

Wabash River  
Carroll, Cass, Huntington, Miami, Tippecanoe, and Wabash Counties  
2008 Fish Management Report

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## EXECUTIVE SUMMARY

- The Wabash River is Indiana's largest and most famous river. It is 475 miles long, and approximately 466 of those miles lie within or border Indiana.
- Current fish management of the upper and middle portions of the Wabash River includes the stocking of walleye into Roush Lake, Salamonie Reservoir, Mississinewa Reservoir, Lake Shafer, and below Lake Freeman (Oakdale Dam).
- The main objectives of this study were to document any changes in the fish community since the last survey in 1999 and to document the abundance and location of bighead and silver carp since they were first observed in the river in 1995 and 2004, respectively (USGS 2009a).
- Sampling stations for the 2008 survey included all but two of those sampled in 1999 from RM 405.9 to 306.9, and one additional station just below Roush Lake at RM 411.4 (Figure 1). Three additional stations were also sampled below the most downstream dam on the Eel, Mississinewa, and Salamonie Rivers to monitor the presence of bighead and silver carp. Sampling for this survey was conducted from August 19 to September 22, 2008.
- QHEI scores ranged from 60.5 at RM 313.2 to 75.5 at RM 331.0 and averaged 67.6 (Appendix A). Habitat scores greater than 60 generally indicate that few stream alterations have been made, while scores above 70 reflect very good habitat.
- A total of 3,781 fish, representing 11 families, 59 species, and one hybrid sunfish was collected during this survey. Gizzard shad was the most abundant fish collected by number (15%), followed by freshwater drum (13%), longear sunfish (10%), shorthead redhorse (9%), and river carpsucker (8%).
- During sampling in 2008 an average of 31 species and 344 fish were collected per site which was similar to previous surveys.
- IBI scores ranged from 36 at RM 380.1 to 44 at RM's 306.9, 313.2, and 405.9 (Table 3). The average IBI score was 42. All stations received a rating of "fair". A rating of "fair" is described as "intolerant and sensitive species are absent and the trophic structure is skewed" (IDEM 2007).
- As expected the relative abundance of what are typically considered game fish (12%) was low compared to the total catch of the entire survey. However, good populations of several species including channel catfish, sauger, smallmouth bass, and walleye are present.
- Two species of Asian carp were collected during this survey that were not collected in 1999, but they were not overly abundant. However low water during time of sampling could have impacted their vulnerability or distribution, as both species typically prefer large river habitat.

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## INTRODUCTION

The Wabash River is Indiana's largest and most famous river. It is 475 miles long, and approximately 466 of those miles lie within or border Indiana. The Wabash originates in northwest Ohio, and enters Indiana in northeast Jay County. The upper reaches of the river flow in a westerly direction across the state, eventually turning south forming the border between Indiana and Illinois prior to entering the Ohio River. The Wabash has the longest section of free flowing river east of the Mississippi River, and is the second largest body of water in Indiana next to Lake Michigan. The river's only dam is located near Huntington and is 411 miles upstream of the confluence with the Ohio River. The Wabash flows through 18 Indiana counties and drains an area of 32,910 square miles, nearly 66% of Indiana's area (Hoggatt 1975, Clark 1980).

The Wabash River is divided into three sections; the upper section located from the Indiana-Ohio state line to the Miami-Cass County line, the middle section located from the Miami-Cass County line to the city of Covington, and the lower section which runs from Covington to the confluence of the Ohio River. There are numerous access sites along the upper and middle portions of the Wabash, including several public access sites scattered throughout Wabash, Miami, Cass, Carroll, and Tippecanoe counties (WabashRiver.us 2009). In addition to state owned access, numerous access sites are also available along city and county parks. The majority of these access sites include boat ramps as well as areas available to shore anglers. Navigation of the river can be difficult, especially during periods of low water, due to the abundance of shallow, rocky riffles. Canoes, small jon boats, or river boats equipped with jet-propelled motors are best suited for traversing parts of the river in this area.

Current fish management of the Wabash River includes special catfish regulations which differ among three reaches. The uppermost reach (above RM 311) is available to sport anglers only, the Indiana only reach (from RM 200 to 311) is available to sport and commercial anglers, and the lower 200 miles of the river (Indiana and Illinois border) is available to sport and commercial anglers with different regulations between the states. Reports by Colombo et al. (2005) and Donabauer (2008a) provide a more detailed analysis of the river's catfish populations and their management.

A research project has also been initiated on shovelnose sturgeon within the middle and lower portions of the Wabash River. The research has focused on analyzing long-term trends in

abundance and growth and assisting other organizations with reintroduction and spawning programs within the Ohio River system. A report by Donabauer (2008b) provides a more detailed analysis of the river's shovelnose sturgeon population and their management.

Other fish management of the upper and middle portions of the Wabash River includes the stocking of walleye into Roush Lake, Salamonie Reservoir, Mississinewa Reservoir, Lake Shafer, and the Tippecanoe River below Lake Freeman (Oakdale Dam). Although Roush Lake is the only stocking site on the river itself, the other four are located on major tributaries and stocking sites range from 3.4 to 32.0 river miles (RM) from the Wabash (Hoggatt 1975). Large numbers of fish are almost certainly lost annually from the reservoirs by winter releases and water level fluctuations, which may contribute significantly to the Wabash fishery. Annually, walleye are stocked into Roush Lake, Salamonie Reservoir, and Mississinewa Reservoir from rearing ponds located on each property. Since stocking began, success of the property rearing ponds has been variable and fish are often released directly into the reservoirs without being counted. Walleye stocked into Lake Shafer and below Lake Freeman come directly from the hatchery rearing ponds and records are much more complete. Lake Shafer receives approximately 129,100, 1 to 2-inch walleye fingerlings annually, while 25,600 walleyes of the same size are stocked at the Oakdale Dam below Lake Freeman. Other species currently stocked into the Tippecanoe River include hybrid striped bass and sauger. Hybrid striped bass are stocked into Lake Shafer and Lake Freeman, while saugers are stocked in the river above Lake Shafer. It is suspected that these species are migrating into the Wabash River, but it is unclear how much these stockings contribute to the fishery.

Previous surveys of the upper and middle Wabash River completed by the Indiana Department of Natural Resources (IDNR) include Pearson (1975), Robertson (1975), Braun (1982), Braun (1990), and Stefanavage (2008). Along with IDNR, several universities and other state and federal agencies have also completed surveys on the Wabash, with some of the most noteworthy completed by Gammon (1995) and Simon (2006). The main objectives of this study were to document any changes in the fish community since the last IDNR survey in 1999 (Stefanavage 2008) and to document the abundance and location of bighead and silver carp since they were first observed in the river in 1995 and 2004, respectively (USGS 2009a).

## METHODS

### Study Area

The IDNR completed a fisheries survey of the entire Wabash River during the summer of 1999. The 1999 survey included 48 sampling stations within Indiana's portion of the river (Stefanavage 2008). Sampling stations for the 2008 survey included all but two of those sampled in 1999 from RM 405.9 to 306.9, and one additional station just below Roush Lake at RM 411.4 (Figure 1). Three additional stations were also sampled below the most downstream dam on the Eel, Mississinewa, and Salamonie Rivers to monitor the presence of bighead and silver carp. As part of a separate project to monitor sauger stockings, sampling was also conducted below Oakdale dam on the Tippecanoe River in October (Robertson and Long 2009). The RM of each station was calculated using United States Geological Survey topographic maps and Hoggatt (1975). A river mile is a measure of distance in miles along a river from its mouth. River mile values begin at zero and increase in an upstream direction. Sampling for this survey was conducted from August 19 to September 22, 2008.

### Habitat Evaluation

The Qualitative Habitat Evaluation Index (QHEI), developed by the Ohio Environmental Protection Agency (1989) and Rankin (1989), is a physical habitat index used to evaluate available habitat important to fish communities. Metrics of the QHEI are substrate, instream cover, channel morphology, riparian zone and bank erosion, pool/riffle/run quality, and gradient. A score from 0 to 100 is assigned to each station and allows for comparisons of habitat quality between stations and streams.

Dissolved oxygen, water temperature, and air temperature were recorded at each station. Physical descriptions for each station included water stage, percent of open canopy, turbidity, and average width and depth (Shipman 2001). A Garmin™ global positioning system device (GPS) was used to record the location of the upper and lower boundaries of each station. Station length was calculated to the nearest foot using ArcGIS 9.3®.

### Fish Sampling

Stations from RM 393.3 through 306.9 were sampled using a pulsed DC electrofishing boat during the day with two dippers. Boat sampling was conducted in a downstream direction and effort ranged from 0.51 to 1.00 h. Stations at RM's 411.4 and 405.9, along with the stations sampled on the Eel, Mississinewa, and Salamonie Rivers were sampled using a Smith-Root DC

barge electrofisher during the day with a crew of at least three people. Barge sampling was conducted in an upstream direction and effort ranged from 0.28 to 0.64 h. At time of sampling low water levels created barriers which limited the ability to navigate certain sites, reducing the amount of electrofishing effort. The sampling effort for all 11 Wabash River stations totaled 9.57 h.

Total length of all game fish was measured to the nearest 0.1 in and weight was measured to the nearest 0.01 lbs. Fork length rather than total length was measured on all shovelnose sturgeon. For all other species, the length range, total number, and total weight was recorded. Five scales per half-inch group were collected from smallmouth bass, spotted bass, sauger, white crappie and walleye for age determination and back-calculated lengths-at-age. Length frequency distribution for reporting purposes were grouped in half-inch increments which are defined as X.0 – X.4 and X.5 – X.9. Species that could not be identified in the field were preserved in 10% formalin and transported back to the office for positive identification.

#### Index of Biotic Integrity

The Index of Biotic Integrity (IBI) for the Wabash River, developed by Simon (2006), was used to assess stream degradation. The IBI utilized measurable attributes of the fish assemblage and consisted of 12 metrics in three major categories: species composition, trophic composition, and fish health and abundance. Each metric was assigned a score of one, three, or five points for each sampling location. Metric scores were then summed for each station and assigned one of six ratings ranging from “excellent” to “no fish” (IDEM 2007).

## RESULTS

#### Habitat Evaluation

QHEI scores ranged from 60.5 at RM 313.2 to 75.5 at RM 331.0 and averaged 67.6 (Appendix A). The substrate (bottom composition) varied across all stations, but all stations contained more than four substrate types. Instream cover most often consisted of overhanging vegetation, deep water, boulders, and large woody debris. Generally, instream cover was sparse to moderate across all stations. Channel morphology, the width and composition of the riparian zone, bank erosion, and pool/riffle/run quality were all highly variable between stations. Stream gradient ranged from 0.38 ft/mi to 12.50 ft/mi between RM 306.9 and RM 411.4, respectively.

Dissolved oxygen ranged from 6.0 to 13.8 parts per million, which is suitable for fish and other aquatic organisms. Water clarity was fair as Secchi disk readings averaged 16 inches.

Channel morphology, canopy cover, and gradient can all impact water temperature. Water temperature ranged from 69.4°F at RM 331.0 to 78.0°F at RM 411.4 and averaged 74.0°F. The average boat electrofishing station length was 2,407 ft and ranged from 1,172 ft at RM 363.4 to 3,678 ft at RM 322.2. The average barge electrofishing station length was 1,281 ft and ranged from 1,213 ft at RM 411.4 to 1,348 ft at RM 405.9. The average width of the Wabash River between all stations was 231 ft and the average depth was 33 in. Individual station descriptions are located in Appendix A.

### Fish Sampling

A total of 3,781 fish, representing 11 families, 59 species, and one hybrid sunfish was collected during this survey (Table 1, Table 2). Total weight of the fish collected was 3,885.53 lbs. The total number of species collected from each site ranged from 23 at RM 405.9 to 38 at RM 370.5, and averaged 31 (Appendix A). Gizzard shad was the most abundant fish collected by number (15%), followed by freshwater drum (13%), longear sunfish (10%), shorthead redhorse (9%), and river carpsucker (8%). The remaining species accounted for 5% or less of the sample by number. Common carp was the most abundant fish collected by weight (21%), followed by river carpsucker (11%), and freshwater drum (10%).

### Sucker Family (Catostomidae)

Overall 14 species of suckers were collected. The sucker family was the most abundant family collected by number (31%) and weight (45%). The two most abundant sucker species collected by both number and weight were shorthead redhorse and river carpsucker. Black redhorse, silver redhorse, shorthead redhorse, golden redhorse, river redhorse, northern hogsucker, highfin carpsucker, and blue sucker are all considered sensitive to a wide variety of environmental disturbances including water quality and habitat degradation (Simon 2006). At least three representatives of these sensitive species were collected at every station. Blue sucker typically prefer large river habitat and were not collected above RM 331.0.

### Minnow Family (Cyprinidae)

The minnow family was the most diverse family represented during this survey, with 16 species collected. This family was the second most abundant by both number (17%) and weight (28%). Common carp were the most abundant Cyprinid by both number (33%) and weight (75%), and were the most abundant by weight for the whole survey. Common carp ranged in length from 11.4 to 27.0 in, and averaged just less than 4 lbs. Emerald shiners and river shiners

were the next two most abundant species by number. Five exotic species from this family were collected during the survey including; bighead carp, common carp, goldfish, grass carp, and silver carp. Bighead carp were collected at RM 411.4 and 363.4, and ranged in total length from 19.5 to 21.6 in. Grass carp were collected at three stations, while all four goldfish were collected at RM 411.4. Silver carp were collected at seven of the eleven stations sampled, but were not collected above RM 380.1. Silver carp were most abundant at RM 370.5.

#### Herring Family (Clupeidae)

Three species of the herring family were collected during the survey. Gizzard shad were the most abundant by number for all species collected, and made up 99% of the herring family. Other members of this family included skipjack herring and threadfin shad. Both species typically inhabit large rivers and neither was collected above RM 331.0.

#### Sunfish Family (Centrarchidae)

Twelve species and one hybrid of the sunfish family were collected during the survey. Longear sunfish were the third most abundant by number for all species collected, and made up 68% of the sunfish family. Smallmouth bass were the second most abundant Centrarchid collected by number (9%), and the most abundant by weight (38%). Smallmouth bass were collected at all eleven stations, and were most abundant at RM 370.5 and 363.4. Total length of smallmouth ranged from 5.4 to 16.3 in, but included only six fish over the 12 in minimum size limit. Based on back-calculated lengths-at-age, the majority of smallmouth bass reach 12 in between ages 4 and 5 (Appendix C). A total of 43 spotted bass were collected during the survey, and were most abundant at RM 306.9. Spotted bass were collected at every station and ranged in total length from 2.6 to 11.4 in. Based on back-calculated lengths-at-age, the majority of spotted bass reach stock size (7 in) by age 3. Thirty-one bluegills were collected during the survey, and were most abundant at RM 411.4. Bluegills ranged in total length from 2.5 – 6.6 in. White crappies were collected at nine of the eleven stations, and ranged in total length from 4.4 to 12.0 in. Based on back-calculated lengths-at-age, the majority of white crappies reached 8 in by age 3. Other members of the sunfish family that were collected included; largemouth bass, black crappie, rock bass, orangespotted sunfish, and green sunfish.

#### Drum Family (Sciaenidae)

Freshwater drum was the only member of this family collected, and happens to be the only member found in Indiana. Drum was the second most abundant species by number and the

third most abundant by weight for all species. Drum were collected at all eleven stations and ranged in total length from 3.6 to 28.1 in.

#### Catfish Family (Ictaluridae)

Representatives of this family included channel catfish and flathead catfish. Channel catfish were collected at all eleven stations and ranged in total length from 5.7 to 26.7 in. Channel catfish were most abundant at RM 411.4. Flathead catfish were collected at six of the eleven stations, with the majority and largest individuals collected at RM 405.9.

#### Perch Family (Percidae)

Six species of the perch family were collected during the survey. Saugers were the most abundant member of the perch family collected by number (38%), and the second most abundant by weight (44%). Saugers were collected at all eleven stations, and were most abundant at RM 331.0. Sixty-two percent of the saugers aged were from the 2007 year class (Age 1). Total length of saugers ranged from 10.2 to 18.8 in, and included eighteen fish over the 14 in minimum size limit. Based on back-calculated lengths-at-age, the majority of saugers reach 14 in by age 3. Thirty-eight walleyes were collected during the survey, and were most abundant at RM 411.4. Walleyes were collected at nine of the eleven stations and ranged in total length from 6.0 to 28.5 in. Based on back-calculated lengths-at-age, the majority of walleyes reach 14 in by age 2. Other members of the perch family collected during the survey included logperch, slenderhead darter, and greenside darter.

#### Gar Family (Lepisosteidae)

Three species of the gar family were collected during the survey. Spotted gars were the most abundant family member by both number and weight followed by shortnose and longnose gar. Shortnose and longnose gars were collected at the majority of stations, whereas spotted gars were collected at only two stations, RM 306.9 and 331.0.

#### Sturgeon Family (Acipenseridae)

Shovelnose sturgeon was the only member of the sturgeon family collected. Only 12 sturgeons were collected ranging in fork length from 23.9 to 31.4 in. Shovelnose sturgeon typically prefer large river habitat and were not collected above RM 380.1.

#### Other Families

Other families collected included the mooneye family (Hiodontidae) and the temperate bass family (Moronidae). Both goldeye and mooneye of the mooneye family typically inhabit

large rivers and were not collected above RM 380.1 and 370.5, respectively. White bass was the only member of the temperate bass family collected. White bass also prefer large river habitat and were not collected above RM 387.0.

### Tributary Stations

A total of 199 fish, representing 8 families and 25 species was collected at RM 0.9 on the Eel River (Appendix B). Total weight of the fish sampled was 121.82 lbs. Golden redhorse was the most abundant fish collected by number (26%), followed by longear sunfish (9%), and black redhorse (8%). Common carp was the most abundant species collected by weight (21%), followed by golden redhorse (19%), and grass carp (17%). Smallmouth bass and channel catfish were the most abundant game fish collected. Neither bighead nor silver carp were collected.

A total of 179 fish, representing 8 families and 26 species was collected at RM 7.3 on the Mississinewa River (Appendix B). Total weight of the fish sampled was 262.54 lbs. Freshwater drum was the most abundant fish collected by number (19%), followed by channel catfish (10%), and river carpsucker (8%). Bighead carp was the most abundant fish collected by weight (34%), followed by bigmouth buffalo (11%), and freshwater drum (9%). Channel catfish and walleye were the most abundant game fish collected. Both bighead and silver carp were collected at this station.

