(D)(3); S-61 Minn.(E).
125-149	2	L-42 Prussia(E)(2).
150-174	1	E-25 Mich.
175-199	2	L-42 Prussia(E); S-37 Mich.
250-299	2	N-32 Cal.; S-61 Minn.(E).
300-399	1	E-12 N.Y.

## STANDING CROP OF FISH IN POUNDS PER ACRE IN PONDS AND LAKES.

(Population determined by D-draining; E-electric shocker; M-marking and recovery; P-poison; N-netting).

Pounds per acre	No. of lakes	Locations
5-9	1	S-65 N.S.(P).
10-19	7	B-13 Mich.(P)(3); G-35 Mich.(P); S-64 N.S.(P); S-65 N.S.(P)(2).
20-29	6	B-13 Mich.(P)(2); B-13, B-25 Mich.(P); F-1 Ia.(M); M-96 Fla.(P); S-64 N.S.(P).
30-39	7	B-13 Mich.(P)(3); B-13, C-13 Mich.(P); M-96 Fla.(P); S-65 N.S.(P); S-72 N.S.(P).
40-49	4	B-13 Mich.(P)(2); S-52 Ala.(D)(2).
50-74	11	B-13 Mich.(P)(2); B-87 Ill.(P); F-1 Ia.(M)(5); M-96 Fla.(P); S-74 N.B.(P); T-18 Ill.(P).
75-99	8	B-13 Mich.(P)(2); B-13, B-77 Mich.(P); F-1 Ia.(M); O-18 Wisc.(P); S-52 Ala.(D)(2); S-118 Ala.(D).
100-124	80	B-13,14 Mich.(D); F-1 Ia.(M)(3); G-35 Mich.(P); M-84 Minn.(N)(68); M-96 Fla.(P)(2); S-52 Ala.(D)(2); S-117 Ala.(D); S-118 Ala.(D).
125-149	7	B-13 Mich.(P); F-1 Ia.(M)(2); L-47 Ind.(M); O-18 Wisc.(P); R-32 Ind.(M); S-117 Ala.(D).
150-199	11	B-13 Mich.(P); B-61 Tex. F-1 Ia.(M); O-18 Wisc.(P); S-117 Ala.(D); S-118 Ala.(D)(2); S-124 W.Va.(D)(2).
200-249	21	B-86 Ill.(P); B-87 Ill.(P)(5); F-1 Ia.(M)(3); R-34 Ind.(M); S-52 Ala.(D)(4); S-117 Ala.(D)(3); S-124 W.Va.(D)(2); T-5 Ala.(P); T-17 Ill.(P).
250-299	16	B-87 Ill.(P); C-89 Ia.(P); F-1 Ia.(M); S-52 Ala.(D)(3); S-117 Ala.(D)(4); S-124 W.Va.(D)(4); T-17 Ill.(P); M-97 Wisc.(P); C-89 Iowa(P).
300-399	76	B-13 Mich.(P); B-87 Ill.(P); B-87 Ill.(P)(3); B-87, T-17 Ill.(P); F-1 La.(M); K-21 Ind.(D)(2); M-21 Wisc.; M-84 Minn.(N)(44); S-52 Ala.(D)(2); S-52 Ala.(D)(8); S-117 Ala.(D); S-117 Ala.(D)(3); S-124 N.Y.; S-124 W.Va.(D)(6); S-131 Iowa(P).
400-499	11	B-87 Ill.(P)(3); S-52 Ala.(D)(2); S-117 Ala.(D)(2); S-124 W.Va.(D)(2); T-16 Ill.; T-17, B-87 Ill.(P).
500-599	9	K-21 Ind.(D); S-52 Ala.(D)(4); S-117 Ala.(D); S-118 Ala.(D); T-17 Ill.(P); T-19, T-17, B-87 Ill.(P).



