

BROOKVILLE TAILWATER  
Franklin County  
2007 Fish Management Report

Jamie L. Smyth  
Assistant Fisheries Biologist



Fisheries Section  
Indiana Department of Natural Resources  
Division of Fish and Wildlife  
I.G.C. South, Room W273  
402 W. Washington Street  
Indianapolis, Indiana 46204

## EXECUTIVE SUMMARY

- The Brookville tailwater, which is approximately 2 mi in length, is the portion of the East Fork Whitewater River below the dam to its confluence with the West Fork Whitewater River.
- In the spring of 2007, the Wolf Creek National Fish Hatchery near Jamestown, Kentucky provided 3,004 brown trout that were stocked in the tailwater.
- A total of 187 brown trout was collected that weighed 113.38 lbs. There were only 127 brown trout collected in surveys from 2004 to 2006 combined. Brown trout ranged in length from 8.6 to 20.0 in and averaged 11.0 in. The average size brown trout stocked in 2007 was 8.75 in.
- Thirty-eight rainbow trout weighing 40.84 lbs were collected. Rainbow trout ranged in length from 10.3 to 19.9 in and averaged 13.5 in. Ninety-five percent of rainbow trout collected were between 10.3 and 14.7 in and likely from the 2007 stocking.
- Beginning in 2009, all stocked brown trout should be fin clipped. The clip should change annually so that year classes are distinctly marked. This should occur for a minimum of three years to provide growth and mortality data on multiple year classes. Information from this study will allow more informed management decisions to be made in regards to stocking rates and possible regulation changes.
- Sampling should continue at a tailwater discharge of 46 cfs to ensure that a representative sample is collected.
- A creel survey is scheduled for the Brookville tailwater in 2008 to provide information on user preferences, harvest, and fishing pressure. The next survey of the tailwater trout fishery is slated for 2008 and will focus on brown trout age, growth, condition, and survival.

## INTRODUCTION

Brookville Reservoir is a 5,260 acre Army Corps of Engineers (ACOE) flood control impoundment located in southeastern Indiana on the East Fork of Whitewater River about one mi north of Brookville, Indiana. The Brookville tailwater, which is approximately 2 mi in length, is the portion of the East Fork Whitewater River below the dam to its confluence with the West Fork Whitewater River.

The Division of Fish and Wildlife (DFW) stocked rainbow and brown trout in the Brookville tailwater from 1976 to 1983, primarily as a “put-and-take” fishery. Brown trout were stocked with the intention that they would carry-over from year to year and provide a higher quality fishery. Brown trout stockings ceased in 1984 since little evidence of carry-over was observed. Since then, only London strain rainbow trout have been stocked by the DFW at an annual rate of approximately 1,500 fish that are at least 7 in long.

With approval from the DFW, the Central Indiana chapter of Trout Unlimited (CITU) stocked approximately 2,000 brown trout per year from 2001 to 2006. Brown trout carry-over was documented during the 2003 Brookville tailwater survey, and in 2005 regulations were adopted to limit harvest of brown trout to one fish per day of at least 18 in. Following the 2006 stocking, it was determined that the Brookville tailwater was eligible to receive federally funded fish since it is a federal flood control project. In the spring of 2007, the Wolf Creek National Fish Hatchery near Jamestown, Kentucky provided 3,004 brown trout that were stocked in the tailwater.

A fisheries survey of the Brookville tailwater was conducted in 2007. The focus of the survey was to evaluate brown trout age, growth, condition, and survival.

## METHODS

The Brookville tailwater survey was conducted on July 30, 2007. Three locations were sampled from directly below the dam to near where the two forks join to form the Whitewater River. Station 1 sampling started at a side channel and continued upstream approximately 686 ft to the end of the concrete spillway. Station 2 was located inside the Brookville Town Park and started at the head of the riffle on the downstream edge of the park property and continued upstream approximately 686 ft to the first riffle where the stream was constricted. Station 3 sampling started just upstream of the highway 52 bridge and continued upstream approximately

436 ft to the first riffle.

