

LAUGHERY CREEK
RIPLEY COUNTY
2006 Fish Management Report

Clinton R. Kowalik
Assistant Fisheries Biologist

Larry L. Lehman
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, IN 46204

2008

EXECUTIVE SUMMARY

- Fishery, water chemistry, and habitat data were collected at five sites on Laughery Creek, Ripley County, from October 3 to 12, 2006.
- The sites were at RM 29.4, RM 40.1, RM 49.8, RM 53.8, and RM 61.0. The latter three sites were located above Versailles Lake. The goal was to replicate the eight sampling stations of 1995; however, the three most downstream 1995 sites were not sampled due to excess rain, high river level, and fast water velocity.
- Water quality and fish habitat was satisfactory for a warmwater fishery. The three most downstream sites had greater habitat scores and number of species than the two most upstream sites.
- Forty-nine species and sunfish hybrids were collected that represented nine families. In general, sunfish and sucker species were most abundant.
- No fish species were collected in this survey that are currently listed by Indiana as endangered, threatened, of special concern, or extirpated. Besides common carp, which have been long established in North America, no exotic species were collected in this survey. Western mosquitofish (a non-native) was collected for the first time in a Fish Management District 8 survey of Laughery Creek.
- Rock bass were collected (28.1/h) at all five sites and were the most abundant game species in this survey. They ranged from 1.2 to 9.5 in TL, averaging 5.5 in TL. The average rock bass reaches 7.0 in (i.e. quality size) near the start of its fifth year of growth.
- Spotted bass up to 14.1 in TL were collected (21.7/h) at all five sites. Smallmouth bass up to 16.2 in TL were collected (7.2/h) at four sites. Both bass species most likely reach 12.0 in (i.e. legal size) in their fifth year of growth.
- Rock bass, spotted bass, smallmouth bass, largemouth bass, sauger, white crappie, and flathead catfish were all collected at the RM 40.1 site near Versailles. This site also had the greatest fish habitat score.
- Overall, Laughery Creek should continue to provide good sport fishing opportunities.

TABLE OF CONTENTS

| | Page |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|
| LIST OF TABLES..... | iii |
| INTRODUCTION | 1 |
| METHODS | 2 |
| RESULTS | 3 |
| Water chemistry and fish habitat..... | 3 |
| Fishery survey data..... | 3 |
| Sunfish Family (Centrarchidae) | 4 |
| Sucker Family (Catostomidae) | 6 |
| Carp and Minnow Family (Cyprinidae) | 6 |
| Perch Family (Percidae) | 6 |
| Herring Family (Clupeidae) | 6 |
| North American Catfish Family (Ictaluridae) | 7 |
| Other species | 7 |
| DISCUSSION..... | 7 |
| RECOMMENDATIONS | 8 |
| LITERATURE CITED..... | 9 |
| ACKNOWLEDGEMENTS..... | 10 |
| APPENDIX 1. Stream habitat evaluation forms, fish collection data pages, and QHEI Scores for five sites on Laughery Creek, October 2006..... | 16 |
| APPENDIX 2. Length frequency pages for rock bass, spotted bass, and smallmouth bass and back-calculated lengths at each age for rock bass, spotted bass, and smallmouth bass collected at five sites on Laughery Creek, October 2006 | 32 |

LIST OF TABLES

| Table | Page |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|
| 1. Water quality data for five sites on Laughery Creek, October 2006 | 11 |
| 2. QHEI metric component scores for five sites on Laughery Creek, October 2006 | 11 |
| 3. QHEI scores, total number of fish species, total number of fish, and total weight of fishes for five sites on Laughery Creek, October 2006 | 11 |
| 4. Name, number, percentage, size, weight, and occurrence index of fishes collected from five sites on Laughery Creek, October 2006 | 12 |
| 5. Name, number, percentage, and weight of nine fish families collected from five sites on Laughery Creek, October 2006. Parentheses enclose number of fish for that species .. | 13 |
| 6. Rock bass, spotted bass, and smallmouth bass electrofishing catch rates from the five most upstream sites on Laughery Creek, 1995 and 2006 | 14 |
| 7. Smallmouth bass back-calculated lengths (in) at each age (intercept = 1.4 in) for Laughery Creek 1995, 1998, 1999, 2000, and 2006 (Blue River, Indian Creek, and Interior Plateau Ecoregion averages listed for comparison) | 15 |

INTRODUCTION

Laughery Creek is located in southeastern Indiana; its source is in northwestern Ripley County near Napoleon. The river flows approximately 80 mi and drops 597 ft in elevation before it enters the Ohio River between Aurora and Rising Sun, Indiana. After leaving Ripley County, it forms the boundary of Ohio and Dearborn Counties. This section of stream between Ohio and Dearborn Counties is considered navigable (Natural Resources Commission 1992).

A small "mill dam" was constructed on Laughery Creek many years ago near the town of Friendship. That dam has broken down and is not normally a barrier to fish movement in the creek. A large dam, however, was constructed across Laughery Creek at Versailles to form Versailles Lake in 1956. No fish ladder is present; consequently, the dam acts as a barrier to upstream fish migration.

Completion of the Markland Locks and Dam in the Ohio River in 1964 altered the fish habitat in Laughery Creek below Hartford. The dam raised the water level in the Ohio River, which flooded and changed that 6.7-mi portion of the creek into a slow-flowing embayment.

The Laughery Creek watershed covers 343 sq. mi, which is 48% forest, 28% agriculture, 18% grass/pasture, and 6% combination of residential, industrial, and commercial (Choi et al. 2005). The largest town in the watershed is Batesville (6,000 people). Versailles and Osgood, which both use water from the creek, are the next largest towns with about 1,700 people each. Laughery Creek receives effluent from sewage treatment plants of eight or nine towns in the watershed.

Fishery surveys were conducted by the Department of Natural Resources (DNR) in the embayment portion of Laughery Creek in 1964 (Lockard 1966) and 1970 (Zook 1971). Fish were collected at 15 sites in Laughery Creek and its tributaries in 1984 (Lehman 1989). Laughery Creek was sampled for all fish species in May and June of 1995 and sampled for only game species in October 1995 (Lehman 1996).

It was recommended in the 1995 survey report that smallmouth bass be reintroduced into Laughery Creek above Versailles Lake. Thus, from 1996 through 1999, the DNR stocked almost 12,000 smallmouth (2 to 7 in) at RM 53.1. Various stocking evaluation surveys for smallmouth bass and sauger were conducted above Versailles Lake from 1998 through 2005.

The present survey was conducted from October 3 to 12, 2006. The objective was to conduct a general fish community survey and to assess changes in the fishery since 1995.

Comparisons, however, between the May/June 1995 and October 2006 samples are limited due to seasonal differences. Comparisons between the October 1995 and October 2006 samples are limited due to a concentrated effort on game species in October 1995. Another difference is that three less sites were sampled in this survey and a new site replaced a site from 1995.

METHODS

Data were collected at five sites on Laughery Creek. Each site was labeled according to its river mile (RM), which is defined as the number of miles a given location on a river is from the downstream confluence of that river with a larger river. The RM of each station was determined using Hoggatt (1975) and USGS topographic maps.

All five sampling sites were located in Ripley County on Laughery Creek at RM 29.4, RM 40.1, RM 49.8, RM 53.8, and RM 61.0. The latter three sites were located above Versailles Lake. The goal was to replicate the eight sampling stations of 1995; however, the three most downstream 1995 sites (RM 6.3, RM 12.5, and RM 18.4) were not sampled due to excess rain, high river level, and fast water velocity. Due to access issues, the site at RM 48.1 which had been surveyed in 1995 was replaced by the site at RM 49.8 for this survey.

At each station, conductivity was measured using an YSI Model 33 Conductivity Meter. Alkalinity and pH were determined using a Hach kit. Dissolved oxygen was measured using an YSI Model 95 Dissolved Oxygen Meter. Water transparency was measured with a Secchi disk. Surface water and air temperatures were measured using a pocket thermometer.

Fish habitat at each station was subjectively evaluated using the qualitative habitat evaluation index (QHEI) developed by the Ohio EPA (Rankin 1989). A total score is assigned based on individual component scores for substrate, instream cover, channel morphology, riparian zone, pool quality, riffle quality, and stream gradient. Maximum possible score for a station is 100.

The length of each station and five stream widths within each station were measured using a hip chain or Bushnell Yardage Pro laser range finder. Three depth measurements were made at each width transect with a measuring pole. A GARMIN GPSmap 76 was used to record the location of these three sites. The average discharge (CFS) at each station was determined by substituting the drainage area in square miles according to Hoggatt (1975).

At RM 53.8, fish were collected by pulsed DC electrofishing along both banks with a boat-mounted Smith-Root electrofisher and two dippers for 1.0 h. This station's length was about 2,300 ft. A few seine hauls were also conducted at the RM 53.8 site. At the other four sites, fish were collected with a pulsed DC barge electrofisher using a crew of two dippers and one barge operator. The barge station lengths ranged from 600 to 1,300 ft.

During all sampling, fish were collected, identified, measured to the nearest 0.1 in TL, and weighed to the nearest 0.01 lb. Scale samples were collected from game fish for age and growth analysis. Fish that could not be identified in the field were preserved in 10% formalin and later identified in the laboratory. Common and scientific names of fishes were taken from Nelson et al. (2004). Although limited due to aforementioned differences, comparisons with the results of the previous survey will refer to the 1995 survey report (Lehman 1996). Rock bass, spotted bass, and smallmouth bass electrofishing catch rates from this survey will be compared to the catch rates from only the five most upstream sampling sites in 1995.

RESULTS

Water chemistry and fish habitat

The water quality data suggests that Laughery Creek provides adequate living conditions for game fish (Table 1). Dissolved oxygen at the time of the survey ranged from 8.08 to 14.34 ppm. Water temperature at the time of the survey ranged from 56 to 69°F.

The QHEI scores ranged from 62.3 (RM 53.8) to 81.0 (RM 40.1) (Table 2). The scores for the five stations were relatively close and all greater than 60, which implies that Laughery Creek has quality warmwater habitat (Rankin 1989). The QHEI scores showed a negative relationship with river mile; fish habitat scores generally decreased in an upstream direction (Table 3).

Fishery survey data

Fish sampling effort at the five sites was a total of 5.72 h and produced 3,812 fish weighing a total of 530 lbs (Table 4). Forty-nine species and sunfish hybrids were collected, representing nine families. Species diversity had a negative relationship with river mile and a positive relationship with QHEI scores. The site with the lowest QHEI score (RM 53.8, the boat station) had the least species diversity and abundance, but the greatest total weight (Table 3).

The amount of weight was primarily related to the total weight of sucker species and carp collected at that site via boat electrofishing. The habitat here was not conducive to seining; only two additional species were collected via seine haul.

No fish species were collected in this survey that are currently listed by Indiana as endangered, threatened, of special concern, or extirpated (Simon et al. 2002). Besides common carp, which have been long established in North America, no exotic species were collected in this survey. Nine species were collected in the previous survey but not this survey, including freshwater drum, blackside darter, golden shiner, and black crappie. The other five species were white bass, smallmouth buffalo, emerald shiner, bullhead minnow, and rosyface shiner—these species were collected at least in one of the three downstream 1995 sites that were not sampled in this survey. The DNR has stocked more than 700 white bass from Big Raccoon Creek into Versailles Lake and upstream in Laughery Creek since 2004, but no white bass have been collected in surveys above the dam since those white bass stockings began.

Longear sunfish dominated the sample by number (37%), followed by northern hogsucker (8%), bluntnose minnow (7%), golden redhorse (6%), and rock bass (4%) (Table 4). Common carp was the most abundant by weight (41%), followed by golden redhorse (13%), northern hogsucker (9%), longear sunfish (6%), rock bass (5%), and black redhorse (5%). The remaining species combined comprised less than 20% of the sample by weight.

Sunfish Family (Centrarchidae)

Eleven species and one hybrid were collected from the sunfish family (Table 5). Members of this popular game fish family combined for 53% of the sample by number and 21% by weight (Table 5). Longear sunfish, the most abundant species in the survey, comprised 71% by number of the sunfish family. Although most of the longear were not large enough to interest anglers, a few of them along with green sunfish, bluegill, white crappie, redear sunfish, hybrid sunfish, and warmouth will contribute a variety of panfish to the angler's catch. Green sunfish up to 7.0 in TL and white crappie up to 10.8 in TL were collected.

A total of 162 rock bass was sampled that weighed 28 lbs. They ranged from 1.2 to 9.5 in TL, averaging 5.5 in TL. Rock bass ranked fifth by number and weight in the entire sample. Rock bass, collected at all sites, were the most abundant game species in this survey. At eight sites from the 1995 spring and fall samples, only five and eight more rock bass were collected,

respectively. The electrofishing catch rate was 28.1/h, which was slightly greater than the spring and fall 1995 catch rates for rock bass (Table 6).

The catch rate for rock bass 7.0 in or longer (i.e. quality size) was similar to 1995. In the current survey, 34% of the rock bass were quality size. At the five most upstream sites in 1995, quality-size rock bass were 32% and 42% of the samples, respectively. Rock bass reach 7.0 in near the start of their fifth year of growth, which is comparable to the Interior Plateau Ecoregion average (Shipman 1997) as well as the average observed in past Laughery Creek surveys (Lehman 2001).

A total of 124 spotted bass was sampled that weighed 19 lbs. They ranged from 2.2 to 14.1 in TL, averaging 5.6 in TL. Relative abundance was 3% by number and 4% by weight. Spotted bass were collected at all 2006 and 1995 sites. The electrofishing catch rate was 21.7/h, which was greater than the spring 1995 catch rate for spotted bass, but less than the fall 1995 catch rate (Table 6).

The catch rate for spotted bass 12.0 in or longer (i.e. legal size) in 2006 was greater than both catch rates in 1995. Five legal spotted bass (4%) were collected in 2006. It was not determined when spotted bass reach 12.0 in, but it most likely occurs in their fifth year of growth, which is comparable to the Interior Plateau Ecoregion average (Shipman 1997).