## STANDING CROP OF FISH IN POUNDS PER ACRE IN PONDS AND LAKES. (Continued)

Pounds per acre	No. of lakes	Locations
600-699	16	B-87 Ill. (P) (3); C-89 Ia. (P); S-43 Ia. (D); S-117 Ala. (D) (2); T-13 Ill. (9).
700-799	5	B-87 Ill. (P) (2); S-117 Ala. (D) (3).
800-899	1	V-24 La.
1100-1199	2	B-87, T-17 Ill. (P); P-24 G.Br.
1200-1299	1	C-89 Ia. (P).
2700-2799	1	J-17 Minn.

S-119 Ala. for fertilized ponds, goldfish 750-1100 pounds per acre; bullheads and bluegills, 500-600 pounds, and largemouth black bass, 150-200 pounds.

## STANDING CROP OF FISH IN POUNDS PER ACRE FOR SLOUGHS AND BAYS OF RIVERS AND RESERVOIRS.

(Population determined by D-draining; E-electric shocker; M-marking and recovery; P-poison; N-netting).

25-49	1	U-5 Miss. R. (P).
150-199	2	T-36 Tenn. (P); U-5 Miss. R. (P).
200-249	1	U-5 Miss. R. (P).
250-299	1	T-36 Tenn. (P).
300-399	1	T-36 Tenn. (P).
600-699	1	U-5 Miss. R. (P).
700-799	1	T-36 Tenn. (P).
800-899	1	T-36 Tenn. (P).



## INCHES (BY TENTHS) TO NEAREST MILLIMETER

	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
0	0	3	5	8	10	13	15	18	20	23
1	25	28	30	33	36	38	41	43	46	48
2	51	53	56	58	61	64	66	69	71	74
3	76	79	81	84	86	89	91	94	97	99
4	102	104	107	109	112	114	117	119	122	124
5	127	130	132	135	137	140	142	145	147	150
6	152	155	157	160	163	165	168	170	173	175
7	178	180	183	185	188	190	193	196	198	201
8	203	206	208	211	213	216	218	221	224	226
9	229	231	234	236	239	241	244	246	249	251
10	254	257	259	262	264	267	269	272	274	277
11	279	282	284	287	290	292	295	297	300	302
12	305	307	310	312	315	318	320	233	325	328
13	330	333	335	338	340	343	345	348	351	353
14	356	358	361	363	366	368	371	373	376	378
15	381	384	386	388	391	394	396	399	401	404
16	406	409	411	414	417	419	421	424	427	429
17	432	434	437	439	442	445	447	450	452	455
18	457	460	462	465	467	470	472	475	478	480
19	483	486	488	490	493	495	498	500	503	505
20	508	511	513	516	518	521	523	526	528	531
21	533	536	538	541	544	546	549	551	554	556
22	559	561	564	566	569	572	574	577	579	582
23	584	587	589	592	594	597	599	602	605	607
24	610	612	615	617	620	622	625	627	630	632
25	635	638	640	643	645	648	650	653	655	658
26	660	663	665	668	671	673	676	678	681	683
27	686	688	691	693	696	698	701	703	706	709
28	711	714	716	719	721	724	726	729	732	734
29	737	739	742	744	747	749	752	754	757	759

## INCHES (BY EIGHTHS) TO NEAREST MILLIMETER

	0	1/8	1/4	3/8	1/2	5/8	3/4	7/8
0	0	3	6	10	13	16	19	22
1	25	29	32	35	38	41	44	48
2	51	54	57	60	64	67	70	73
3	76	79	83	86	89	92	95	98
4	102	105	108	111	114	117	121	124
5	127	130	133	137	140	143	146	149
6	152	156	159	162	165	168	171	175
7	178	181	184	187	191	194	197	200
8	203	206	210	213	216	219	222	225
9	229	232	235	238	241	244	248	251