A total of 303 fish, representing 8 families and 26 species was collected at RM 3.4 on the Salamonie River (Appendix B). Total weight of the fish sampled was 143.09 lbs. Bluegill was the most abundant fish collected by number (33%), followed by freshwater drum (22%), channel catfish (6%), and shorthead redhorse (6%). Common carp was the most abundant fish collected by weight (28%), followed by freshwater drum (22%), and channel catfish (14%). Neither bighead nor silver carp were collected at this station.

Walleye and sauger were the only two species collected during sampling below Oakdale dam on the Tippecanoe River (Robertson and Long 2009). Both bighead and silver carp were observed during sampling.

### Index of Biotic Integrity

IBI scores ranged from 36 at RM 380.1 to 44 at RM's 306.9, 313.2, and 405.9 (Table 3). The average IBI score was 42. All stations received a rating of "fair". A rating of "fair" is described as "intolerant and sensitive species are absent or rare and the trophic structure is skewed" (IDEM 2007). Individual station scores for metrics 1 and 5 (native species and

percent tolerant species, respectively) scored “5” across all stations. Metrics 7 and 11 (percent insectivores and percent lithophils, respectively) showed the most variability between stations with metric scores ranging from 1 to 5. Metric 10, CPUE, scored “1” across all stations. Downstream stations received lower scores for the percent carnivore metric beginning at RM 363.4, while upstream stations received lower metric scores for percent large-river species beginning at RM 370.5. Metric three (number of round-bodied suckers present) was greatest in the downstream stations beginning at RM 363.4. The number of sensitive species (metric four) received the maximum metric score of “5” at all stations except RM’s 411.4 and 380.1.

## DISCUSSION

The diversity and abundance of fish sampled during 2008 was similar to previous surveys. The average number of species and average number of fish collected per sampling station was 31 and 344, respectively. Sampling conducted during 1999 at the same locations yielded an average of 32 species/hybrids and 229 fish per station (Stefanavage 2008). The increase observed in the average number of fish collected per station could be the result of several variables, but can most likely be attributed to water level. Water levels were much lower during 2008 compared to 1999, which likely caused fish to congregate in reduced areas of favorable habitat making them more susceptible to collection. The average monthly discharge of the Wabash River near Logansport in August and September of 2008 was 506 and 288 cfs, respectively. Whereas, the average monthly discharge in July 1999 at the same location was 598 cfs (USGS 2009b). The average number of species collected per survey of Indiana’s major streams in the early to mid 1990’s was 35.3 and the average number of species per site was 20.4 (Shipman 1997).

Overall, habitat quality at the stations surveyed was “good” with QHEI scores ranging from 60.5 at RM 313.2 to 75.5 at RM 331.0. All QHEI scores indicated that the quality of available habitat based on the QHEI was above the statewide average of 59.0 (S.L. Sobat, public presentation, 2006). Habitat scores greater than 60 generally indicate that few stream alterations have been made, while scores above 70 reflect very good habitat is present. Habitat quality could have a negative effect on the biological communities present where QHEI scores are less than 51 (S.L. Sobat, public presentation, 2006). The sampling station at RM 313.2 consisted of a long straight-away with little development and large, unstable riffles resulting in the lowest QHEI score (60.5). On the other hand, stations that scored higher than 70 generally contained

more and diverse instream cover, multiple habitat types in the form of pools and riffles, and good channel morphology. Surprisingly, these same sites showed extreme variability in riparian bank width and floodplain quality (Appendix A).

Karr (1981) proposed the IBI to assess stream degradation from measurable attributes of a fish assemblage that can be easily derived from a representative sample (Ney 1999). IBI ratings for all eleven stations differed by only 8 points from least (36) to greatest (44), but all stations were rated as “fair” (35-44; IDEM 2007) (Table 3, Figure 2). Four metrics scored the same across all stations (Metrics 1, 5, 10, and 12) (Table 3). However, between RM’s 363.4 and 380.1, metrics 6, 8, and 9 (% omnivores, % carnivores, and % large-river species) showed a distinct change. This change corresponds to a transitional area where the Wabash River flows out of the Bluffton Till Plain and into the Entrenched Valley which Gammon (1995) described as a river reach near Logansport, Indiana at approximately RM 354.0. Within this transitional area, stream gradient and elevation change dramatically. The change in stream gradient within this area must be significant enough to alter habitat types and food resources. This was reflected in the percent of omnivores and carnivores present at each station within this reach.

The abundance of species intolerant to poor water quality such as northern hogsucker and various species of redhorse is evidence that the water quality of the Wabash River is good. Conservation and enhancement of the watershed and riparian corridor adjacent to the river will reduce the amount of nutrients and sediments entering the river, which ultimately affects water quality and the biological integrity of the system. Over time, as riparian areas become more forested, trees will provide additional instream cover in the form of woody debris.

The relative abundance of what are typically considered game fish (12%) was low compared to the total catch of the entire survey. However, good populations of several species including channel catfish and smallmouth bass are present. Channel catfish continue to be the staple species of the upper and middle Wabash River, and offer both quantity and quality fishing opportunities. Typical numbers of smallmouth bass were also present during the survey; however few quality individuals were collected.

Saugers are also offering good angling opportunities on the upper and middle Wabash. The sauger population appears to be larger than in recent years, with catch rates 2.5 times greater than what was observed in 1999 (Stefanavage 2008). Increases in sauger numbers could be the result of stockings in upper portions of the Tippecanoe River, with age 1 and 2 fish dominating

the sample. As expected the range of saugers has expanded in the Tippecanoe River since stockings began in 2006 (Robertson and Long 2009). However saugers do naturally reproduce and are native to the Wabash, so it is possible that the observed increase is simply the result of increased recruitment resulting in a strong year class in 2007.

The walleye population of this section of the Wabash also appears healthy, with several quality individuals present. It is believed that the walleye stockings within the Wabash and various tributaries continues to support this population, however it is suspected that some natural reproduction may be taking place in the tailwaters of the upper Wabash Reservoirs (Braun 1991). As a result of good growth walleyes are reaching the minimum size limit of 14 in by age 2. The best fishing locations for these two species are at tailwater areas during spring spawning; however other areas downstream of these locations should provide good opportunities as well.

Several other non-game species including common carp and freshwater drum are also capable of providing good fishing opportunities for anglers. These two species are very abundant and can reach lengths greater than 25 inches. Both species generally feed near the bottom and can be targeted using similar angling methods. Although drum are more abundant, carp tend to be larger averaging just under 4 lbs per fish during the survey.

Two species of Asian carp were collected during the current survey that were not collected in 1999. Bighead and silver carp are exotic species that originate from Asia, and were first observed in the Wabash River in 1995 and 2004, respectively. Although these species were collected in the upper and middle portions of the Wabash they were not overly abundant. However low water during the time of sampling could have impacted their vulnerability or distribution, as both species typically prefer large river habitat. Both species make spawning migrations up river and tend to congregate in tailwater areas in the spring. Tailwaters usually contain deep pools and can provide habitat for these species all year round. At this point it is unclear how abundant these two species will become or what impacts they will have on the upper and middle Wabash River fishery. These two species compete with natives for food and space, and could have potential impacts if their populations continue to grow. Silver carp could have an impact on boaters in the area as well, due to their tendency to jump when frightened by outboard motors. Boaters and anglers should be aware of this danger and take necessary precautions.

## RECOMMENDATIONS

- The DFW should continue to pursue the development of additional public access sites on the Wabash River. Areas where public access sites are needed are outlined in Stefanavage (1999).
- Monitoring of bighead and silver carp populations should continue as needed on the Wabash River, and other major tributaries.
- A creel survey should be designed to measure fishing pressure and exploitation of walleye and sauger at the tailwaters of Lake Freeman, Mississinewa Reservoir, Roush Lake, and Salamonie Reservoir.
- The DFW should continue to work with and support the Wabash River Heritage Corridor Commission, and their efforts to improve water quality within the watershed.

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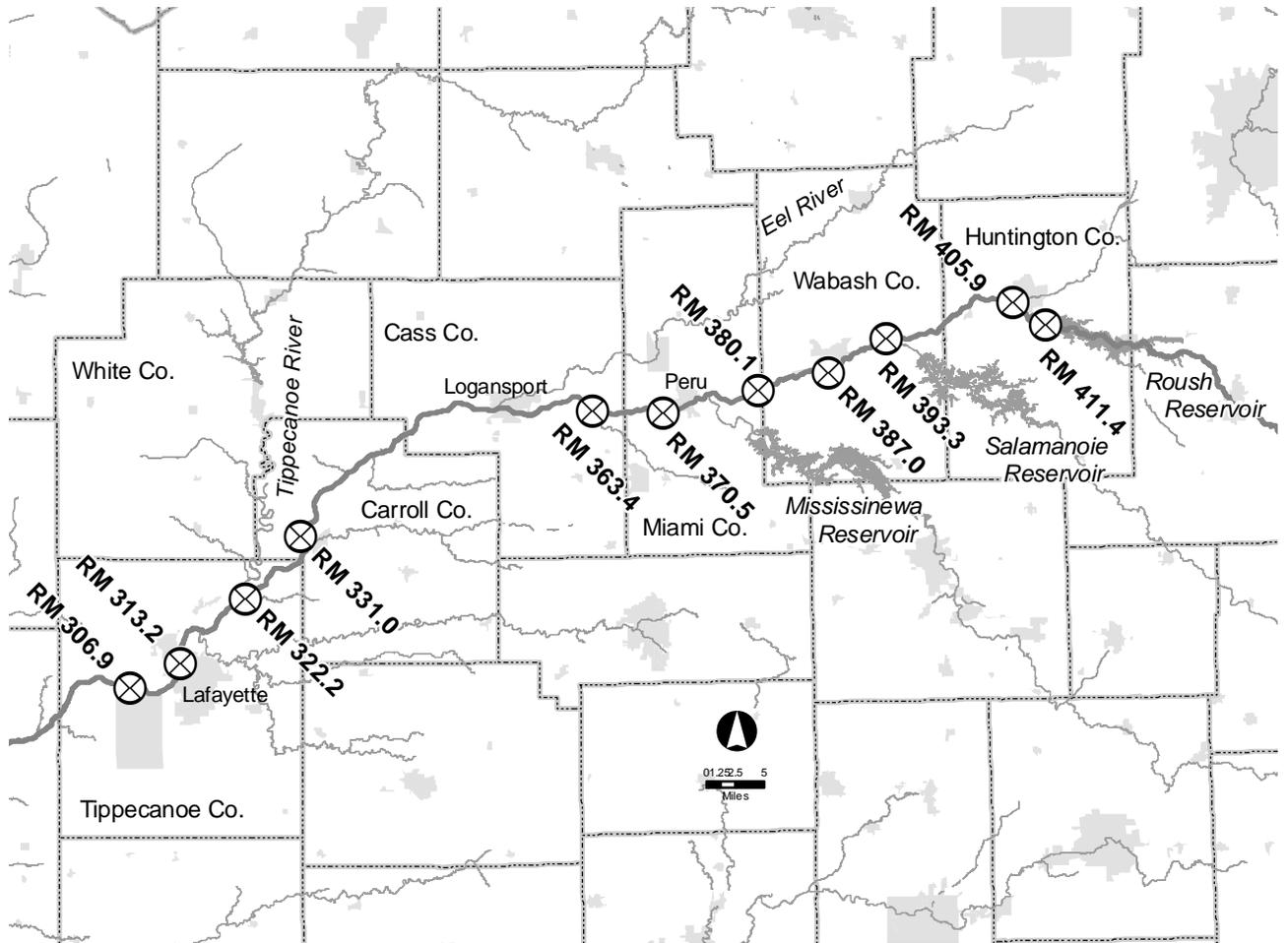
Submitted by: Rod A. Edgell and Christopher C. Long, Assistant Fisheries Biologists  
Date: 3/10/09

Approved by: Edward R. Braun, Biologist

Approved by: Robert N. Robertson, Biologist

Approved by: Stuart T. Shipman, Fisheries Supervisor  
Date: 4/20/2009

Figure 1. Location and river mile (RM) of sampling stations on the Wabash River, 2008.



**Table 1. Name, number, size, and weight of fish collected in the Wabash River, 2008.**

*COMMON NAME OF FISH	*SCIENTIFIC NAME OF FISH	NUMBER	PERCENT	LENGTH RANGE (inches)	WEIGHT (pounds)	PERCENT
Gizzard shad	<i>Dorosoma cepedianum</i>	571	15.1	2.2 - 15.9	124.87	3.2
Freshwater drum	<i>Aplodinotus grunniens</i>	478	12.6	3.6 - 28.1	397.57	10.2
Longear sunfish	<i>Lepomis megalotis</i>	362	9.6	1.3 - 5.7	16.08	0.4
Shorthead redhorse	<i>Moxostoma macrolepidotum</i>	326	8.6	5.6 - 20.1	303.83	7.8
River carpsucker	<i>Carpiodes carpio</i>	297	7.9	7.0 - 18.5	424.55	10.9
Common carp	<i>Cyprinus carpio</i>	203	5.4	11.4 - 27.0	799.08	20.6
Quillback	<i>Carpiodes cyprinus</i>	168	4.4	6.9 - 17.5	253.77	6.5
Channel catfish	<i>Ictalurus punctatus</i>	158	4.2	5.7 - 26.7	138.11	3.6
Emerald shiner	<i>Notropis atherinoides</i>	104	2.8	2.3 - 3.9	0.53	< 0.1
Golden redhorse	<i>Moxostoma erythrurum</i>	99	2.6	5.1 - 19.3	103.27	2.7
Northern hogsucker	<i>Hypentelium nigricans</i>	75	2.0	5.1 - 15.3	42.01	1.1
Sauger	<i>Sander canadensis</i>	61	1.6	10.2 - 18.8	42.06	1.1
River shiner	<i>Notropis blennioides</i>	61	1.6	2.1 - 3.1	0.32	< 0.1
Silver chub	<i>Macrhybopsis storeiana</i>	54	1.4	2.3 - 6.8	2.42	0.1
Logperch	<i>Percina caprodes</i>	51	1.3	3.1 - 6.1	1.66	< 0.1
Smallmouth bass	<i>Micropterus dolomieu</i>	48	1.3	5.4 - 16.3	22.57	0.6
Smallmouth buffalo	<i>Ictiobus bubalus</i>	45	1.2	12.9 - 24.7	187.55	4.8
Bullhead minnow	<i>Pimephales vigilax</i>	44	1.2	1.9 - 3.5	0.19	< 0.1
Silver redhorse	<i>Moxostoma anisurum</i>	43	1.1	6.4 - 23.6	106.07	2.7
Spotted bass	<i>Micropterus dolomieu</i>	43	1.1	2.6 - 11.4	6.58	0.2
Walleye	<i>Sander vitreus</i>	38	1.0	6.0 - 28.5	52.61	1.4
Black redhorse	<i>Moxostoma duquesnei</i>	37	1.0	4.6 - 20.2	42.25	1.1
Sand shiner	<i>Notropis stramineus</i>	35	0.9	1.7 - 2.3	0.00	< 0.1
Bigmouth buffalo	<i>Ictiobus cyprinellus</i>	33	0.9	13.8 - 25.4	145.95	3.8
Bluegill	<i>Lepomis macrochirus</i>	31	0.8	2.5 - 6.6	2.50	0.1
Spotfin shiner	<i>Cyprinella spiloptera</i>	28	0.7	2.0 - 4.1	0.17	< 0.1
Bluntnose minnow	<i>Pimephales notatus</i>	26	0.7	1.9 - 3.0	0.10	< 0.1
Silver carp	<i>Hypophthalmichthys molitrix</i>	25	0.7	23.1 - 28.3	191.71	4.9
White crappie	<i>Pomoxis annularis</i>	24	0.6	4.4 - 12.0	7.24	0.2
Steelcolor shiner	<i>Cyprinella whipplei</i>	21	0.6	2.0 - 3.5	0.11	< 0.1
Flathead catfish	<i>Pylodictis olivaris</i>	19	0.5	7.5 - 37.5	165.58	4.3
Spotted gar	<i>Lepisosteus oculatus</i>	15	0.4	21.1 - 26.6	23.40	0.6
River redhorse	<i>Moxostoma carinatum</i>	15	0.4	5.2 - 27.3	22.30	0.6
Shorthead gar	<i>Lepisosteus platostomus</i>	14	0.4	20.1 - 27.1	22.95	0.6
Longnose gar	<i>Lepisosteus osseus</i>	13	0.3	21.9 - 31.8	17.38	0.4
Blue sucker	<i>Cycleptus elongatus</i>	12	0.3	16.2 - 27.0	47.80	1.2
Shovelnose sturgeon	<i>Scaphirhynchus platyrhynchus</i>	12	0.3	23.9 - 31.4	29.02	0.7
Black buffalo	<i>Ictiobus niger</i>	10	0.3	12.5 - 28.8	45.24	1.2
Slenderhead darter	<i>Percina phoxocephala</i>	10	0.3	1.7 - 3.4	0.09	< 0.1
Green sunfish	<i>Lepomis cyanellus</i>	9	0.2	2.4 - 5.2	0.36	< 0.1
Channel shiner	<i>Notropis wickliffi</i>	9	0.2	2.0 - 2.5	< 0.01	< 0.1
Highfin carpsucker	<i>Carpiodes velifer</i>	8	0.2	8.0 - 14.9	6.18	0.2
White bass	<i>Morone chrysops</i>	5	0.1	3.0 - 11.8	1.73	< 0.1
Grass carp	<i>Ctenopharyngodon idella</i>	4	0.1	29.1 - 40.0	64.75	1.7
Goldfish	<i>Carassius auratus</i>	4	0.1	9.0 - 15.4	4.41	0.1
Spotted sucker	<i>Minytrema melanops</i>	4	0.1	11.2 - 13.1	2.76	0.1
Mooneye	<i>Hiodon tergisus</i>	4	0.1	9.3 - 14.2	2.38	0.1
Largemouth bass	<i>Micropterus salmoides</i>	4	0.1	8.8 - 11.8	2.30	0.1
Black crappie	<i>Pomoxis nigromaculatus</i>	4	0.1	4.6 - 10.2	1.37	< 0.1
Rock bass	<i>Ambloplites rupestris</i>	3	0.1	3.7 - 6.7	0.44	< 0.1
Streamline chub	<i>Erimystax dissimilis</i>	3	0.1	2.3 - 3.9	0.04	< 0.1
Bighead carp	<i>Hypophthalmichthys nobilis</i>	2	0.1	19.5 - 21.6	7.05	0.2
Skipjack herring	<i>Alosa chrysochloris</i>	2	0.1	6.6 - 11.2	0.40	< 0.1
Goldeye	<i>Hiodon alosoides</i>	1	< 0.1	14.4	0.94	< 0.1
White sucker	<i>Catostomus commersonii</i>	1	< 0.1	12.2	0.74	< 0.1
Hybrid sunfish	<i>Lepomis spp.</i>	1	< 0.1	5.8	0.17	< 0.1
Redfin shiner	<i>Lythrurus ubraatilis</i>	1	< 0.1	3.2	0.01	< 0.1
Greenside darter	<i>Etheostoma blennioides</i>	1	< 0.1	3.1	0.01	< 0.1
Orangespotted sunfish	<i>Lepomis humilis</i>	1	< 0.1	2.3	< 0.01	< 0.1
Threadfin shad	<i>Dorosoma petenense</i>	1	< 0.1	2	< 0.01	< 0.1
Total ( 59 Species)		3781			3885.53	

\*Common and scientific names of fishes recognized by the American Fisheries Society.