A DC barge electrofisher was used to collect fish with a crew of four people. Only rainbow and brown trout were collected. The trout were measured to the nearest 0.1 in and weighed to the nearest 0.01 lb. Otoliths were extracted from some fish for age and growth analysis. Dissolved oxygen and water temperature were taken at each station.

## RESULTS

Water temperature was 56.2° F at station 1, 61.8° F at station 2, and 62.9° F at station 3. Dissolved oxygen measured 12.6 ppm at station 1, 14.4 ppm at station 2, and 14.3 ppm at station 3. The tailwater discharge was 46 cfs at the time sampling occurred.

A total of 187 brown trout was collected that weighed 113.38 lbs. There were only 127 brown trout collected in surveys from 2004 to 2006 combined. Brown trout ranged in length from 8.6 to 20.0 in and averaged 11.0 in. The average size brown in 2006 was 11.9 in (Table 1). The CPUE of brown trout was 215.4/mi at station 1, 776.9/mi at station 2, and 725.0/mi at station 3 (Table 2). In 2006, the CPUE of brown trout was 15.4/mi at station 1, 369.2/mi at station 2, and 200.0/mi at station 3. Fifty-four percent of the brown trout were collected at station 2 and 31% were collected at station 3. The majority of brown trout collected (89%) were between 8.6 and 11.9 in. Surveys have indicated no evidence of natural reproduction of brown trout within the Brookville tailwater.

Thirty-eight rainbow trout weighing 40.84 lbs were collected. Rainbow trout ranged in length from 10.3 to 19.9 in and averaged 13.5 in. Ninety-five percent of rainbow trout collected were between 10.3 and 14.7 in. There were two rainbow trout collected that were likely carry-over fish from previous stockings. The CPUE of rainbow trout was 230.8/mi at station 1, 53.8/mi at station 2, and 12.5/mi at station 3 (Table 3). The CPUE of rainbows in 2006 was 153.8/mi at station 1, 76.9/mi at station 2, and 200.0/mi at station 3. The majority of rainbow trout (79%) were collected at station 1.

## DISCUSSION

Brown trout carry-over in the Brookville tailwater has been observed since 2003. The water temperature regime, dissolved oxygen, and implementation of size and creel limits are all likely affecting the carry-over of brown trout in the tailwater.

Beginning in 2005, the DFW and the ACOE exchanged ideas pertaining to the water temperature regime of the Brookville tailwater. It was agreed upon that the tailwater release should not exceed 55°F during the spring and fall and 65°F during the summer. The ACOE is working diligently to maintain ideal tailwater conditions for brown trout. However, since Brookville Reservoir is used for flood control, the tailwater outflow is dictated by yearly reservoir conditions. Excluding a few brief spikes in water temperature due to low flow, the highest recorded water temperature in 2007 within the Brookville tailwater was 68°F.

The carrying capacity of the Brookville tailwater is still in question. As brown trout carry-over continues to increase, the potential for overcrowding exists. Aging scale samples and otoliths from brown trout has been difficult and proven to be ineffective in providing reliable estimates of determining growth and age of brown trout within the tailwater. Fin clipping appears to be a more reliable option to effectively evaluate growth, mortality, and year class strength of these fish. Beginning in 2009, all stocked brown trout should be fin clipped. The clip should change annually so that year classes are distinctly marked. This should occur for a minimum of three years to provide growth and mortality data on multiple year classes. Information from this study will allow more informed management decisions to be made in regards to stocking rates and possible regulation changes.

A creel survey is scheduled for the Brookville tailwater in 2008 to provide information on user preferences, harvest, and pressure. The next survey of the tailwater trout fishery is slated for 2008 and will focus on brown trout age, growth, condition, and survival. Sampling should continue at a tailwater discharge of 46 cfs to ensure that a representative sample is collected.