## INCHES (BY EIGHTHS) TO NEAREST MILLIMETER, (Continued)

	0	1/8	1/4	3/8	1/2	5/8	3/4	7/8
10	254	257	260	264	267	270	273	276
11	279	283	286	289	292	295	298	302
12	305	308	311	314	317	321	324	327
13	330	333	337	340	343	346	349	352
14	356	359	362	365	368	372	375	378
15	381	384	387	381	394	397	400	403
16	406	410	413	416	419	422	425	429
17	432	435	438	441	445	448	451	454
18	457	460	464	467	470	473	476	479
19	483	486	489	482	495	498	502	505
20	508	511	514	518	521	524	527	530
21	533	537	540	543	546	549	552	556
22	559	562	565	568	572	575	578	581
23	584	587	591	594	597	600	603	606
24	610	613	616	619	622	626	629	632
25	635	638	641	645	648	651	654	657
26	660	664	667	670	673	676	680	683
27	686	689	692	695	699	702	705	708
28	711	714	718	721	724	727	730	733
29	737	740	743	746	749	753	756	759
30	762	765	768	772	775	778	781	784
31	787	790	794	797	800	803	806	809
32	813	816	819	822	826	829	832	835
33	838	841	845	848	851	854	857	860
34	864	867	870	873	876	879	883	886
35	889	892	895	898	902	905	908	911
36	914	917	921	924	927	930	933	937
37	940	943	946	949	953	956	959	962
38	965	968	972	975	978	981	984	987
39	991	994	997	1000	1002	1006	1010	1013

## OUNCES TO GRAMS

Ounces	Pounds						
	0	1	2	3	4	5	6
0	0	454	907	1361	1814	2268	2722
1	28	482	936	1389	1843	2296	2750
2	57	510	964	1418	1871	2325	2778
3	85	539	992	1446	1899	2353	2807
4	113	567	1021	1474	1928	2381	2835
5	142	595	1049	1503	1956	2410	2863
6	170	624	1077	1531	1985	2438	2892
7	198	652	1106	1559	2013	2466	2920
8	227	680	1134	1588	2041	2495	2948
9	255	709	1162	1616	2070	2523	2977
10	284	737	1191	1644	2098	2552	3005



## OUNCES TO GRAMS, (Continued)

Ounces	Pounds						
	0	1	2	3	4	5	6
11	312	765	1219	1673	2126	2580	3033
12	340	794	1247	1701	2155	2608	3062
13	369	822	1276	1729	2183	2637	3090
14	397	851	1304	1758	2211	2665	3119
15	425	879	1332	1786	2240	2693	3147

## POUNDS BY TENTHS TO NEAREST GRAM

	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
0		45	91	136	181	227	272	318	363	408
1	454	499	544	590	635	680	726	771	816	862
2	907	953	998	1043	1089	1134	1179	1225	1270	1315
3	1361	1406	1451	1497	1547	1588	1633	1678	1724	1769
4	1814	1860	1905	1950	1996	2041	2087	2132	2177	2223
5	2268	2313	2359	2404	2449	2495	2540	2585	2631	2676
6	2722	2767	2812	2858	2803	2948	2994	3039	3084	3130
7	3175	3220	3266	3311	3357	3402	3447	3443	3538	3583
8	3629	3674	3719	3765	3810	3856	3901	3946	3992	4037
9	4082	4128	4173	4218	4264	4309	4354	4400	4445	4491

## HUNDREDTHS OF A POUND TO NEAREST GRAM

	0	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.0		5	9	14	18	23	27	32	36	41
0.1	45	50	54	59	64	68	73	77	82	86
0.2	91	95	100	104	109	113	118	122	127	132
0.3	136	141	145	150	154	159	163	168	172	177
0.4	181	186	191	195	200	204	209	213	218	222
0.5	227	231	236	240	245	249	254	259	263	268
0.6	272	277	281	286	290	295	299	304	308	313
0.7	318	322	327	331	336	340	345	349	354	358
0.8	363	367	372	376	381	386	390	395	399	404
0.9	408	413	417	422	426	431	435	440	445	449