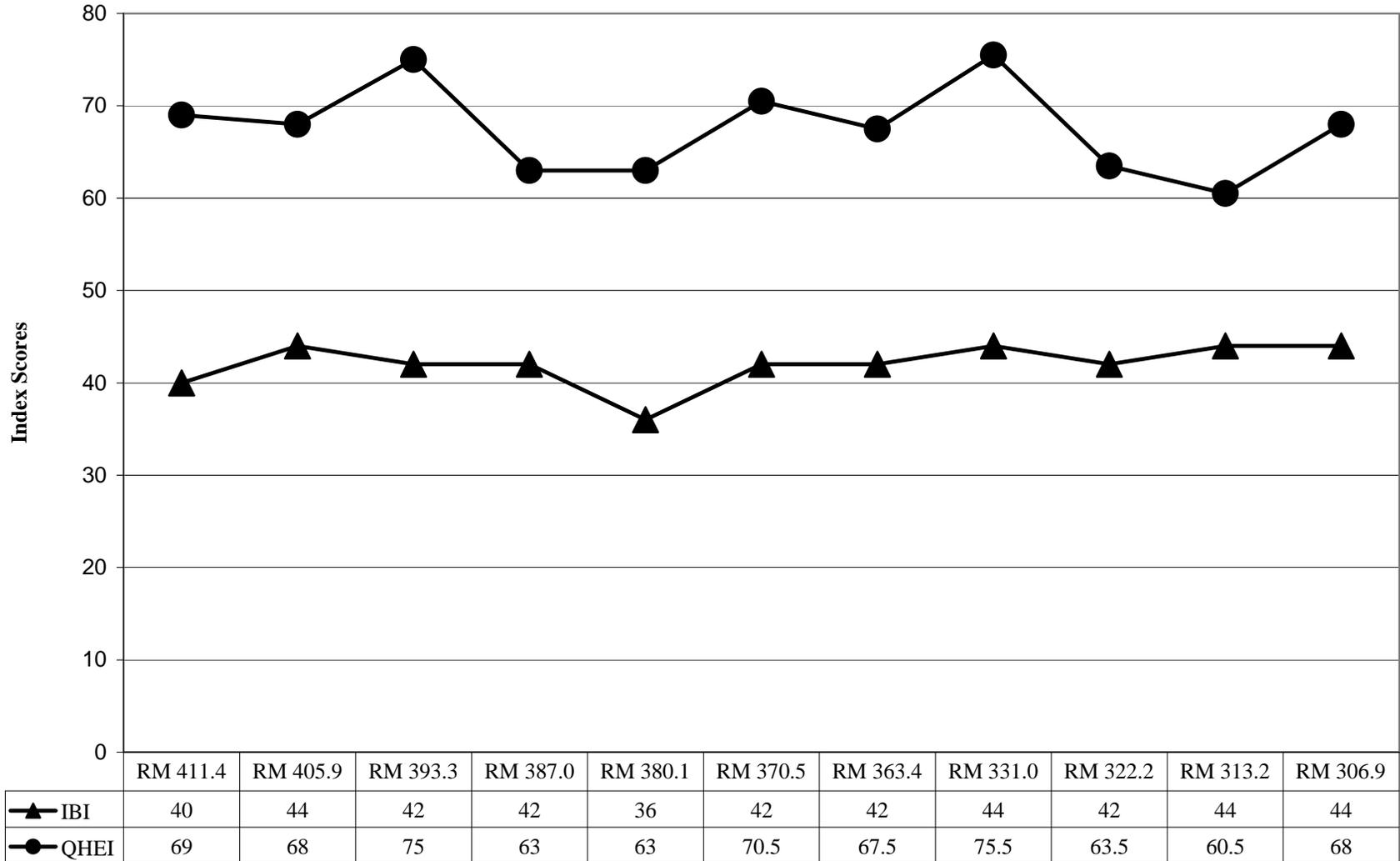
Table 2. Species, number, and weight of fish collected by family in the Wabash River, 2008.

	<u>Number</u>	<u>Percent</u>	<u>Weight</u>	<u>Percent</u>
<b><u>Sucker Family (Catostomidae)</u></b>	1,173	31.0	1,734.27	44.6
Bigmouth buffalo	River carpsucker			
Black buffalo	River redhorse			
Black redhorse	Shorthead redhorse			
Blue sucker	Silver redhorse			
Golden redhorse	Smallmouth buffalo			
Highfin carpsucker	Spotted sucker			
Northern hogsucker	White sucker			
Quillback				
<b><u>Carp and Minnow Family (Cyprinidae)</u></b>	624	16.5	1,070.89	27.6
Bighead carp	Redfin shiner			
Bluntnose minnow	River shiner			
Bullhead minnow	Sand shiner			
Channel shiner	Silver carp			
Common carp	Silver chub			
Emerald shiner	Spotfin shiner			
Goldfish	Steelcolor shiner			
Grass carp	Streamline chub			
<b><u>Herring Family (Clupeidae)</u></b>	574	15.2	125.27	3.2
Skipjack herring				
Gizzard shad				
Threadfin shad				
<b><u>Sunfish Family (Centrarchidae)</u></b>	530	14.0	59.61	1.5
Black crappie	Orangespotted sunfish			
Bluegill	Rock bass			
Green sunfish	Smallmouth bass			
Hybrid sunfish	Spotted bass			
Largemouth bass	White crappie			
Longear sunfish				
<b><u>Drum Family (Sciaenidae)</u></b>	478	12.6	397.57	10.2
Freshwater drum				
<b><u>Catfish Family (Ictaluridae)</u></b>	177	4.7	303.69	7.8
Channel catfish				
Flathead catfish				
<b><u>Perch Family (Percidae)</u></b>	161	4.3	96.43	2.5
Greenside darter	Sauger			
Slenderhead darter	Walleye			
Logperch				
<b><u>Gar Family (Lepisosteidae)</u></b>	42	1.1	63.73	1.6
Spotted gar				
Longnose gar				
Shortnose gar				
<b><u>Sturgeon Family (Acipenseridae)</u></b>	12	0.3	29.02	0.7
Shovelnose sturgeon				
<b><u>Mooneye Family (Hiodontidae)</u></b>	5	0.1	3.32	0.1
Goldeye	Mooneye			
<b><u>Temperate Bass Family (Moronidae)</u></b>	5	0.1	1.73	< 0.1
White bass				
<b>Total</b>	<b>3,781</b>		<b>3,885.53</b>	

Table 3. Index of Biotic Integrity (IBI) scores by metric for sampling stations located on the Wabash River, 2008.

Metric	River Mile										
	411.4	405.9	393.3	387	380.1	370.5	363.4	331	322.2	313.2	306.9
Native species	5	5	5	5	5	5	5	5	5	5	5
Centrarchid species	5	5	5	5	5	5	5	5	3	5	5
Round-bodied suckers	3	3	3	3	3	3	5	5	5	5	5
Sensitive species	3	5	5	5	3	5	5	5	5	5	5
% Tolerant	5	5	5	5	5	5	5	5	5	5	5
% Ominivores	5	5	5	5	3	3	3	3	3	3	5
% Insectivores	1	5	3	3	3	3	3	3	3	3	3
% Carnivores	3	3	1	3	3	3	1	1	1	3	1
% Large-river species	3	1	1	1	1	3	3	3	3	3	3
CPUE	1	1	1	1	1	1	1	1	1	1	1
% Lithophils	3	3	5	3	1	3	3	3	3	3	3
% DELT	3	3	3	3	3	3	3	3	3	3	3
<b>TOTAL IBI Score</b>	<b>40</b>	<b>44</b>	<b>42</b>	<b>42</b>	<b>36</b>	<b>42</b>	<b>42</b>	<b>42</b>	<b>40</b>	<b>44</b>	<b>44</b>

**Figure 2. Index of Biotic Integrity (IBI) and Qualitative Habitat Evaluation Index (QHEI) for sampling locations on the Wabash River, 2008.**



## Appendix A

Detailed station descriptions, fish collections, and habitat evaluations for each station on the Wabash River, 2008.

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

STREAM: Wabash River RIVER MILE: 411.4  
 NEAREST TOWN: Huntington COUNTY: Huntington  
 QUADRANGLE: Majenica TWP: 28 N RNG: 9 E SEC: 26  
 LATITUDE: 40.84678415 LONGITUDE: -85.48022755  
 LATITUDE: 40.84590197 LONGITUDE: -85.47607907  
 U.S.G.S. GAUGING STATION LOCATION: Roush Lake Dam Outflow AVG. DISCHARGE (cfs): \_\_\_\_\_  
 IS REACH REPRESENTATIVE OF STREAM (Y/N) Y IF NOT, WHY? \_\_\_\_\_

DESCRIPTION OF SAMPLE SITE (Access, length, direction sampled): \_\_\_\_\_  
Electrofished in an upstream direction approximately 100 yards from the Roush Lake Dam.

**COLLECTION SUMMARY**

DATE: 9/4/2008 GEAR: Daytime Barge Electrofishing EFFORT: 0.51 h  
 CREW: Braun, Donabauer, and Edgell  
 OTHER GEAR/EFFORT: \_\_\_\_\_ WATER STAGE: \_\_\_\_\_  
 CANOPY (%OPEN): 60 PHOTOS (Y/N): N SECCHI DISK (inches): 27  
 AIR TEMP (F): 76 WATER TEMP ( F): 78 D.O. (ppm): 8  
 CONDUCTIVITY: \_\_\_\_\_ pH: 8.5 ALKALINITY: 153.9  
 TDS: \_\_\_\_\_  
 STREAM MEASUREMENTS AVG. WIDTH: 69.3 ft AVG. DEPTH: 19.8 in MAX DEPTH: >4 ft  
 STATION LENGTH: (1st date) 1,213 ft (2nd date) \_\_\_\_\_

WIDTH (ft)	DEPTH (in)		
61	22	17	16
63	15	39	19
84	21	22	7

ADDITIONAL COMMENTS/POLLUTION IMPACTS: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

DATE: 9/4/2008

STATION: RM 411.4

NAME OF STREAM: Wabash River

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

COMMON NAME	NUMBER	PERCENTAGE	SIZE RANGE (INCHES)	TOTAL WEIGHT (POUNDS)	PERCENTAGE
Channel catfish	63	19.6	6.5 - 19.5	33.99	11.0
River carpsucker	40	12.4	7.0 - 18.0	60.50	19.5
Common carp	31	9.6	12.7 - 22.9	95.00	30.6
Freshwater drum	31	9.6	7.0 - 15.4	8.50	2.7
Shorthead redhorse	30	9.3	7.5 - 20.1	10.50	3.4
Quillback	29	9.0	12.5 - 16.1	40.25	13.0
Logperch	21	6.5	3.5 - 6.0	0.78	0.3
Gizzard shad	20	6.2	8.3 - 14.2	8.75	2.8
Walleye	13	4.0	11.2 - 24.1	19.22	6.2
Bluegill	9	2.8	4.8 - 6.6	1.13	0.4
Highfin carpsucker	5	1.6	8.0 - 14.9	2.95	1.0
Goldfish	4	1.2	9.0 - 15.4	4.41	1.4
Spotted sucker	4	1.2	11.2 - 13.1	2.76	0.9
Longear sunfish	4	1.2	4.3 - 5.0	0.26	0.1
Silver chub	4	1.2	4.6 - 5.7	0.21	0.1
Silver redhorse	3	0.9	7.1 - 22.0	8.00	2.6
Longnose gar	2	0.6	28.5 - 30.3	4.12	1.3
Green sunfish	2	0.6	3.4 - 5.2	0.13	<0.1
Bighead carp	1	0.3	19.5	3.04	1.0
Bigmouth buffalo	1	0.3	17.6	2.47	0.8
White crappie	1	0.3	8.0	2.10	0.7
Largemouth bass	1	0.3	8.8	0.33	0.1
Sauger	1	0.3	10.2	0.27	0.1
Smallmouth bass	1	0.3	6.1	0.23	0.1
Hybrid sunfish	1	0.3	5.8	0.17	0.1
<b>Total - 24 Species</b>	<b>322</b>			<b>310.07</b>	

STREAM: Wabash River RIVER MILE 411.4 DATE: 9/4/2008 QHEI SCORE 69

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

TYPE	POOL	RIFFLE	POOL	RIFFLE	SUBSTRATE ORIGIN (all)	SILT COVER (one)	
<input checked="" type="checkbox"/> BLDER/SLAB(10)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> LIMESTONE(1) <input type="checkbox"/> RIP/RAP(0)	<input type="checkbox"/> SILT-HEAVY(-2) <input type="checkbox"/> SILT-MOD(-1)	
<input type="checkbox"/> BOULDER(9)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> TILLS(1) <input type="checkbox"/> HARDPAN(0)	<input checked="" type="checkbox"/> SILT-NORM(0) <input type="checkbox"/> SILT-FREE(1)	
<input type="checkbox"/> COBBLE(8)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> SANDSTONE(0)	<b>Extent of Embeddedness (check one)</b>	
<input type="checkbox"/> HARDPAN(4)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> SHALE(-1)	<input type="checkbox"/> EXTENSIVE(-2) <input checked="" type="checkbox"/> MODERATE(-1)	
<input type="checkbox"/> MUCK/SILT(2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> ARTIFIC(0) <input type="checkbox"/> COAL FINES(-2)	<input type="checkbox"/> LOW(0) <input type="checkbox"/> NONE(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: \_\_\_\_\_

2) INSTREAM COVER: (20) COVER SCORE 15

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

COMMENTS: \_\_\_\_\_

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

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY	MODIFICATION/OTHER
<input type="checkbox"/> HIGH(4)	<input type="checkbox"/> EXCELLENT(7)	<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"/> GOOD(5)	<input type="checkbox"/> RECOVERED(4)	<input checked="" type="checkbox"/> MODERATE(2)	<input type="checkbox"/> RELOCATION <input type="checkbox"/> ISLAND
<input checked="" type="checkbox"/> LOW(2)	<input checked="" type="checkbox"/> FAIR(3)	<input type="checkbox"/> RECOVERING(3)	<input type="checkbox"/> LOW(1)	<input type="checkbox"/> CANOPY REMOVAL <input type="checkbox"/> LEVEED
<input type="checkbox"/> NONE(1)	<input type="checkbox"/> POOR(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: \_\_\_\_\_

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

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

COMMENTS: \_\_\_\_\_

5) POOL/GLIDE AND RIFFLE/RUN QUALITY (12) **NO POOL = 0** POOL SCORE 7

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

COMMENTS: \_\_\_\_\_

RIFFLE SCORE 1

RIFFLE/RUN DEPTH	RIFFLE/RUN SUBSTRATE	RIFFLE/RUN EMBEDDEDNESS
<input type="checkbox"/> GENERALLY >4 in. MAX.>20 in.(4)	<input type="checkbox"/> STABLE (e.g., Cobble,Boulder)(2)	<input type="checkbox"/> EXTENSIVE(-1) <input type="checkbox"/> NONE(2)
<input type="checkbox"/> GENERALLY >4 in. MAX.<20 in.(3)	<input type="checkbox"/> MOD. STABLE (e.g., Pea Gravel)(1)	<input checked="" type="checkbox"/> MODERATE(0) <input type="checkbox"/> NO RIFFLE(0)
<input checked="" type="checkbox"/> GENERALLY 2-4 in.(1)	<input checked="" type="checkbox"/> UNSTABLE (Gravel, Sand)(0)	<input type="checkbox"/> LOW(1)
<input checked="" type="checkbox"/> GENERALLY <2 in.(Riffle=0)(0)	<input type="checkbox"/> NO RIFFLE(0)	

COMMENTS: \_\_\_\_\_

6) GRADIENT (FEET/MILE)(10) 12.50 % POOL 20 % RIFFLE 10 % RUN 70 GRADIENT SCORE 8

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

STREAM: Wabash River RIVER MILE: 405.9  
 NEAREST TOWN: Huntington COUNTY: Huntington  
 QUADRANGLE: Andrews TWP: 28 N RNG: 9 E SEC: 21  
 LATITUDE: 40.87618947 LONGITUDE: -85.53244838  
 LATITUDE: 40.87416172 LONGITUDE: -85.52861282  
 U.S.G.S. GAUGING STATION LOCATION: Huntington 3323500 AVG. DISCHARGE (cfs): 613.2  
 IS REACH REPRESENTATIVE OF STREAM (Y/N) Y IF NOT, WHY? \_\_\_\_\_

DESCRIPTION OF SAMPLE SITE (Access, length, direction sampled): \_\_\_\_\_  
Electrofished in an upstream direction. Site located just above Little River confluence.