Anglers are reminded that the catch and release only season applies to the Brookville tailwater from January 1 through April 14. The closed trout season is from April 15 to the last Saturday in April. Opening day of the trout harvest season at the Brookville tailwater is the last Saturday in April at 0600 h.

## RECOMMENDATIONS

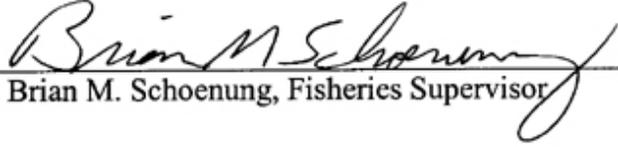
- Beginning in 2009, all stocked brown trout should be fin clipped. The clip should change annually so that year classes are distinctly marked. This should occur for a minimum of three years to provide growth and mortality data on multiple year classes. Information from this study will allow more informed management decisions to be made in regards to stocking rates and possible regulation changes.

- Sampling should continue at a tailwater discharge of 46 cfs to ensure that a representative sample is collected.

Submitted by: Jamie L. Smyth, Assistant Fisheries Biologist

Date: May 22, 2008

Approved by: J. Rhett Wisener, Fisheries Biologist

Approved by:   
Brian M. Schoenung, Fisheries Supervisor

Date: September 9, 2008

Table 1. Average size of brown trout in the Brookville tailwater 2002 to 2007.

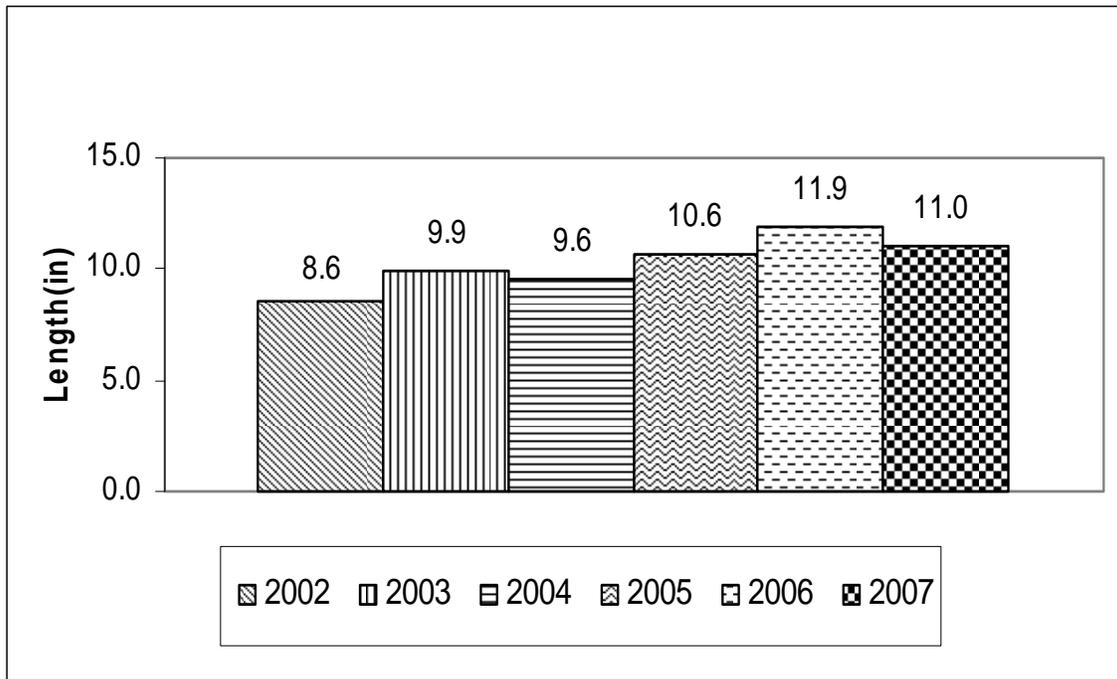


Table 2. Brookville tailwater CPUE of brown trout 2002 to 2007.