## OUNCES BY TENTHS TO HUNDREDTHS OF A POUND

	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
0	0	.01	.01	.02	.02	.03	.04	.04	.05	.05
1	.06	.07	.07	.08	.09	.09	.10	.11	.11	.12
2	.13	.13	.14	.14	.15	.15	.15	.17	.17	.18
3	.19	.19	.20	.20	.21	.22	.22	.23	.24	.24
4	.25	.26	.26	.27	.28	.28	.29	.29	.30	.31
5	.31	.32	.32	.33	.34	.34	.35	.35	.36	.37
6	.37	.38	.39	.39	.40	.41	.41	.42	.43	.43
7	.44	.44	.45	.46	.46	.47	.47	.48	.49	.49
8	.50	.50	.51	.52	.52	.53	.54	.54	.55	.56
9	.56	.57	.58	.58	.59	.59	.60	.61	.61	.62



OUNCES BY TENTHS TO HUNDREDTHS OF A POUND, (Continued)

	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
10	.62	.63	.64	.64	.65	.65	.66	.67	.67	.68
11	.69	.69	.70	.71	.71	.72	.73	.73	.74	.74
12	.75	.75	.76	.77	.77	.78	.79	.79	.80	.80
13	.81	.82	.82	.83	.84	.84	.85	.86	.86	.87
14	.88	.88	.89	.89	.90	.91	.91	.92	.92	.93
15	.94	.94	.95	.95	.96	.97	.97	.98	.99	.99

FACTORS FOR CONVERTING LENGTHS OF PRESERVED FISH TO LIVE LENGTHS

S-31	Formalin	Brook trout, 6.7" T.L. average.	1.057
		Brook trout, average 6.6" T.L.	1.054
		Brook trout, another batch	1.046
S-45	Formalin	White bass	1.012
J-6	Formalin	Bloater	1.019
V-5	Formalin	Cisco	1.015
H-64	Formalin and then alcohol	Cisco, 125-200 mm.	1.019
		18 Cisco, 150-249 mm.	1.028
		65 Cisco, 250-349 mm.	1.010
		16 Cisco, over 350 mm.	1.005
S-31	Formalin and then alcohol	Brook trout, average 6.7" T.L.	1.055
		Brook trout, average 6.6" T.L.	1.061
		Brook trout, another batch	1.053

FACTORS FOR CONVERTING WEIGHTS OF PRESERVED FISH TO LIVE WEIGHTS

S-45	Formalin	White bass	0.947
	Alcohol	White bass	1.147
H-64	Formalin and then alcohol (Factor not constant)	Cisco, Muskellunge L. Wisc.	1.181
		Cisco, Clear L, Wisc.	1.144

RECIPROCAL METHOD OF CALCULATING THE CONDITION INDEX

A simplified method of calculating the value of K involves the use of reciprocals. Instead of dividing by the cube of the length, the value of K may be determined by multiplying by the reciprocal of the cube of the length. The appended tables give these reciprocals with the decimal point adjusted so that the value of K may be determined by multiplying the weight in grams by the factor corresponding to the length in millimeters. These reciprocals are carried out only far enough to give a K value accurate to the nearest hundredth. These same factors can also be used in calculating the condition index, C, computed from lengths in tenths of inches and weight in hundredths of a pound. The decimal place will have to be adjusted one place to the right, however.