**COLLECTION SUMMARY**

DATE: 9/3/2008 GEAR: Daytime Barge Electrofishing EFFORT: 0.53 h  
 CREW: Braun, Donabauer, and Edgell  
 OTHER GEAR/EFFORT: \_\_\_\_\_ WATER STAGE: \_\_\_\_\_  
 CANOPY (%OPEN): 85 PHOTOS (Y/N): N SECCHI DISK (inches): 23  
 AIR TEMP (F): 82 WATER TEMP ( F): 74 D.O. (ppm): 6  
 CONDUCTIVITY: \_\_\_\_\_ pH: 8.5 ALKALINITY: 153.9  
 TDS: \_\_\_\_\_  
 STREAM MEASUREMENTS AVG. WIDTH: 149 ft AVG. DEPTH: 20.4 in MAX DEPTH: >4 ft  
 STATION LENGTH: (1st date) 1,348 ft (2nd date) \_\_\_\_\_

WIDTH (ft)	DEPTH (in)		
141	14	18	15
151	13	28	18
155	35	30	13

ADDITIONAL COMMENTS/POLLUTION IMPACTS: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

DATE: 9/3/2008

STATION: RM 405.9

NAME OF STREAM: Wabash River

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

COMMON NAME	NUMBER	PERCENTAGE	SIZE RANGE (INCHES)	TOTAL WEIGHT (POUNDS)	PERCENTAGE
Longear sunfish	48	23.1	1.3 - 5.0	1.65	0.6
Common carp	29	13.9	12.9 - 24.1	88.00	31.3
Shorthead redhorse	22	10.6	7.8 - 8.4	4.62	1.6
Logperch	20	9.6	3.1 - 6.1	0.64	0.2
Flathead catfish	12	5.8	20.2 - 37.5	137.85	49.1
Freshwater drum	12	5.8	6.7 - 20.0	11.16	4.0
River carpsucker	9	4.3	11.7 - 16.9	11.00	3.9
Golden redhorse	8	3.8	6.2 - 17.7	9.18	3.3
Gizzard shad	8	3.8	4.3 - 11.9	1.13	0.4
Northern hogsucker	7	3.4	7.2 - 12.7	1.97	0.7
Slenderhead darter	7	3.4	2.3 - 3.4	0.06	0.0
Green sunfish	6	2.9	2.4 - 4.4	0.22	0.1
Sauger	4	1.9	10.7 - 14.7	2.36	0.8
Channel catfish	3	1.4	5.7 - 19.5	2.80	1.0
Bluntnose minnow	3	1.4	2.2 - 2.4	0.01	0.0
Bullhead minnow	2	1.0	2.2 - 2.9	0.01	0.0
Sand shiner	2	1.0	2.0 - 2.3	0.00	0.0
Silver redhorse	1	0.5	23.6	5.64	2.0
Longnose gar	1	0.5	21.9	1.32	0.5
Smallmouth bass	1	0.5	11.6	0.73	0.3
Rock bass	1	0.5	6.5	0.21	0.1
Spotted bass	1	0.5	7.0	0.16	0.1
Walleye	1	0.5	6.8	0.09	0.0
<b>Total - Species</b>	208			280.81	

STREAM: Wabash River RIVER MILE 405.9 DATE: 9/3/2008 QHEI SCORE 68

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 checked="" type="checkbox"/>	BLDER/SLAB(10)							<input checked="" type="checkbox"/>		<input type="checkbox"/>	LIMESTONE(1)	<input type="checkbox"/>	SILT-HEAVY(-2)
<input checked="" type="checkbox"/>	BOULDER(9)	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		<input type="checkbox"/>	RIP/RAP(0)	<input checked="" type="checkbox"/>	SILT-NORM(0)
<input type="checkbox"/>	COBBLE(8)	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		<input type="checkbox"/>	HARDPAN(0)	<input type="checkbox"/>	SILT-FREE(1)
<input type="checkbox"/>	HARDPAN(4)							<input type="checkbox"/>	SANDSTONE(0)	Extent of Embeddedness (check one)			
<input type="checkbox"/>	MUCK/SILT(2)	<input checked="" type="checkbox"/>						<input type="checkbox"/>	SHALE(-1)	<input checked="" type="checkbox"/>	EXTENSIVE(-2)	<input type="checkbox"/>	MODERATE(-1)
								<input type="checkbox"/>	COAL FINES(-2)	<input type="checkbox"/>	LOW(0)	<input type="checkbox"/>	NONE(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: \_\_\_\_\_

2) INSTREAM COVER: (20) COVER SCORE 10

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

COMMENTS: \_\_\_\_\_

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

COMMENTS: \_\_\_\_\_

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

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 type="checkbox"/>	WIDE >150 ft.(4)	<input type="checkbox"/>	FOREST, SWAMP(3)	<input type="checkbox"/>	<input checked="" type="checkbox"/> URBAN OR INDUSTRIAL(0)	<input type="checkbox"/>	NONE OR LITTLE(3)
<input type="checkbox"/>	MODERATE 30-150 ft.(3)	<input checked="" type="checkbox"/>	OPEN PASTURE/ROW CROP(0)	<input type="checkbox"/>	SHURB OR OLD FIELD(2)	<input checked="" type="checkbox"/>	MODERATE(2)
<input checked="" type="checkbox"/>	NARROW 15-30 ft.(2)	<input type="checkbox"/>	RESID., PARK, NEW FIELD(1)	<input type="checkbox"/>	CONSERV. TILLAGE(1)	<input type="checkbox"/>	HEAVY OR SEVERE(1)
<input type="checkbox"/>	VERY NARROW 3-15 ft.(1)	<input type="checkbox"/>	FENCED PASTURE(1)	<input type="checkbox"/>	MINING/CONSTRUCTION(0)		
<input type="checkbox"/>	NONE(0)						

COMMENTS: \_\_\_\_\_

5) POOL/GLIDE AND RIFFLE/RUN QUALITY (12) **NO POOL = 0** POOL SCORE 9

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

COMMENTS: \_\_\_\_\_

RIFFLE SCORE 3

RIFFLE/RUN DEPTH	RIFFLE/RUN SUBSTRATE	RIFFLE/RUN EMBEDDEDNESS
<input type="checkbox"/> GENERALLY >4 in. MAX. >20 in.(4)	<input checked="" type="checkbox"/> STABLE (e.g., Cobble, Boulder)(2)	<input type="checkbox"/> EXTENSIVE(-1)
<input type="checkbox"/> GENERALLY >4 in. MAX. <20 in.(3)	<input type="checkbox"/> MOD. STABLE (e.g., Pea Gravel)(1)	<input type="checkbox"/> NONE(2)
<input checked="" type="checkbox"/> GENERALLY 2-4 in.(1)	<input type="checkbox"/> UNSTABLE (Gravel, Sand)(0)	<input checked="" type="checkbox"/> MODERATE(0)
<input type="checkbox"/> GENERALLY <2 in. (Riffle=0)(0)	<input type="checkbox"/> NO RIFFLE(0)	<input type="checkbox"/> LOW(1)
		<input type="checkbox"/> NO RIFFLE(0)

COMMENTS: \_\_\_\_\_

6) GRADIENT (FEET/MILE)(10) 2.25 % POOL 20 % RIFFLE 20 % RUN 60 GRADIENT SCORE 10

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

STREAM: Wabash River RIVER MILE: 393.3  
 NEAREST TOWN: Lagro COUNTY: Wabash  
 QUADRANGLE: Lagro TWP: 28 N RNG: 7 E SEC: 14, 34  
 LATITUDE: 40.833 LONGITUDE: -85.732  
 LATITUDE: 40.83069921 LONGITUDE: -85.73687025  
 U.S.G.S. GAUGING STATION LOCATION: Huntington 3323500 AVG. DISCHARGE (cfs): 613.2  
 IS REACH REPRESENTATIVE OF STREAM (Y/N) Y IF NOT, WHY? \_\_\_\_\_

DESCRIPTION OF SAMPLE SITE (Access, length, direction sampled): \_\_\_\_\_

Electrofished in a downstream direction. Site located near the Celotex water intake.

**COLLECTION SUMMARY**

DATE: 8/26/2008 GEAR: Daytime Boat Electrofishing EFFORT: 0.51 h  
 CREW: Braun, Edgell, and Thomas  
 OTHER GEAR/EFFORT: \_\_\_\_\_ WATER STAGE: \_\_\_\_\_  
 CANOPY (%OPEN): 85 PHOTOS (Y/N): N SECCHI DISK (inches): 17  
 AIR TEMP (F): 74 WATER TEMP ( F): 73 D.O. (ppm): 11.2  
 CONDUCTIVITY: 0.874 pH: 8.7 ALKALINITY: \_\_\_\_\_  
 TDS: 0.6  
 STREAM MEASUREMENTS AVG. WIDTH: 123.6 ft AVG. DEPTH: 20.3 MAX DEPTH: >4 ft  
 STATION LENGTH: (1st date) 1,612 ft (2nd date) \_\_\_\_\_

WIDTH (ft)	DEPTH (in)		
108	28	24	24
100	12	15	12
163	24	20	24

ADDITIONAL COMMENTS/POLLUTION IMPACTS: \_\_\_\_\_

Low water limited sampling effort to half of what DFW guidelines suggest.

DATE:8/26/2008

STATION: RM 393.3

NAME OF STREAM: Wabash River

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

COMMON NAME	NUMBER	PERCENTAGE	SIZE RANGE (INCHES)	TOTAL WEIGHT (POUNDS)	PERCENTAGE
Shorthead redhorse	87	22.1	7.1 - 20.0	89.00	25.7
Gizzard shad	50	12.7	4.3 - 12.0	2.34	0.7
Freshwater drum	47	11.9	4.3 - 18.4	32.00	9.2
Golden redhorse	27	6.9	11.5 - 19.3	49.50	14.3
Channel catfish	22	5.6	9.0 - 21.1	17.84	5.1
Northern hogsucker	21	5.3	8.1 - 15.3	16.75	4.8
Longear sunfish	21	5.3	2.8 - 5.4	0.94	0.3
Common carp	18	4.6	11.4 - 23.4	63.5	18.3
Bullhead minnow	15	3.8	2.0 - 3.0	0.11	<0.1
Steelcolor shiner	12	3.0	2.3 - 3.5	0.09	<0.1
Silver redhorse	11	2.8	13.5 - 23.0	36.79	10.6
River carpsucker	10	2.5	14.0 - 17.6	15.5	4.5
Bluntnose minnow	9	2.3	2.3 - 3.0	0.06	<0.1
Spotfin shiner	8	2.0	2.3 - 2.7	0.05	<0.1
Quillback	7	1.8	13.4 - 17.5	12.00	3.5
Smallmouth bass	6	1.5	6.7 - 14.4	3.17	0.9
Logperch	6	1.5	3.4 - 3.7	0.07	<0.1
Sauger	4	1.0	11.0 - 11.7	1.72	0.5
Walleye	3	0.8	13.3 - 17.0	3.54	1.0
White crappie	2	0.5	4.8 - 8.5	0.29	0.1
Bluegill	2	0.5	3.8	0.09	<0.1
Silver chub	2	0.5	4.8 - 5.0	0.08	<0.1
Smallmouth buffalo	1	0.3	12.9	1.12	0.3
Spotted bass	1	0.3	7.8	0.25	0.1
Slenderhead darter	1	0.3	1.7	0.01	<0.1
Emerald shiner	1	0.3	2.9	<0.01	<0.1
<b>Total - 26 Species</b>	394			346.81	

STREAM: Wabash River RIVER MILE 393.3 DATE: 8/26/2008 QHEI SCORE 75

1) SUBSTRATE: (Check ONLY Two Substrate Type Boxes: Check all types present)(20) SUBSTRATE SCORE 17

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 type="checkbox"/>	<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)	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	X	<input type="checkbox"/>	LIMESTONE(1)	<input type="checkbox"/>	RIP/RAP(0)
<input type="checkbox"/>	BOULDER(9)	<input checked="" type="checkbox"/>	X	<input checked="" type="checkbox"/>	X	<input type="checkbox"/>		<input type="checkbox"/>	X	<input checked="" type="checkbox"/>	TILLS(1)	<input type="checkbox"/>	HARDPAN(0)
<input checked="" type="checkbox"/>	COBBLE(8)	<input checked="" type="checkbox"/>	X	<input checked="" type="checkbox"/>	X	<input type="checkbox"/>		<input type="checkbox"/>	X	<input type="checkbox"/>	SANDSTONE(0)	<input checked="" type="checkbox"/>	SILT-NORM(0)
<input type="checkbox"/>	HARDPAN(4)	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	X	<input type="checkbox"/>	SHALE(-1)	Extent of Embeddedness (check one)	
<input type="checkbox"/>	MUCK/SILT(2)	<input checked="" type="checkbox"/>	X	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	X	<input type="checkbox"/>	COAL FINES(-2)	<input checked="" type="checkbox"/>	EXTENSIVE(-2)
TOTAL NUMBER OF SUBSTRATE TYPES: <input checked="" type="checkbox"/> >4(2)												<input type="checkbox"/>	MODERATE(-1)
												<input type="checkbox"/>	LOW(0)
												<input type="checkbox"/>	NONE(1)

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

COMMENTS: \_\_\_\_\_

2) INSTREAM COVER: (20) COVER SCORE 15

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

COMMENTS: \_\_\_\_\_

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

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

COMMENTS: \_\_\_\_\_

4) RIPARIAN ZONE AND BANK EROSION: (Check ONE box or Check 2 and AVERAGE per bank) (10) RIPARIAN SCORE 6

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)
<input type="checkbox"/>	WIDE >150ft.(4)	<input type="checkbox"/>	FOREST, SWAMP(3)	<input checked="" type="checkbox"/>	NONE OR LITTLE(3)
<input type="checkbox"/>	MODERATE 30-150 ft.(3)	<input checked="" type="checkbox"/>	OPEN PASTURE/ROW CROP(0)	<input type="checkbox"/>	MODERATE(2)
<input checked="" type="checkbox"/>	NARROW 15-30 ft.(2)	<input type="checkbox"/>	RESID.,PARK,NEW FIELD(1)	<input type="checkbox"/>	HEAVY OR SEVERE(1)
<input type="checkbox"/>	VERY NARROW 3-15 ft.(1)	<input type="checkbox"/>	FENCED PASTURE(1)	<input type="checkbox"/>	
<input type="checkbox"/>	NONE(0)	<input type="checkbox"/>		<input type="checkbox"/>	

COMMENTS: \_\_\_\_\_

5) POOL/GLIDE AND RIFFLE/RUN QUALITY (12) **NO POOL = 0** POOL SCORE 8

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

COMMENTS: \_\_\_\_\_

RIFFLE SCORE 4

RIFFLE/RUN DEPTH		RIFFLE/RUN SUBSTRATE		RIFFLE/RUN EMBEDDEDNESS	
<input type="checkbox"/>	GENERALLY >4 in. MAX.>20 in.(4)	<input checked="" type="checkbox"/>	STABLE (e.g., Cobble,Boulder)(2)	<input checked="" type="checkbox"/>	EXTENSIVE(-1)
<input checked="" type="checkbox"/>	GENERALLY >4 in. MAX.<20 in.(3)	<input type="checkbox"/>	MOD. STABLE (e.g., Pea Gravel)(1)	<input type="checkbox"/>	MODERATE(0)
<input type="checkbox"/>	GENERALLY 2-4 in.(1)	<input type="checkbox"/>	UNSTABLE (Gravel, Sand)(0)	<input type="checkbox"/>	LOW(1)
<input type="checkbox"/>	GENERALLY <2 in.(Riffle=0)(0)	<input type="checkbox"/>	NO RIFFLE(0)	<input type="checkbox"/>	NONE(2)
				<input type="checkbox"/>	NO RIFFLE(0)

COMMENTS: \_\_\_\_\_

6) GRADIENT (FEET/MILE)(10) 2.40 % POOL 5 % RIFFLE 5 % RUN 90 GRADIENT SCORE 10

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

STREAM: Wabash River RIVER MILE: 387.0  
 NEAREST TOWN: Wabash COUNTY: Wabash  
 QUADRANGLE: Wabash TWP: 27 N RNG: 6 E SEC: 18  
 LATITUDE: 40.78955948 LONGITUDE: -85.8227224  
 LATITUDE: 40.79086304 LONGITUDE: -85.83247491  
 U.S.G.S. GAUGING STATION LOCATION: Wabash 03325000 AVG. DISCHARGE (cfs): 1,585  
 IS REACH REPRESENTATIVE OF STREAM (Y/N) Y IF NOT, WHY? \_\_\_\_\_

DESCRIPTION OF SAMPLE SITE (Access, length, direction sampled): \_\_\_\_\_  
Electrofished in an upstream direction. Site located at the public access site in Wabash.

**COLLECTION SUMMARY**

DATE: 8/25/2008 GEAR: Daytime Boat Electrofishing EFFORT: 1.0 h  
 CREW: Braun, Edgell, Heordt, and McElveen  
 OTHER GEAR/EFFORT: \_\_\_\_\_ WATER STAGE: \_\_\_\_\_  
 CANOPY (%OPEN): 90 PHOTOS (Y/N): N SECCHI DISK (inches): 14  
 AIR TEMP (F): 71 WATER TEMP ( F): 75.2 D.O. (ppm): \_\_\_\_\_  
 CONDUCTIVITY: \_\_\_\_\_ pH: \_\_\_\_\_ ALKALINITY: \_\_\_\_\_  
 TDS: \_\_\_\_\_  
 STREAM MEASUREMENTS AVG. WIDTH: 150 ft AVG. DEPTH: 28.2 MAX DEPTH: >4 ft  
 STATION LENGTH: (1st date) 2,767 ft (2nd date) \_\_\_\_\_

WIDTH (ft)	DEPTH (in)		
130	15	30	36
150	40	36	15
170	30	20	32

ADDITIONAL COMMENTS/POLLUTION IMPACTS: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

DATE:8/25/2008

STATION: RM 387.0

NAME OF STREAM: Wabash River

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

COMMON NAME	NUMBER	PERCENTAGE	SIZE RANGE (INCHES)	TOTAL WEIGHT (POUNDS)	PERCENTAGE
River carpsucker	69	17.6	12.4 - 15.8	91.50	23.7
Freshwater drum	61	15.5	6.8 - 18.0	44.00	11.4
Shorthead redhorse	54	13.7	7.4 - 19.0	54.75	14.2
Longear sunfish	43	10.9	2.5 - 5.2	2.73	0.7
Gizzard shad	33	8.4	4.2 - 12.8	10.50	2.7
Common carp	24	6.1	11.9 - 25.1	86.00	22.3
Northern hogsucker	18	4.6	7.5 - 14.3	12.00	3.1
Golden redhorse	14	3.6	6.8 - 19.2	20.5	5.3
Walleye	9	2.3	9.4 - 27.4	11.43	3.0
Smallmouth bass	9	2.3	5.4 - 11.3	2.66	0.7
Silver redhorse	8	2.0	15.0 - 24.1	24.00	6.2
Channel catfish	6	1.5	12.3 - 21.6	8.65	2.2
Sauger	6	1.5	11.3 - 16.1	3.95	1.0
Silver chub	5	1.3	5.0 - 5.2	0.21	0.1
Emerald shiner	5	1.3	2.6 - 3.0	0.03	<0.1
Bullhead minnow	5	1.3	2.3 - 2.7	0.03	<0.1
Spotted bass	4	1.0	6.1 - 11.4	1.11	0.3
Logperch	3	0.8	5.2 - 6.4	0.17	<0.1
Spotfin shiner	3	0.8	2.1 - 4.1	0.04	<0.1
Steelcolor shiner	3	0.8	2.4 - 3.1	0.02	<0.1
Shortnose gar	2	0.5	23.6 - 27.1	4.51	1.2
Quillback	2	0.5	15.5 - 16.6	3.70	1.0
White crappie	2	0.5	8.9 - 9.1	0.66	0.2
Highfin carpsucker	1	0.3	13.1	1.03	0.3
Longnose gar	1	0.3	22.6	0.88	0.2
White bass	1	0.3	11.3	0.55	0.1
Bluegill	1	0.3	5.0	0.09	<0.1
Bluntnose minnow	1	0.3	2.4	<0.01	<0.1
<b>Total - 28 Species</b>	<b>393</b>			<b>385.7</b>	

