

# THE STATUS OF COMMERCIAL AND SPORTS FISHING ON REELFOOT LAKE

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Reelfoot Lake, located in the northwest corner of Tennessee, was created by a sinking of the earth surface during the New Madrid Earthquake of 1811.

Originally the lake embraced an area exceeding 30,000 acres. Due to vast areas of shallow water, however, aquatic plants and erosion from the surrounding watershed have filled the lake at a rapid rate. At the present time, the area of the lake is approximately 11,800 acres (Eyles 1942).

Reelfoot Lake has long been known as "Fisherman's Paradise." Recorded data on productivity for the past years, however, is limited. When the lake was first acquired by the State many years ago a royalty of about 4¢ per pound was paid to the Game and Fish Commission by the commercial fishermen for fish taken in Reelfoot Lake. Unfortunately, these records were destroyed before creel census studies were considered important. In 1937, the Reelfoot Biological Station of the Tennessee Academy of Science conducted a creel census on the lake (Kuhne 1939a). The average catch for sports fishermen was found to be eight fish weighing five pounds, however, the author reported that the cooperation by the boat docks was not too good. Prior to and including this period, game species of all types were taken commercially. The total yield removed by commercial and sports fishermen in 1937 was estimated by Kuhne (1939b), to be 39 pounds per acre. No recorded data is available for the productivity of the lake from the time of this study until 1951. It is to be noted, however, that during this period, the sale of black bass was prohibited, although the sale of other sunfish, yellow bass, and crappie was continued, and legal catch limits were applied to all game fish in Reelfoot Lake. In September, 1951, the limits on yellow bass, crappie, and sunfish (with the exception of largemouth bass) were removed for commercial fishermen, and in April 1952, these limits were also removed for the sports fisherman.

For several years prior to 1951, the commercial fishermen were not allowed (by law) to catch more than 60 each per day of yellow bass, sunfish (except largemouth bass), and crappie.

The need for a study to determine the status of fishing conditions at Reelfoot Lake has long been recognized. However, with the enactment of liberalized restrictions governing management during the past two years, the need has become more apparent. It was with these thoughts in mind that the present study was undertaken.

## METHODS

The creel census on Reelfoot Lake began March 1, 1952, and is still in progress. The material for this report, however, will include only the data obtained through September 30, 1952.

Three men are employed by the Tennessee Game and Fish Commission to record the data from fishermen and are rotated among the larger boat docks which

are in operation on the lake at the present time. When sports fishing is heavier in certain areas, rotation is abandoned and the census takers are assigned to certain docks for indefinite periods. In an attempt to check as many fishermen as possible the census takers report for work at ten o'clock A.M., and remain until dark.

The principal data recorded during the census were the numbers and weights of the various species, the catch per person, name of the boat dock, the resident state of the fisherman and the date.

The annual catch of game species by commercial fishermen was obtained from the Law Enforcement branch of the Tennessee Game and Fish Commission which issues bills of lading which must accompany all commercial catches of game fish taken from Reelfoot Lake. The estimated annual take of commercial species is based on the weights of fish handled by the three fish markets located on the lake during the year of 1951.

## RESULTS

For the period involved, March 1, 1952, through September 30, 1952, 11,374 sports fishermen were checked in connection with the creel census on Reelfoot Lake. Thirty-five percent of these persons were non-residents of Tennessee. Of the total number checked, 8,784 or 77% caught one or more fish, and 2,590 or 23% were unsuccessful, catching no fish at all. The average creel contained 7.8 fish and weighed 4.3 pounds, with the average fish caught during the period weighing 0.55 pounds, and 97% of the total number of fish caught by these fishermen were game species. The total monthly weights and average weights of the principal species taken are given in Table 1.

With the exception of a limit of ten on largemouth bass, no creel limits are in effect on Reelfoot Lake. It is of particular interest to note that of 11,374 fishermen checked, only 106 exceeded the statewide limit of 20 crappie per day, and only 611 exceeded the statewide limit of 25 bream (all species of sunfish). This represents a total of only 6% "over limit" fishermen. The largest "over limit" creels checked were 50 crappie and 120 bream, however, the average "over limit" catch was only 28 crappie and 39 bream.

For a twelve month period ending September 30, 1952, the commercial catch of sports species consisted of approximately 178,523 pounds of crappie, 71,987 pounds of bream, and 36,956 pounds of yellow bass. The monthly catch by species is given in Table 2.

During the year of 1951, a total weight of 353,714 pounds of non-game fish were handled by the three fish markets located on Reelfoot Lake. The catch consisted chiefly of catfish and buffalo fish with smaller weights of carp, drum, and other rough fish. It is understood that these figures represent only a broad estimate of the annual take of commercial fish on Reelfoot Lake, for there is no way of determining the weights of fish marketed through these fish docks from surrounding waters other than Reelfoot, nor is there reason to believe that all the commercial fish taken in Reelfoot Lake find their way to market through these three channels. It is of interest to note, however, that the three markets handled decidedly more fish during the late fall, winter, and early spring than during the sports fishing season which usually begins in late spring and continues into early fall.