Length	Factor	Length	Factor	Length	Factor
10	100.00	27	5.081	44	1.174
11	75.13	28	4.555	45	1.097
12	57.82	29	4.100	46	1.027
13	45.52	30	3.704	47	.963
14	36.44	31	3.357	48	.904
15	29.63	32	3.052	49	.850
16	24.40	33	2.783	50	.800
17	20.35	34	2.544	51	.753
18	17.15	35	2.332	52	.714
19	14.58	36	2.143	53	.671
20	12.50	37	1.974	54	.635
21	10.80	38	1.822	55	.601
22	9.391	39	1.686	56	.569
23	8.219	40	1.562	57	.540
24	7.234	41	1.451	58	.512
25	6.400	42	1.350	59	.486
26	5.690	43	1.258	60	.463



## Factors for calculating condition index

<u>Length</u>	<u>Factor</u>	<u>Length</u>	<u>Factor</u>	<u>Length</u>	<u>Factor</u>
61	.441	130	.04552	199	.01269
62	.420	131	.04448	200	.01250
63	.400	132	.04348	201	.01231
64	.381	133	.04250	202	.01213
65	.364	134	.04157	203	.01195
66	.348	135	.04065	204	.01178
67	.332	136	.03976	205	.01161
68	.318	137	.03888	206	.01144
69	.304	138	.03805	207	.01127
70	.291	139	.03723	208	.01111
71	.279	140	.03645	209	.01095
72	.268	141	.03567	210	.01079
73	.257	142	.03492	211	.01065
74	.247	143	.03419	212	.01050
75	.237	144	.03348	213	.01035
76	.228	145	.03280	214	.01020
77	.219	146	.03213	215	.01006
78	.211	147	.03147	216	.00992
79	.203	148	.03084	217	.00979
80	.195	149	.03022	218	.00965
81	.188	150	.02963	219	.00952
82	.181	151	.02904	220	.00939
83	.175	152	.02847	221	.00926
84	.169	153	.02791	222	.00914
85	.163	154	.02737	223	.00902
86	.157	155	.02685	224	.00890
87	.152	156	.02634	225	.00878
88	.147	157	.02584	226	.00866
89	.142	158	.02535	227	.00855
90	.137	159	.02488	228	.00844
91	.133	160	.02441	229	.00833
92	.128	161	.02396	230	.00822
93	.124	162	.02352	231	.00811
94	.120	163	.02309	232	.00801
95	.117	164	.02267	233	.00791
96	.113	165	.02226	234	.00780
97	.1095	166	.02186	235	.00771
98	.1062	167	.02147	236	.00761
99	.1031	168	.02109	237	.00751
100	.1000	169	.02072	238	.00742
101	.0971	170	.02044	239	.00732
102	.0943	171	.02000	240	.00723
103	.0915	172	.01965	241	.00714
104	.0889	173	.01931	242	.00706
105	.0864	174	.01898	243	.00697
106	.0840	175	.01866	244	.00688
107	.0816	176	.01834	245	.00680
108	.0794	177	.01803	246	.00672
109	.0772	178	.01773	247	.00664
110	.0751	179	.01744	248	.00656
111	.0731	180	.01715	249	.00648
112	.0712	181	.01686	250	.00640
113	.0693	182	.01659	251	.00632
114	.0675	183	.01632	252	.00625
115	.0658	184	.01605	253	.00618
116	.0641	185	.01578	254	.00610
117	.0624	186	.01554	255	.00603
118	.0608	187	.01530	256	.00596
119	.0593	188	.01505	257	.00589
120	.0578	189	.01481	258	.00582
121	.0564	190	.01458	259	.00576
122	.0550	191	.01436	260	.00569
123	.0537	192	.01413	261	.00562
124	.0524	193	.01391	262	.00560
125	.0512	194	.01370	263	.00550
126	.0500	195	.01349	264	.00543
127	.04883	196	.01329	265	.00537
128	.04769	197	.01308	266	.00531
129	.04658	198	.01289	267	.00525