STREAM: Wabash River RIVER MILE 387.0 DATE: 8/25/2008 QHEI SCORE 63

1) SUBSTRATE: (Check ONLY Two Substrate Type Boxes: Check all types present)(20) SUBSTRATE SCORE 12

TYPE		POOL		RIFFL		POOL		RIFFL		SUBSTRATE ORIGIN (all)		SILT COVER (one)	
<input type="checkbox"/>	BLDER/SLAB(10)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LIMESTONE(1)	<input type="checkbox"/>	RIP/RAP(0)
<input type="checkbox"/>	BOULDER(9)	<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"/>	TILLS(1)	<input type="checkbox"/>	HARDPAN(0)
<input type="checkbox"/>	COBBLE(8)	<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"/>	SANDSTONE(0)	<input checked="" type="checkbox"/>	SILT-NORM(0)
<input type="checkbox"/>	HARDPAN(4)	<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"/>	SHALE(-1)	<input type="checkbox"/>	SILT-FREE(1)
<input type="checkbox"/>	MUCK/SILT(2)	<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"/>	COAL FINES(-2)	<input type="checkbox"/>	EXTENSIVE(-2)
												Extent of Embeddedness (check one)	
												<input checked="" type="checkbox"/>	MODERATE(-1)
												<input type="checkbox"/>	LOW(0)
												<input type="checkbox"/>	NONE(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: \_\_\_\_\_

2) INSTREAM COVER: (20) COVER SCORE 7

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

COMMENTS: \_\_\_\_\_

3) CHANNEL MORPHOLOGY: (Check ONLY ONE per Category or Check 2 and AVERAGE)(20) CHANNEL SCORE 16

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

COMMENTS: \_\_\_\_\_

4) RIPARIAN ZONE AND BANK EROSION: (Check ONE box or Check 2 and AVERAGE per bank) (10) RIPARIAN SCORE 5

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 type="checkbox"/>	WIDE >150 ft.(4)	<input type="checkbox"/>	FOREST, SWAMP(3)	<input checked="" type="checkbox"/>	URBAN OR INDUSTRIAL(0)	<input checked="" type="checkbox"/>	NONE OR LITTLE(3)
<input type="checkbox"/>	MODERATE 30-150 ft.(3)	<input type="checkbox"/>	OPEN PASTURE/ROW CROP(0)	<input type="checkbox"/>	SHURB OR OLD FIELD(2)	<input type="checkbox"/>	MODERATE(2)
<input checked="" type="checkbox"/>	NARROW 15-30 ft.(2)	<input type="checkbox"/>	RESID., PARK, NEW FIELD(1)	<input type="checkbox"/>	CONSERV. TILLAGE(1)	<input type="checkbox"/>	HEAVY OR SEVERE(1)
<input type="checkbox"/>	VERY NARROW 3-15 ft.(1)	<input type="checkbox"/>	FENCED PASTURE(1)	<input type="checkbox"/>	MINING/CONSTRUCTION(0)		
<input type="checkbox"/>	NONE(0)						

COMMENTS: \_\_\_\_\_

5) POOL/GLIDE AND RIFFLERUN QUALITY (12) **NO POOL = 0** POOL SCORE 8

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

COMMENTS: \_\_\_\_\_

RIFFLE SCORE 5

RIFFLE/RUN DEPTH	RIFFLE/RUN SUBSTRATE	RIFFLE/RUN EMBEDDEDNESS
<input type="checkbox"/> GENERALLY >4 in. MAX. >20 in.(4)	<input checked="" type="checkbox"/> STABLE (e.g., Cobble, Boulder)(2)	<input type="checkbox"/> EXTENSIVE(-1)
<input checked="" type="checkbox"/> GENERALLY >4 in. MAX. <20 in.(3)	<input type="checkbox"/> MOD. STABLE (e.g., Pea Gravel)(1)	<input type="checkbox"/> NONE(2)
<input type="checkbox"/> GENERALLY 2-4 in.(1)	<input type="checkbox"/> UNSTABLE (Gravel, Sand)(0)	<input checked="" type="checkbox"/> MODERATE(0)
<input type="checkbox"/> GENERALLY <2 in. (Riffle=0)(0)	<input type="checkbox"/> NO RIFFLER(0)	<input type="checkbox"/> LOW(1)
		<input type="checkbox"/> NO RIFFLER(0)

COMMENTS: \_\_\_\_\_

6) GRADIENT (FEET/MILE)(10) 1.78 % POOL 10 % RIFFLER 30 % RUN 60 GRADIENT SCORE 10

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

STREAM: Wabash River RIVER MILE: 380.1  
 NEAREST TOWN: Rich Valley COUNTY: Wabash/Miami  
 QUADRANGLE: Rich Valley TWP: 27 N RNG: 5 E SEC: 12  
 LATITUDE: 40.77283859 LONGITUDE: -85.93871721  
 LATITUDE: 40.76982379 LONGITUDE: -85.94738075  
 U.S.G.S. GAUGING STATION LOCATION: Wabash 03325000 AVG. DISCHARGE (cfs): 1,585  
 IS REACH REPRESENTATIVE OF STREAM (Y/N) Y IF NOT, WHY? \_\_\_\_\_

DESCRIPTION OF SAMPLE SITE (Access, length, direction sampled): \_\_\_\_\_

Electrofished in an upstream direction. Site located at the Omer Cole public access site near Rich Valley.

**COLLECTION SUMMARY**

DATE: 8/19/2008 GEAR: Daytime Boat Electrofishing EFFORT: 1.0 h  
 CREW: Braun, Culver, and Edgell  
 OTHER GEAR/EFFORT: \_\_\_\_\_ WATER STAGE: \_\_\_\_\_  
 CANOPY (%OPEN): 95 PHOTOS (Y/N): N SECCHI DISK (inches): 13  
 AIR TEMP (F): 88 WATER TEMP ( F): 77.4 D.O. (ppm): 13.8  
 CONDUCTIVITY: 0.636 pH: 8.8 ALKALINITY: \_\_\_\_\_  
 TDS: 0.4  
 STREAM MEASUREMENTS AVG. WIDTH: 172 ft AVG. DEPTH: 27.8 in MAX DEPTH: >4 ft  
 STATION LENGTH: (1st date) 2,670 ft (2nd date) \_\_\_\_\_

WIDTH (ft)	DEPTH (in)		
171	38	25	19
160	30	26	30
185	18	25	39

ADDITIONAL COMMENTS/POLLUTION IMPACTS: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

DATE:8/19/2008

STATION: RM 380.1

NAME OF STREAM: Wabash River

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

COMMON NAME	NUMBER	PERCENTAGE	SIZE RANGE (INCHES)	TOTAL WEIGHT (POUNDS)	PERCENTAGE
Longear sunfish	74	18.7	2.5 - 5.3	2.71	0.7
Gizzard shad	49	12.4	3.7 - 15.9	18.00	4.7
Freshwater drum	47	11.9	4.2 - 21.2	31.25	8.2
River carpsucker	39	9.8	10.3 - 17.6	60.25	15.8
Common carp	27	6.8	14.2 - 25.4	108.60	28.5
Quillback	27	6.8	8.1 - 16.4	34.25	9.0
Shorthead redhorse	21	5.3	5.6 - 18.4	26.25	6.9
White crappie	12	3.0	4.8 - 10.8	2.62	0.7
Channel catfish	11	2.8	9.4 - 18.2	8.82	2.3
Sauger	10	2.5	10.3 - 16.0	5.73	1.5
Silver redhorse	8	2.0	6.4 - 22.3	7.75	2.0
Golden redhorse	8	2.0	5.8 - 6.9	0.81	0.2
Spotfin shiner	7	1.8	2.1 - 3.2	0.04	<0.1
Spotted bass	6	1.5	5.6 - 7.5	0.78	0.2
Silver chub	6	1.5	4.8 - 6.1	0.32	0.1
Bigmouth buffalo	5	1.3	14.5 - 22.7	17.78	4.7
Walleye	5	1.3	9.7 - 28.5	9.28	2.4
Bullhead minnow	5	1.3	2.3 - 2.7	0.03	<0.1
Bluegill	4	1.0	3.7 - 4.6	0.23	0.1
Shortnose gar	3	0.8	20.3 - 25.4	3.86	1.0
Black crappie	3	0.8	8.9 - 10.2	1.33	0.3
Emerald shiner	3	0.8	2.7 - 3.2	0.02	<0.1
Silver carp	2	0.5	25.6 - 28.0	18.2	4.8
Smallmouth buffalo	2	0.5	17.7 - 21.2	8.28	2.2
Largemouth bass	2	0.5	11.0 - 11.2	1.27	0.3
White bass	2	0.5	8.0 - 9.6	0.47	0.1
Black buffalo	1	0.3	24.5	8.44	2.2
Shovelnose sturgeon	1	0.3	23.1	1.43	0.4
Goldeye	1	0.3	14.4	0.94	0.2
Longnose gar	1	0.3	22.7	0.80	0.2
Smallmouth bass	1	0.3	6.3	0.11	<0.1
Steelcolor shiner	1	0.3	2.7	<0.01	<0.1
Channel shiner	1	0.3	2.2	<0.01	<0.1
Bluntnose minnow	1	0.3	2.4	<0.01	<0.1
<b>Total - 34 Species</b>	396			380.65	

STREAM: Wabash River RIVER MILE 380.1 DATE: 8/19/2008 QHEI SCORE 63

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

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 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 checked="" 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"/>

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

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

COMMENTS: \_\_\_\_\_

2) INSTREAM COVER: (20) COVER SCORE 11

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

COMMENTS: \_\_\_\_\_

3) CHANNEL MORPHOLOGY: (Check ONLY ONE per Category or Check 2 and AVERAGE)(20) CHANNEL SCORE 11

<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 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"/>

COMMENTS: \_\_\_\_\_

4) RIPARIAN ZONE AND BANK EROSION: (Check ONE box or Check 2 and AVERAGE per bank) (10) RIPARIAN SCORE 5

River Right Looking Downstream

<u>RIPARIAN WIDTH (per bank)</u>	<u>EROSION/RUNOFF-FLOODPLAIN QUALITY</u>	<u>BANK EROSION</u>
<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"/>

COMMENTS: \_\_\_\_\_

5) POOL/GLIDE AND RIFFLE/RUN QUALITY (12) **NO POOL = 0** POOL SCORE 9

<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 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"/>

COMMENTS: \_\_\_\_\_

RIFFLE SCORE 3

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

COMMENTS: \_\_\_\_\_

6) GRADIENT (FEET/MILE)(10) 1.00 % POOL 5 % RIFFLE 5 % RUN 90 GRADIENT SCORE 8

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

STREAM: Wabash River RIVER MILE: 370.5  
 NEAREST TOWN: Peru COUNTY: Miami  
 QUADRANGLE: Peru TWP: 27 N RNG: 4 E SEC: 12  
 LATITUDE: 40.833 LONGITUDE: -85.732  
 LATITUDE: 40.74317336 LONGITUDE: -86.10501953  
 U.S.G.S. GAUGING STATION LOCATION: Peru 03327500 AVG. DISCHARGE (cfs): 2,517  
 IS REACH REPRESENTATIVE OF STREAM (Y/N) Y IF NOT, WHY? \_\_\_\_\_

DESCRIPTION OF SAMPLE SITE (Access, length, direction sampled): \_\_\_\_\_

Electrofished in an upstream direction. Site located at Buisness 31 bridge (Kmart parking lot).

**COLLECTION SUMMARY**

DATE: 8/20/2008 GEAR: Daytime Boat Electrofishing EFFORT: 1.0 h  
 CREW: Braun, Culver, and Donabauer  
 OTHER GEAR/EFFORT: \_\_\_\_\_ WATER STAGE: \_\_\_\_\_  
 CANOPY (%OPEN): 98 PHOTOS (Y/N): N SECCHI DISK (inches): 13  
 AIR TEMP (F): 86 WATER TEMP ( F): 76.3 D.O. (ppm): 13.8  
 CONDUCTIVITY: 0.636 pH: 8.8 ALKALINITY: \_\_\_\_\_  
 TDS: 0.4  
 STREAM MEASUREMENTS AVG. WIDTH: 123.8 ft AVG. DEPTH: 28.2 in MAX DEPTH: > 6 ft  
 STATION LENGTH: (1st date) 2,329 ft (2nd date) \_\_\_\_\_

WIDTH (ft)	DEPTH (in)		
38	17	38	32
96	17	17	50
223	10	46	27
220			
42			

ADDITIONAL COMMENTS/POLLUTION IMPACTS: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

DATE: 8/20/2008

STATION: RM 370.5

NAME OF STREAM: Wabash River

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

COMMON NAME	NUMBER	PERCENTAGE	SIZE RANGE (INCHES)	TOTAL WEIGHT (POUNDS)	PERCENTAGE
River carpsucker	58	17.2	10.1 - 17.3	68.25	11.8
Freshwater drum	44	13.0	6.5 - 22.7	55.42	9.6
Common carp	29	8.6	20.7 - 26.2	142.38	24.7
Longear sunfish	29	8.6	2.5 - 5.4	1.52	0.3
Shorthead redhorse	22	6.5	6.4 - 19.3	16.75	2.9
Golden redhorse	21	6.2	6.6 - 14.6	13.25	2.3
Gizzard shad	20	5.9	4.7 - 13.0	7.75	1.3
Bigmouth buffalo	14	4.1	16.2 - 24.1	78.00	13.5
Channel catfish	14	4.1	11.4 - 25.3	22.71	3.9
Smallmouth buffalo	11	3.3	16.6 - 22.0	43.00	7.5
Smallmouth bass	10	3.0	5.6 - 13.1	4.43	0.8
Sauger	9	2.7	10.9 - 17.1	6.27	1.1
Shovelnose sturgeon	6	1.8	23.9 - 31.4	15.29	2.7
Silver carp	5	1.5	23.5 - 28.2	38.33	6.7
Spotted bass	5	1.5	5.5 - 6.8	0.58	0.1
Silver redhorse	4	1.2	12.4 - 23.3	13.75	2.4
Quillback	4	1.2	13.1 - 15.6	4.77	0.8
Northern hogsucker	4	1.2	7.5 - 14.4	3.21	0.6
Walleye	3	0.9	11.8 - 18.7	3.13	0.5
Mooneye	3	0.9	9.3 - 14.2	2.08	0.4
Shortnose gar	2	0.6	23.5 - 23.9	3.14	0.5
Bluegill	2	0.6	3.6 - 3.7	0.06	0.0
Streamline chub	2	0.6	3.7 - 3.9	0.04	0.0
Bluntnose minnow	2	0.6	2.4 - 2.5	0.01	0.0
Spotfin shiner	2	0.6	2.0 - 2.5	0.00	0.0
Black buffalo	1	0.3	28.8	11.50	2.0
Grass carp	1	0.3	29.2	10.75	1.9
Flathead catfish	1	0.3	23.4	5.76	1.0
Longnose gar	1	0.3	31.8	2.55	0.4
White sucker	1	0.3	12.2	0.74	0.1
Largemouth bass	1	0.3	11.8	0.70	0.1
Silver chub	1	0.3	5.0	0.04	0.0
Black crappie	1	0.3	4.6	0.04	0.0
Slenderhead darter	2	0.6	2.4 - 3.0	0.02	0.0
Green sunfish	1	0.3	2.3	0.01	0.0
Steelcolor shiner	1	0.3	2.1	0.00	0.0
Emerald shiner	1	0.3	2.8	0.00	0.0
<b>Total - Species</b>	<b>338</b>			<b>576.23</b>	

STREAM: Wabash River RIVER MILE 370.5 DATE: 8/20/2008 QHEI SCORE 70.5

1) SUBSTRATE: (Check ONLY Two Substrate Type Boxes: Check all types present)(20) SUBSTRATE SCORE 19

TYPE		POOL		RIFFLE		POOL		RIFFLE		SUBSTRATE ORIGIN (all)		SILT COVER (one)	
<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 checked="" type="checkbox"/>	BLDER/SLAB(10)	<input 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"/>	RIP/RAP(0)	<input checked="" type="checkbox"/>	SILT-HEAVY(-2)
<input type="checkbox"/>	BOULDER(9)	<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"/>	HARDPAN(0)	<input type="checkbox"/>	SILT-NORM(0)
<input type="checkbox"/>	COBBLE(8)	<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"/>	SANDSTONE(0)	<input type="checkbox"/>	SILT-FREE(1)
<input type="checkbox"/>	HARDPAN(4)	<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"/>	SHALE(-1)	Extent of Embeddedness (check one)	
<input type="checkbox"/>	MUCK/SILT(2)	<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"/>	COAL FINES(-2)	<input checked="" type="checkbox"/>	EXTENSIVE(-2)
TOTAL NUMBER OF SUBSTRATE TYPES: <input checked="" type="checkbox"/> >4(2) <input type="checkbox"/> <4(0)												<input type="checkbox"/>	MODERATE(-1)
												<input type="checkbox"/>	LOW(0)
												<input type="checkbox"/>	NONE(1)

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

COMMENTS: \_\_\_\_\_

2) INSTREAM COVER: (20) COVER SCORE 9

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

COMMENTS: \_\_\_\_\_

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

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

COMMENTS: \_\_\_\_\_

4) RIPARIAN ZONE AND BANK EROSION: (Check ONE box or Check 2 and AVERAGE per bank) (10) RIPARIAN SCORE 4.5

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 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"/>	WIDE >150ft.(4)	<input type="checkbox"/>	FOREST, SWAMP(3)	<input type="checkbox"/>	URBAN OR INDUSTRIAL(0)	<input type="checkbox"/>	NONE OR LITTLE(3)
<input type="checkbox"/>	MODERATE 30-150 ft.(3)	<input type="checkbox"/>	OPEN PASTURE/ROW CROP(0)	<input type="checkbox"/>	SHURB OR OLD FIELD(2)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	NARROW 15-30 ft.(2)	<input checked="" type="checkbox"/>	RESID.,PARK,NEW FIELD(1)	<input type="checkbox"/>	CONSERV. TILLAGE(1)	<input type="checkbox"/>	MODERATE(2)
<input type="checkbox"/>	VERY NARROW 3-15 ft.(1)	<input type="checkbox"/>	FENCED PASTURE(1)	<input type="checkbox"/>	MINING/CONSTRUCTION(0)	<input type="checkbox"/>	HEAVY OR SEVERE(1)
<input type="checkbox"/>	NONE(0)						

COMMENTS: \_\_\_\_\_

5) POOL/GLIDE AND RIFFLE/RUN QUALITY (12) **NO POOL = 0** POOL SCORE 8

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

COMMENTS: \_\_\_\_\_

RIFFLE SCORE 5

RIFFLE/RUN DEPTH		RIFFLE/RUN SUBSTRATE		RIFFLE/RUN EMBEDDEDNESS	
<input checked="" type="checkbox"/>	GENERALLY >4 in. MAX.>20 in.(4)	<input checked="" type="checkbox"/>	STABLE (e.g., Cobble,Boulder)(2)	<input checked="" type="checkbox"/>	EXTENSIVE(-1)
<input type="checkbox"/>	GENERALLY >4 in. MAX.<20 in.(3)	<input type="checkbox"/>	MOD. STABLE (e.g., Pea Gravel)(1)	<input type="checkbox"/>	MODERATE(0)
<input type="checkbox"/>	GENERALLY 2-4 in.(1)	<input type="checkbox"/>	UNSTABLE (Gravel, Sand)(0)	<input type="checkbox"/>	LOW(1)
<input type="checkbox"/>	GENERALLY <2 in.(Riffle=0)(0)	<input type="checkbox"/>	NO RIFFLE(0)	<input type="checkbox"/>	NONE(2)
				<input type="checkbox"/>	NO RIFFLE(0)

COMMENTS: \_\_\_\_\_

6) GRADIENT (FEET/MILE)(10) 2.28 % POOL 5 % RIFFLE 10 % RUN 85 GRADIENT SCORE 10

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

STREAM: Wabash River RIVER MILE: 363.4

NEAREST TOWN: Lewisburg COUNTY: Cass

QUADRANGLE: Onward TWP: 26 N RNG: 3 E SEC: 32

LATITUDE: 40.74393511 LONGITUDE: -86.21592888

LATITUDE: 40.74513137 LONGITUDE: -86.21968933

U.S.G.S. GAUGING STATION LOCATION: Peru 03327500 AVG. DISCHARGE (cfs): 2,517

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

DESCRIPTION OF SAMPLE SITE (Access, length, direction sampled): \_\_\_\_\_

Electrofished in an upstream direction. Site located at CR 825 bridge.