A total of 41 smallmouth bass was sampled that weighed 11 lbs. They ranged from 2.6 to 16.2 in TL, averaging 6.4 in TL. Relative abundance was 1% by number and 2% by weight. The electrofishing catch rate was 7.2/h, which was greater than the spring 1995 catch rate, but less than the fall 1995 catch rate (Table 6). As with spotted bass, the 2006 catch rate for smallmouth 12.0 in or longer (i.e. legal size) was greater than both catch rates in 1995. Seven legal smallmouth (15%) were collected in 2006.

In 1995, smallmouth were collected only below the Versailles Lake dam. In this survey, smallmouth were collected at two sites upstream of Versailles Lake and two sites below Versailles Lake (RM 49.8 and RM 53.8). It was not determined when smallmouth bass reach legal size, but it most likely occurs in their fifth year of growth, which is comparable to 1995 and to the Interior Plateau Ecoregion average (Shipman 1997) (Table 7).

A total of 30 largemouth bass was sampled that weighed 8 lbs. They ranged from 2.8 to 11.5 in TL, averaging 5.6 in TL.

Sucker Family (Catostomidae)

Ten species of this family were collected (Table 5). Northern hogsucker was the most abundant species from this family and the second most abundant in the entire sample. Collectively, the sucker family ranked second by number and by weight. Golden and black redbreast together contributed 18% of the weight for the entire sample.

Carp and Minnow Family (Cyprinidae)

This family ranked third by number, but first by weight in the survey due largely to 219 lbs of common carp (Table 5). Five carp weighed over 10 lbs; these were the heaviest and longest fish of the survey. Only 31 carp were collected at two sites, but they ranged from 17.7 to 29.0 in TL. The other ten species were minnows, including the bluntnose minnow, which comprised 46% of this family and 7% of the entire sample.

Perch Family (Percidae)

The perch family was represented by seven darter species and sauger (Table 5). Greenside darter, collected at four sites, was the most abundant percoid, and the eighth most abundant in the entire sample. Logperch was collected at all sites. Sauger (n=3; 11.8 to 14.8 in TL) were collected only at RM 40.1, which is about 3 mi below the dam of Versailles Lake. In the 1995 spring sample, sauger were collected from RM 6.3, RM 29.4, and RM 40.1. In the 1995 fall sample, sauger were collected at RM 6.3. The DNR has stocked almost 700,000 sauger fry in Laughery Creek at RM 53.8 since 2003, yet no sauger have been collected in any DNR surveys upstream of Versailles Lake. Neither were any sauger collected in Versailles Lake during a supplemental survey for sauger and white bass November 2, 2006 (Kowalik and Lehman 2008).

Herring Family (Clupeidae)

Gizzard shad, which were found at all sites, was the only member of this family represented in the fish sample (Table 5). Shad ranked sixth (<4%) in abundance by number in the entire sample, which is a 68% decrease from the 1995 spring sample.

North American Catfish Family (Ictaluridae)

This family was represented by five species (Table 5). Stonecat and brindled madtom increased in abundance from 1995, whereas channel catfish and flathead catfish decreased in abundance. In 1995, 23 of the 47 channel catfish were collected at RM 48.1, a site that was not sampled during this survey. The longest channel catfish and flathead catfish in this survey were 16.5 in TL and 15.5 in TL, respectively. Yellow bullhead numbers and size range were similar to those in 1995; 15 of 16 bullhead were collected upstream of Versailles Lake. The longest bullhead in this survey was 9.0 in TL.

Other species

The following three species (as gizzard shad) were the only species collected from their respective families (Table 5). Brook silverside (n=7) was collected at three sites. In 1995, they were collected at seven sites, which indicated a wide distribution throughout Laughery Creek. Longnose gar (n=3; 13.0 to 14.6 in TL) were collected at RM 29.4. In 1995, gar were collected at the four most downstream sites in Laughery Creek. A western mosquitofish was collected at RM 40.1. This was the first time a mosquitofish was collected in a Fish Management District 8 (FMD 8) survey of Laughery Creek, which is outside the native range of this species.

DISCUSSION

Laughery Creek harbors a diverse fish community, which is dominated by nongame fish species, but supports a variety of game fish. The species present are typical for a stream of this size. No listed or exotic (except for common carp) species were collected, but the non-native western mosquitofish was collected for the first time in an FMD 8 Laughery Creek survey. In general, QHEI scores and species diversity decreased upstream. The three most downstream sites had QHEI scores greater than 76 and greater than 33 species whereas the two most upstream sites had QHEI scores less than 68 and less than 30 species. Overall, water quality and habitat was satisfactory for a warmwater fishery.

Laughery Creek is known to provide good fishing opportunities (Lehman 1996), which should continue. Rock bass, spotted bass, and smallmouth bass are the species that will provide the best fishing possibilities. Smallmouth bass are even hanging on in the creek above the lake where they were stocked approximately 10 years ago. A few largemouth bass were collected

but at their current size would only provide a limited catch and release resource. Growth of black bass species in Laughery Creek, under the 12-in minimum size limit, is satisfactory.

Sauger and white bass provide fishing opportunities during their spring spawning migrations out of the Ohio River into that section of Laughery Creek below the dam at Versailles. The absence of sauger and white bass above the dam in the lake or creek indicates that past stockings of sauger fry and white bass adults in the creek above the lake have not been successful.

Other fish that could be harvested are common carp and a variety of sunfish, suckers, and catfish. Rock bass, spotted bass, smallmouth bass, largemouth bass, sauger, white crappie, and flathead catfish were all collected at the RM 40.1 site below Versailles; this site also had the greatest fish habitat score.

To maintain Laughery's diverse fish community, it is important that the existing wooded riparian corridor be preserved. Woody vegetation, such as willows, should be used to control bank erosion where control is necessary. Land management practices started under the Laughery Creek Watershed Project in the watershed above Versailles Lake should be implemented throughout the whole watershed to reduce soil erosion and the pollution of Laughery Creek with nutrients and pesticides. Water quality in the creek and its tributaries should continue to be monitored by the Department of Environmental Management to eliminate sources of pollution.

Public access to Laughery Creek and its tributaries is somewhat limited. Access points can be found at bridges and fords that cross the streams and along county roads that run adjacent to the streams; however, anglers should be aware that only a small portion of the property at these locations is publicly owned right-of-way and that it is necessary to get permission from landowners before going fishing on private land. Anglers can gain access to the embayment portion of Laughery Creek from the Ohio River or from the DNR boat ramp on the downstream side of the ford at Hartford. The DNR boat ramp on the upstream side of the ford provides access to the natural section of stream.

RECOMMENDATIONS

- Maintain a 12.0-in minimum size limit on black bass.
- Stock sauger fingerlings, in addition to fry, into Laughery Creek above Versailles Lake.

- Put white bass stockings on hold for now due to concerns about the fish disease Viral Hemorrhagic Septicemia (VHS).
- Repeat survey in 5 to 10 years.

LITERATURE CITED

- Choi, J., T. Zhai, and B.A. Engel. 2005. Spatial Decision Support System for Watershed Management. Retrieved April 4, 2008, from <http://cobweb.ecn.purdue.edu/~watergen/owls/htmls/reg5.htm>.
- Hoggatt, R.E. 1975. Drainage areas of Indiana streams. USGS, Water Resources Division and Indiana Dept. of Natural Resources, Indianapolis. 231 pp.
- Kittaka, D.S. 2006. Evaluation of game fish populations in Indian Creek, Greene and Lawrence Counties, 2004. Fisheries Section, Indiana Dept. of Natural Resources, Indianapolis. 13 pp.
- Kowalik, C. R. and L. L. Lehman. 2008. Versailles Lake. 2006 Supplemental Survey. Fisheries Section, Indiana Dept. of Natural Resources, Indianapolis. 2 pp.
- Lehman, L.L. 2001. Evaluation of smallmouth bass stockings in Laughery Creek above Versailles Lake. 2000 Fish Management Report. Fisheries Section, Indiana Dept. of Natural Resources, Indianapolis. 52 pp.
- Lehman, L.L. 1996. Fisheries Survey of Laughery Creek. 1995 Fish Management Report. Fisheries Section, Indiana Dept. of Natural Resources, Indianapolis. 52 pp.
- Lehman, L.L. 1989. Laughery Creek. 1984 Fish Management Report. Fisheries Section, Indiana Dept. of Natural Resources, Indianapolis. 47 pp.
- Lockard, F.R. 1966. A fishery survey of the Ohio River embayments in Indiana formed by Markland Dam. Indiana Dept. of Natural Resources, Indianapolis. 53 pp.
- Natural Resources Commission. 1992. Information Bulletin #3. Nonrule Policy Documents. Indiana Register 15(10): 2385-2402.
- Nelson, J.S., E.J. Crossman, H. Espinoza-Pérez, L.T. Findley, C.R. Gilbert, R.N. Lea, and J.D. Williams. 2004. Common and scientific names of fishes from the United States, Canada, and Mexico. American Fisheries Society, Special Publication 29, Bethesda, Maryland.
- Rankin, E.T. 1989. The Qualitative Habitat Evaluation Index (QHEI): Rationale, Methods and Application. Ohio Environmental Protection Agency, Columbus, Ohio. 54 pp.

Simon, T.P, J.O. Whitaker, Jr., J.S. Castrale, and S.A. Minton. 1998. Revised checklist of the vertebrates of Indiana. Proceedings of the Indiana Academy of Science. 111(2): 182-214.

Shipman, S.T. 1997. A survey of fish communities and aquatic habitats at Indiana's major streams with emphasis on smallmouth bass distribution and abundance. Indiana Dept. of Natural Resources, Indianapolis. 103 pp.

Zook, W.J. 1971. Laughery Creek Embayment, 1970 Fish Management Report. Indiana Dept. of Natural Resources, Indianapolis. 32 pp.

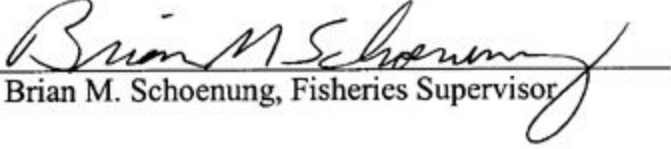
ACKNOWLEDGEMENTS

Thanks to landowners for giving DNR personnel access to Laughery Creek to conduct this survey. Thanks also to Osgood Water Company superintendent, Chuck Gill, for helping to collect some of the fish data and to Brant Fisher, IDNR Nongame Aquatic Biologist, for help with fish identifications.

Submitted by: Clinton R. Kowalik, Assistant Fisheries Biologist

Date: March 19, 2008

Approved by: Larry L. Lehman, Fisheries Biologist

Approved by: 
Brian M. Schoenung, Fisheries Supervisor

Date: August 21, 2008

Table 1. Water quality data for five sites on Laughery Creek, October 2006.

| River mile | Sampling date | Surface water temperature (°F) | Dissolved oxygen (ppm) | Secchi disk (in) |
|-------------------|----------------------|---------------------------------------|-------------------------------|-------------------------|
| 29.4 | 10/10/2006 | 68 | 14.34 | 66 |
| 40.1 | 10/6/2006 | 63 | 9.00 | 44 |
| 49.8 | 10/7/2006 | 69 | 9.72 | 40 |
| 53.8 | 10/12/2006 | 56 | 8.20 | 32 |
| 61.0 | 10/3/2006 | 64 | 8.08 | 41 |

Table 2. QHEI metric component scores for five sites on Laughery Creek, October 2006.

| River mile | Substrate | Instream cover | Channel morphology | Riparian zone | Pool/Glide quality | Riffle/Run quality | Gradient | Total per site |
|------------------------|------------------|-----------------------|---------------------------|----------------------|---------------------------|---------------------------|-----------------|-----------------------|
| 29.4 | 20 | 12 | 14 | 6.8 | 11 | 6 | 10 | 77.8 |
| 40.1 | 20 | 16 | 14 | 5.8 | 11 | 7 | 10 | 83.8 |
| 49.8 | 20 | 12 | 14 | 9 | 10 | 4 | 10 | 79.0 |
| 53.8 | 13 | 11 | 13 | 5.3 | 12 | 2 | 8 | 64.3 |
| 61.0 | 16 | 8 | 15 | 6.3 | 11 | 6 | 8 | 70.3 |
| Maximum possible score | 20 | 20 | 20 | 10 | 12 | 8 | 10 | 100 |

Table 3. QHEI scores, total number of fish species, total number of fish, and total weight of fishes for five sites on Laughery Creek, October 2006.

| River mile | QHEI score | Total species | Total number | Total weight (lbs) |
|-------------------|-------------------|----------------------|---------------------|---------------------------|
| 29.4 | 77.8 | 36 | 562 | 67.11 |
| 40.1 | 83.8 | 33 | 1,146 | 80.26 |
| 49.8 | 79.0 | 34 | 1,123 | 90.59 |
| 53.8 | 64.3 | 25 | 372 | 244.84 |
| 61.0 | 70.3 | 29 | 509 | 46.77 |

Table 4. Name, number, percentage, size, weight, and occurrence index of fishes collected from five sites on Laughery Creek, October 2006.