## Factors for calculating condition index

Length	Factor	Length	Factor	Length	Factor
268	.00520	337	.002613	406	.001494
269	.00514	338	.002590	407	.001483
270	.00508	339	.002567	408	.001472
271	.00502	340	.002544	409	.001462
272	.004969	341	.002522	410	.001451
273	.004915	342	.002500	411	.001440
274	.004861	343	.002478	412	.001430
275	.004808	344	.002457	413	.001420
276	.004756	345	.002435	414	.001409
277	.004705	346	.002414	415	.001399
278	.004654	347	.002393	416	.001389
279	.004605	348	.002373	417	.001379
280	.004555	349	.002352	418	.001369
281	.004507	350	.002332	419	.001359
282	.004459	351	.002312	420	.001350
283	.004412	352	.002293	421	.001340
284	.004366	353	.002273	422	.001331
285	.004320	354	.002254	423	.001321
286	.004275	355	.002235	424	.001312
287	.004230	356	.002216	325	.001303
288	.004186	357	.002198	426	.001294
289	.004143	358	.002179	427	.001284
290	.004100	359	.002161	428	.001275
291	.004058	360	.002143	429	.001267
292	.004017	361	.002125	430	.001258
293	.003976	362	.002108	431	.001249
294	.003935	363	.002091	432	.001240
295	.003895	364	.002073	433	.001232
296	.003856	365	.002059	434	.001223
297	.003817	366	.002040	435	.001215
298	.003779	367	.002023	436	.001207
299	.003741	368	.002007	437	.001198
300	.003704	369	.001990	438	.001190
301	.003667	370	.001974	439	.001182
302	.003631	371	.001958	440	.001174
303	.003595	372	.001943	441	.001166
304	.003559	373	.001927	442	.001158
305	.003525	374	.001912	443	.001150
306	.003490	375	.001896	444	.001142
307	.003456	376	.001881	445	.001135
308	.003423	377	.001866	446	.001127
309	.003389	378	.001852	447	.001120
310	.003357	379	.001837	448	.001112
311	.003324	380	.001822	449	.001105
312	.003293	381	.001808	450	.001097
313	.003261	382	.001794	451	.001090
314	.003230	383	.001780	452	.001083
315	.003199	384	.001766	453	.001076
316	.003169	385	.001752	454	.001069
317	.003139	386	.001739	455	.001062
318	.003110	387	.001725	456	.001055
319	.003081	388	.001712	457	.001048
320	.003052	389	.001699	458	.001041
321	.003023	390	.001686	459	.001034
322	.002995	391	.001673	460	.001027
323	.002968	392	.001660	461	.001021
324	.002940	393	.001647	462	.001014
325	.002913	394	.001635	463	.001001
326	.002886	395	.001623	464	.001001
327	.002860	396	.001610	465	.000995
328	.002834	397	.001598	466	.000988
329	.002808	398	.001586	467	.000982
330	.002783	399	.001574	468	.000976
331	.002758	400	.001563	469	.000969
332	.002733	401	.001551	470	.000963
333	.002708	402	.001539	471	.000957
334	.002684	403	.001528	472	.000951
335	.002660	404	.001517	473	.000945
336	.002636	405	.001505	474	.000939