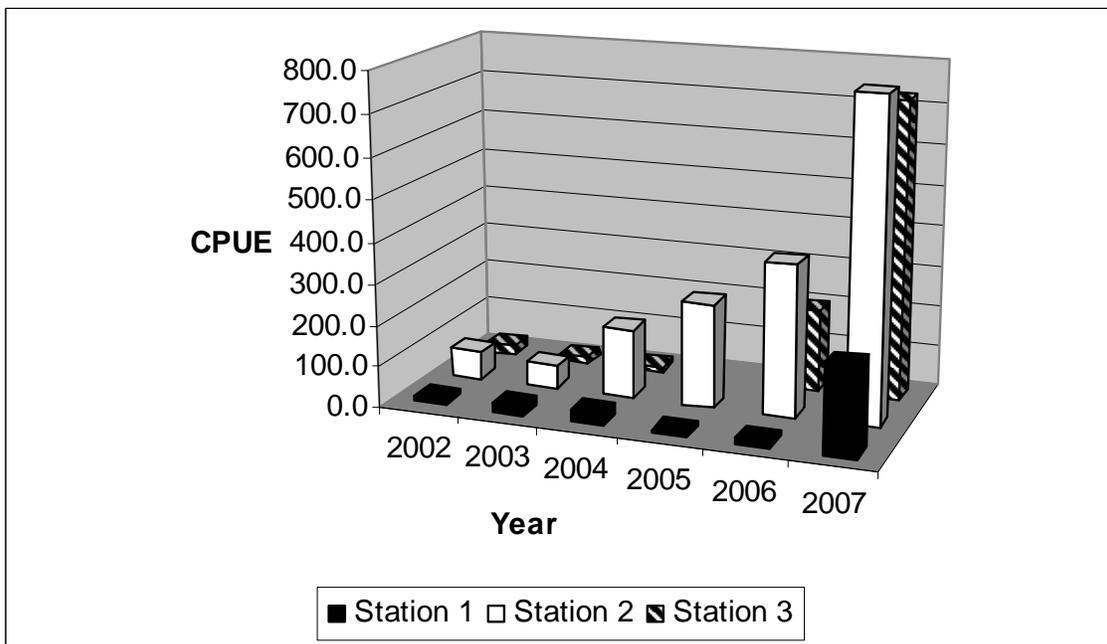
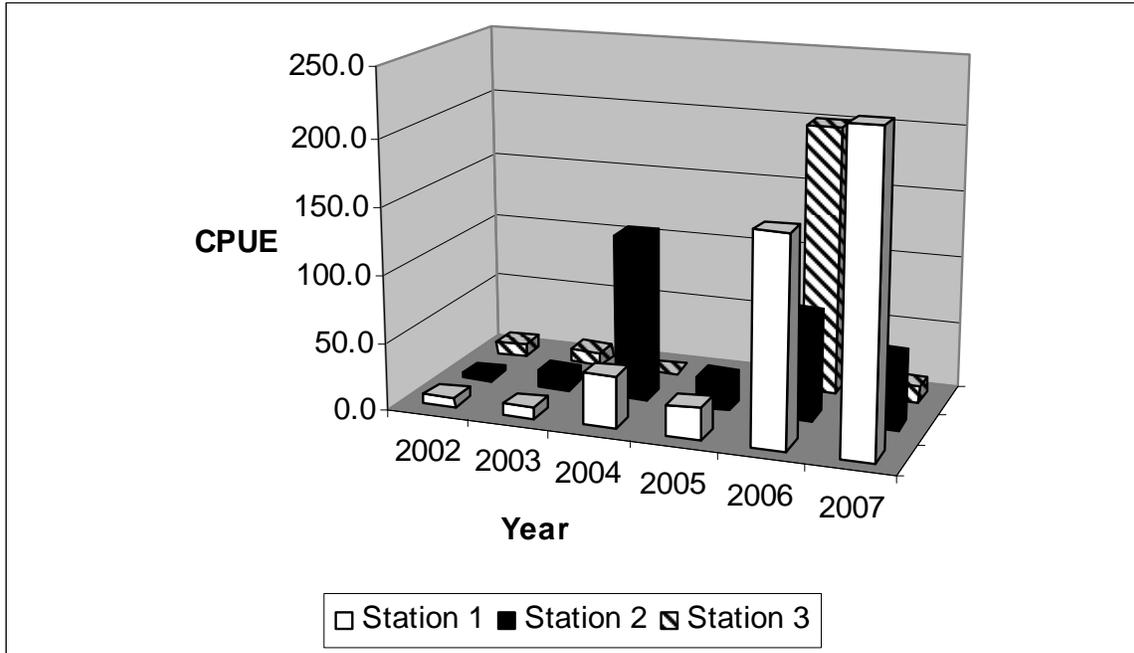