| Common name | Species Name | Number | % | Size range (in) | Total weight (lbs) | % | Occurrence index |
|-----------------------------------|---------------------------------------|------------|------------|--------------------|-----------------------|------------|---------------------|
| Longear sunfish | <i>Lepomis megalotis</i> | 1,424 | 37.4 | 1.1-5.6 | 32.30 | 6.1 | 5 |
| Northern hog sucker | <i>Hypentelium nigricans</i> | 302 | 7.9 | 2.3-14.1 | 49.94 | 9.4 | 5 |
| Bluntnose minnow | <i>Pimephales notatus</i> | 247 | 6.5 | 1.0-3.3 | 1.08 | 0.2 | 5 |
| Golden redbreast | <i>Moxostoma erythrurum</i> | 215 | 5.6 | 2.0-17.4 | 68.91 | 13.0 | 5 |
| Rock bass | <i>Ambloplites rupestris</i> | 162 | 4.2 | 1.2-9.5 | 28.04 | 5.3 | 5 |
| Gizzard shad | <i>Dorosoma cepedianum</i> | 150 | 3.9 | 3.1-10.8 | 25.96 | 4.9 | 5 |
| Green sunfish | <i>Lepomis cyanellus</i> | 144 | 3.8 | 1.6-7.0 | 5.6 | 1.1 | 5 |
| Greenside darter | <i>Etheostoma blennioides</i> | 127 | 3.3 | 1.8-3.7 | 1.10 | 0.2 | 4 |
| Spotted bass | <i>Micropterus punctulatus</i> | 124 | 3.3 | 2.2-14.1 | 18.82 | 3.6 | 5 |
| Steelcolor shiner | <i>Cyprinella whipplei</i> | 124 | 3.3 | 1.0-3.8 | 0.82 | 0.2 | 5 |
| Central stoneroller | <i>Campostoma anomalum</i> | 113 | 3.0 | 2.0-5.6 | 2.36 | 0.4 | 3 |
| Black redbreast | <i>Moxostoma duquesnei</i> | 96 | 2.5 | 2.4-14.8 | 27.43 | 5.2 | 5 |
| Logperch | <i>Percina caprodes</i> | 67 | 1.8 | 2.5-5.3 | 1.57 | 0.3 | 5 |
| Bluegill | <i>Lepomis macrochirus</i> | 59 | 1.5 | 1.2-5.4 | 1.23 | 0.2 | 5 |
| Smallmouth bass | <i>Micropterus dolomieu</i> | 41 | 1.1 | 2.6-16.2 | 11.35 | 2.1 | 4 |
| Silverjaw minnow | <i>Notropis buccatus</i> | 38 | 1.0 | 1.5-3.0 | 0.18 | <0.1 | 2 |
| Scarlet shiner | <i>Lythrurus fasciolaris</i> | 33 | 0.9 | 1.1-3.1 | 0.12 | <0.1 | 3 |
| Common carp | <i>Cyprinus carpio</i> | 31 | 0.8 | 17.7-29.0 | 218.93 | 41.3 | 2 |
| Striped shiner | <i>Luxilus chrysocephalus</i> | 31 | 0.8 | 2.1-6.5 | 1.12 | 0.2 | 3 |
| Largemouth bass | <i>Micropterus salmoides</i> | 30 | 0.8 | 2.8-11.5 | 7.89 | 1.5 | 5 |
| Stonecat | <i>Noturus flavus</i> | 27 | 0.7 | 2.3-6.6 | 1.06 | 0.2 | 3 |
| Fantail darter | <i>Etheostoma flabellare</i> | 23 | 0.6 | 1.7-2.4 | 0.08 | <0.1 | 4 |
| Brindled madtom | <i>Noturus miurus</i> | 22 | 0.6 | 1.8-4.6 | 0.32 | 0.1 | 4 |
| Rainbow darter | <i>Etheostoma caeruleum</i> | 22 | 0.6 | 1.7-2.4 | 0.08 | <0.1 | 2 |
| White crappie | <i>Pomoxis annularis</i> | 18 | 0.5 | 6.9-10.8 | 4.64 | 0.9 | 5 |
| Silver shiner | <i>Notropis photogenis</i> | 17 | 0.4 | 2.5-4.5 | 0.17 | <0.1 | 3 |
| Yellow bullhead | <i>Ameiurus natalis</i> | 16 | 0.4 | 2.9-9.0 | 2.63 | 0.5 | 3 |
| Spotted sucker | <i>Minytrema melanops</i> | 13 | 0.3 | 2.6-7.5 | 0.62 | 0.1 | 4 |
| Spotfin shiner | <i>Cyprinella spiloptera</i> | 11 | 0.3 | 1.7-3.2 | 0.08 | <0.1 | 3 |
| Silver redbreast | <i>Moxostoma anisurum</i> | 8 | 0.2 | 2.6-8.2 | 0.72 | 0.1 | 2 |
| White sucker | <i>Catostomus commersonii</i> | 7 | 0.2 | 4.9-9.7 | 1.25 | 0.2 | 2 |
| Brook silverside | <i>Labidesthes sicculus</i> | 7 | 0.2 | 2.1-3.5 | 0.03 | <0.1 | 3 |
| Johnny darter | <i>Etheostoma nigrum</i> | 7 | 0.2 | 1.7-2.1 | 0.01 | <0.1 | 4 |
| Banded darter | <i>Etheostoma zonale</i> | 6 | 0.2 | 1.3-1.9 | 0.01 | <0.1 | 1 |
| Quillback | <i>Carpoides cyprinus</i> | 5 | 0.1 | 6.5-14.8 | 2.99 | 0.6 | 4 |
| Shorthead redbreast | <i>Moxostoma macrolepidotum</i> | 5 | 0.1 | 3.3-9.5 | 0.71 | 0.1 | 2 |
| Redear sunfish | <i>Lepomis microlophus</i> | 5 | 0.1 | 2.5-3.8 | 0.08 | <0.1 | 2 |
| Slenderhead darter | <i>Percina phoxocephala</i> | 5 | 0.1 | 2.8-3.3 | 0.05 | <0.1 | 2 |
| Highfin carpsucker | <i>Carpoides velifer</i> | 4 | 0.1 | 6.3-12.9 | 1.35 | 0.3 | 3 |
| Suckermouth minnow | <i>Phenacobius mirabilis</i> | 4 | 0.1 | 2.3-3.5 | 0.05 | <0.1 | 1 |
| Flathead catfish | <i>Pylodictis olivaris</i> | 3 | 0.1 | 11.7-15.5 | 2.67 | 0.5 | 2 |
| Sauger | <i>Stizostedion canadense</i> | 3 | 0.1 | 11.8-14.0 | 2.08 | 0.4 | 1 |
| Channel catfish | <i>Ictalurus punctatus</i> | 3 | 0.1 | 2.1-16.5 | 1.37 | 0.3 | 2 |
| Longnose gar | <i>Lepisosteus osseus</i> | 3 | 0.1 | 13.0-14.6 | 0.47 | 0.1 | 1 |
| Hybrid sunfish | <i>Lepomis hybrid</i> | 3 | 0.1 | 4.6-6.5 | 0.36 | 0.1 | 2 |
| Creek chub | <i>Semotilus atromaculatus</i> | 2 | 0.1 | 2.0 | 0.02 | <0.1 | 2 |
| Orangespotted sunfish | <i>Lepomis humilis</i> | 2 | 0.1 | 1.6-2.9 | 0.02 | <0.1 | 1 |
| River carpsucker | <i>Carpoides carpio</i> | 1 | <0.1 | 12.4 | 0.85 | 0.2 | 1 |
| Warmouth | <i>Lepomis gulosus</i> | 1 | <0.1 | 4.3 | 0.05 | <0.1 | 1 |
| Western mosquitofish* | <i>Gambusia affinis</i> | 1 | <0.1 | 1.6 | <0.01 | <0.1 | 1 |
| Total - 49 species and one hybrid | | 3,812 | 100.0 | | 529.57 | 100.0 | |

* Non-native species not collected in past FMD 8 Laughery Creek surveys

Table 5. Name, number, percentage, and weight of nine fish families collected from five sites on Laughery Creek, October 2006. Parentheses enclose number of fish for that species.

| Fish Family | Number | % | Weight (lbs) | % |
|-----------------------------------------------|--------|-------|--------------|------|
| Sunfishes - Centrarchidae | 2,013 | 52.8 | 110.38 | 20.8 |
| Longear sunfish (1,424) | | | | |
| Rock bass (162) | | | | |
| Green sunfish (144) | | | | |
| Spotted bass (124) | | | | |
| Bluegill (59) | | | | |
| Smallmouth bass (41) | | | | |
| Largemouth bass (30) | | | | |
| White crappie (18) | | | | |
| Redear sunfish (5) | | | | |
| Hybrid sunfish (3) | | | | |
| Orangespotted sunfish (2) | | | | |
| Warmouth (1) | | | | |
| Suckers - Catostomidae | 656 | 17.2 | 154.77 | 29.2 |
| Northern hog sucker (302) | | | | |
| Golden redhorse (215) | | | | |
| Black redhorse (96) | | | | |
| Spotted sucker (13) | | | | |
| Silver redhorse (8) | | | | |
| White sucker (7) | | | | |
| Quillback (5) | | | | |
| Shorthead redhorse (5) | | | | |
| Highfin carpsucker (4) | | | | |
| River carpsucker (1) | | | | |
| Carps and minnows - Cyprinidae | 651 | 17.1 | 224.93 | 42.5 |
| Bluntnose minnow (247) | | | | |
| Steelcolor shiner (124) | | | | |
| Central stoneroller (113) | | | | |
| Silverjaw minnow (38) | | | | |
| Scarlet shiner (33) | | | | |
| Common carp (31) | | | | |
| Striped shiner (31) | | | | |
| Silver shiner (17) | | | | |
| Spotfin shiner (11) | | | | |
| Suckermouth minnow (4) | | | | |
| Creek chub (2) | | | | |
| Perches - Percidae | 260 | 6.8 | 4.98 | 0.9 |
| Greenside darter (127) | | | | |
| Logperch (67) | | | | |
| Fantail darter (23) | | | | |
| Rainbow darter (22) | | | | |
| Johnny darter (7) | | | | |
| Banded darter (6) | | | | |
| Slenderhead darter (5) | | | | |
| Sauger (3) | | | | |
| Herrings - Clupeidae | 150 | 3.9 | 25.96 | 4.9 |
| Gizzard shad (150) | | | | |
| North American catfishes - Ictaluridae | 71 | 1.9 | 8.05 | 1.5 |
| Stonecat (27) | | | | |
| Brindled madtom (22) | | | | |
| Yellow bullhead (16) | | | | |
| Flathead catfish (3) | | | | |
| Channel catfish (3) | | | | |
| New World silversides - Atherinopsidae | 7 | 0.2 | 0.03 | <0.1 |
| Brook silverside (7) | | | | |
| Gars - Lepisosteidae | 3 | 0.1 | 0.47 | 0.1 |
| Longnose gar (3) | | | | |
| Livebearers - Poeciliidae | 1 | <0.01 | <0.01 | <0.1 |
| Western mosquitofish (1) | | | | |

Table 6. Rock bass, spotted bass, and smallmouth bass electrofishing catch rates from the five most upstream sampling sites on Laughery Creek, 1995 and 2006.

| Game fish | <u>Electrofishing catch rates (fish/h)</u> | | |
|-----------------------------------|---------------------------------------------------|---------------------|---------------------|
| | May/June 1995 | October 1995 | October 2006 |
| All rock bass | 22.2 | 23.4 | 28.1 |
| Rock bass \geq 7.0 in TL | 7.2 | 9.8 | 9.6 |
| All spotted bass | 13.6 | 37.0 | 21.7 |
| Spotted bass \geq 12.0 in TL | 0.2 | 0.7 | 0.9 |
| All smallmouth bass | 3.8 | 10.2 | 7.2 |
| Smallmouth bass \geq 12.0 in TL | 0.0 | 0.0 | 1.2 |

Table 7. Smallmouth bass back-calculated lengths (in) at each age (intercept = 1.4 in) for Laughery Creek 1995, 1998, 1999, 2000, and 2006 (Blue River, Indian Creek, and Interior Plateau Ecoregion averages listed for comparison).

| Back-calculated average length (in) at each age | | | | | | | | |
|--------------------------------------------------------|-------------|----------|----------|----------|----------|-------------|----------|---------------|
| Stream | Year | 1 | 2 | 3 | 4 | 5 | 6 | Source |
| Laughery Creek* | 2006 | 4.0 | 7.0 | 9.2 | 11.0 | | | This survey |
| Laughery Creek | 2000 | 5.1 | | | | | | Lehman 2001 |
| Laughery Creek | 1999 | 3.3 | 6.3 | 10.3 | | | | Lehman 2001 |
| Laughery Creek | 1998 | 3.4 | 6.8 | | | | | Lehman 2001 |
| Laughery Creek | 1995 | 3.9 | 7.6 | 9.9 | | | | Lehman 1995 |
| Blue River | 2004 | 3.1 | 5.3 | 7.7 | 9.8 | | | Carnahan 2005 |
| Blue River | 2002 | 3.8 | 6.6 | 9.3 | 11.3 | | | Carnahan 2005 |
| Blue River | 2000 | 4.1 | 6.3 | 8.6 | 10.6 | | | Carnahan 2005 |
| Blue River | 1999 | 3.3 | 5.7 | 7.9 | 9.9 | 12.1 | 13.3 | Carnahan 2005 |
| Blue River | 1998 | 3.3 | 5.5 | 7.9 | 10.3 | 12.8 | | Carnahan 2005 |
| Indian Creek | 2004 | 3.5 | 5.9 | 8.3 | 10.2 | 11.6 | | Kittaka 2006 |
| Indian Creek | 2002 | 3.6 | 6.4 | 8.9 | 11.2 | 12.4 | | Kittaka 2006 |
| Indian Creek | 2000 | 3.4 | 6.2 | 8.2 | 10.1 | 11.6 | 13.0 | Kittaka 2006 |
| Indian Creek | 1998 | 3.2 | 5.7 | 8.1 | 9.9 | 11.7 | | Kittaka 2006 |
| Interior plateau average | | 3.8 | 6.4 | 8.8 | 11.2 | 12.2 | 15.0 | Shipman 1997 |

Note: 12.0-in minimum size limit from summer 1998 to present

*Laughery 2006 averages based on 2 year classes (n=13)

APPENDIX 1

STREAM HABITAT EVALUATION FORMS

FISH COLLECTION DATA PAGES
AND

QHEI SCORES
FOR

FIVE SITES
ON

LAUGHERY CREEK

OCTOBER 2006

**INDIANA DIVISION OF FISH AND WILDLIFE
STREAM HABITAT EVALUATION FORM**

STREAM: Laughery Creek RIVER MILE: 29.4

NEAREST TOWN: Friendship COUNTY: Ripley

QUADRANGLE: Cross Plains, IN 1959 TWP: 6N RNG: 12E SEC: 11

LATITUDE: Top of station: N 38.98697346 LONGITUDE: Top of station: W -85.15868314

LATITUDE: Bottom of station: N 38.98514863 LONGITUDE: Bottom of station: W -85.16189282

U.S.G.S. GAUGING STATION LOCATIONS: RM 18.38; RM 43.44; RM 67.46 AVG. DISCHARGE (cfs): 183-188

IS REACH REPRESENTATIVE OF STREAM (Y/N) Y IF NOT, WHY? _____

DESCRIPTION OF SAMPLE SITE (Access, length, direction sampled): Access over left bank from Cave Hill Road at angler pull-off immediately north of Connell Cemetery. Station started approximately 600 ft downstream and stopped approximately 400 ft upstream of access point. Station was sampled back and forth across the stream in upstream direction.