## Factors for calculating condition index

<u>Length</u>	<u>Factor</u>	<u>Length</u>	<u>Factor</u>	<u>Length</u>	<u>Factor</u>
475	.000933	544	.000621	613	.0004341
476	.000927	545	.000618	614	.0004320
477	.000921	546	.000614	615	.0004299
478	.000916	547	.000611	616	.0004278
479	.000910	548	.000608	617	.0004257
480	.000904	549	.000604	618	.0004237
481	.000899	550	.000601	619	.0004216
482	.000893	551	.000598	620	.0004196
483	.000887	552	.000595	621	.0004176
484	.000882	553	.000591	622	.0004156
485	.000877	554	.000588	623	.0004136
486	.000871	555	.000585	624	.0004116
487	.000866	556	.000582	625	.0004096
488	.000860	557	.000579	626	.0004076
489	.000855	558	.000576	627	.0004057
490	.000850	559	.000572	628	.0004038
491	.000845	560	.000569	629	.0004018
492	.000840	561	.000566	630	.0003999
493	.000835	562	.000563	631	.0003980
494	.000830	563	.000560	632	.0003961
495	.000824	564	.000557	633	.0003943
496	.000820	565	.000554	634	.0003924
497	.000815	566	.000551	635	.0003906
498	.000810	567	.000549	636	.0003887
499	.000805	568	.000546	637	.0003869
500	.000800	569	.000543	638	.0003851
501	.000795	570	.000540	639	.0003833
502	.000790	571	.000537	640	.0003815
503	.000786	572	.000534	641	.0003797
504	.000781	573	.000532	642	.0003779
505	.000776	574	.000529	643	.0003762
506	.000772	575	.000526	644	.0003744
507	.000767	576	.000523	645	.0003726
508	.000763	577	.000521	646	.0003709
509	.000758	578	.000518	647	.0003692
510	.000754	579	.000515	648	.0003675
511	.000749	580	.000513	649	.0003658
512	.000745	581	.000510	650	.0003641
513	.000741	582	.000507	651	.0003625
514	.000736	583	.000505	652	.0003608
515	.000732	584	.000502	653	.0003591
516	.000728	585	.0004995	654	.0003575
517	.000724	586	.0004969	655	.0003559
518	.000719	587	.0004944	656	.0003542
519	.000715	588	.0004919	657	.0003526
520	.000711	589	.0004894	658	.0003510
521	.000707	590	.0004869	659	.0003494
522	.000703	591	.0004844	660	.0003478
523	.000699	592	.0004820	661	.0003463
524	.000695	593	.0004796	662	.0003447
525	.000691	594	.0004771	663	.0003431
526	.000687	595	.0004747	664	.0003416
527	.000683	596	.0004723	665	.0003400
528	.000679	597	.0004700	666	.0003385
529	.000676	598	.0004676	667	.0003370
530	.000672	599	.0004653	668	.0003355
531	.000668	600	.0004630	669	.0003340
532	.000664	601	.0004607	670	.0003325
533	.000660	602	.0004584	671	.0003310
534	.000657	603	.0004561	672	.0003295
535	.000653	604	.0004539	673	.0003281
536	.000649	605	.0004516	674	.0003266
537	.000646	606	.0004493	675	.0003252
538	.000642	607	.0004471	676	.0003237
539	.000639	608	.0004449	677	.0003223
540	.000635	609	.0004427	678	.0003209
541	.000632	610	.0004406	679	.0003194
542	.000628	611	.0004384	680	.0003180
543	.000625	612	.0004363	681	.0003166