Table 1. Total monthly weights and average weights in pounds of fish by species caught by 8,784 sports fishermen from March 1, 1952 through September 30, 1952.

Species	Month							Total weight	Avg. weight
	March	April	May	June	July	August	September		
Largemouth Bass	253.9	1,340.7	948.7	803.3	731.7	1,182.5	825.9	6,086.7	1.93
Yellow Bass	5.3	56.4	16.3	13.2	22.3	18.1	84.7	216.3	0.48
Bluegill		57.6	4,662.5	3702.1	1,455.0	734.5	100.2	10,711.9	0.37
Misc. Bream <sup>a</sup>	0.5	125.0	2,879.3	2,712.3	1,441.8	692.3	59.6	7,910.8	0.29
White Crappie	2,005.8	10,536.0	3,336.2	226.3	799.0	547.4	2,631.9	20,082.6	0.88
Black Crappie	32.3	383.0	4.2	20.2	31.5	5.1		476.3	1.00
Warmouth	2.5	136.8	235.9	69.8	287.8	214.9	58.5	1,006.2	0.29
Shellcracker		2.2	140.7	45.3	12.2	9.6	3.6	213.6	0.37
Drum		15.9	28.1	41.5	30.9	24.5	15.0	155.9	1.55
Channel Cat		39.2	149.0	110.8	189.6	285.7	429.4	1,203.7	1.83
Other Catfish		42.3	83.6	215.0	489.0	167.9	34.9	1,032.7	0.58
Carp					50.9			50.9	2.12
Others <sup>b</sup>	1.4	1.0	3.5		2.1			8.0	1.60

<sup>a</sup> *Lepomis magalotis*, *L. cyanellus*, *L. punctatus*.

<sup>b</sup> Eel, Buffalo, Grinnel.

Table 2. Game fish taken by commercial fishermen in Reelfoot Lake from October 1, 1951 to September 30, 1952.

Month	Crappie Lbs.	Bream Lbs.	Yellow bass Lbs.
1951			
October	19,273	5,166	3,841
November	49,255	30,940	8,878
December	27,564	6,767	6,220
1952			
January	27,926	3,646	7,386
February	16,663	784	3,563
March	11,452	1,764	6,924
April <sup>a</sup>			
May <sup>a</sup>			
June	81	781	84
July	2,609	6,734	60
August	9,632	9,072	
September	14,068	6,693	
Total	178,523	71,987	36,956

<sup>a</sup> Closed season for commercial fishing of sport species.

## DISCUSSION

The status of sports fishing on Reelfoot Lake at the present time, as revealed by the creel census, may definitely be regarded as favorable. Assuming that the census takers checked approximately one-fifth of the sports fishermen during the period involved, the yield for sports fishermen was in excess of 21 pounds per acre for the lake. This yield is highly favorable when compared to the yield of only 1.53 pounds obtained by sports fishermen in the census taken by Kuhne in 1937. It is enlightening indeed to find that while the numbers of fishermen have increased almost one hundredfold since 1937, the average catch per fisherman remains almost identical.

The fact that six percent of the fishermen were able to catch over the statewide limits, lends strong evidence to the belief that Reelfoot Lake is well populated with fish and far from being "fished out."

The commercial catch of crappie, bream and yellow bass is approximately 25 pounds per acre and although exceeding the total catch by sports fishermen, it is not thought to be large enough to cause undue alarm. It is generally agreed among most fishery workers that in order to prevent over-crowding and to maintain rapid growth rates, heavy cropping of these species is mandatory (Dequaine 1952, Schoffman 1950, Swingle 1950, Miller and Bryan 1947, and others).

The yield of commercial species during 1951 is lower than the commercial catch reported in 1937, however, the approximate yield of 21 pounds per acre in 1951 is believed to be higher than for most large bodies of water in the Southeast.

The total weight of fish harvested annually by fishermen from Reelfoot Lake, according to the above estimates, is approximately 67 pounds. Kuhne, in 1937,

reported a record total yield of 38 pounds per acre by both commercial and sports fishermen. It may, therefore, be assumed that at the present time Reelfoot Lake is producing almost twice as many pounds of fish per acre as were produced in 1937 and higher yields of fish than have previously been recorded for this body of water.

## SUMMARY

1. A total of 11,374 creels were recorded in the Reelfoot Lake creel census between March 1, 1952, and September 20, 1952. Of the total 77% caught one or more fish and 23% was unsuccessful. The average creel contained 7.8 fish and weighed 4.3 pounds. The average weight per fish was 0.55 pounds. Six percent of the fishermen recorded exceeded the statewide creel limits on crappie or bream. The average creels for "over limit" fishermen were 28 crappie and 39 bream.
2. The commercial catch of sport species for a twelve-month period was 178,523 pounds of crappie, 71,987 pounds of bream and 36,956 pounds of yellow bass or an average of 25 pounds per acre annually.
3. The total estimated weight of commercial fish for the year of 1951 was 353,714 or 21 pounds per acre annually. Catfish and buffalo fish dominated the catch.
4. The annual estimated production of fish taken by both commercial and sports fishermen in Reelfoot Lake is in excess of 67 pounds per acre.

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