COLLECTION SUMMARY

DATE: October 10, 2006 GEAR: DC tote barge EFFORT: 3,960 seconds

CREW: L. Lehman, C. Kowalik, R. Carter

OTHER GEAR/EFFORT: None WATER STAGE: Slightly low*

CANOPY (%OPEN): ----- PHOTOS (Y/N): Y SECCHI DISK (inches): 66

AIR TEMP (F): 77 WATER TEMP (F): 68 D.O. (ppm): 14.34

CONDUCTIVITY: 300 micromhos/cm pH: 8.0 ALKALINITY: 188-205

TDS: 201 mg/L

STREAM MEASUREMENTS AVG. WIDTH: 98 ft AVG. DEPTH: 28 in (2.3 ft) MAX DEPTH: 5.5 ft

STATION LENGTH: (1st date) 997 ft (2nd date) -----

| WIDTH (ft) | DEPTH (in) | | |
|------------|------------|----|----|
| 66 | 40 | 66 | 60 |
| 94 | 14 | 24 | 17 |
| 120 | 6 | 16 | 17 |
| 120 | 38 | 43 | 48 |
| 90 | 16 | 6 | 10 |
| | | | |

GPS waypoint at station midpoint: N 38.98654698 W -85.16047603



 SUBJECTIVE RATING (1-10) AESTHETIC RATING (1-10)

ADDITIONAL COMMENTS/POLLUTION IMPACTS: *Stream level slightly below normal due to widespread drought.

Two small areas of this station were too deep to sample completely.

DATE: October 10, 2006

STATION: RM 29.4

NAME OF STREAM: Laughery Creek

NAME, NUMBER, PERCENTAGE, SIZE, AND WEIGHT OF FISHES COLLECTED

| COMMON NAME | NUMBER | PERCENTAGE | SIZE RANGE (INCHES) | TOTAL WEIGHT (POUNDS) | PERCENTAGE |
|---------------------------|------------|--------------|------------------------|--------------------------|--------------|
| Longear sunfish | 186 | 33.1 | 1.3-5.6 | 3.55 | 5.3 |
| Bluntnose minnow | 40 | 7.1 | 1.4-3.1 | 0.14 | 0.2 |
| Rock bass | 37 | 6.6 | 1.6-8.3 | 3.07 | 4.6 |
| Central stoneroller | 29 | 5.2 | 2.2-5.5 | 0.62 | 0.9 |
| Gizzard shad | 28 | 5.0 | 7.0-10.8 | 4.66 | 6.9 |
| Greenside darter | 25 | 4.4 | 1.8-3.4 | 0.17 | 0.3 |
| Black redhorse | 24 | 4.3 | 2.4-14.8 | 4.10 | 6.1 |
| Golden redhorse | 23 | 4.1 | 2.0-14.8 | 6.56 | 9.8 |
| Spotted bass | 23 | 4.1 | 2.3-14.1 | 3.68 | 5.5 |
| Steelcolor shiner | 19 | 3.4 | 2.1-3.7 | 0.16 | 0.2 |
| Northern hog sucker | 17 | 3.0 | 2.3-8.5 | 1.08 | 1.6 |
| Rainbow darter | 17 | 3.0 | 1.7-2.0 | 0.05 | 0.1 |
| Logperch | 16 | 2.8 | 2.7-5.3 | 0.35 | 0.5 |
| Bluegill | 12 | 2.1 | 1.2-4.0 | 0.17 | 0.3 |
| Brindled madtom | 10 | 1.8 | 1.8-3.2 | 0.07 | 0.1 |
| Silver redhorse | 6 | 1.1 | 2.6-8.2 | 0.56 | 0.8 |
| Banded darter | 6 | 1.1 | 1.3-1.9 | 0.01 | <0.1 |
| Common carp | 5 | 0.9 | 21.0-27.7 | 35.25 | 52.5 |
| Green sunfish | 4 | 0.7 | 3.7-4.5 | 0.20 | 0.3 |
| Smallmouth bass | 4 | 0.7 | 3.0-6.2 | 0.14 | 0.2 |
| Striped shiner | 4 | 0.7 | 2.1-3.1 | 0.03 | <0.1 |
| Largemouth bass | 3 | 0.5 | 7.2-9.0 | 0.80 | 1.2 |
| Longnose gar | 3 | 0.5 | 13.0-14.6 | 0.47 | 0.7 |
| Shorthead redhorse | 3 | 0.5 | 3.3-8.5 | 0.23 | 0.3 |
| Silver shiner | 3 | 0.5 | 2.6-2.7 | 0.02 | <0.1 |
| Fantail darter | 3 | 0.5 | 2.0-2.1 | 0.01 | <0.1 |
| Stonecat | 2 | 0.4 | 2.6-5.2 | 0.05 | 0.1 |
| Spotfin shiner | 2 | 0.4 | 1.7-2.2 | 0.01 | <0.1 |
| White crappie | 1 | 0.2 | 9.8 | 0.46 | 0.7 |
| Quillback | 1 | 0.2 | 8.3 | 0.25 | 0.4 |
| Highfin carpsucker | 1 | 0.2 | 6.3 | 0.10 | 0.1 |
| Yellow bullhead | 1 | 0.2 | 5.5 | 0.07 | 0.1 |
| Slenderhead darter | 1 | 0.2 | 3.2 | 0.01 | <0.1 |
| Spotted sucker | 1 | 0.2 | 2.6 | 0.01 | <0.1 |
| Johnny darter | 1 | 0.2 | 1.7 | <0.01 | <0.1 |
| Scarlet shiner | 1 | 0.2 | 2.0 | <0.01 | <0.1 |
| Total - 36 species | 562 | 100.0 | | 67.11 | 100.0 |

STREAM: Laughery Creek RIVER MILE 29.4 DATE: October 10, 2006 QHEI SCORE **77.8**

1) SUBSTRATE: (Check ONLY Two Substrate Type Boxes: Check all types present)(20) SUBSTRATE SCORE **18**

| TYPE | | POOL | | RIFFLE | | POOL | | RIFFLE | | SUBSTRATE ORIGIN (all) | | SILT COVER (one) | | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|-------------------------------------|--------------------------|-------------------------------------|-------------------------------------|-------------------------------------|--------------------------|------------------------------------|--------------------------|-------------------------------------|----------------|--------------------------|--------------|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | | | |
| | BOLDER/SLAB(10) | | | | | | GRAVEL(7) | X | X | X | LIMESTONE(1) | <input type="checkbox"/> | RIP/RAP(0) | <input type="checkbox"/> | SILT-HEAVY(-2) | <input type="checkbox"/> | SILT-MOD(-1) |
| | BOULDER(9) | | | | | | SAND(6) | | X | X | TILLS(1) | <input type="checkbox"/> | HARD PAN(0) | X | SILT-NORM(0) | <input type="checkbox"/> | SILT-FREE(1) |
| X | COBBLE(8) | X | X | | | | BEDROCK(5) | | X | | SANDSTONE(0) | Extent of Embeddedness (check one) | | | | | |
| | HARD PAN(4) | | | | | | DETRITUS(3) | | | | SHALE(-1) | <input type="checkbox"/> | EXTENSIVE(-2) | <input checked="" type="checkbox"/> | MODERATE(-1) | | |
| | MUCK/SILT(2) | | | | | | ARTIFIC(0) | | | | COAL FINES(-2) | <input type="checkbox"/> | SPARSE(0) | <input type="checkbox"/> | LOW(1) | | |

TOTAL NUMBER OF SUBSTRATE TYPES: >4(2) <4(0)

NOTE: (Ignore sludge that originates from point sources: score is based on natural substrates)

COMMENTS: 8+7+2+2+0-1= 18

2) INSTREAM COVER: (20) COVER SCORE **12**

| TYPE (Check all that apply) | | | | AMOUNT (Check only one or Check 2 and AVERAGE) | |
|-----------------------------|-----------------------------|-------------------------------------|-------------------------|------------------------------------------------|----------------------|
| <input type="checkbox"/> | UNDERCUT BANKS(1) | <input checked="" type="checkbox"/> | DEEP POOLS(2) | <input type="checkbox"/> | EXTENSIVE >75%(11) |
| <input type="checkbox"/> | OVERHANGING VEGETATION(1) | <input type="checkbox"/> | ROOT WADS(1) | X | MODERATE 25-75%(7) |
| X | SHALLOWS (IN SLOW WATER)(1) | X | BOULDERS(1) | <input type="checkbox"/> | SPARSE 5-25%(3) |
| | | <input type="checkbox"/> | OXBOWS(1) | <input type="checkbox"/> | NEARLY ABSENT <5%(1) |
| | | X | AQUATIC MACROPHYTES(1) | | |
| | | <input type="checkbox"/> | LOGS OR WOODY DEBRIS(1) | | |

COMMENTS: 1+2+1+1+7= 12 american waterwillow

3) CHANNEL MORPHOLOGY: (Check ONLY ONE per Category or Check 2 and AVERAGE)(20) CHANNEL SCORE **14**

| SINUOSITY | DEVELOPMENT | CHANNELIZATION | STABILITY | MODIFICATION/OTHER | | | | | |
|--------------------------|-------------|-------------------------------------|--------------------------|--------------------------|-------------|--------------------------|-------------------------------|--------------------------|--------------|
| <input type="checkbox"/> | HIGH(4) | <input checked="" type="checkbox"/> | NONE(6) | <input type="checkbox"/> | HIGH(3) | <input type="checkbox"/> | SNAGGING | <input type="checkbox"/> | IMPOUND |
| <input type="checkbox"/> | MODERATE(3) | <input type="checkbox"/> | RECOVERED(4) | X | MODERATE(2) | <input type="checkbox"/> | RELOCATION | <input type="checkbox"/> | ISLAND |
| <input type="checkbox"/> | LOW(2) | <input type="checkbox"/> | RECOVERING(3) | <input type="checkbox"/> | LOW(1) | <input type="checkbox"/> | CANOPY REMOVAL | <input type="checkbox"/> | LEVEED |
| X | NONE(1) | <input type="checkbox"/> | RECENT OR NO RECOVERY(1) | | | <input type="checkbox"/> | DREDGING | <input type="checkbox"/> | BANK SHAPING |
| | | | | | | <input type="checkbox"/> | ONE SIDE CHANNEL MODIFICATION | | |

COMMENTS: 1,5,6,2,=14

4) RIPARIAN ZONE AND BANK EROSION: (Check ONE box or Check 2 and AVERAGE per bank) (10) RIPARIAN SCORE **6.8**

River Right Looking Downstream

| RIPARIAN WIDTH (per bank) | | EROSION/RUNOFF-FLOODPLAIN QUALITY | | | | BANK EROSION | |
|---------------------------|-------------------------|-----------------------------------|-------------------------------|--------------------------|------------------------|--------------------------|--------------------|
| L | R (per bank) | L | R (most predominant per bank) | L | R (per bank) | L | R (per bank) |
| X | WIDE >150ft.(4) | X | FOREST, SWAMP(3) | <input type="checkbox"/> | URBAN OR INDUSTRIAL(0) | <input type="checkbox"/> | NONE OR LITTLE(3) |
| | MODERATE 30-150 ft.(3) | X | OPEN PASTURE/ROW CROP(0) | <input type="checkbox"/> | SHRUB OR OLD FIELD(2) | X | MODERATE(2) |
| | NARROW 15-30 ft.(2) | | RESID., PARK, NEW FIELD(1) | <input type="checkbox"/> | CONSERV. TILLAGE(1) | <input type="checkbox"/> | HEAVY OR SEVERE(1) |
| | VERY NARROW 3-15 ft.(1) | | FENCED PASTURE(1) | <input type="checkbox"/> | MINING/CONSTRUCTION(0) | | |
| | NONE(0) | | | | | | |

COMMENTS: RW=4, 2.5/2=3.25 FQ= 3,0/2=1.5 BE=4/2=2 RS=3.25+1.5+2=6.75=6.8

5) POOL/GLIDE AND RIFFLE/RUN QUALITY (12) **NO POOL = 0** POOL SCORE **11**

| MAX. DEPTH (Check 1) | MORPHOLOGY (Check 1) | POOL/RUN/RIFFLE CURRENT VELOCITY (Check all that Apply) | | | | | |
|----------------------|----------------------|---------------------------------------------------------|------------------------------|--------------------------|----------------|--------------------------|------------------|
| X | >4 ft.(6) | X | POOL WIDTH > RIFFLE WIDTH(2) | <input type="checkbox"/> | TORRENTIAL(-1) | X | EDDIES(1) |
| | 2-4 ft.(4) | <input type="checkbox"/> | POOL WIDTH = RIFFLE WIDTH(1) | <input type="checkbox"/> | FAST(1) | <input type="checkbox"/> | INTERSTITIAL(-1) |
| | 1.2-2.4 ft.(2) | <input type="checkbox"/> | POOL WIDTH < RIFFLE WIDTH(0) | X | MODERATE(1) | <input type="checkbox"/> | INTERMITTENT(-2) |
| | <1.2 ft.(1) | | | X | SLOW(1) | | |
| | <0.6 ft.(Pool=0)(0) | | | | | | |

COMMENTS: 6,2,1,1,1=11

RIFFLE SCORE **6**

| RIFFLE/RUN DEPTH | RIFFLE/RUN SUBSTRATE | RIFFLE/RUN EMBEDDEDNESS | | | | | |
|--------------------------|---------------------------------|--------------------------|-----------------------------------|--------------------------|---------------|-------------------------------------|--------------|
| <input type="checkbox"/> | GENERALLY >4 in. MAX >20 in.(4) | X | STABLE (e.g., Cobble, Boulder)(2) | <input type="checkbox"/> | EXTENSIVE(-1) | <input type="checkbox"/> | LOW(2) |
| X | GENERALLY >4 in. MAX <20 in.(3) | <input type="checkbox"/> | MOD. STABLE (e.g., Pea Gravel)(1) | <input type="checkbox"/> | MODERATE(0) | <input checked="" type="checkbox"/> | NO RIFFLE(0) |
| <input type="checkbox"/> | GENERALLY 2-4 in.(1) | <input type="checkbox"/> | UNSTABLE (Gravel, Sand)(0) | X | SPARSE(1) | | |
| <input type="checkbox"/> | GENERALLY <2 in. (Riffe=0)(0) | <input type="checkbox"/> | NO RIFFLE(0) | | | | |

COMMENTS: 3,2,1=6 50 to 100 ft of riffles, lots of knee-deep run present

6) GRADIENT (FEET/MILE)(10) 9.1 % POOL _____ % RIFFLE _____ % Run _____ GRADIENT SCORE **10**

**INDIANA DIVISION OF FISH AND WILDLIFE
STREAM HABITAT EVALUATION FORM**

STREAM: Laughery Creek RIVER MILE: 40.1

NEAREST TOWN: Versailles COUNTY: Ripley

QUADRANGLE: Milan, IN 1961 TWP: 7N RNG: 12E SEC: 19

LATITUDE: Top of station: N 39.04138693 LONGITUDE: Top of station: W -85.22450019

LATITUDE: Bottom of station: N 39.03826618 LONGITUDE: Bottom of station: W -85.22550903

U.S.G.S. GAUGING STATION LOCATIONS: RM 18.38; RM 43.44; RM 67.46 AVG. DISCHARGE (cfs): 168-180

IS REACH REPRESENTATIVE OF STREAM (Y/N) Y IF NOT, WHY? _____

DESCRIPTION OF SAMPLE SITE (Access, length, direction sampled): Access at ford on County Road 250 South.