Table 3. Brookville tailwater CPUE of rainbow trout 2002 to 2007.



**NUMBER, PERCENTAGE, WEIGHT, AND AGE OF RAINBOW TROUT**

TOTAL LENGTH (inches)	NUMBER COLLECTED	PERCENT OF FISH COLLECTED	AVERAGE WEIGHT (pounds)	AGE OF FISH	TOTAL LENGTH (inches)	NUMBER COLLECTED	PERCENT OF FISH COLLECTED	AVERAGE WEIGHT (pounds)	AGE OF FISH
1.0					19.0				
1.5					19.5	1	2.6	3.30	
2.0					20.0				
2.5					20.5				
3.0					21.0				
3.5					21.5				
4.0					22.0				
4.5					22.5				
5.0					23.0				
5.5					23.5				
6.0					24.0				
6.5					24.5				
7.0					25.0				
7.5					25.5				
8.0					26.0				
8.5					TOTAL	38			
9.0									
9.5									
10.0	2	2.3	0.42	not aged					
10.5									
11.0	2	5.3	0.59						
11.5									
12.0	5	13.2	0.74						
12.5	3	7.9	0.78						
13.0	6	15.8	0.96						
13.5	6	15.8	1.04						
14.0	9	23.7	1.22						
14.5	3	7.9	1.27						
15.0									
15.5									
16.0									
16.5									
17.0									
17.5									
18.0									
18.5	1	2.6	2.71						

ELECTROFISHING CATCH	111.8 / mi	GILL NET CATCH	NA	TRAP NET CATCH	NA
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NUMBER, PERCENTAGE, WEIGHT, AND AGE OF BROWN TROUT									
TOTAL LENGTH (inches)	NUMBER COLLECTED	PERCENT OF FISH COLLECTED	AVERAGE WEIGHT (pounds)	AGE OF FISH	TOTAL LENGTH (inches)	NUMBER COLLECTED	PERCENT OF FISH COLLECTED	AVERAGE WEIGHT (pounds)	AGE OF FISH
1.0					19.0	1	0.5	2.74	
1.5					19.5				
2.0					20.0	1	0.5	4.70	
2.5					20.5				
3.0					21.0				
3.5					21.5				
4.0					22.0				
4.5					22.5				
5.0					23.0				
5.5					23.5				
6.0					24.0				
6.5					24.5				
7.0					25.0				
7.5					25.5				
8.0					26.0				
8.5	2	1.1	0.27	not aged	TOTAL	187			
9.0	10	5.3	0.30						
9.5	30	16.0	0.37						
10.0	42	22.5	0.45						
10.5	40	21.4	0.49						
11.0	29	15.5	0.57						
11.5	14	7.5	0.65						
12.0	2	1.1	0.78						
12.5									
13.0	1	0.5	0.87						
13.5	3	1.6	1.07						
14.0	2	1.1	1.09						
14.5									
15.0	3	1.6	1.47						
15.5	2	1.1	1.51						
16.0	2	1.1	1.80						
16.5									
17.0									
17.5	2	1.1	2.66						
18.0	1	0.5	2.70						
18.5									
ELECTROFISHING CATCH		550.0 / mi		GILL NET CATCH	NA		TRAP NET CATCH		NA