

Beaver Dam Lake

Fish and Wildlife Research and Management Notes

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Title: Beaver Dam Lake, Dubois County

INTRODUCTION

Beaver Dam Lake is a 205-acre impoundment located about five miles east of Jasper on the north side of State Road 164. The lake was opened in 1958 as a water supply for the City of Jasper. Jasper now receives its water from the Patoka River making Beaver Dam Lake a supplemental water source for the city. Boat access to the lake is provided by a concrete boat ramp owned by the Jasper Park and Recreation Department. A launching permit issued by the Jasper Park and Recreation Department is required to use the boat ramp. The permit cost \$15.00 if your boat motor is less than 10 horse power and \$20.00 for boats with larger outboard motors. Bank fishing is limited to the area around the boat ramp as the majority of the shoreline is privately owned. Many cottages and boat docks surround the lake.

Past fish management practices have consisted of regular channel catfish stockings since 1978, and a 14 inch largemouth bass minimum length limit imposed in 1984. Fisheries surveys were conducted in 1962, 1966, 1968, 1977, 1987, and 1991. The 1987 survey reported that there was a predator-prey imbalance with too many bass which produced slow bass growth rates. However, the bluegill population looked good with a good size distribution and fast growth rates. In 1991, the lake's fishery was reported to be in excellent condition. The bass and bluegill populations were balanced and growth for both species was above average. The survey also documented finding large redear sunfish, black crappie, and channel catfish.

The current fisheries survey was conducted on June 21 - 23, 1999. Fish collection effort consisted of one hour of D.C. night electrofishing, seven trap net lifts, and six gill net lifts. Two "dippers" collected fish stunned by the electrofishing boat. Dissolved oxygen, temperature, pH, total alkalinity, turbidity, and conductivity data were taken according to standard lake survey guidelines.

RESULTS AND DISCUSSION

Water chemistry data were standard for a lake in southwest Indiana. Oxygen was sufficient for fish survival to a depth of 10 feet.

Approximately 16 percent of the lake bottom was covered with vegetation. Small pondweed and brittle naiad were the two dominate species. American pondweed and waterthread pondweed were also common. Planktonic and filamentous algae may be a problem at this lake during certain times of the year. Usually when large algae blooms are found there is some degree of nutrient loading. Nutrient loading could be originating from runoff from agricultural areas and/or malfunctioning septic systems found around the lake.

A total of 2,892 fish were sampled that weighed 306.99 pounds. Bluegill ranked first by number followed by longear sunfish, largemouth bass, redear sunfish, and black crappie. Largemouth bass ranked first by weight followed by bluegill, redear sunfish, and longear sunfish. Warmouth and yellow bullhead were the other two species sampled. Channel catfish were not sampled during the survey, but they do exist in the lake in low numbers.

A total of 1,643 bluegill was sampled that weighed 78.00 pounds. They ranged in length from 0.8 to 9.3 inches, and accounted for 57 percent of the collection by number and 25 percent by weight. The bluegill electrofishing catch rate was 761 per hour including young-of-the-year (YOY) and 746 per hour excluding YOY. Catch rates for gill nets and trap nets were five and 121 per lift respectively. The 1991 bluegill electrofishing catch rate was 467 per hour. Catch rates from the 1987 fisheries survey could not be used because they did not keep the catch separate between day and nighttime electrofishing. Bluegill growth rates were exceptional for the high number of bluegill and longear sunfish in the lake. Bluegill growth was similar to 1991 results and above average when compared to district averages. Bluegill are reaching lengths of 9 inches by the time they are six years old. Bluegill weights were normal.

Proportional stock density (PSD) is an index used to characterize fish populations (Anderson 1976, Gabelhouse 1984). PSD is the percent of fish stock size or larger, which are also 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 with 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 60.

Relative stock density (RSD) is the percentage of fish of any designated length group which are also stock size. Relative stock density used for bluegill are RSD7 and RSD8 (number of bluegill which are 7 or 8 inches and larger divided by the total number of bluegill which are greater than 3 inches). Bass RSDs used were RSD14 and RSD15.

The bluegill PSD index value was 15, which was an improvement from 12 in 1991. RSD7 and RSD8 index values were 10 and 2 respectively. In 1991, the RSD7 and 8 values were 9 and 4 respectively. The index values do not represent much of a change considering the two surveys were eight years apart. It appears that the bluegill size distributions are slowly improving over time. These values may seem a little on the low side, but they are actually pretty good when considering the large size of the bluegill population.