Station started approximately 720 ft below ford and ended approximately 480 ft above ford.

Station was sampled back and forth across the stream in upstream direction.

COLLECTION SUMMARY

DATE: October 6, 2006 GEAR: DC tote barge EFFORT: 4,680 seconds

CREW: L. Lehman, C. Kowalik, W. Zak

OTHER GEAR/EFFORT: None WATER STAGE: Slightly low*

CANOPY (%OPEN): ----- PHOTOS (Y/N): Y SECCHI DISK (inches): 44

AIR TEMP (F): 60 WATER TEMP (F): 63 D.O. (ppm): 9.00

CONDUCTIVITY: 260 micromhos/cm pH: 7.8 ALKALINITY: 171-188

TDS: 174 mg/L

STREAM MEASUREMENTS AVG. WIDTH: ~86.5 ft AVG. DEPTH: ~16 in (1.3 ft) MAX DEPTH: 4.2 ft

STATION LENGTH: (1st date) 1,200 ft (2nd date) -----

WIDTH (ft)

DEPTH (in)

GPS waypoint at station midpoint: N 39.03981507 W -85.22551565

| WIDTH (ft) | DEPTH (in) | DEPTH (in) | DEPTH (in) |
|------------|------------|------------|------------|
| --- | --- | --- | --- |
| 86 | 26 | 30 | 10 |
| 95 | 7 | 12 | 10 |
| 100 | 12 | 19 | 17 |
| 65 | 19 | 19 | 12 |
| | | | |



SUBJECTIVE
RATING
(1-10)



AESTHETIC
RATING
(1-10)

ADDITIONAL COMMENTS/POLLUTION IMPACTS: *Stream level slightly below normal due to widespread drought.

One hole in upper end of station was too deep to sample completely.

DATE: October 6, 2006

STATION: RM 40.1

NAME OF STREAM: Laughery Creek

NAME, NUMBER, PERCENTAGE, SIZE, AND WEIGHT OF FISHES COLLECTED

| COMMON NAME | NUMBER | PERCENTAGE | SIZE RANGE (INCHES) | TOTAL WEIGHT (POUNDS) | PERCENTAGE |
|----------------------------------------|--------|------------|------------------------|--------------------------|------------|
| Longear sunfish | 629 | 54.9 | 1.2-5.5 | 15.47 | 19.3 |
| Central stoneroller | 78 | 6.8 | 2.0-5.6 | 1.67 | 2.1 |
| Northern hog sucker | 76 | 6.6 | 2.7-13.6 | 18.46 | 23.0 |
| Rock bass | 50 | 4.4 | 2.1-9.3 | 11.91 | 14.8 |
| Green sunfish | 38 | 3.3 | 2.2-6.0 | 1.51 | 1.9 |
| Steelcolor shiner | 36 | 3.1 | 1.7-3.8 | 0.28 | 0.3 |
| Bluntnose minnow | 35 | 3.1 | 1.6-3.1 | 0.15 | 0.2 |
| Spotted bass | 32 | 2.8 | 2.2-13.4 | 7.60 | 9.5 |
| Striped shiner | 23 | 2.0 | 2.5-6.5 | 1.02 | 1.3 |
| Black redhorse | 21 | 1.8 | 6.0-13.9 | 8.00 | 10.0 |
| Greenside darter | 18 | 1.6 | 2.9-3.7 | 0.21 | 0.3 |
| Golden redhorse | 15 | 1.3 | 5.5-13.0 | 4.35 | 5.4 |
| Logperch | 13 | 1.1 | 4.0-5.3 | 0.36 | 0.4 |
| Smallmouth bass | 12 | 1.0 | 2.6-14.3 | 2.99 | 3.7 |
| Fantail darter | 12 | 1.0 | 1.7-2.4 | 0.04 | <0.1 |
| Bluegill | 9 | 0.8 | 2.0-3.4 | 0.10 | 0.1 |
| Spotfin shiner | 8 | 0.7 | 2.1-3.2 | 0.06 | 0.1 |
| Gizzard shad | 5 | 0.4 | 3.1-8.1 | 0.51 | 0.6 |
| Rainbow darter | 5 | 0.4 | 1.9-2.4 | 0.03 | <0.1 |
| Spotted sucker | 4 | 0.3 | 2.9-6.1 | 0.09 | 0.1 |
| Silver shiner | 4 | 0.3 | 2.9-4.3 | 0.05 | 0.1 |
| Sauger | 3 | 0.3 | 11.8-14.0 | 2.08 | 2.6 |
| Brindled madtom | 3 | 0.3 | 3.2-3.8 | 0.05 | 0.1 |
| Flathead catfish | 2 | 0.2 | 11.7-12.2 | 1.22 | 1.5 |
| White crappie | 2 | 0.2 | 8.8-8.9 | 0.66 | 0.8 |
| Shorthead redhorse | 2 | 0.2 | 8.6-9.5 | 0.48 | 0.6 |
| Largemouth bass | 2 | 0.2 | 5.3-9.3 | 0.45 | 0.6 |
| Silver redhorse | 2 | 0.2 | 5.8-6.3 | 0.16 | 0.2 |
| Brook silverside | 2 | 0.2 | 2.4-2.6 | 0.01 | <0.1 |
| Johnny darter | 2 | 0.2 | 1.8-2.0 | <0.01 | <0.1 |
| Hybrid sunfish (BLG x GSF) | 1 | 0.1 | 6.5 | 0.20 | 0.2 |
| Stonecat | 1 | 0.1 | 6.1 | 0.09 | 0.1 |
| Western mosquitofish | 1 | 0.1 | 1.6 | <0.01 | <0.1 |
| Total - 33 species and 1 hybrid | 1146 | 100.0 | | 80.26 | 100.0 |

STREAM: Laughery Creek RIVER MILE 40.1 DATE: October 6, 2006 QHEI SCORE **83.8**

1) SUBSTRATE: (Check ONLY Two Substrate Type Boxes: Check all types present)(20) SUBSTRATE SCORE **20**

| | | | | | | | | | | | | | |
|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|--------------------------|--------------------------|-------------------------------------|-------------------------------------|-------------------------------------|--------------------------|--------------------------|--------------------------|-------------------------------------|--------------------------|
| TYPE | | POOL | | RIFFLE | | POOL | | RIFFLE | | SUBSTRATE ORIGIN (all) | | SILT COVER (one) | |
| <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

TOTAL NUMBER OF SUBSTRATE TYPES: >4(2) <4(0)

NOTE: (Ignore sludge that originates from point sources: score is based on natural substrates)

COMMENTS: 8,8,2,1,1=20

2) INSTREAM COVER: (20) COVER SCORE **16**

| | | | | | | | |
|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|------------------------------------------------|--------------------------|--------------------------|--------------------------|
| TYPE (Check all that apply) | | | | AMOUNT (Check only one or Check 2 and AVERAGE) | | | |
| <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

COMMENTS: 1,2,1,1,11=16 American waterwillow

3) CHANNEL MORPHOLOGY: (Check ONLY ONE per Category or Check 2 and AVERAGE)(20) CHANNEL SCORE **14**

| | | | | | | | | | |
|-------------------------------------|--------------------------|-------------------------------------|--------------------------|-------------------------------------|--------------------------|-------------------------------------|--------------------------|--------------------------|--------------------------|
| SINUOSITY | | DEVELOPMENT | | CHANNELIZATION | | STABILITY | | MODIFICATION/OTHER | |
| <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

COMMENTS: 1,5,6,2,=14

4) RIPARIAN ZONE AND BANK EROSION: (Check ONE box or Check 2 and AVERAGE per bank) (10) RIPARIAN SCORE **5.8**

River Right Looking Downstream

| | | | | | | | |
|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|--------------------------|--------------------------|-------------------------------------|-------------------------------------|
| RIPARIAN WIDTH (per bank) | | EROSION/RUNOFF-FLOODPLAIN QUALITY | | | | BANK EROSION | |
| L | R (per bank) | L | R (most predominant per bank) | L | R (per bank) | L | R (per bank) |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

COMMENTS: RW=3.5,2.5/2=3.0 FQ= 0,1.5/2=0.75 BE=2,2/2=2 RS=3.0+0.75+2=5.75=5.8

5) POOL/GLIDE AND RIFFLE/RUN QUALITY (12) **NO POOL = 0** POOL SCORE **11**

| | | | | | |
|-------------------------------------|--------------------------|-------------------------------------|--------------------------|---------------------------------------------------------|-------------------------------------|
| MAX. DEPTH (Check 1) | | MORPHOLOGY (Check 1) | | POOL/RUN/RIFFLE CURRENT VELOCITY (Check all that Apply) | |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

COMMENTS: 6,2,1,1,1=11

RIFFLE SCORE **7**

| | | | | | |
|-------------------------------------|--------------------------|-------------------------------------|--------------------------|-------------------------------------|--------------------------|
| RIFFLE/RUN DEPTH | | RIFFLE/RUN SUBSTRATE | | RIFFLE/RUN EMBEDDEDNESS | |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

COMMENTS: 4,2,1,=7

6) GRADIENT (FEET/MILE)(10) 5.6 % POOL _____ % RIFFLE _____ % Run _____ GRADIENT SCORE **10**

**INDIANA DIVISION OF FISH AND WILDLIFE
STREAM HABITAT EVALUATION FORM**

STREAM: Laughery Creek RIVER MILE: 49.8
 NEAREST TOWN: Osgood COUNTY: Ripley
 QUADRANGLE: Milan, IN 1961 TWP: 8N RNG: 11E SEC: 24
 LATITUDE: Top of station: N 39.11970148 LONGITUDE: Top of station: W -85.24659907
 LATITUDE: Bottom of station: N 39.11817614 LONGITUDE: Bottom of station: W -85.24972636
 U.S.G.S. GAUGING STATION LOCATIONS: RM 18.38; RM 43.44; RM 67.46 AVG. DISCHARGE (cfs): 143-168
 IS REACH REPRESENTATIVE OF STREAM (Y/N) Y IF NOT, WHY? _____


DESCRIPTION OF SAMPLE SITE (Access, length, direction sampled): Access to station from right bank graciously granted by landowner Jim Bultman. The station, which was approximately 1,300 ft long, was sampled back and forth across the stream in upstream direction.

COLLECTION SUMMARY


DATE: October 4, 2006 GEAR: DC tote barge EFFORT: 4,740 seconds
 CREW: L. Lehman, C. Kowalik, W. Zak
 OTHER GEAR/EFFORT: None WATER STAGE: Slightly low*
 CANOPY (%OPEN): ----- PHOTOS (Y/N): Y SECCHI DISK (inches): 40
 AIR TEMP (F): 76 WATER TEMP (F): 69 D.O. (ppm): 9.72
 CONDUCTIVITY: 360 micromhos/cm pH: 8.0 ALKALINITY: 205-222
 TDS: 241 mg/L
 STREAM MEASUREMENTS AVG. WIDTH: 55 ft AVG. DEPTH: 13 in (1.1 ft) MAX DEPTH: 4.7 ft
 STATION LENGTH: (1st date) 1,300 ft (2nd date) -----

GPS waypoint at station midpoint: N 39.11956259 W -85.24887728

| WIDTH (ft) | DEPTH (in) | | |
|------------|------------|----|----|
| 33 | 2 | 0 | 6 |
| 58 | 14 | 11 | 7 |
| 53 | 18 | 14 | 12 |
| 56 | 24 | 25 | 18 |
| 73 | 12 | 24 | 12 |
| | | | |



SUBJECTIVE
RATING
(1-10)



AESTHETIC
RATING
(1-10)

ADDITIONAL COMMENTS/POLLUTION IMPACTS: *Stream level slightly below normal due to widespread drought.
Top of station was at bottom of riffle approximately 270 ft below the mouth of intermittent tributary on right bank. Bottom of station started at ford/riffle 1,300 ft downstream. Two small areas of this station were too deep to sample completely.

