

Brookville Reservoir (Whitewater Downstream)

Fish and Wildlife Research and Management Notes

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Title: Survey of the sport fishery in the East fork of the Whitewater River Downstream of Brookville Reservoir

INTRODUCTION

Brookville Reservoir is a 5,260 acre Army Corps of Engineers flood control impoundment which was completed in 1974. The reservoir is located in Franklin and Union Counties and the dam is located just north of Brookville, Indiana. The East Fork of Whitewater River was impounded to form the reservoir.

Water quality monitoring at the outlet of the lake indicated that conditions were suitable for trout survival. Since the Corps is able to discharge water from various levels throughout the lake's water column, water temperatures downstream of the lake's outlet rarely exceeds 68F even in the heat of the summer. Conditions for trout survival were felt to be suitable throughout the year for approximately two miles of stream from the spillway to where the East Fork joins the West Fork of Whitewater River to form the mainstem Whitewater River.

Trout have been stocked into this two mile section of the East Fork of Whitewater River, from here on referred to as the Brookville tailwater, since 1976. From 1976 to 1983, there was a mix of both rainbow and brown trout stocked in the tailwater. From 1984 to 2000, stockings were exclusively rainbow trout. Since the tailwater trout fishery is viewed primarily as a "put and take" fishery, it is critical to stock fish which are of legal size (7 inches or larger). Brown trout were difficult to rear to legal size in time for stockings to occur just prior to the trout season opener. It was hoped that brown trout would exhibit a higher temperature tolerance than rainbow trout which would allow the browns to survive through the hottest of summers and carry over to subsequent years. There was very little evidence of the stocked brown trout carrying over from one year to the next. In 1983, the Division of Fish and Wildlife (DFW) began stocking London strain rainbow trout which originated from London State Fish Hatchery in Ohio. These fish exhibited superb growth, were more disease resistant than previous rainbow trout stock used in Indiana, and were felt to be tolerant of higher temperatures than other rainbows. Due to the ease of rearing this strain of rainbow trout to well over legal size and the feelings that its temperature tolerance would allow these fish to carry over from one year to the next, after 1983, DFW only stocked London strain rainbow trout in the Brookville tailwater and discontinued the brown trout stocking.

Once DFW discontinued brown trout stockings at the Brookville tailwater, various groups came forward through the mid 1980's and 1990's requesting that they be allowed to stock brown trout. While DFW was generally not averse to these private groups stocking brown trout under our guidelines, no brown trout stockings ever materialized for a variety of reasons. In 1999, the Central Indiana Trout Unlimited (CITU) chapter requested permission to stock brown trout into the Brookville tailwater. Stockings were approved by DFW, and the first brown trout in nearly

two decades were stocked in May of 2001. At that time, 2,000 browns, of which most measured 7 to 8 inches long, were stocked. In the fall of 2001, an additional 2,000 browns ranging in length from 3 to 4 inches long were added. The latest brown trout stocking occurred in the spring of 2002 when 2,000 fish were stocked that averaged 6 inches long. In addition to the brown trout stockings, DFW also stocked 1,500 London strain rainbow trout that averaged around 11 inches long in both of these years.

When presenting their proposal to stock brown trout in the Brookville tailwater, CITU was encouraging DFW to immediately place a variety of special fishing regulations on the tailwater area to protect the stocked browns. The initial CITU fishing regulations proposed included, but were not limited to, artificial lures only, no night fishing, increased trout size limit, reduced trout bag limit, and no fishing with live bait. DFW was reluctant to consider any rule changes until it was judged that a brown trout population was established in the stream. CITU accepted that angling restrictions would not occur initially, but they vowed to stock the stream annually.

A fisheries survey was conducted by DFW in the summer of 2002 to determine if brown trout were surviving through the summer and carrying over from one year to the next. In addition, other sport fishing opportunities were evaluated to determine if the various angling restrictions proposed by CITU would negatively affect angler use for species other than trout.