The 699 longear sunfish sampled weighed 37.15 pounds, and ranged in length from 2.2 to 6.7 inches. Longear accounted for 24 percent of the collection by number and 12 percent by weight. The electrofishing catch rate was 668 per hour. In 1991, their electrofishing catch rate was 281 per hour.

A total of 369 largemouth bass was sampled that weighed 130.36 pounds. They ranged in length from 1.3 to 18.2 inches and accounted for 13 percent of the collection by number and 43 percent by weight. Bass electrofishing catch rates were broken down by including YOY and excluding YOY due to the high number of YOY sampled. Electrofishing catch per hour was 360 with YOY

and 291 excluding YOY. Bass electrofishing catch rates in 1991 with and without YOY were 229 and 187 per hour respectively. Bass growth was good with all ages either average or at the high end of the average range. Growth was similar to 1991 results.

The bass PSD index value was 43. In 1991, it was 54. An index value of 43 falls within the recommended range for a balanced bass population and is actually very good with an electrofishing catch rate of 291 per hour. RSD14 and RSD15 values were 13 and 8 respectively. This was a big increase from 1991. In 1991, the RSD14 and 15 values were six and one respectively. The increased RSD values indicate that there was a higher percentage of the bass population greater than 14 and 15 inches in 1999 versus 1991.

One hundred and eight redear sunfish were sampled that weighed 46.59 pounds. They ranged in length from 2.7 to 12.5 inches and accounted for 4 percent of the collection by number and 15 percent by weight. The redear electrofishing and catch rate was 23 per hour. The trap net and gill net catch rates were 12 and zero per lift. Catch rates in 1991 were 19 per hour of electrofishing, two per trap net lift, and 0 per gill net lift. Redear growth was fantastic. Growth was well above the district average. A 10.5 inch redear was approximately five years old, while the 11 and 11.5 inch redear were six year olds. Beaver Lake possesses some of the biggest redear in Indiana. One redear sampled weighed nearly two pounds.

Sixty-three black crappie were sampled that weighed 13.68 pounds. The crappie ranged in length from 4.7 to 12.4 inches. They accounted for 2 percent of the collection by number and 5 percent by weight. The electrofishing catch rate was 12 per hour, and the gill and trap net catch rates were each four per lift. In 1991, the electrofishing catch rate was five per hour. Crappie growth rates were average for 1 and 2-year-olds, and above average for 3-year-old fish.

Warmouth and yellow bullhead were the remaining species sampled. Together they accounted for less than one percent of the collection by number and weight.

CONCLUSION

Beaver Dam Lake possesses an excellent all around fishery. It is one of those rare lakes where both the panfish fishing and bass fishing are both excellent. Bluegill reached lengths of 9.3 inches, while redear sunfish reached lengths of 12.5 inches. A bonus to this panfishery is the presence of a decent size black crappie population. The largest black crappie sampled was 12.4 inches. The bass population is also doing great. The bass population is large in number and also possesses fish greater than 14 inches. Beaver Lake is also known to produce some big channel catfish even though there were not any sampled during the survey.

Most lakes with a largemouth bass electrofishing catch rate of 291 per hour would indicate a stockpiled bass situation and poor bluegill recruitment. However, Beaver Dam Lake's large populations of longear sunfish and bluegill are providing ample food for the bass, yet still allowing good bluegill recruitment.

No channel catfish were sampled during the survey, which indicates that catfishing must be very popular at Beaver Dam Lake. The Indiana Division of Fish and Wildlife stocked nearly 3,300

channel catfish that averaged 8.6 inches in October 1999. This stocking should improve catfish fishing success. Currently, the lake is being stocked every other year with channel catfish.

As a whole, Beaver Dam Lake is an excellent fishing lake and has been since at least 1991. It is recommended that no changes take place in the fish management of this lake. The status of the Beaver Dam Lake fishery should be checked again around 2007 unless anglers indicate an earlier survey is necessary.

LITERATURE REVIEW

Anderson, R.O. 1976. Management of small warm water impoundments. Fisheries (Bethesda) 1(6):5-7, 26-28.

Gabelhouse, D.W., Jr. 1984. A length-categorization system to assess fish stocks. North American Journal of Fisheries Management. 4:273-285.

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