NAME OF STREAM: Laughery Creek

NAME, NUMBER, PERCENTAGE, SIZE, AND WEIGHT OF FISHES COLLECTED

| COMMON NAME | NUMBER | PERCENTAGE | SIZE RANGE (INCHES) | TOTAL WEIGHT (POUNDS) | PERCENTAGE |
|---------------------------|--------|------------|------------------------|--------------------------|------------|
| Longear sunfish | 405 | 33.1 | 1.1-5.5 | 8.52 | 9.4 |
| Northern hog sucker | 128 | 10.5 | 2.5-14.1 | 16.96 | 18.7 |
| Bluntnose minnow | 112 | 9.2 | 1.4-3.3 | 0.54 | 0.6 |
| Golden redhorse | 94 | 7.7 | 2.2-17.4 | 27.70 | 30.6 |
| Green sunfish | 72 | 5.9 | 1.6-7.0 | 2.65 | 2.9 |
| Steelcolor shiner | 64 | 5.2 | 1.2-3.3 | 0.35 | 0.4 |
| Greenside darter | 58 | 4.7 | 2.1-3.5 | 0.51 | 0.6 |
| Rock bass | 41 | 3.4 | 4.0-9.5 | 6.05 | 6.7 |
| Black redhorse | 33 | 2.7 | 4.5-14.7 | 11.49 | 12.7 |
| Logperch | 30 | 2.5 | 2.5-5.3 | 0.66 | 0.7 |
| Gizzard shad | 25 | 2.0 | 6.9-10.5 | 4.19 | 4.6 |
| Silverjaw minnow | 25 | 2.0 | 2.0-3.0 | 0.14 | 0.2 |
| Stonecat | 24 | 2.0 | 2.3-6.6 | 0.92 | 1.0 |
| Smallmouth bass | 22 | 1.8 | 2.9-12.8 | 4.07 | 4.5 |
| Spotted bass | 20 | 1.6 | 2.9-8.0 | 0.68 | 0.8 |
| Silver shiner | 10 | 0.8 | 2.5-4.5 | 0.10 | 0.1 |
| Yellow bullhead | 8 | 0.7 | 5.2-9.0 | 1.65 | 1.8 |
| Bluegill | 7 | 0.6 | 1.3-3.1 | 0.05 | 0.1 |
| White crappie | 6 | 0.5 | 7.0-8.5 | 1.11 | 1.2 |
| Central stoneroller | 6 | 0.5 | 2.2-3.6 | 0.07 | 0.1 |
| Scarlet shiner | 5 | 0.4 | 2.2-2.4 | 0.02 | <0.1 |
| Striped shiner | 4 | 0.3 | 2.1-5.0 | 0.07 | 0.1 |
| Suckermouth minnow | 4 | 0.3 | 2.3-3.5 | 0.05 | 0.1 |
| Slenderhead darter | 4 | 0.3 | 2.8-3.3 | 0.04 | <0.1 |
| Brindled madtom | 3 | 0.2 | 1.9-3.7 | 0.05 | 0.1 |
| Largemouth bass | 2 | 0.2 | 2.8-9.0 | 0.28 | 0.3 |
| Channel catfish | 2 | 0.2 | 2.1-3.0 | 0.02 | <0.1 |
| Orangespotted sunfish | 2 | 0.2 | 1.6-2.9 | 0.02 | <0.1 |
| Fantail darter | 2 | 0.2 | 1.8 | 0.01 | <0.1 |
| Flathead catfish | 1 | 0.1 | 15.5 | 1.45 | 1.6 |
| Quillback | 1 | 0.1 | 6.5 | 0.11 | 0.1 |
| Warmouth | 1 | 0.1 | 4.3 | 0.05 | 0.1 |
| Creek chub | 1 | 0.1 | 2.0 | 0.01 | 0.0 |
| Johnny darter | 1 | 0.1 | 2.0 | <0.01 | <0.1 |
| Total - 34 species | 1,223 | 100.0 | | 90.59 | 100.0 |

1) SUBSTRATE: (Check ONLY Two Substrate Type Boxes: Check all types present)(20) SUBSTRATE SCORE **20**

| | | | | | | | | | | | | | |
|-----------------------------------------------------------------------------------------------------------|--------------------------|-------------------------------------|-------------------------------------|--------------------------|--------------------------|--------------------------|-------------------------------------|-------------------------------------|--------------------------|-------------------------------------|--------------------------|-------------------------------------|--------------------------|
| TYPE | | POOL | | RIFFLE | | POOL | | RIFFLE | | SUBSTRATE ORIGIN (all) | | SILT COVER (one) | |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Extent of Embeddedness (check one) | |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| TOTAL NUMBER OF SUBSTRATE TYPES: <input checked="" type="checkbox"/> >4(2) <input type="checkbox"/> <4(0) | | | | | | | | | | | | | |

NOTE: (Ignore sludge that originates from point sources: score is based on natural substrates)

COMMENTS: 10,9,2,1,1=23 maximum score =20

2) INSTREAM COVER: (20) COVER SCORE **12**

| | | | | | |
|-------------------------------------|-------------------------------------|-------------------------------------|------------------------------------------------|-------------------------------------|--------------------------|
| TYPE (Check all that apply) | | | AMOUNT (Check only one or Check 2 and AVERAGE) | | |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

COMMENTS: 1,2,1,1,7=12

3) CHANNEL MORPHOLOGY: (Check ONLY ONE per Category or Check 2 and AVERAGE)(20) CHANNEL SCORE **14**

| | | | | |
|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|---------------------------|
| <u>SINUOSITY</u> | <u>DEVELOPMENT</u> | <u>CHANNELIZATION</u> | <u>STABILITY</u> | <u>MODIFICATION/OTHER</u> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

COMMENTS: 2,4,6,2=14

4) RIPARIAN ZONE AND BANK EROSION: (Check ONE box or Check 2 and AVERAGE per bank) (10) RIPARIAN SCORE **9**

River Right Looking Downstream

| | | |
|-------------------------------------|------------------------------------------|-------------------------------------|
| <u>RIPARIAN WIDTH (per bank)</u> | <u>EROSION/RUNOFF-FLOODPLAIN QUALITY</u> | <u>BANK EROSION</u> |
| L R (per bank) | L R (most predominant per bank) | L R (per bank) |
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

COMMENTS: RW=4,4/2=4 FQ= 3,3/2=3 BE=2,2/2=2 RS=4+3+2=9

5) POOL/GLIDE AND RIFFLE/RUN QUALITY (12) **NO POOL = 0** POOL SCORE **10**

| | | |
|-------------------------------------|-------------------------------------|----------------------------------------------------------------|
| <u>MAX. DEPTH (Check 1)</u> | <u>MORPHOLOGY (Check 1)</u> | <u>POOL/RUN/RIFFLE CURRENT VELOCITY (Check all that Apply)</u> |
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

COMMENTS: 6,2,1,1=10

RIFFLE SCORE **4**

| | | |
|-------------------------------------|-------------------------------------|-------------------------------------|
| <u>RIFFLE/RUN DEPTH</u> | <u>RIFFLE/RUN SUBSTRATE</u> | <u>RIFFLE/RUN EMBEDDEDNESS</u> |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

COMMENTS: 1,2,1=4

6) GRADIENT (FEET/MILE)(10) 8.8 % POOL _____ % RIFFLE _____ % Run _____ GRADIENT SCORE **10**

**INDIANA DIVISION OF FISH AND WILDLIFE
STREAM HABITAT EVALUATION FORM**

STREAM: Laughery Creek RIVER MILE: 53.8

NEAREST TOWN: Osgood COUNTY: Ripley

QUADRANGLE: Osgood, IN 1961 TWP: 8N RNG: 11E SEC: 12

LATITUDE: Top of station: N LONGITUDE: Top of station: W

LATITUDE: Bottom of station: N LONGITUDE: Bottom of station: W

U.S.G.S. GAUGING STATION LOCATIONS: RM 18.38; RM 43.44; RM 67.46 AVG. DISCHARGE (cfs): 122-126

IS REACH REPRESENTATIVE OF STREAM (Y/N) Y IF NOT, WHY? _____

DESCRIPTION OF SAMPLE SITE (Access, length, direction sampled): Access point is located approximately 0.8 mile upstream of SR 350 bridge at a farm ford east of Base Road. Station was sampled in downstream direction on left and right banks.

COLLECTION SUMMARY

DATE: October 12, 2006 GEAR: 16 ft DC shocker boat EFFORT: 3,600 seconds

CREW: L. Lehman, C. Kowalik, C. Gill

OTHER GEAR/EFFORT: Seine haul WATER STAGE: Slightly low*

CANOPY (%OPEN): ----- PHOTOS (Y/N): Y SECCHI DISK (inches): 32

AIR TEMP (F): 46 WATER TEMP (F): 56 D.O. (ppm): 8.20

CONDUCTIVITY: 350 micromhos/cm pH: 7.8 ALKALINITY: 222-239

TDS: 235 mg/L

STREAM MEASUREMENTS AVG. WIDTH: 83 ft AVG. DEPTH: 40 in (3.3 ft) MAX DEPTH: 8.5 ft

STATION LENGTH: (1st date) 2,300 ft (2nd date) -----

WIDTH (ft)

DEPTH (in)

GPS waypoint at station midpoint: N 39.15022745 W -85.25256196

| | | | |
|----|----|----|----|
| 93 | 43 | 42 | 31 |
| 72 | 43 | 34 | 29 |
| 81 | 36 | 31 | 22 |
| 93 | 86 | 60 | 34 |
| 78 | 31 | 38 | 34 |
| | | | |



SUBJECTIVE
RATING
(1-10)



AESTHETIC
RATING
(1-10)

ADDITIONAL COMMENTS/POLLUTION IMPACTS: *Stream level slightly below normal due to widespread drought. Station started at intermittent tributary on left bank in Section 12 and extended 2,300 ft downstream to riffle 270 ft below SR 350 bridge.

Electrofisher settings: 177 volts DC, output mode = 60 pps, and pulse width = 3-4 ms (2-5 amps).

DATE: October 12, 2006

STATION: RM 53.8NAME OF STREAM: Laughery Creek

NAME, NUMBER, PERCENTAGE, SIZE, AND WEIGHT OF FISHES COLLECTED

| COMMON NAME | NUMBER | PERCENTAGE | SIZE RANGE (INCHES) | TOTAL WEIGHT (POUNDS) | PERCENTAGE |
|----------------------------------------|------------|--------------|------------------------|--------------------------|--------------|
| Golden redbhorse | 61 | 16.4 | 4.5-13.6 | 16.94 | 6.9 |
| Longear sunfish | 49 | 13.2 | 2.2-5.2 | 1.92 | 0.8 |
| Gizzard shad | 45 | 12.1 | 3.3-10.4 | 7.31 | 3.0 |
| Spotted bass | 39 | 10.5 | 2.6-11.7 | 4.81 | 2.0 |
| Northern hog sucker | 32 | 8.6 | 4.3-11.2 | 5.16 | 2.1 |
| Common carp | 26 | 7.0 | 17.7-29.0 | 183.68 | 75.0 |
| Bluegill | 26 | 7.0 | 1.7-5.4 | 0.85 | 0.3 |
| Largemouth bass | 20 | 5.4 | 4.5-11.5 | 6.07 | 2.5 |
| Green sunfish | 16 | 4.3 | 2.9-5.8 | 0.72 | 0.3 |
| Black redbhorse | 11 | 3.0 | 4.3-12.5 | 1.71 | 0.7 |
| Rock bass | 10 | 2.7 | 4.0-8.9 | 3.53 | 1.4 |
| White crappie | 6 | 1.6 | 6.9-10.8 | 1.57 | 0.6 |
| Spotted sucker | 6 | 1.6 | 4.8-6.0 | 0.30 | 0.1 |
| Bluntnose minnow | 5 | 1.3 | 1.0-1.5 | 0.01 | <0.1 |
| Smallmouth bass | 3 | 0.8 | 12.2-16.2 | 4.15 | 1.7 |
| Logperch | 3 | 0.8 | 3.8-4.5 | 0.07 | <0.1 |
| Redear sunfish | 3 | 0.8 | 2.6-3.8 | 0.06 | <0.1 |
| Quillback | 2 | 0.5 | 14.0-14.8 | 2.49 | 1.0 |
| Hybrid sunfish | 2 | 0.5 | 4.6-5.5 | 0.16 | 0.1 |
| Brook silverside | 2 | 0.5 | 2.8-3.0 | 0.01 | <0.1 |
| Channel catfish | 1 | 0.3 | 16.5 | 1.35 | 0.6 |
| Highfin carpsucker | 1 | 0.3 | 12.9 | 0.90 | 0.4 |
| River carpsucker | 1 | 0.3 | 12.4 | 0.85 | 0.3 |
| White sucker | 1 | 0.3 | 8.7 | 0.22 | 0.1 |
| Steelcolor shiner | 1 | 0.3 | 2.1 | <0.01 | <0.1 |
| Total - 25 species and 1 hybrid | 372 | 100.0 | | 244.84 | 100.0 |

1) SUBSTRATE: (Check ONLY Two Substrate Type Boxes: Check all types present)(20) SUBSTRATE SCORE **13**

| | | | | | | | | | | | | | |
|-----------------------------------------------------------------|--------------------------|-------------------------------------------|--------------------------|--------------------------|--------------------------|-------------------------------------|--------------------------|-------------------------------------|--------------------------|-------------------------------------|--------------------------|------------------------------------|-------------------------------------|
| TYPE | | POOL | | RIFFLE | | POOL | | RIFFLE | | SUBSTRATE ORIGIN (all) | | SILT COVER (one) | |
| <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Extent of Embeddedness (check one) | |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| TOTAL NUMBER OF SUBSTRATE TYPES: <input type="checkbox"/> >4(2) | | <input checked="" type="checkbox"/> <4(0) | | | | | | | | | | | |

NOTE: (Ignore sludge that originates from point sources; score is based on natural substrates)

COMMENTS: Hard to evaluate substrates because stream was deep and turbid. 8,6,1,-1,-1=13

2) INSTREAM COVER: (20) COVER SCORE **11**

| | | | | | |
|-------------------------------------|-------------------------------------|-------------------------------------|------------------------------------------------|-------------------------------------|--------------------------|
| TYPE (Check all that apply) | | | AMOUNT (Check only one or Check 2 and AVERAGE) | | |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

COMMENTS: 1,2,1,7=11

3) CHANNEL MORPHOLOGY: (Check ONLY ONE per Category or Check 2 and AVERAGE)(20) CHANNEL SCORE **13**

| | | | | |
|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|---------------------------|
| <u>SINUOSITY</u> | <u>DEVELOPMENT</u> | <u>CHANNELIZATION</u> | <u>STABILITY</u> | <u>MODIFICATION/OTHER</u> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

COMMENTS: Riffle at station's end may have been modified in the past to increase pool's depth for a water utility pump house within station.

