

# Saddle Lake, Perry County

## **Fish and Wildlife Research and Management Notes**

**Author:** Daniel P. Carnahan, Fisheries Biologist

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**Title:** Saddle Lake in Perry County

## **INTRODUCTION**

Saddle Lake is a 41-acre impoundment constructed in 1966. The lake is in the Hoosier National Forest north of Tell City near Gatchel. Saddle Lake is the smallest of four impoundments along the Middle Fork of the Anderson River. Collectively, these lakes are often called the "Middle Fork Lakes." The U.S. Forest Service maintains the boat ramp. Shore fishing is most popular around the boat ramp.

In 1976, a largemouth bass 14-inch minimum size limit was established to prevent overharvest and to maintain predatory pressure on panfish. By 1980, bass had begun to "stockpile" under the 14 inch minimum size limit. Consistent bass reproduction and protection from harvest resulted in a build up of small, slow growing bass. A 1983 fisheries survey revealed below normal bass growth with few bass greater than 14 inches. Therefore, the 14 inch bass size limit was changed to a 12 to 15 inch slot size limit on October 21, 1986 to remedy the stockpiled bass situation. Under the new regulation, anglers could harvest bass less than 12 inches and greater than 15 inches. Bass 12 to 15 inches long were protected from harvest.

Other fish management activities consisted of fishery surveys in 1968, 1972, 1976, 1983, 1988, 1989, 1993, 1996, 1997, and a 1993 angler survey. A supplemental redear sunfish stocking was conducted in 1994 which consisted of 75,510, 1.5 inch fingerlings. One thousand twenty-five channel catfish were stocked once every three years from 1984 through 1993. The channel catfish stocking regime was changed in 1994 to stocking 656 catfish every two years. The last channel catfish stocking occurred in 2000.

The 1993 survey showed a continued decrease in bluegill electrofishing catch rates since 1988. Bluegill electrofishing catch rates in 1988, 1989, and 1993 were 1,013, 788, and 592 per hour, respectively. Bass electrofishing catch rates increased from 99 (1988) to 290 per hour (1989), and then decreased to 187 per hour in 1993. Only one redear sunfish was collected from the 1993 survey.

The 1996 survey was conducted to evaluate the supplemental redear sunfish stocking and the bass slot size limit. A total of 23 redear was captured which ranged in length from 2.8 to 9.7 inches. Most of the redear sampled were from the supplemental stocking. Both bluegill and largemouth bass electrofishing catch rates decreased substantially from the 1993 results. It was speculated that the 1996 catch rates were lower due to the survey being conducted in late July versus May.

In 1997, it was documented that the fishery was in it's best shape since 1993. The bass electrofishing catch rate was similar to 1993 results, the bluegill electrofishing catch rate

increased to 1,042 per hour, and the redear catch rate nearly tripled. One concern was that the large increase in the bluegill population would cause bluegill growth rates to decline.

The current fisheries survey was conducted on May 21 and 22, 2000 to evaluate the bass slot size limit and to monitor bluegill growth rates. Fish collection effort consisted of two gill net and two trap net lifts, and 0.55 hour of pulsed D.C. night electrofishing. Two individuals collected fish stunned by the electrofisher. Temperature and dissolved oxygen profiles, turbidity, conductivity, alkalinity, and pH data were taken as per standard lake survey procedures.

## **RESULTS AND DISCUSSION**

Water chemistry data were standard for a lake in southwest Indiana. Dissolved oxygen was sufficient for fish survival to a depth of 12 feet.

Aquatic vegetation abundance was not assessed due to poor boat access conditions. The lake's water level was dropped to repair the dam, which left the boat ramp ten feet from the water.

A total of 315 fish, representing six species, was sampled that weighed 95.95 pounds. Bluegill were most abundant by number followed by largemouth bass, redear sunfish, and warmouth. Largemouth bass were most abundant by weight followed by redear sunfish, channel catfish, and bluegill. Black crappie was the only other species sampled.

Proportional stock density (PSD) is an index used to characterize fish populations (Anderson 1976, Gablehouse 1984). PSD is the percent of fish stock size or larger which are quality size or larger. Bluegill and largemouth bass stock sizes are 3 and 8 inches, respectively. Bluegill and largemouth bass quality sizes are 6 and 12 inches, respectively. Populations dominated by small fish have a low PSD value, while populations dominated by large fish have a high PSD value. Anderson suggests that a balanced bluegill population should have a PSD value between 20 and 60. A balanced largemouth bass population should have a PSD value between 40 and 70. This index has been used at Saddle Lake since 1988 for bluegill and largemouth bass.