## Factors for calculating condition index

<u>Length</u>	<u>Factor</u>	<u>Length</u>	<u>Factor</u>	<u>Length</u>	<u>Factor</u>
682	.0003152	751	.0002361	820	.0001814
683	.0003139	752	.0002352	821	.0001807
684	.0003125	753	.0002342	822	.0001800
685	.0003111	754	.0002333	823	.0001794
686	.0003098	755	.0002324	824	.0001787
687	.0003084	756	.0002314	825	.0001781
688	.0003071	757	.0002305	826	.0001774
689	.0003057	758	.0002305	827	.0001768
690	.0003044	759	.0002287	828	.0001762
691	.0003031	760	.0002278	829	.0001755
692	.0003018	761	.0002269	830	.0001749
693	.0003005	762	.0002260	831	.0001743
694	.0002992	763	.0002251	832	.0001736
695	.0002979	764	.0002242	833	.0001730
696	.0002966	765	.0002234	834	.0001724
697	.0002953	766	.0002225	835	.0001718
698	.0002941	767	.0002216	836	.0001712
699	.0002928	768	.0002208	837	.0001705
700	.0002915	769	.0002199	838	.0001699
701	.0002903	770	.0002190	839	.0001693
702	.0002891	771	.0002182	840	.0001687
703	.0002878	772	.0002173	841	.0001681
704	.0002866	773	.0002165	842	.0001675
705	.0002854	774	.0002157	843	.0001669
706	.0002842	775	.0002148	844	.0001663
707	.0002830	776	.0002140	845	.0001657
708	.0002818	777	.0002132	846	.0001651
709	.0002806	778	.0002124	847	.0001646
710	.0002794	779	.0002115	848	.0001640
711	.0002782	780	.0002107	849	.0001634
712	.0002771	781	.0002099	850	.0001628
713	.0002759	782	.0002091	851	.0001623
714	.0002747	783	.0002083	852	.0001617
715	.0002736	784	.0002075	853	.0001611
716	.0002724	785	.0002067	854	.0001605
717	.0002713	786	.0002059	855	.0001600
718	.0002702	787	.0002052	856	.0001594
719	.0002690	788	.0002044	857	.0001589
720	.0002679	789	.0002036	858	.0001583
721	.0002668	790	.0002028	859	.0001578
722	.0002656	791	.0002021	860	.0001572
723	.0002646	792	.0002013	861	.0001568
724	.0002635	793	.0002005	862	.0001561
725	.0002624	794	.0002009	863	.0001556
726	.0002613	795	.0001990	864	.0001550
727	.0002603	796	.0001982	865	.0001545
728	.0002592	797	.0001975	866	.0001540
729	.0002581	798	.0001968	867	.0001534
730	.0002571	799	.0001960	868	.0001529
731	.0002560	800	.0001953	869	.0001524
732	.0002550	801	.0001946	870	.0001519
733	.0002539	802	.0001939	871	.0001513
734	.0002529	803	.0001931	872	.0001508
735	.0002518	804	.0001924	873	.0001503
736	.0002508	805	.0001917	874	.0001499
737	.0002498	806	.0001910	875	.0001492
738	.0002488	807	.0001903	876	.0001488
739	.0002478	808	.0001896	877	.0001483
740	.0002468	809	.0001889	878	.0001477
741	.0002458	810	.0001882	879	.0001472
742	.0002448	811	.0001875	880	.0001467
743	.0002438	812	.0001868	881	.0001462
744	.0002428	813	.0001861	882	.0001457
745	.0002418	814	.0001854	883	.0001452
746	.0002409	815	.0001847	884	.0001447
747	.0002399	816	.0001840	885	.0001443
748	.0002389	817	.0001834	886	.0001438
749	.0002380	818	.0001827	887	.0001433
750	.0002370	819	.0001820	888	.0001428



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## APPENDIX: ALINEMENT CHARTS OR NOMOGRAPHS

Charles K. Phenicie and Clinton G. Bishop (1950. *Prog. Fish. Cult.* 12(3):163-168.) developed alinement charts for convenient calculation of condition indexes or factors. They have kindly permitted the reprinting of their charts (A and B) in this Handbook. Their charts were for the calculation of C, using length in inches and weight in pounds. In the same manner, I have prepared alinement charts (C and D) for the calculation of K, using lengths in millimeters and weights in grams.

Computation of C and K values from these charts is simple. A transparent straight edge is placed on the length and weight values for a given fish and the condition index value is read directly at the point the straight edge crosses the scale.

Chart E may be used to calculate the growth of fish from scale measurements (Carlander, Kenneth D., and Lloyd L. Smith, Jr. 1944. *Some uses of nomographs in fish growth studies.* *Copeia*, 1944(3):157-162.). The locations of the focus, the several annuli, and the edge of the projected image of a scale are marked on a strip of tagboard. The straight edge of the strip is then placed on the alinement chart or nomograph in such a position that the mark corresponding to the focus of the scale is on the zero line of the nomograph and the mark corresponding to the edge of the scale is on the line representing the length of the fish at capture. (The length may be in either millimeters or tenths of an inch.) The lengths of the fish at the time of each annulus formation can then be read directly from the nomograph at the points where the annuli were marked on the tagboard strip. If the magnification of the scale image was such that the strip cannot be properly placed on this nomograph, a similar nomograph with a different interval between lines can be made quite simply with graph paper.



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