4) RIPARIAN ZONE AND BANK EROSION: (Check ONE box or Check 2 and AVERAGE per bank) (10) RIPARIAN SCORE **5.3**

River Right Looking Downstream

| | | |
|-------------------------------------|------------------------------------------|-------------------------------------|
| <u>RIPARIAN WIDTH (per bank)</u> | <u>EROSION/RUNOFF-FLOODPLAIN QUALITY</u> | <u>BANK EROSION</u> |
| L R (per bank) | L R (most predominant per bank) | L R (per bank) |
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

COMMENTS: RW=2.5,2/2=2.25 FQ=1.5,0.5/2=1 BE=2,2/2=2 RS=2.25+1+2=5.25 = 5.3

5) POOL/GLIDE AND RIFFLE/RUN QUALITY (12) **NO POOL = 0** POOL SCORE **12**

| | | |
|-------------------------------------|-------------------------------------|----------------------------------------------------------------|
| <u>MAX. DEPTH (Check 1)</u> | <u>MORPHOLOGY (Check 1)</u> | <u>POOL/RUN/RIFFLE CURRENT VELOCITY (Check all that Apply)</u> |
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

COMMENTS: 6,2,1,1,1,1=12

RIFFLE SCORE **2**

| | | |
|-------------------------------------|-------------------------------------|-------------------------------------|
| <u>RIFFLE/RUN DEPTH</u> | <u>RIFFLE/RUN SUBSTRATE</u> | <u>RIFFLE/RUN EMBEDDEDNESS</u> |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

COMMENTS: 1,2,-1=2

6) GRADIENT (FEET/MILE)(10) ≤ 3.8 % POOL _____ % RIFFLE _____ % Run _____ GRADIENT SCORE **8**

**INDIANA DIVISION OF FISH AND WILDLIFE
STREAM HABITAT EVALUATION FORM**

STREAM: Laughery Creek RIVER MILE: 61.0

NEAREST TOWN: Napolean COUNTY: Ripley

QUADRANGLE: Pierceville, IN 1961 TWP: 9N RNG: 11E SEC: 25

LATITUDE: Top of station: N 39.19684181 LONGITUDE: Top of station: W -85.2471418

LATITUDE: Bottom of station: N 39.19604419 LONGITUDE: Bottom of station: W -85.24905288

RM 18.38; RM 43.44; RM 67.46 AVG. DISCHARGE (cfs): 114-118

IS REACH REPRESENTATIVE OF STREAM (Y/N) Y IF NOT, WHY? _____

DESCRIPTION OF SAMPLE SITE (Access, length, direction sampled): Access to station from right bank graciously granted by landowner Shawn Davis. The station, which was approximately 650 ft long, was sampled back and forth across the stream in upstream direction.

COLLECTION SUMMARY

DATE: October 3, 2006 GEAR: DC tote barge EFFORT: 3,600 seconds

CREW: L. Lehman, C. Kowalik, W. Zak

OTHER GEAR/EFFORT: None WATER STAGE: Slightly low*

CANOPY (%OPEN): ----- PHOTOS (Y/N): Y SECCHI DISK (inches): 41

AIR TEMP (F): 68 WATER TEMP (F): 64 D.O. (ppm): 8.08

CONDUCTIVITY: 370 micromhos/cm pH: 7.8 ALKALINITY: 171-188

TDS: 250 mg/L

STREAM MEASUREMENTS AVG. WIDTH: 49 ft AVG. DEPTH: 16 in (1.3 ft) MAX DEPTH: 3.8 ft

STATION LENGTH: (1st date) 600 ft (2nd date) -----

WIDTH (ft) DEPTH (in)

| | | | |
|----|----|----|----|
| 45 | 5 | 14 | 17 |
| 42 | 5 | 17 | 19 |
| 42 | 20 | 29 | 20 |
| 48 | 12 | 19 | 17 |
| 68 | 17 | 12 | 12 |
| | | | |

GPS waypoint at station midpoint: N 39.19663436 W -85.24782334



SUBJECTIVE
RATING
(1-10)



AESTHETIC
RATING
(1-10)

ADDITIONAL COMMENTS/POLLUTION IMPACTS: *Stream level slightly below normal due to widespread drought.

Only the 650 ft section of Laughery Creek immediately below the SR 48 bridge was sampled this time. The 500 ft section immediately upstream of the bridge, which is normally included in this station, was not sampled.

DATE: October 3, 2006

STATION: RM 61.0

NAME OF STREAM: Laughery Creek

NAME, NUMBER, PERCENTAGE, SIZE, AND WEIGHT OF FISHES COLLECTED

| COMMON NAME | NUMBER | PERCENTAGE | SIZE RANGE (INCHES) | TOTAL WEIGHT (POUNDS) | PERCENTAGE |
|---------------------------|------------|--------------|------------------------|--------------------------|--------------|
| Longear sunfish | 155 | 30.5 | 1.1-5.6 | 2.84 | 6.1 |
| Bluntnose minnow | 55 | 10.8 | 1.3-3.3 | 0.24 | 0.5 |
| Northern hog sucker | 49 | 9.6 | 4.8-13.6 | 8.28 | 17.7 |
| Gizzard shad | 47 | 9.2 | 6.6-10.1 | 9.29 | 19.9 |
| Scarlet shiner | 27 | 5.3 | 1.1-3.1 | 0.10 | 0.2 |
| Greenside darter | 26 | 5.1 | 1.9-3.3 | 0.21 | 0.4 |
| Rock bass | 24 | 4.7 | 1.2-8.3 | 3.48 | 7.4 |
| Golden redhorse | 22 | 4.3 | 5.1-14.1 | 13.36 | 28.6 |
| Green sunfish | 14 | 2.8 | 2.4-5.5 | 0.52 | 1.1 |
| Silverjaw minnow | 13 | 2.6 | 1.5-2.8 | 0.04 | 0.1 |
| Spotted bass | 10 | 2.0 | 2.6-13.8 | 2.05 | 4.4 |
| Black redhorse | 7 | 1.4 | 6.1-12.3 | 2.13 | 4.6 |
| Yellow bullhead | 7 | 1.4 | 2.9-9.0 | 0.91 | 1.9 |
| White sucker | 6 | 1.2 | 4.9-9.7 | 1.03 | 2.2 |
| Brindled madtom | 6 | 1.2 | 3.2-4.6 | 0.15 | 0.3 |
| Fantail darter | 6 | 1.2 | 1.7-2.3 | 0.02 | <0.1 |
| Logperch | 5 | 1.0 | 3.8-4.9 | 0.13 | 0.3 |
| Bluegill | 5 | 1.0 | 2.3-2.5 | 0.06 | 0.1 |
| Steelcolor shiner | 4 | 0.8 | 1.0-2.9 | 0.03 | 0.1 |
| White crappie | 3 | 0.6 | 7.3-9.1 | 0.84 | 1.8 |
| Largemouth bass | 3 | 0.6 | 4.3-7.8 | 0.29 | 0.6 |
| Brook silverside | 3 | 0.6 | 2.1-3.5 | 0.01 | <0.1 |
| Johnny darter | 3 | 0.6 | 2.0-2.1 | 0.01 | <0.1 |
| Highfin carpsucker | 2 | 0.4 | 7.2-7.8 | 0.35 | 0.7 |
| Spotted sucker | 2 | 0.4 | 5.5-7.5 | 0.22 | 0.5 |
| Redear sunfish | 2 | 0.4 | 2.5-2.6 | 0.02 | <0.1 |
| Quillback | 1 | 0.2 | 7.0 | 0.14 | 0.3 |
| Creek chub | 1 | 0.2 | 2.0 | 0.01 | <0.1 |
| Spotfin shiner | 1 | 0.2 | 2.6 | 0.01 | <0.1 |
| Total - 29 species | 509 | 100.0 | | 46.77 | 100.0 |

1) SUBSTRATE: (Check ONLY Two Substrate Type Boxes: Check all types present)(20) SUBSTRATE SCORE **16**

| | | | | | | | | | | | | | |
|-----------------------------------------------------------------|--------------------------|-------------------------------------------|-------------------------------------|-------------------------------------|--------------------------|-------------------------------------|--------------------------|-------------------------------------|--------------------------|-------------------------------|--------------------------|-------------------------------------|-------------------------------------|
| <u>TYPE</u> | | <u>POOL</u> | | <u>RIFFLE</u> | | <u>POOL</u> | | <u>RIFFLE</u> | | <u>SUBSTRATE ORIGIN (all)</u> | | <u>SILT COVER (one)</u> | |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| BLDER/SLAB(10) | | _____ | | _____ | | GRAVEL(7) | | X | | LIMESTONE(1) | | SILT-HEAVY(-2) | |
| BOULDER(9) | | _____ | | X | | SAND(6) | | X | | TILLS(1) | | SILT-NORM(0) | |
| COBBLE(8) | | X | | X | | BEDROCK(5) | | _____ | | SANDSTONE(0) | | SILT-FREE(1) | |
| HARDPAN(4) | | _____ | | _____ | | DETRITUS(3) | | _____ | | SHALE(-1) | | Extent of Embeddedness (check one) | |
| MUCK/SILT(2) | | _____ | | _____ | | ARTIFIC(0) | | _____ | | COAL FINES(-2) | | EXTENSIVE(-2) | |
| TOTAL NUMBER OF SUBSTRATE TYPES: <input type="checkbox"/> >4(2) | | <input checked="" type="checkbox"/> <4(0) | | | | | | | | | | SPARSE(0) | |
| | | | | | | | | | | | | MODERATE(-1) | |
| | | | | | | | | | | | | LOW(1) | |

NOTE: (Ignore sludge that originates from point sources: score is based on natural substrates)

COMMENTS: 8,6,2,1,0,-1=16

2) INSTREAM COVER: (20) COVER SCORE **8**

| | | | | | |
|------------------------------------|-------------------------------------|---------------------------|-------------------------------------------------------|--------------------------|--------------------------|
| <u>TYPE (Check all that apply)</u> | | | <u>AMOUNT (Check only one or Check 2 and AVERAGE)</u> | | |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| UNDERCUT BANKS(1) | DEEP POOLS(2) | OXBOWS(1) | EXTENSIVE >75%(11) | | |
| OVERHANGING VEGETATION(1) | ROOTWADS(1) | AQUATIC MACROPHYTES(1) | MODERATE 25-75%(7) | | |
| X SHALLOWS (IN SLOW WATER)(1) | X BOULDERS(1) | X LOGS OR WOODY DEBRIS(1) | X SPARSE 5-25%(3) | | |
| | | | NEARLY ABSENT <5%(1) | | |

COMMENTS: 1,2,1,1,3=8

3) CHANNEL MORPHOLOGY: (Check ONLY ONE per Category or Check 2 and AVERAGE)(20) CHANNEL SCORE **15**

| | | | | |
|--------------------------|--------------------------|-------------------------------------|--------------------------|-------------------------------|
| <u>SINUOSITY</u> | <u>DEVELOPMENT</u> | <u>CHANNELIZATION</u> | <u>STABILITY</u> | <u>MODIFICATION/OTHER</u> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| HIGH(4) | EXCELLENT(7) | NONE(6) | HIGH(3) | SNAGGING |
| MODERATE(3) | X GOOD(5) | RECOVERED(4) | X MODERATE(2) | RELOCATION |
| X LOW(2) | FAIR(3) | RECOVERING(3) | LOW(1) | CANOPY REMOVAL |
| NONE(1) | POOR(1) | RECENT OR NO RECOVERY(1) | | DREDGING |
| | | | | ONE SIDE CHANNEL MODIFICATION |
| | | | | IMPOUND |
| | | | | ISLAND |
| | | | | LEVEED |
| | | | | BANK SHAPING |

COMMENTS: 2,5,6,2=15

4) RIPARIAN ZONE AND BANK EROSION: (Check ONE box or Check 2 and AVERAGE per bank) (10) RIPARIAN SCORE **6.3**

River Right Looking Downstream

| | | | | | | | |
|-------------------------------------|-------------------------------------|------------------------------------------|-------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| <u>RIPARIAN WIDTH (per bank)</u> | | <u>EROSION/RUNOFF-FLOODPLAIN QUALITY</u> | | | | <u>BANK EROSION</u> | |
| L | R (per bank) | L | R (most predominant per bank) | L | R (per bank) | L | R (per bank) |
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| WIDE >150ft.(4) | WIDE >150ft.(4) | FOREST, SWAMP(3) | FOREST, SWAMP(3) | URBAN OR INDUSTRIAL(0) | URBAN OR INDUSTRIAL(0) | NONE OR LITTLE(3) | NONE OR LITTLE(3) |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | SHRUB OR OLD FIELD(2) | SHRUB OR OLD FIELD(2) | X MODERATE(2) | X MODERATE(2) |
| MODERATE 30-150 ft.(3) | MODERATE 30-150 ft.(3) | OPEN PASTURE/ROW CROP(0) | OPEN PASTURE/ROW CROP(0) | CONSERV. TILLAGE(1) | CONSERV. TILLAGE(1) | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | MINING/CONSTRUCTION(0) | MINING/CONSTRUCTION(0) | | |
| NARROW 15-30 ft.(2) | NARROW 15-30 ft.(2) | RESID., PARK, NEW FIELD(1) | RESID., PARK, NEW FIELD(1) | | | | |
| <input type="checkbox"/> | <input type="checkbox"/> | FENCED PASTURE(1) | FENCED PASTURE(1) | | | | |
| VERY NARROW 3-15 ft.(1) | VERY NARROW 3-15 ft.(1) | | | | | | |
| <input type="checkbox"/> | <input type="checkbox"/> | | | | | | |
| NONE(0) | NONE(0) | | | | | | |

COMMENTS: RW=4,3.5/2=3.75 FQ=0,1/2=0.5 BE=2,2/2=2 RS=3.75+0.50+2=6.25 = 6.3

5) POOL/GLIDE AND RIFFLE/RUN QUALITY (12) **NO POOL = 0** POOL SCORE **11**

| | | | |
|-------------------------------------|-------------------------------------|----------------------------------------------------------------|-------------------------------------|
| <u>MAX. DEPTH (Check 1)</u> | <u>MORPHOLOGY (Check 1)</u> | <u>POOL/RUN/RIFFLE CURRENT VELOCITY (Check all that Apply)</u> | |
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| >4 ft.(6) | POOL WIDTH > RIFFLE WIDTH(2) | TORRENTIAL(-1) | EDDIES(1) |
| <input type="checkbox"/> | <input type="checkbox"/> | FAST(1) | INTERSTITIAL(-1) |
| 2.4-4 ft.(4) | POOL WIDTH = RIFFLE WIDTH(1) | <input checked="" type="checkbox"/> | INTERMITTENT(-2) |
| <input type="checkbox"/> | <input type="checkbox"/> | MODERATE(1) | |
| 1.2-2.4 ft.(2) | POOL WIDTH < RIFFLE WIDTH(0) | <input checked="" type="checkbox"/> | |
| <input type="checkbox"/> | | SLOW(1) | |
| <1.2 ft.(1) | | | |
| <input type="checkbox"/> | | | |
| <0.6 ft. (Pool=0)(0) | | | |