Relative stock density of preferred length fish (RSD-P) is the proportion of stock length fish which are also preferred length. Preferred length is 8 inches for bluegill (RSD8) and 15 inches for bass (RSD15). The same formula is used for the proportion of bass greater than 14 inches (RSD14).

A total of 113 bluegill was sampled that weighed 10.54 pounds. They ranged in length from 1.3 to 8.3 inches. Bluegill comprised 36 percent of the collection by number and 11 percent by weight. In 1997, they accounted for 73 percent of the collection by number and 28 percent by weight. The electrofishing catch rate was 214 per hour. Previous catch rates were 1,042 (1997), 413 (1996), 592 (1993), and 788 per hour (1989). Bluegill growth was average for 1- through 3-years-old and above average for 4-years-old when compared to district averages. Bluegill growth rates in 1997 were similar to these results.

The bluegill PSD value was 25. This was within the recommended range which indicates the proportion of stock to quality size bluegill is balanced. The bluegill RSD8 value increased from 5

in 1997 to 7. This indicates that the proportion of bluegill longer than eight inches in the population has increased. Past values were 3 (1996), 11 (1993), 3 (1989), and 1 (1988).

A total of 104 largemouth bass was sampled that weighed 35.03 pounds. They ranged in length from 4.4 to 16.5 inches. Bass accounted for 33 percent of the collection by number and 37 percent by weight. In 1997, their relative abundances by number and weight were 15 percent and 43 percent respectively. Bass growth was average and similar to 1997 results.

The bass electrofishing catch rate was 202 per hour which was nearly identical to the 1997 catch rate. Electrofishing catch rates broken down by size category were 69 per hour (less than 8 inches), 93 per hour (8 to 11.9 inches), 16 per hour (12 to 14.9 inches), and four per hour (greater than 15 inches). The two substantial changes since 1997 were for bass less than 8 inches and 12 to 14.9 inches. Catch rates for bass less than eight inches decreased by 45 per hour, and bass ranging between 8 to 11.9 inches increased by 23 per hour since 1997.

The largemouth bass PSD value decreased from 34 in 1997 to 18. Bass RSD14 and RSD15 index values were both three, which was less than half that of 1997 figures.

Sixty-nine redear sunfish were sampled that weighed 26.92 pounds. They ranged in length from 2.0 to 10.5 inches and accounted for 22 percent of the collection by number and 28 percent by weight. Redear abundances increased substantially from the 1997 figures of three percent by number and 6 percent by weight. Their electrofishing catch rate doubled to 62 per hour. Redear growth was great. 3-year-old redear growth rates were two inches above the district average.

Warmouth, channel catfish, and black crappie comprised the remainder of the collection. They combined for 9 percent of the collection by number and 24 percent by weight. The majority of the weight was from the nine channel catfish sampled that accounted for 18 percent of the survey weight.

## **CONCLUSIONS AND RECOMMENDATIONS**

Best fishing at Saddle Lake would be for bluegill, redear sunfish, and small bass. Bluegill up to 8.3 inches and redear up to 10.5 inches were abundant during the survey. Bass fishing opportunities were good for bass less than 14 inches in length. Channel catfish catch rates declined from 1997 levels, but Saddle Lake still should provide quality catfishing.

Bluegill electrofishing catch rates substantially decreased from 1997, but most of that was attributed to bluegill less than three inches. The bluegill PSD index value slightly decreased from 1997, but the RSD8 value increased. This indicates that there are still many harvestable size bluegill in the lake.

The redear sunfish population has really improved since the 1994 supplemental stocking. Prior to 1996 only a handful of redear were sampled during all of the previous fisheries surveys combined. The redear sunfish electrofishing catch rate increased from 30 per hour in 1997 to 62 per hour in 2000. Most of the redear sampled in 2000 ranged in size from 8 to 9.5 inches. Redear

growth rates were also excellent. It is only taking three years for the redear to reach eight inches in length.

The bass population was comprised mostly of fish less than 14 inches in length. The electrofishing catch rate has been holding steady at around 200 per hour, which is considered high for a slot limit lake, and the PSD index value decreased from 34 in 1997 to 18 in 2000. It is apparent that most anglers at the lake are releasing most of the bass they catch. The bass fishery would improve if anglers started to harvest bass less than 12 inches in length. It is recommended that the bass slot size limit remain in effect.

Channel catfish catch rates declined from 1997 levels, which indicates that the stocked fish are being harvested. It is recommended that the channel catfish stocking regime be continued.

Saddle Lake should be resurveyed in four or five years. The objectives of this survey should be to monitor bass and bluegill abundances and growth rates.

## **LITERATURE CITED**

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