METHODS

A fisheries survey was conducted on the Brookville tailwater on July 22 and 23, 2002. Three locations were sampled on the East Fork of Whitewater River from the outlet of the lake to near State Road 52 which is just 0.2 mile from where the two forks join to form Whitewater River. Sampling effort at these stations ranged from 26 to 30 minutes each. A D.C. barge electrofisher was used to collect fish at the 667 to 1,270 foot long stations. Only sport fish were collected which included trout, black bass (smallmouth, largemouth, and spotted bass), rock bass, catfish (channel and flathead), walleye, sauger, and saugeye.

Eighteen minutes of D.C. barge sampling was conducted on the Whitewater River at the junction of the two forks to determine if trout are moving out of the cool water of the East Fork. Only trout were to be collected at this location.

Collected fish were identified to species, measured to the nearest 0.1 inch, and weighed to the nearest 0.01 pound. Scale samples were analyzed from smallmouth and rock bass to determine age and growth.

Sampling conditions were ideal since the stream was low and the water was very clear due to minimal discharge from the reservoir. Air temperature, water temperature, and dissolved oxygen were collected at each sampling location.

At the end of November of 2002, the Army Corps of Engineers had to shut off the majority of the outflow of the reservoir and pump down the stilling basin to make repairs to the concrete of the stilling basin. DFW was notified in advance of this activity and it was decided that biologists would be present when the pumping of the stilling basin took place to salvage fish from the

stilling basin and transport them to either the lake or downstream. This was another opportunity to determine the sport fishery below Brookville Reservoir and to see if the deep water of the stilling basin was attractive to trout. During the fish salvage operation, fish were not counted, but rather species were identified and a judgement was made as to their abundance.

RESULTS

Twenty-four brown trout were collected in the survey that weighed 6.45 pounds. Browns were found at each of the tailwater stations but were most numerous at the station located in the Brookville town park. No brown trout were found in either the mainstem station or in the stilling basin when it was pumped in the fall. Water temperature data collected during the July survey indicated that trout likely would not survive through the summer outside of the tailwater. Water temperature at the three tailwater stations surveyed ranged from 61.5F to 66.7F. Immediately downstream of the confluence of the East and West Forks of Whitewater River, the water temperature was 77.2F. Collected brown trout ranged in length from 7.4 to 10.4 inches long and averaged 8.6 inches. Based on the size of the browns collected, it is unlikely that any were from the spring 2001 stocking. Rather, all were likely from either the fall 2001 or spring 2002 stockings as these were the same age group of fish. If all of the browns collected were from the later two stockings, they are growing well. If some of these collected were the fish stocked in the fall of 2001, they gained on average 5 inches in length in nine months. If they were May 2002 stocked fish, they increased 2.5 inches in nearly three months.

Rainbow trout were found at all three tailwater stations but in all only four were found. Rainbows ranged in length from 9.9 to 15.1 inches and averaged right at a pound apiece. Three rainbow trout were found in the stilling basin in November. This shows that even in the very hot and dry summer of 2002, water conditions are suitable for rainbow trout survival throughout the year.

Channel catfish was the most abundant game fish species found in the tailwater. In the July survey, 44 channels were sampled that collectively weighed 48.19 pounds. Channel catfish was the dominant sport fish at the station nearest the dam and at the station near State Road 52, but none were found in the town park station. The two stations where channels were found had fairly deep, slack water pools, whereas the town park station had very swift riffles and turbulent pools. Collected channels ranged in length from 10.0 to 19.5 inches and averaged 14.1 inches.

When the stilling basin was pumped down in the fall of 2002, it was estimated that there were at least 15,000 channel catfish in the basin. The stilling basin was last pumped down at least 10 years ago. Army Corps personnel indicated there were few game fish in the basin at that time, but that repair project was in the summer. Obviously, channel catfish prefer the stilling basin as a wintering hole and concentrate there in large numbers.

Twenty-four rock bass were collected that weighed 4.80 pounds. Rock bass were found at two of the three stations, but they were most numerous in the town park station. Rock bass up to 8.0 inches long were found and they averaged 6.0 inches. Growth of rock bass is normal when compared to growth in other central Indiana streams. Over half of the rock bass collected were

from the 1999 year class. Spawning success for rock bass is best during years of low spring and summer flows as it was in 1999.