COMMENTS: 6,2,1,1,1=11

RIFFLE SCORE **6**

| | | |
|------------------------------------|-------------------------------------|-------------------------------------|
| <u>RIFFLE/RUN DEPTH</u> | <u>RIFFLE/RUN SUBSTRATE</u> | <u>RIFFLE/RUN EMBEDDEDNESS</u> |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| GENERALLY >4 in. MAX. >20 in.(4) | STABLE (e.g., Cobble, Boulder)(2) | EXTENSIVE(-1) |
| X GENERALLY >4 in. MAX. <20 in.(3) | MOD. STABLE (e.g., Pea Gravel)(1) | MODERATE(0) |
| <input type="checkbox"/> | UNSTABLE (Gravel, Sand)(0) | <input checked="" type="checkbox"/> |
| GENERALLY 2-4 in.(1) | NO RIFFLE(0) | LOW(2) |
| <input type="checkbox"/> | | NO RIFFLE(0) |
| GENERALLY <2 in. (Riffle=0)(0) | | |

COMMENTS: 3,2,1=6

6) GRADIENT (FEET/MILE)(10) 3.0 % POOL _____ % RIFFLE _____ % Run _____ GRADIENT SCORE **8**

APPENDIX 2

LENGTH FREQUENCY PAGES
FOR

ROCK BASS

SPOTTED BASS
AND

SMALLMOUTH BASS
AND

BACK-CALCULATED LENGTHS AT EACH AGE
FOR

ROCK BASS

SPOTTED BASS
AND

SMALLMOUTH BASS

COLLECTED AT FIVE SITES
ON

LAUGHERY CREEK

OCTOBER 2006

NUMBER, PERCENTAGE, WEIGHT, AND AGE OF: Rock bass Laughery Creek October 3-12, 2006

| 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 | 1 | 0.6 | <0.01 | 0 | 19.0 | | | | |
| 1.5 | 5 | 3.1 | <0.01 | 0 | 19.5 | | | | |
| 2.0 | 11 | 6.8 | 0.01 | 0 | 20.0 | | | | |
| 2.5 | | | | | 20.5 | | | | |
| 3.0 | 2 | 1.2 | 0.02 | 1 | 21.0 | | | | |
| 3.5 | 8 | 5.0 | 0.03 | 1 | 21.5 | | | | |
| 4.0 | 25 | 15.5 | 0.05 | 1 | 22.0 | | | | |
| 4.5 | 19 | 11.8 | 0.06 | 1, 2 | 22.5 | | | | |
| 5.0 | 8 | 5.0 | 0.09 | 1, 2 | 23.0 | | | | |
| 5.5 | 7 | 4.3 | 0.11 | 1, 2 | 23.5 | | | | |
| 6.0 | 9 | 5.6 | 0.15 | 2,3 | 24.0 | | | | |
| 6.5 | 8 | 5.0 | 0.19 | 2, 3, 4 | 24.5 | | | | |
| 7.0 | 13 | 8.1 | 0.24 | 3, 4 | 25.0 | | | | |
| 7.5 | 16 | 9.9 | 0.30 | 4, 5 | 25.5 | | | | |
| 8.0 | 12 | 7.5 | 0.37 | 4 | 26.0 | | | | |
| 8.5 | 12 | 7.5 | 0.45 | 4, 5, 6 | TOTAL | 161 | | | |
| 9.0 | 3 | 1.9 | 0.52 | 6 | | | | | |
| 9.5 | 2 | 1.2 | 0.67 | 6 | | % _≥ 6.0 inches = 74/161(100) = 46.0 | | | |
| 10.0 | | | | | | | | | |
| 10.5 | | | | | | % _≥ 7.0 inches = 55/161(100) = 34.2 | | | |
| 11.0 | | | | | | | | | |
| 11.5 | | | | | | | | | |
| 12.0 | | | | | | | | | |
| 12.5 | | | | | | | | | |
| 13.0 | | | | | | | | | |
| 13.5 | | | | | | | | | |
| 14.0 | | | | | | | | | |
| 14.5 | | | | | | | | | |
| 15.0 | | | | | | | | | |
| 15.5 | | | | | | | | | |
| 16.0 | | | | | | | | | |
| 16.5 | | | | | | | | | |
| 17.0 | | | | | | | | | |
| 17.5 | | | | | | | | | |
| 18.0 | | | | | | | | | |
| 18.5 | | | | | | | | | |

| | | | | | |
|-----------------------------|----------------|-----------------------|------------|-----------------------|------------|
| ELECTROFISHING CATCH | 28.1/hr | GILL NET CATCH | N/A | TRAP NET CATCH | N/A |
|-----------------------------|----------------|-----------------------|------------|-----------------------|------------|

NUMBER, PERCENTAGE, WEIGHT, AND AGE OF: Spotted bass Laughery Creek October 3-12, 2006

| 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 | | | | |
| 2.0 | 1 | 0.8 | 0.01 | 0 | 20.0 | | | | |
| 2.5 | 14 | 11.3 | 0.01 | 0 | 20.5 | | | | |
| 3.0 | 17 | 13.7 | 0.01 | 0 | 21.0 | | | | |
| 3.5 | 15 | 12.1 | 0.02 | 0 | 21.5 | | | | |
| 4.0 | 10 | 8.1 | 0.03 | 0 | 22.0 | | | | |
| 4.5 | | | | | 22.5 | | | | |
| 5.0 | | | | | 23.0 | | | | |
| 5.5 | 8 | 6.5 | 0.07 | 1 | 23.5 | | | | |
| 6.0 | 11 | 8.9 | 0.09 | 1, 2 | 24.0 | | | | |
| 6.5 | 10 | 8.1 | 0.12 | 1 | 24.5 | | | | |
| 7.0 | 12 | 9.7 | 0.15 | 1, 2 | 25.0 | | | | |
| 7.5 | 7 | 5.6 | 0.20 | 1, 2 | 25.5 | | | | |
| 8.0 | 4 | 3.2 | 0.24 | 1, 2 | 26.0 | | | | |
| 8.5 | 1 | 0.8 | 0.31 | 2 | TOTAL | 124 | | | |
| 9.0 | 1 | 0.8 | 0.30 | 2 | | | | | |
| 9.5 | 1 | 0.8 | 0.34 | 3 | | PSD = 9/33(100) = 27.3 | | | |
| 10.0 | 2 | 1.6 | 0.42 | 3 | | | | | |
| 10.5 | 1 | 0.8 | 0.52 | 4 | | % _≥ 12.0 inches = 5/124(100) = 4.0 | | | |
| 11.0 | 2 | 1.6 | 0.63 | 3, 4 | | | | | |
| 11.5 | 2 | 1.6 | 0.70 | 3 | | | | | |
| 12.0 | | | | | | | | | |
| 12.5 | | | | | | | | | |
| 13.0 | 2 | 1.6 | 1.10 | 4 | | | | | |
| 13.5 | 1 | 0.8 | 1.12 | 4 | | | | | |
| 14.0 | 2 | 1.6 | 1.42 | 5 | | | | | |
| 14.5 | | | | | | | | | |
| 15.0 | | | | | | | | | |
| 15.5 | | | | | | | | | |
| 16.0 | | | | | | | | | |
| 16.5 | | | | | | | | | |
| 17.0 | | | | | | | | | |
| 17.5 | | | | | | | | | |
| 18.0 | | | | | | | | | |
| 18.5 | | | | | | | | | |

| | | | | | |
|-----------------------------|----------------|-----------------------|------------|-----------------------|------------|
| ELECTROFISHING CATCH | 21.7/hr | GILL NET CATCH | N/A | TRAP NET CATCH | N/A |
|-----------------------------|----------------|-----------------------|------------|-----------------------|------------|

NUMBER, PERCENTAGE, WEIGHT, AND AGE OF: Smallmouth bass Laughery Creek October 3-12, 2006

| 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 | | | | |
| 2.0 | | | | | 20.0 | | | | |
| 2.5 | 3 | 7.3 | 0.01 | 0 | 20.5 | | | | |
| 3.0 | 8 | 19.5 | 0.01 | 0 | 21.0 | | | | |
| 3.5 | 7 | 17.1 | 0.02 | 0 | 21.5 | | | | |
| 4.0 | 3 | 7.3 | 0.03 | 0 | 22.0 | | | | |
| 4.5 | 1 | 2.4 | 0.04 | 0 | 22.5 | | | | |
| 5.0 | | | | | 23.0 | | | | |
| 5.5 | | | | | 23.5 | | | | |
| 6.0 | 1 | 2.4 | 0.10 | 1 | 24.0 | | | | |
| 6.5 | 1 | 2.4 | 0.11 | 1 | 24.5 | | | | |
| 7.0 | 4 | 9.8 | 0.14 | 1 | 25.0 | | | | |
| 7.5 | | | | | 25.5 | | | | |
| 8.0 | 3 | 7.3 | 0.20 | 1 | 26.0 | | | | |
| 8.5 | | | | | TOTAL | 41 | | | |
| 9.0 | | | | | | | | | |
| 9.5 | | | | | | | PSD = 8/16(100) = 50.0 | | |
| 10.0 | 1 | 2.4 | 0.35 | 2 | | | | | |
| 10.5 | | | | | | | % _≥ 12.0 inches = 6/41(100) = 14.6 | | |
| 11.0 | 1 | 2.4 | 0.52 | 2 | | | | | |
| 11.5 | 1 | 2.4 | 0.59 | 4 | | | | | |
| 12.0 | 2 | 4.9 | 0.79 | 3, 4 | | | | | |
| 12.5 | 1 | 2.4 | 0.90 | 4 | | | | | |
| 13.0 | 1 | 2.4 | 1.02 | --- | | | | | |
| 13.5 | | | | | | | | | |
| 14.0 | | | | | | | | | |
| 14.5 | 1 | 2.4 | 1.27 | 4 | | | | | |
| 15.0 | | | | | | | | | |
| 15.5 | 1 | 2.4 | 1.49 | 6 | | | | | |
| 16.0 | 1 | 2.4 | 1.90 | 6 | | | | | |
| 16.5 | | | | | | | | | |
| 17.0 | | | | | | | | | |
| 17.5 | | | | | | | | | |
| 18.0 | | | | | | | | | |
| 18.5 | | | | | | | | | |

| | | | | | |
|-----------------------------|---------------|-----------------------|------------|-----------------------|------------|
| ELECTROFISHING CATCH | 7.2/hr | GILL NET CATCH | N/A | TRAP NET CATCH | N/A |
|-----------------------------|---------------|-----------------------|------------|-----------------------|------------|

| Species Rock bass | YEAR CLASS | Number of fish aged | SIZE RANGE | BACK CALCULATED LENGTH (inches) AT EACH AGE | | | | | | | | |
|-----------------------------|---------------|------------------------|----------------|---------------------------------------------|-----|-----|-----|-----|-----|---|---|--|
| | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | |
| Intercept= 1.0" | 2005 | 48 | 2.9-5.3 | 2.4 | | | | | | | | |
| | 2004 | 18 | 4.4-6.3 | 2.1 | 3.9 | | | | | | | |
| | 2003 | 6 | 5.9-7.1 | 2.1 | 3.5 | 5.4 | | | | | | |
| | 2002 | 32 | 6.5-8.5 | 2.0 | 3.5 | 5.4 | 6.9 | | | | | |
| | 2001 | 3 | 7.5-8.4 | 1.9 | 3.2 | 4.6 | 6.5 | 7.3 | | | | |
| | 2000 | 3 | 8.7-9.3 | 2.0 | 3.6 | 6.0 | 7.3 | 8.2 | 8.7 | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | AVERAGE LENGTH | 2.1 | 3.5 | 5.3 | 6.9 | 7.8 | 8.7 | | | |
| | | | NUMBER AGED | 110 | 62 | 44 | 38 | 6 | 3 | | | |

| Species Spotted bass | YEAR CLASS | Number of fish aged | SIZE RANGE | BACK CALCULATED LENGTH (inches) AT EACH AGE | | | | | | | | |
|--------------------------------|---------------|------------------------|----------------|---------------------------------------------|-----|-----|------|------|---|---|---|--|
| | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | |
| Intercept= 1.2" | 2005 | 42 | 5.3-8.0 | 3.8 | | | | | | | | |
| | 2004 | 8 | 6.1-9.0 | 3.8 | 6.7 | | | | | | | |
| | 2003 | 5 | 9.3-11.7 | 3.5 | 6.0 | 9.3 | | | | | | |
| | 2002 | 5 | 10.3-13.4 | 3.5 | 6.2 | 8.9 | 11.2 | | | | | |
| | 2001 | 2* | 13.8-14.1 | 3.6 | 6.4 | 9.3 | 11.3 | 12.8 | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | AVERAGE LENGTH | 3.7 | 6.3 | 9.1 | 11.2 | | | | | |
| | | | NUMBER AGED | 60 | 18 | 10 | 5 | | | | | |

| Species Smallmouth bass | YEAR CLASS | Number of fish aged | SIZE RANGE | BACK CALCULATED LENGTH (inches) AT EACH AGE | | | | | | | | |
|-----------------------------------|---------------|------------------------|----------------|---------------------------------------------|-----|------|------|------|------|---|---|--|
| | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | |
| Intercept= 1.4" | 2005 | 9 | 6.2-7.8 | 4.0 | | | | | | | | |
| | 2004 | 2* | 9.9-10.8 | 3.5 | 7.7 | | | | | | | |
| | 2003 | 1* | 12.2 | 3.5 | 6.2 | 9.5 | | | | | | |
| | 2002 | 4 | 11.5-14.3 | 3.9 | 7.0 | 9.2 | 11.0 | | | | | |
| | | | | | | | | | | | | |
| | 2000 | 2* | 15.4-16.2 | 5.0 | 7.6 | 10.6 | 13.0 | 14.4 | 15.4 | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | AVERAGE LENGTH | 4.0 | 7.0 | 9.2 | 11.0 | | | | | |
| | | | NUMBER AGED | 13 | 4 | 4 | 4 | | | | | |

*Not included in average length calculations.