Twenty-two smallmouth bass, weighing 9.13 pounds, were collected. Smallmouth were found at all three stations but most were at the furthest downstream station at State Road 52. Smallmouth ranged in length from 4.1 to 15.5 inches and averaged 8.7 inches. Only one smallmouth was larger than the 12 inch minimum size limit in place for black bass. Growth of smallmouth bass is normal at one and two-years-old but slightly below normal at three and four-years-old. Like rock bass, most of the smallmouth sampled were spawned in 1999.

Other species collected in the three tailwater stations include largemouth bass, flathead catfish, hybrid walleye (saugeye), walleye, sauger, and spotted bass. Besides the channel catfish and rainbow trout discussed earlier being found in the stilling basin in the fall, other sport fish found in the stilling basin include a few dozen walleye and striped bass and just a few largemouth bass and flathead catfish. While these species add to the sport fishing diversity in the tailwater, their abundance is fairly low which limits the number of anglers actually targeting these species.

CONCLUSION AND DISCUSSION

The Brookville tailwater fishery has a diverse sport fishery that is composed of traditional stream species such as channel catfish, smallmouth bass, and rock bass. At times, channel catfish numbers are very high in deeper pools and especially in the stilling basin as observed in November. Sport fish stocked in the lake that escape through the outlet increase diversity in the tailwater. Walleye and striped bass are stocked annually in the lake, but good numbers of these species are found primarily in the deep water of the stilling basin. The presence of brown trout and rainbow trout adds to the diversity of the tailwater's sport fishery, and these provide a unique fishing opportunity in Indiana.

It was hoped that by stocking brown trout, there would be more opportunities to catch larger trout from the tailwater. Browns are generally able to tolerate warmer water than rainbows. In addition, brown trout are reported to be more difficult to catch than rainbow trout which reduces the harvest of browns and gives more of them the opportunity to remain in the stream from one year to the next. Based on the sampling conducted, there is no evidence that the brown trout stocked in the spring of 2001 carried over into the summer of 2002. However, creel survey information gathered by CITU and photographs reveal that some of the browns stocked in the spring of 2001 were caught in the summer and fall of 2002. The largest brown caught was reported to be around 18 inches in length.

Rainbow trout numbers were low during the July survey and few were found in the stilling basin in the fall. Since rainbows were found that survived through the very hot summer of 2002, the London strain of rainbow trout are capable of carrying over from one year to the next in the Brookville tailwater. However, due to their ease in catching and the large size being stocked by DFW, few rainbows are given the chance to see another fishing season.

Observing the diversity of the sport fishery in the Brookville tailwater, especially the abundance of catfish, restricting angling techniques could reduce angler use considerably. CITU suggested

that artificial lures only be used, no night fishing, and no use of live bait. All of these restrictions are contrary to popular catfish angling methods. In addition, walleye and striped bass anglers frequently use live bait. Therefore, it is recommended that DFW should not support any regulations proposed on the Brookville tailwater that restrict angling methods.

The tailwater certainly has cool enough water to support trout throughout the year which would allow them to carry-over provided they are not harvested. The rainbow trout stocking program undertaken by DFW is viewed as a put-and-take program, so harvest of the stocked fish is expected and encouraged. The brown trout stocking undertaken by CITU is being done in an effort to provide the opportunity to catch quality size trout. Due to the heavy angling pressure the tailwater receives, especially for the first few weeks of trout season, there is the potential for high harvest of small brown trout. CITU suggested a higher size limit for brown trout in the Brookville tailwater and a reduced bag limit to achieve the quality size of browns they are striving for. DFW met with CITU and it was decided that during the next administrative rules proposal period, an 18 inch minimum size limit for brown trout would be sought on the East Fork of Whitewater River below Brookville Reservoir. The rainbow trout size limit would remain at 7 inches. There would continue to be a five fish bag limit for trout, but a new proposal would require that no more than one fish could be a brown trout at Brookville.

Provided the suggested brown trout regulation changes for the Brookville tailwater do not hit any pitfalls, it will still be a couple of years before the regulations could be adopted. Until the time that a permanent rule is adopted, CITU asked that they be allowed to post signs encouraging the voluntary release of brown trout. DFW agreed that this would be allowed, but only after DFW approved the wording on the proposed signage. If a change in trout regulations is made, anglers will be required to know the difference between brown trout and rainbow trout. CITU agreed to post signs along the stream which will help anglers learn the differences.

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