**COLLECTION SUMMARY**

DATE: 9/2/2008 GEAR: Daytime Boat Electrofishing EFFORT: 1.0 h

CREW: Braun, Donabauer, and Edgell

OTHER GEAR/EFFORT: \_\_\_\_\_ WATER STAGE: \_\_\_\_\_

CANOPY (%OPEN): 95 PHOTOS (Y/N): N SECCHI DISK (inches): 14

AIR TEMP (F): 72.5 WATER TEMP ( F): 76 D.O. (ppm): 8

CONDUCTIVITY: \_\_\_\_\_ pH: 8.5 ALKALINITY: 136.8

TDS: \_\_\_\_\_

STREAM MEASUREMENTS AVG. WIDTH: 272 ft AVG. DEPTH: 35.1 in MAX DEPTH: >4 ft

STATION LENGTH: (1st date) 1,172 ft (2nd date) \_\_\_\_\_

WIDTH (ft)	DEPTH (in)		
253	44	16	50
280	14	39	51
283	16	50	36

ADDITIONAL COMMENTS/POLLUTION IMPACTS: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

DATE:9/2/2008

STATION: RM 363.4

NAME OF STREAM: Wabash River

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

COMMON NAME	NUMBER	PERCENTAGE	SIZE RANGE (INCHES)	TOTAL WEIGHT (POUNDS)	PERCENTAGE
River carpsucker	69	19.9	12.4 - 17.7	110.25	19.9
Freshwater drum	44	12.7	8.1 - 28.1	44.84	8.1
Longear sunfish	43	12.4	3.4 - 5.3	2.37	0.4
Gizzard shad	39	11.2	4.2 - 13.1	15.50	2.8
Shorthead redhorse	31	8.9	7.2 - 17.1	26.75	4.8
Smallmouth buffalo	23	6.6	17.3 - 24.7	110.75	20.0
Bigmouth buffalo	11	3.2	17.0 - 25.4	42.00	7.6
Common carp	10	2.9	18.4 - 25.4	42.00	7.6
Smallmouth bass	10	2.9	6.2 - 14.0	5.24	0.9
Channel catfish	8	2.3	13.9 - 26.7	15.00	2.7
Golden redhorse	7	2.0	7.0 - 16.2	4.09	0.7
Northern hogsucker	6	1.7	7.5 - 12.5	1.98	0.4
Quillback	5	1.4	14.7 - 16.8	10.00	1.8
Silver carp	4	1.2	25.8 - 30.1	35.98	6.5
Spotted bass	3	0.9	5.6 - 7.1	0.40	0.1
Bluntnose minnow	3	0.9	2.7 - 2.8	0.02	<0.1
Bullhead minnow	3	0.9	2.8 - 2.9	0.01	<0.1
Grass carp	2	0.6	29.1 - 40.0	38.00	6.9
Flathead catfish	2	0.6	25.7 - 29.7	19.87	3.6
River redhorse	2	0.6	19.2 - 27.3	10.50	1.9
Shortnose gar	2	0.6	24.5 - 24.8	4.34	0.8
Walleye	2	0.6	17.8 - 18.6	3.82	0.7
Black redhorse	2	0.6	13.2 - 14.1	2.05	0.4
Sauger	2	0.6	12.7 - 12.8	1.20	0.2
Silver redhorse	2	0.6	7.2	0.34	0.1
Spotfin shiner	2	0.6	3.0 - 4.1	0.04	<0.1
Bighead carp	1	0.3	21.6	4.01	0.7
Longnose gar	1	0.3	23.2	0.91	0.2
White bass	1	0.3	11.8	0.71	0.1
Rock bass	1	0.3	6.7	0.23	<0.1
Bluegill	1	0.3	5.3	0.10	<0.1
Silver chub	1	0.3	6.0	0.07	<0.1
White crappie	1	0.3	5.5	0.07	<0.1
Greenside darter	1	0.3	3.1	0.01	<0.1
Redfin shiner	1	0.3	3.2	0.01	<0.1
Emerald shiner	1	0.3	3.1	<0.01	<0.1
<b>Total - 36 Species</b>	<b>347</b>			<b>553.46</b>	

STREAM: Wabash River RIVER MILE 363.4 DATE: 9/2/2008 QHEI SCORE 67.5

1) SUBSTRATE: (Check ONLY Two Substrate Type Boxes: Check all types present)(20) SUBSTRATE SCORE 12

TYPE		POOL	RIFFLE			POOL	RIFFLE	SUBSTRATE ORIGIN (all)		SILT COVER (one)					
<input checked="" type="checkbox"/>	BLDER/SLAB(10)			<input type="checkbox"/>	LIMESTONE(1)	<input type="checkbox"/>	RIP/RAP(0)	<input type="checkbox"/>	SILT-HEAVY(-2)	<input type="checkbox"/>	SILT-MOD(-1)				
<input type="checkbox"/>	BOULDER(9)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	TILLS(1)	<input type="checkbox"/>	HARDPAN(0)	<input checked="" type="checkbox"/>	SILT-NORM(0)	<input type="checkbox"/>	SILT-FREE(1)
<input type="checkbox"/>	COBBLE(8)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	SANDSTONE(0)	<u>Extent of Embeddedness (check one)</u>										
<input type="checkbox"/>	HARDPAN(4)			<input type="checkbox"/>	SHALE(-1)	<input type="checkbox"/>		<input type="checkbox"/>	EXTENSIVE(-2)	<input checked="" type="checkbox"/>	MODERATE(-1)				
<input type="checkbox"/>	MUCK/SILT(2)			<input type="checkbox"/>	COAL FINES(-2)	<input type="checkbox"/>		<input type="checkbox"/>	LOW(0)	<input type="checkbox"/>	NONE(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: \_\_\_\_\_

2) INSTREAM COVER: (20) COVER SCORE 10

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

COMMENTS: \_\_\_\_\_

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

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY	MODIFICATION/OTHER	
<input type="checkbox"/>	EXCELLENT(7)	<input checked="" type="checkbox"/>	HIGH(3)	<input type="checkbox"/>	SNAGGING
<input type="checkbox"/>	GOOD(5)	<input type="checkbox"/>	MODERATE(2)	<input type="checkbox"/>	RELOCATION
<input checked="" type="checkbox"/>	FAIR(3)	<input type="checkbox"/>	LOW(1)	<input type="checkbox"/>	CANOPY REMOVAL
<input type="checkbox"/>	POOR(1)	<input type="checkbox"/>		<input type="checkbox"/>	DREDGING
		<input type="checkbox"/>		<input type="checkbox"/>	ONE SIDE CHANNEL MODIFICATION
		<input type="checkbox"/>		<input type="checkbox"/>	IMPOUND
		<input type="checkbox"/>		<input type="checkbox"/>	ISLAND
		<input type="checkbox"/>		<input type="checkbox"/>	LEVEED
		<input type="checkbox"/>		<input type="checkbox"/>	BANK SHAPING

COMMENTS: \_\_\_\_\_

4) RIPARIAN ZONE AND BANK EROSION: (Check ONE box or Check 2 and AVERAGE per bank) (10) RIPARIAN SCORE 5.5

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 type="checkbox"/>	WIDE>150ft.(4)	<input type="checkbox"/>	<input checked="" type="checkbox"/> FOREST, SWAMP(3)	<input type="checkbox"/>	URBAN OR INDUSTRIAL(0)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> NONE OR LITTLE(3)
<input type="checkbox"/>	MODERATE 30-150 ft.(3)	<input checked="" type="checkbox"/>	OPEN PASTURE/ROW CROP(0)	<input type="checkbox"/>	SHURB OR OLD FIELD(2)	<input type="checkbox"/>	MODERATE(2)
<input checked="" type="checkbox"/>	NARROW 15-30 ft.(2)	<input type="checkbox"/>	RESID.,PARK,NEW FIELD(1)	<input type="checkbox"/>	CONSERV. TILLAGE(1)	<input type="checkbox"/>	HEAVY OR SEVERE(1)
<input type="checkbox"/>	VERY NARROW 3-15 ft.(1)	<input type="checkbox"/>	FENCED PASTURE(1)	<input type="checkbox"/>	MINING/CONSTRUCTION(0)		
<input type="checkbox"/>	NONE(0)						

COMMENTS: \_\_\_\_\_

5) POOL/GLIDE AND RIFFLE/RUN QUALITY (12) **NO POOL = 0** POOL SCORE 9

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

COMMENTS: \_\_\_\_\_

RIFFLE/RUN DEPTH RIFFLE/RUN SUBSTRATE RIFFLE/RUN EMBEDDEDNESS: RIFFLE SCORE 6

RIFFLE/RUN DEPTH	RIFFLE/RUN SUBSTRATE	RIFFLE/RUN EMBEDDEDNESS:
<input checked="" type="checkbox"/> GENERALLY >4 in. MAX.>20 in.(4)	<input checked="" type="checkbox"/> STABLE (e.g., Cobble,Boulder)(2)	<input type="checkbox"/> EXTENSIVE(-1)
<input type="checkbox"/> GENERALLY >4 in. MAX.<20 in.(3)	<input type="checkbox"/> MOD. STABLE (e.g., Pea Gravel)(1)	<input checked="" type="checkbox"/> MODERATE(0)
<input type="checkbox"/> GENERALLY 2-4 in.(1)	<input type="checkbox"/> UNSTABLE (Gravel, Sand)(0)	<input type="checkbox"/> NONE(2)
<input type="checkbox"/> GENERALLY <2 in.(Riffle=0)(0)	<input type="checkbox"/> NO RIFFLE(0)	<input checked="" type="checkbox"/> NO RIFFLE(0)
		<input type="checkbox"/> LOW(1)

COMMENTS: \_\_\_\_\_

6) GRADIENT (FEET/MILE)(10) 1.64 % POOL 10 % RIFFLE 10 % RUN 80 GRADIENT SCORE 10

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

STREAM: Wabash River RIVER MILE: 331.0  
 NEAREST TOWN: Pittsburg COUNTY: Carroll  
 QUADRANGLE: Delphi TWP: 25N RNG: 3W SEC: 25  
 LATITUDE: N 40.58318 LONGITUDE: W086.69653  
 LATITUDE: N 40.59094 LONGITUDE: W086.69812  
 U.S.G.S. GAUGING STATION LOCATION: Lafayette 03335500 AVG. DISCHARGE (cfs): 6,708  
 IS REACH REPRESENTATIVE OF STREAM (Y/N) Yes IF NOT, WHY? \_\_\_\_\_

DESCRIPTION OF SAMPLE SITE (Access, length, direction sampled): The river was accessed north of the US 421 bridge. Sampling was conducted in a downstream direction for 0.5 h on each bank (1.0 h total) for approximately 0.5 miles.

**COLLECTION SUMMARY**

DATE: 8/26/2008 GEAR: Electrofishing boat EFFORT: 1.0 h  
 CREW: Byer, Ledet, Long, and Robertson  
 OTHER GEAR/EFFORT: None WATER STAGE: low  
 CANOPY (%OPEN): 90 PHOTOS (Y/N): No SECCHI DISK (inches): 18  
 AIR TEMP (F): 65 WATER TEMP ( F): 69.4 D.O. (ppm): 10.20  
 CONDUCTIVITY: 652 pH: 9.5 ALKALINITY: 220  
 TDS: 1080  
 STREAM MEASUREMENTS AVG. WIDTH: 298.8 ft AVG. DEPTH: 37.6 in MAX DEPTH: 54.0 in  
 STATION LENGTH: (1st date) 2,941 ft (2nd date) \_\_\_\_\_

WIDTH (ft)	DEPTH (in)		
303	54	48	36
330	54	54	30
297	36	54	24
231	30	36	30
333	42	12	24

ADDITIONAL COMMENTS/POLLUTION IMPACTS: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

DATE: 8/26/2008

STATION: RM 331.0

NAME OF STREAM: Wabash River

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

COMMON NAME	NUMBER	PERCENTAGE	SIZE RANGE (INCHES)	TOTAL WEIGHT (POUNDS)	PERCENTAGE
Gizzard shad	151	37.4	4.1 - 12.0	13.00	6.2
Freshwater drum	55	13.6	3.6 - 25.2	36.10	17.2
River shiner	33	8.2	2.3 - 3.1	0.20	0.1
Longear sunfish	24	5.9	2.1 - 4.6	0.80	0.4
Quillback	19	4.7	15.5 - 17.3	29.50	14.1
Sand shiner	17	4.2	1.8 - 2.1	< 0.01	< 0.1
Sauger	12	3.0	10.5 - 15.6	7.20	3.4
Northern hogsucker	10	2.5	5.9 - 13.0	2.80	1.3
Emerald shiner	9	2.2	2.6 - 3.1	0.10	0.1
Black redhorse	8	2.0	6.0 - 10.4	3.60	1.7
Silver chub	8	2.0	5.0 - 6.8	0.42	0.2
Channel catfish	7	1.7	11.7 - 20.0	9.40	4.5
Shorthead redhorse	7	1.7	8.4 - 16.2	9.00	4.3
Common carp	6	1.5	20.2 - 25.4	23.10	11.0
Bullhead minnow	6	1.5	1.9 - 3.5	< 0.01	< 0.1
Silver carp	4	1.0	25.2 - 27.3	29.60	14.1
Spotted bass	4	1.0	2.6 - 7.3	0.40	0.2
Shortnose gar	2	0.5	20.1 - 22.6	2.30	1.1
Smallmouth buffalo	2	0.5	17.3 - 19.3	6.60	3.1
Golden redhorse	2	0.5	12.4 - 16.3	2.10	1.0
Silver redhorse	2	0.5	10.6 - 19.4	2.50	1.2
Bluntnose minnow	2	0.5	2.3 - 2.4	< 0.01	< 0.1
Grass carp	1	0.2	33.3	16.00	7.6
Blue sucker	1	0.2	27.0	6.50	3.1
Longnose gar	1	0.2	25.3	1.50	0.7
Spotted gar	1	0.2	21.6	1.50	0.7
Black buffalo	1	0.2	17.0	2.80	1.3
River carpsucker	1	0.2	16.4	2.30	1.1
Smallmouth bass	1	0.2	7.5	0.20	0.1
White crappie	1	0.2	5.1	0.10	0.0
Logperch	1	0.2	3.3	< 0.01	< 0.1
White bass	1	0.2	3.0	0.01	< 0.1
Steelcolor shiner	1	0.2	2.2	< 0.01	< 0.1
Channel shiner	1	0.2	2.2	< 0.01	< 0.1
Spotfin shiner	1	0.2	2.1	< 0.01	< 0.1
Threadfin shad	1	0.2	2.0	< 0.01	< 0.1
<b>Total - 36 Species</b>	404			209.6	

STREAM: Wabash River RIVER MILE 331.0 DATE: 9/22/2008 QHEI SCORE 75.5

1) SUBSTRATE: (Check ONLY Two Substrate Type Boxes: Check all types present)(20) SUBSTRATE SCORE 17

TYPE	POOL	RIFFLE	POOL	RIFFLE	SUBSTRATE ORIGIN (all)	SILT COVER (one)
<input type="checkbox"/> BLDER/SLAB(10)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> LIMESTONE(1) <input type="checkbox"/> RIP/RAP(0)	<input type="checkbox"/> SILT-HEAVY(-2) <input type="checkbox"/> SILT-MOD(-1)
<input type="checkbox"/> BOULDER(9)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> TILLS(1) <input type="checkbox"/> HARDPAN(0)	<input checked="" type="checkbox"/> SILT-NORM(0) <input type="checkbox"/> SILT-FREE(1)
<input checked="" type="checkbox"/> COBBLE(8)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> SANDSTONE(0)	<b>Extent of Embeddedness (check one)</b>
<input type="checkbox"/> HARDPAN(4)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> SHALE(-1)	<input type="checkbox"/> EXTENSIVE(-2) <input type="checkbox"/> MODERATE(-1)
<input type="checkbox"/> MUCK/SILT(2)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> COAL FINES(-2)	<input checked="" type="checkbox"/> LOW(0) <input type="checkbox"/> NONE(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:

2) INSTREAM COVER: (20) COVER SCORE 11

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

COMMENTS:

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

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY	MODIFICATION/OTHER
<input type="checkbox"/> HIGH(4)	<input type="checkbox"/> EXCELLENT(7)	<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 checked="" type="checkbox"/> GOOD(5)	<input type="checkbox"/> RECOVERED(4)	<input checked="" type="checkbox"/> MODERATE(2)	<input type="checkbox"/> RELOCATION <input type="checkbox"/> ISLAND
<input checked="" type="checkbox"/> LOW(2)	<input type="checkbox"/> FAIR(3)	<input type="checkbox"/> RECOVERING(3)	<input type="checkbox"/> LOW(1)	<input type="checkbox"/> CANOPY REMOVAL <input type="checkbox"/> LEVEED
<input type="checkbox"/> NONE(1)	<input type="checkbox"/> POOR(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:

4) RIPARIAN ZONE AND BANK EROSION: (Check ONE box or Check 2 and AVERAGE per bank) (10) RIPARIAN SCORE 8.5

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)
<input checked="" type="checkbox"/> WIDE>150ft.(4)	<input checked="" type="checkbox"/> FOREST, SWAMP(3)	<input checked="" type="checkbox"/> NONE OR LITTLE(3)
<input type="checkbox"/> MODERATE 30-150 ft.(3)	<input type="checkbox"/> OPEN PASTURE/ROW CROP(0)	<input type="checkbox"/> MODERATE(2)
<input type="checkbox"/> NARROW 15-30 ft.(2)	<input checked="" type="checkbox"/> RESID.,PARK,NEW FIELD(1)	<input type="checkbox"/> HEAVY OR SEVERE(1)
<input type="checkbox"/> VERY NARROW 3-15 ft.(1)	<input type="checkbox"/> FENCED PASTURE(1)	
<input type="checkbox"/> NONE(0)		
	<input type="checkbox"/> URBAN OR INDUSTRIAL(0)	
	<input type="checkbox"/> SHURB OR OLD FIELD(2)	
	<input type="checkbox"/> CONSERV. TILLAGE(1)	
	<input type="checkbox"/> MINING/CONSTRUCTION(0)	

COMMENTS:

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"/> >4 ft.(6)	<input type="checkbox"/> POOL WIDTH>RIFFLE WIDTH(2)	<input checked="" type="checkbox"/> EDDIES(1)
<input type="checkbox"/> 2.4-4 ft.(4)	<input checked="" type="checkbox"/> POOL WIDTH=RIFFLE WIDTH(1)	<input type="checkbox"/> INTERSTITIAL(-1)
<input type="checkbox"/> 1.2-2.4 ft.(2)	<input type="checkbox"/> POOL WIDTH<RIFFLE WIDTH(0)	<input type="checkbox"/> INTERMITTENT(-2)
<input type="checkbox"/> <1.2 ft.(1)		
<input type="checkbox"/> <0.6 ft.(Pool=0)(0)		
		<input type="checkbox"/> TORRENTIAL(-1)
		<input checked="" type="checkbox"/> FAST(1)
		<input checked="" type="checkbox"/> MODERATE(1)
		<input checked="" type="checkbox"/> SLOW(1)

COMMENTS:

RIFFLE SCORE 7

RIFFLE/RUN DEPTH	RIFFLE/RUN SUBSTRATE	RIFFLE/RUN EMBEDDEDNESS
<input checked="" type="checkbox"/> GENERALLY >4 in. MAX.>20 in.(4)	<input checked="" type="checkbox"/> STABLE (e.g., Cobble,Boulder)(2)	<input type="checkbox"/> EXTENSIVE(-1) <input type="checkbox"/> NONE(2)
<input type="checkbox"/> GENERALLY >4 in. MAX.<20 in.(3)	<input type="checkbox"/> MOD. STABLE (e.g., Pea Gravel)(1)	<input checked="" type="checkbox"/> NO RIFFLE(0)
<input type="checkbox"/> GENERALLY 2-4 in.(1)	<input type="checkbox"/> UNSTABLE (Gravel, Sand)(0)	
<input type="checkbox"/> GENERALLY <2 in.(Riffle=0)(0)	<input type="checkbox"/> NO RIFFLE(0)	
		<input checked="" type="checkbox"/> MODERATE(0)
		<input type="checkbox"/> LOW(1)

COMMENTS:

6) GRADIENT (FEET/MILE)(10) 0.58 ft/mi % POOL \_\_\_\_\_ % RIFFLE \_\_\_\_\_ % RUN \_\_\_\_\_ GRADIENT SCORE 6

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

STREAM: Wabash River RIVER MILE: 322.2  
 NEAREST TOWN: Battleground COUNTY: Tippecanoe  
 QUADRANGLE: Brookston TWP: 24N RNG: 3W SEC: 19, 20  
 LATITUDE: N 40.51918 LONGITUDE: W086.77769  
 LATITUDE: N 40.51365 LONGITUDE: W086.78860  
 U.S.G.S. GAUGING STATION LOCATION: Lafayette 03335500 AVG. DISCHARGE (cfs): 6,708  
 IS REACH REPRESENTATIVE OF STREAM (Y/N) Yes IF NOT, WHY? \_\_\_\_\_

DESCRIPTION OF SAMPLE SITE (Access, length, direction sampled): Accessed river from a private, pay ramp across from the confluence of the Wabash and Tippecanoe Rivers. Electrofishing was conducted for 0.5 h per bank. Sampling began approximately 0.5 mile upstream of the private ramp and was conducted in a downstream direction.

**COLLECTION SUMMARY**

DATE: 8/25/2008 GEAR: Electrofishing boat EFFORT: 1.0 h  
 CREW: Ledet, Long, and Robertson  
 OTHER GEAR/EFFORT: None WATER STAGE: low  
 CANOPY (%OPEN): 95 PHOTOS (Y/N): No SECCHI DISK (inches): 12  
 AIR TEMP (F): 70 WATER TEMP ( F): 69.7 D.O. (ppm): 8.55  
 CONDUCTIVITY: 705 pH: 9.5 ALKALINITY: 280  
 TDS: 1412  
 STREAM MEASUREMENTS AVG. WIDTH: 318.0 ft AVG. DEPTH: 52.0 in MAX DEPTH: 78 in  
 STATION LENGTH: (1st date) 3,678 ft (2nd date) \_\_\_\_\_

WIDTH (ft)	DEPTH (in)		
309	54	60	42
321	48	60	48
282	78	66	54
333	54	60	60
345	30	36	30

ADDITIONAL COMMENTS/POLLUTION IMPACTS: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

DATE: 8/25/2008

STATION: RM 322.2

NAME OF STREAM: Wabash River

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

COMMON NAME	NUMBER	PERCENTAGE	SIZE RANGE (INCHES)	TOTAL WEIGHT (POUNDS)	PERCENTAGE
Gizzard shad	71	22.8	4.8 - 15.2	25.30	7.5
Freshwater drum	49	15.8	4.3 - 18.8	32.10	9.5
Quillback	37	11.9	11.2 - 15.9	56.60	16.7
Shorthead redhorse	30	9.6	15.1 - 18.2	43.30	12.8
Black redhorse	22	7.1	10.7 - 20.2	32.10	9.5
Longear sunfish	17	5.5	2.7 - 5.7	0.70	0.2
Common carp	13	4.2	15.1 - 22.1	54.10	16.0
Silver carp	7	2.3	24.4 - 28.3	49.40	14.6
Golden redhorse	7	2.3	5.6 - 13.3	1.40	0.4
Smallmouth buffalo	6	1.9	14.2 - 21.5	17.80	5.3
Silver chub	6	1.9	2.3 - 5.1	0.17	0.1
Emerald shiner	6	1.9	2.5 - 3.2	0.03	< 0.1
Sauger	5	1.6	11.8 - 15.6	3.60	1.1
Bullhead minnow	5	1.6	1.9 - 2.6	< 0.01	< 0.1
Sand shiner	4	1.3	1.9 - 2.0	< 0.01	< 0.1
Channel catfish	3	1.0	15.1 - 17.7	4.20	1.2
White crappie	3	1.0	7.9 - 12.0	1.40	0.4
Northern hogsucker	3	1.0	7.5 - 13.2	1.20	0.4
Silver redhorse	2	0.6	13.4 - 15.3	2.90	0.9
Highfin carpsucker	2	0.6	12.5 - 13.1	2.20	0.6
Flathead catfish	2	0.6	10.3 - 12.9	0.90	0.3
Spotted bass	2	0.6	6.6 - 6.8	0.30	0.1
Bluegill	2	0.6	4.6 - 6.2	0.20	0.1
Blue sucker	1	0.3	23.9	4.30	1.3
Bigmouth buffalo	1	0.3	20.3	4.60	1.4
Smallmouth bass	1	0.3	7.7	0.10	0.0
Longnose gar	1	0.3	6.0	< 0.01	< 0.1
Walleye	1	0.3	6.0	0.05	< 0.1
Channel shiner	1	0.3	2.0	< 0.01	< 0.1
Bluntnose minnow	1	0.3	1.9	< 0.01	< 0.1
<b>Total - 30 Species</b>	311			338.95	

STREAM: Wabash River RIVER MILE 322.2 DATE: 9/22/2008 QHEI SCORE 63.5

1) SUBSTRATE: (Check ONLY Two Substrate Type Boxes: Check all types present)(20) SUBSTRATE SCORE 15

TYPE	POOL	RIFFLE	POOL	RIFFLE	SUBSTRATE ORIGIN (all)		SILT COVER (one)	
<input type="checkbox"/> BLDER/SLAB(10)	<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 checked="" type="checkbox"/>
<input type="checkbox"/> BOULDER(9)	<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"/> COBBLE(8)	<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"/> HARDPAN(4)	<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"/> MUCK/SILT(2)	<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"/>
TOTAL NUMBER OF SUBSTRATE TYPES: <input checked="" type="checkbox"/> >4(2) <input type="checkbox"/> <4(0)					Extent of Embeddedness (check one)			
					<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"/>

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

COMMENTS: \_\_\_\_\_

2) INSTREAM COVER: (20) COVER SCORE 10

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"/> OXBOWS(1)	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> OVERHANGING VEGETATION(1)	<input checked="" type="checkbox"/> ROOTWADS(1)	<input type="checkbox"/> AQUATIC MACROPHYTES(1)	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> SHALLOWS (IN SLOW WATER)(1)	<input checked="" type="checkbox"/> BOULDERS(1)	<input checked="" type="checkbox"/> LOGS OR WOODY DEBRIS(1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>

COMMENTS: \_\_\_\_\_

3) CHANNEL MORPHOLOGY: (Check ONLY ONE per Category or Check 2 and AVERAGE)(20) CHANNEL SCORE 12

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY	MODIFICATION/OTHER	
<input type="checkbox"/> HIGH(4)	<input type="checkbox"/> EXCELLENT(7)	<input checked="" type="checkbox"/> NONE(6)	<input type="checkbox"/> HIGH(3)	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> MODERATE(3)	<input type="checkbox"/> GOOD(5)	<input type="checkbox"/> RECOVERED(4)	<input checked="" type="checkbox"/> MODERATE(2)	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> LOW(2)	<input checked="" type="checkbox"/> FAIR(3)	<input type="checkbox"/> RECOVERING(3)	<input type="checkbox"/> LOW(1)	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> NONE(1)	<input type="checkbox"/> POOR(1)	<input type="checkbox"/> RECENT OR NO RECOVERY(1)		<input type="checkbox"/>	<input type="checkbox"/>
				<input type="checkbox"/>	<input type="checkbox"/>
				<input type="checkbox"/>	<input type="checkbox"/>

COMMENTS: \_\_\_\_\_

4) RIPARIAN ZONE AND BANK EROSION: (Check ONE box or Check 2 and AVERAGE per bank) (10) RIPARIAN SCORE 4.5

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 type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input 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 checked="" 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"/>

COMMENTS: \_\_\_\_\_

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

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

COMMENTS: \_\_\_\_\_

RIFFLE SCORE 6

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

COMMENTS: \_\_\_\_\_

6) GRADIENT (FEET/MILE)(10) 0.56 ft/mi % POOL \_\_\_\_\_ % RIFFLE \_\_\_\_\_ % RUN \_\_\_\_\_ GRADIENT SCORE 6

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

STREAM: Wabash River RIVER MILE: 313.2  
 NEAREST TOWN: Lafayette COUNTY: Tippecanoe  
 QUADRANGLE: Lafayette West TWP: 23N RNG: 4W SEC: 17  
 LATITUDE: N 40.44042 LONGITUDE: W086.89611  
 LATITUDE: N 40.43400 LONGITUDE: W086.89606  
 U.S.G.S. GAUGING STATION LOCATION: Lafayette 03335500 AVG. DISCHARGE (cfs): 6,708  
 IS REACH REPRESENTATIVE OF STREAM (Y/N) Yes IF NOT, WHY? \_\_\_\_\_

DESCRIPTION OF SAMPLE SITE (Access, length, direction sampled): Electrofished for 0.5 miles for 30 minutes on each bank.  
Sampling was conducted in a downstream direction starting 0.25 miles upstream from the access site on SR 43. Sampling was conducted between the SR 52 and SR 231 bridges.

**COLLECTION SUMMARY**

DATE: 8/21/2008 GEAR: Electrofishing boat EFFORT: 1.0 h  
 CREW: Ledet, Long, and Robertson  
 OTHER GEAR/EFFORT: None WATER STAGE: low  
 CANOPY (%OPEN): 95 PHOTOS (Y/N): No SECCHI DISK (inches): 18  
 AIR TEMP (F): 80 WATER TEMP ( F): 75.0 D.O. (ppm): 10.52  
 CONDUCTIVITY: 501 pH: 9.5 ALKALINITY: 200  
 TDS: 931  
 STREAM MEASUREMENTS AVG. WIDTH: 495.0 ft AVG. DEPTH: 34.8 in MAX DEPTH: 78 in  
 STATION LENGTH: (1st date) 2,340 ft (2nd date) \_\_\_\_\_

WIDTH (ft)	DEPTH (in)		
528	30	48	24
522	24	30	36
534	36	42	18
495	18	30	78
396	42	36	30

ADDITIONAL COMMENTS/POLLUTION IMPACTS: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

DATE: 8/21/2008

STATION: RM 313.2

NAME OF STREAM: Wabash River

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

COMMON NAME	NUMBER	PERCENTAGE	SIZE RANGE (INCHES)	TOTAL WEIGHT (POUNDS)	PERCENTAGE
Freshwater drum	56	21.4	7.8 - 25.1	81.60	33.6
Gizzard shad	35	13.4	3.8 - 12.2	9.90	4.1
Silver chub	21	8.0	4.5 - 5.9	0.90	0.4
Shorthead redhorse	19	7.3	7.5 - 17.1	22.40	9.2
Channel catfish	18	6.9	7.5 - 17.1	12.00	4.9
Longear sunfish	17	6.5	2.6 - 5.6	0.90	0.4
Quillback	15	5.7	6.9 - 16.7	30.30	12.5
Smallmouth bass	7	2.7	5.9 - 16.3	5.70	2.3
Bluegill	7	2.7	2.5 - 6.6	0.60	0.2
Common carp	6	2.3	16.3 - 25.9	29.30	12.1
Channel shiner	6	2.3	2.3 - 2.5	< 0.01	< 0.1
Shovelnose sturgeon	5	1.9	24.0 - 29.0	12.30	5.1
Black redhorse	5	1.9	9.9 - 14.4	4.50	1.9
Northern hogsucker	5	1.9	5.1 - 10.6	1.00	0.4
River shiner	5	1.9	2.4 - 2.9	< 0.01	< 0.1
Longnose gar	4	1.5	21.5 - 27.6	5.30	2.2
Shorthead gar	3	1.1	21.0 - 23.1	4.80	2.0
Golden redhorse	3	1.1	5.1 - 14.3	2.30	0.9
Emerald shiner	3	1.1	2.7 - 3.1	< 0.01	< 0.1
Spotted bass	3	1.1	5.4 - 11.2	1.40	0.6
Sauger	3	1.1	11.4 - 16.3	2.96	1.2
Blue sucker	2	0.8	21.5 - 23.2	6.80	2.8
River carpsucker	2	0.8	17.5 - 18.5	5.00	2.1
Black buffalo	2	0.8	12.5 - 13.4	3.10	1.3
Spotfin shiner	2	0.8	2.3 - 2.4	< 0.01	< 0.1
Silver carp	1	0.4	23.1	5.10	2.1
Flathead catfish	1	0.4	14.2	1.00	0.4
Bigmouth buffalo	1	0.4	13.8	1.10	0.5
Skipjack herring	1	0.4	6.6	< 0.01	< 0.1
Shorthead redhorse	1	0.4	6.0	0.10	< 0.1
White crappie	1	0.4	4.8	< 0.01	< 0.1
Rock bass	1	0.4	3.7	0.02	< 0.1
Sand shiner	1	0.4	2.0	< 0.01	< 0.1
<b>Total - 33 Species</b>	262			250.38	

STREAM: Wabash River RIVER MILE 313.2 DATE: 9/22/2008 QHEI SCORE 60.5

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

TYPE		POOL		RIFFLE		SUBSTRATE ORIGIN (all)		SILT COVER (one)					
<input type="checkbox"/>	BLDER/SLAB(10)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	GRAVEL(7)	<input checked="" type="checkbox"/>	RIP/RAP(0)	<input type="checkbox"/>	SILT-HEAVY(-2)	<input checked="" type="checkbox"/>	SILT-MOD(-1)
<input type="checkbox"/>	BOULDER(9)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	SAND(6)	<input checked="" type="checkbox"/>	HARDPAN(0)	<input type="checkbox"/>	SILT-NORM(0)	<input type="checkbox"/>	SILT-FREE(1)
<input checked="" type="checkbox"/>	COBBLE(8)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	BEDROCK(5)	<input type="checkbox"/>		<b>Extent of Embeddedness (check one)</b>			
<input type="checkbox"/>	HARDPAN(4)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DETRITUS(3)	<input type="checkbox"/>		<input type="checkbox"/>	EXTENSIVE(-2)	<input checked="" type="checkbox"/>	MODERATE(-1)
<input type="checkbox"/>	MUCK/SILT(2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ARTIFIC(0)	<input type="checkbox"/>	COAL FINES(-2)	<input type="checkbox"/>	LOW(0)	<input type="checkbox"/>	NONE(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:

2) INSTREAM COVER: (20) COVER SCORE 9

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 checked="" type="checkbox"/>	OVERHANGING VEGETATION(1)	<input checked="" type="checkbox"/>	ROOTWADS(1)	<input type="checkbox"/>	MODERATE 25-75%(7)
<input checked="" type="checkbox"/>	SHALLOWS (IN SLOW WATER)(1)	<input type="checkbox"/>	BOULDERS(1)	<input checked="" type="checkbox"/>	SPARSE 5-25%(3)
		<input type="checkbox"/>	OXBOWS(1)	<input type="checkbox"/>	NEARLY ABSENT <5%(1)
		<input type="checkbox"/>	AQUATIC MACROPHYTES(1)		
		<input checked="" type="checkbox"/>	LOGS OR WOODY DEBRIS(1)		

COMMENTS:

3) CHANNEL MORPHOLOGY: (Check ONLY ONE per Category or Check 2 and AVERAGE)(20) CHANNEL SCORE 10

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)	<input checked="" type="checkbox"/>	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
<input checked="" type="checkbox"/>	NONE(1)	<input checked="" type="checkbox"/>	RECENT OR NO RECOVERY(1)			<input type="checkbox"/>	DREDGING	<input type="checkbox"/>	BANK SHAPING
						<input type="checkbox"/>	ONE SIDE CHANNEL MODIFICATION		

COMMENTS:

4) RIPARIAN ZONE AND BANK EROSION: (Check ONE box or Check 2 and AVERAGE per bank) (10) RIPARIAN SCORE 5.5

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 type="checkbox"/>	WIDE >150ft.(4)	<input type="checkbox"/>	FOREST, SWAMP(3)	<input type="checkbox"/>	URBAN OR INDUSTRIAL(0)	<input type="checkbox"/>	NONE OR LITTLE(3)
<input type="checkbox"/>	MODERATE 30-150 ft.(3)	<input checked="" type="checkbox"/>	OPEN PASTURE/ROW CROP(0)	<input checked="" type="checkbox"/>	SHURB OR OLD FIELD(2)	<input checked="" type="checkbox"/>	MODERATE(2)
<input checked="" type="checkbox"/>	NARROW 15-30 ft.(2)	<input type="checkbox"/>	RESID.,PARK,NEW FIELD(1)	<input type="checkbox"/>	CONSERV. TILLAGE(1)	<input type="checkbox"/>	HEAVY OR SEVERE(1)
<input type="checkbox"/>	VERY NARROW 3-15 ft.(1)	<input type="checkbox"/>	FENCED PASTURE(1)	<input type="checkbox"/>	MINING/CONSTRUCTION(0)		
<input type="checkbox"/>	NONE(0)						

COMMENTS:

5) POOL/GLIDE AND RIFFLE/RUN QUALITY (12) **NO POOL = 0** POOL SCORE 7

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

COMMENTS:

RIFFLE SCORE 7

RIFFLE/RUN DEPTH	RIFFLE/RUN SUBSTRATE	RIFFLE/RUN EMBEDDEDNESS			
<input checked="" type="checkbox"/>	GENERALLY >4 in. MAX.>20 in.(4)	<input type="checkbox"/>	EXTENSIVE(-1)	<input type="checkbox"/>	NONE(2)
<input type="checkbox"/>	GENERALLY >4 in. MAX.<20 in.(3)	<input checked="" type="checkbox"/>	MODERATE(0)	<input checked="" type="checkbox"/>	NO RIFFLE(0)
<input type="checkbox"/>	GENERALLY 2-4 in.(1)	<input type="checkbox"/>	LOW(1)		
<input type="checkbox"/>	GENERALLY <2 in.(Riffle=0)(0)				

COMMENTS:

6) GRADIENT (FEET/MILE)(10) 0.58 ft/mi % POOL \_\_\_\_\_ % RIFFLE \_\_\_\_\_ % RUN \_\_\_\_\_ GRADIENT SCORE 6

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

STREAM: Wabash River RIVER MILE: 306.9  
 NEAREST TOWN: West Lafayette COUNTY: Tippecanoe  
 QUADRANGLE: Lafayette West TWP: 23N RNG: 5W SEC: 27  
 LATITUDE: N 40.40496 LONGITUDE: W086.96407  
 LATITUDE: N 40.40257 LONGITUDE: W086.97782  
 U.S.G.S. GAUGING STATION LOCATION: Lafayette 03335500 AVG. DISCHARGE (cfs): 6,708  
 IS REACH REPRESENTATIVE OF STREAM (Y/N) Yes IF NOT, WHY? \_\_\_\_\_

DESCRIPTION OF SAMPLE SITE (Access, length, direction sampled): Electrofished for 0.5 miles downstream for 30 minutes on each bank starting at Quiatenon Blockhouse Park boat ramp.

**COLLECTION SUMMARY**

DATE: 9/22/2008 GEAR: Electrofishing boat EFFORT: 1.0 h  
 CREW: Byer, Ledet, Long, and Robertson  
 OTHER GEAR/EFFORT: None WATER STAGE: low  
 CANOPY (%OPEN): 95 PHOTOS (Y/N): No SECCHI DISK (inches): 12  
 AIR TEMP (F): 75 WATER TEMP ( F): 70.3 D.O. (ppm): 10.38  
 CONDUCTIVITY: 651 pH: 9 ALKALINITY: 200  
 TDS: 1880  
 STREAM MEASUREMENTS AVG. WIDTH: 374.4 ft AVG. DEPTH: 60.4 in MAX DEPTH: 96 in  
 STATION LENGTH: (1st date) 2,152 ft (2nd date) \_\_\_\_\_

	WIDTH (ft)	DEPTH (in)	
	387	78	66
	432	48	48
	336	42	54
	366	96	90
	351	48	78

ADDITIONAL COMMENTS/POLLUTION IMPACTS: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

DATE: 8/20/2008

STATION: RM 306.9

NAME OF STREAM: Wabash River

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

COMMON NAME	NUMBER	PERCENTAGE	SIZE RANGE (INCHES)	TOTAL WEIGHT (POUNDS)	PERCENTAGE
Gizzard shad	95	23.4	2.2 - 15.1	12.70	5.0
Emerald shiner	75	18.5	2.3 - 3.9	0.35	0.1
Longear sunfish	42	10.3	2.3 - 4.9	1.50	0.6
Freshwater drum	32	7.9	3.8 - 21.5	20.60	8.1
Quillback	23	5.7	14.9 - 16.9	32.40	12.8
River shiner	23	5.7	2.1 - 3.1	0.12	< 0.1
Spotted gar	14	3.4	21.1 - 26.6	21.90	8.7
Spotted bass	14	3.4	2.6 - 9.2	1.20	0.5
River redhorse	13	3.2	5.2 - 18.0	11.80	4.7
Sand shiner	11	2.7	1.7 - 2.0	< 0.01	< 0.1
Common carp	10	2.5	17.4 - 27.0	67.10	26.5
Blue sucker	8	2.0	16.2 - 26.5	30.20	11.9
Black buffalo	5	1.2	15.7 - 22.8	19.40	7.7
Sauger	5	1.2	12.2 - 18.8	6.80	2.7
Bluntnose minnow	4	1.0	1.9 - 2.3	< 0.01	< 0.1
Channel catfish	3	0.7	10.7 - 16.5	2.70	1.1
Bluegill	3	0.7	2.8 - 3.3	< 0.01	0.1
Spotfin shiner	3	0.7	2.4 - 3.0	< 0.01	< 0.1
Bullhead minnow	3	0.7	2.1 - 2.2	< 0.01	< 0.1
Steelcolor shiner	3	0.7	2.0 - 2.7	< 0.01	< 0.1
Silver carp	2	0.5	24.0 - 25.4	15.10	6.0
Silver redhorse	2	0.5	20.4	4.40	1.7
Shorthead redhorse	2	0.5	7.8 - 8.0	0.41	0.2
Golden redhorse	2	0.5	5.2 - 5.6	0.14	0.1
Walleye	1	0.2	21.6	2.10	0.8
Northern hogsucker	1	0.2	14.8	1.10	0.4
Skipjack herring	1	0.2	11.2	0.40	0.2
Mooneye	1	0.2	9.8	0.30	0.1
Flathead catfish	1	0.2	7.5	0.20	0.1
Smallmouth bass	1	0.2	5.8	< 0.01	0.1
White crappie	1	0.2	4.4	< 0.01	0.1
Streamline chub	1	0.2	2.3	< 0.01	< 0.1
Orangespotted sunfish	1	0.2	2.3	< 0.01	< 0.1
<b>Total - 33 Species</b>	406			252.92	

STREAM: Wabash River RIVER MILE 306.9 DATE: 9/22/2008 QHEI SCORE 68

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

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 type="checkbox"/>	<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)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	GRAVEL(7)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	SILT-HEAVY(-2)
<input type="checkbox"/>	BOULDER(9)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	SAND(6)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	SILT-MOD(-1)
<input checked="" type="checkbox"/>	COBBLE(8)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	BEDROCK(5)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	SILT-NORM(0)				
<input type="checkbox"/>	HARDPAN(4)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	DETritus(3)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	SILT-FREE(1)				
<input type="checkbox"/>	MUCK/SILT(2)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	ARTIFIC(0)	<input type="checkbox"/>	<input type="checkbox"/>	Extent of Embeddedness (check one)					
TOTAL NUMBER OF SUBSTRATE TYPES: <input checked="" type="checkbox"/> >4(2)		<input type="checkbox"/> <4(0)										<input type="checkbox"/>	EXTENSIVE(-2)
												<input checked="" type="checkbox"/>	MODERATE(-1)
												<input type="checkbox"/>	LOW(0)
												<input type="checkbox"/>	NONE(1)

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

COMMENTS:

2) INSTREAM COVER: (20) COVER SCORE 10

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 checked="" type="checkbox"/>	OVERHANGING VEGETATION(1)	<input type="checkbox"/>	OXBOWS(1)
<input checked="" type="checkbox"/>	SHALLOWS (IN SLOW WATER)(1)	<input checked="" type="checkbox"/>	ROOTWADS(1)
		<input type="checkbox"/>	AQUATIC MACROPHYTES(1)
		<input checked="" type="checkbox"/>	BOULDERS(1)
		<input checked="" type="checkbox"/>	LOGS OR WOODY DEBRIS(1)
		<input type="checkbox"/>	EXTENSIVE >75%(11)
		<input type="checkbox"/>	MODERATE 25-75%(7)
		<input checked="" type="checkbox"/>	SPARSE 5-25%(3)
		<input type="checkbox"/>	NEARLY ABSENT <5%(1)

COMMENTS:

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

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

COMMENTS:

4) RIPARIAN ZONE AND BANK EROSION: (Check ONE box or Check 2 and AVERAGE per bank) (10) RIPARIAN SCORE 6

River Right Looking Downstream

RIPARIAN WIDTH (per bank)

L	R (per bank)
<input checked="" type="checkbox"/>	WIDE>150ft.(4)
<input type="checkbox"/>	MODERATE 30-150 ft.(3)
<input type="checkbox"/>	NARROW 15-30 ft.(2)
<input type="checkbox"/>	VERY NARROW 3-15 ft.(1)
<input type="checkbox"/>	NONE(0)

EROSION/RUNOFF-FLOODPLAIN QUALITY

L	R (most predominant per bank)	L	R (per bank)
<input type="checkbox"/>	FOREST, SWAMP(3)	<input type="checkbox"/>	URBAN OR INDUSTRIAL(0)
<input checked="" type="checkbox"/>	OPEN PASTURE/ROW CROP(0)	<input type="checkbox"/>	SHURB OR OLD FIELD(2)
<input type="checkbox"/>	RESID.,PARK,NEW FIELD(1)	<input type="checkbox"/>	CONSERV. TILLAGE(1)
<input type="checkbox"/>	FENCED PASTURE(1)	<input type="checkbox"/>	MINING/CONSTRUCTION(0)

BANK EROSION

L	R (per bank)
<input checked="" type="checkbox"/>	NONE OR LITTLE(3)
<input checked="" type="checkbox"/>	MODERATE(2)
<input type="checkbox"/>	HEAVY OR SEVERE(1)

COMMENTS:

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

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

COMMENTS:

RIFFLE SCORE 7

RIFFLE/RUN DEPTH		RIFFLE/RUN SUBSTRATE		RIFFLE/RUN EMBEDDEDNESS	
<input checked="" type="checkbox"/>	GENERALLY >4 in. MAX.>20 in.(4)	<input checked="" type="checkbox"/>	STABLE (e.g., Cobble,Boulder)(2)	<input type="checkbox"/>	EXTENSIVE(-1)
<input type="checkbox"/>	GENERALLY >4 in. MAX.<20 in.(3)	<input checked="" type="checkbox"/>	MOD. STABLE (e.g., Pea Gravel)(1)	<input checked="" type="checkbox"/>	MODERATE(0)
<input type="checkbox"/>	GENERALLY 2-4 in.(1)	<input type="checkbox"/>	UNSTABLE (Gravel, Sand)(0)	<input type="checkbox"/>	LOW(1)
<input type="checkbox"/>	GENERALLY <2 in.(Riffle=0)(0)	<input type="checkbox"/>	NO RIFFLE(0)	<input type="checkbox"/>	NONE(2)
				<input type="checkbox"/>	NO RIFFLE(0)

COMMENTS:

6) GRADIENT (FEET/MILE)(10) 0.38 ft/mi % POOL \_\_\_\_\_ % RIFFLE \_\_\_\_\_ % RUN \_\_\_\_\_ GRADIENT SCORE 6

## Appendix B

Detailed station descriptions and fish collections for each station on the Eel, Mississinewa, and Salamonie Rivers, 2008.

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

STREAM: Eel River RIVER MILE: 0.9

NEAREST TOWN: Logansport COUNTY: Cass

QUADRANGLE: Logansport TWP: 27 N RNG: 1 E SEC: 25

LATITUDE: \_\_\_\_\_ LONGITUDE: \_\_\_\_\_

LATITUDE: \_\_\_\_\_ LONGITUDE: \_\_\_\_\_

U.S.G.S. GAUGING STATION LOCATION: Logansport 3328500 AVG. DISCHARGE (cfs): 779

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

DESCRIPTION OF SAMPLE SITE (Access, length, direction sampled): \_\_\_\_\_

Electrofished in an upstream direction approximately 100 yards downstream from the Logansport Dam.

**COLLECTION SUMMARY**

DATE: 9/24/2008 GEAR: Daytime Barge Electrofishing EFFORT: 0.51 h

CREW: Braun, Caswell, and Edgell

OTHER GEAR/EFFORT: \_\_\_\_\_ WATER STAGE: \_\_\_\_\_

CANOPY (%OPEN): 99 PHOTOS (Y/N): N SECCHI DISK (inches): \_\_\_\_\_

AIR TEMP (F): 67.3 WATER TEMP ( F): 66.7 D.O. (ppm): 9

CONDUCTIVITY: \_\_\_\_\_ pH: \_\_\_\_\_ ALKALINITY: \_\_\_\_\_

TDS: \_\_\_\_\_

STREAM MEASUREMENTS AVG. WIDTH: \_\_\_\_\_ AVG. DEPTH: \_\_\_\_\_ MAX DEPTH: \_\_\_\_\_

STATION LENGTH: (1st date) \_\_\_\_\_ (2nd date) \_\_\_\_\_

WIDTH (ft)	DEPTH (in)		

ADDITIONAL COMMENTS/POLLUTION IMPACTS: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

DATE:9/24/2008

STATION: 0.9

NAME OF STREAM: Eel River

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

COMMON NAME	NUMBER	PERCENTAGE	SIZE RANGE (INCHES)	TOTAL WEIGHT (POUNDS)	PERCENTAGE
Golden redhorse	52	26.1	6.3 - 17.1	23.25	19.1
Longear sunfish	18	9.0	3.6 - 5.1	1.34	1.1
Black redhorse	16	8.0	6.1 - 16.2	7.20	5.9
Freshwater drum	13	6.5	7.8 - 12.8	4.37	3.6
Shorthead redhorse	13	6.5	8.0 - 9.2	2.53	2.1
Smallmouth bass	12	6.0	5.9 - 17.9	6.62	5.4
Channel catfish	11	5.5	9.6 - 18.4	9.64	7.9
Bluntnose minnow	11	5.5	1.5 - 2.7	0.03	<0.1
Northern hogsucker	7	3.5	3.12 - 12.4	1.63	1.3
Sand shiner	6	3.0	1.8 - 2.2	0.01	<0.1
Common carp	5	2.5	17.3 - 27.2	25.50	20.9
Rock bass	5	2.5	5.3 - 6.7	0.77	0.6
Gizzard shad	4	2.0	10.0 - 12.3	1.90	1.6
Bluegill	4	2.0	3.6 - 6.0	0.24	0.2
River carpsucker	3	1.5	12.9 - 14.4	3.76	3.1
Quillback	3	1.5	12.4 - 15.2	3.62	3.0
Greenside darter	3	1.5	1.7 - 3.0	0.01	<0.1
Spotfin shiner	3	1.5	1.9 - 3.0	0.01	<0.1
Bigeye shiner	3	1.5	2.2 - 3.5	0.01	<0.1
Largemouth bass	2	1.0	7.9 - 14.7	1.80	1.5
Grass carp	1	0.5	39.6	20.50	16.8
Longnose gar	1	0.5	30.8	2.91	2.4
River redhorse	1	0.5	18.0	2.57	2.1
Sauger	1	0.5	15.1	1.01	0.8
Walleye	1	0.5	12.5	0.59	0.5
<b>Total - Species</b>	199			121.82	

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

STREAM: Mississinewa River RIVER MILE: 7.3

NEAREST TOWN: Peoria COUNTY: Miami

QUADRANGLE: Peoria TWP: 26 N RNG: 5 E SEC: 10

LATITUDE: \_\_\_\_\_ LONGITUDE: \_\_\_\_\_

LATITUDE: \_\_\_\_\_ LONGITUDE: \_\_\_\_\_

U.S.G.S. GAUGING STATION LOCATION: Mississinewa Reservoir Dam Outflow AVG. DISCHARGE (cfs): \_\_\_\_\_

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

DESCRIPTION OF SAMPLE SITE (Access, length, direction sampled): \_\_\_\_\_

Electrofished in an upstream direction approximately 100 yards downstream from the Mississinewa Dam.

**COLLECTION SUMMARY**

DATE: 9/17/2008 GEAR: Daytime Barge Electrofishing EFFORT: 0.28 h

CREW: Braun and Edgell

OTHER GEAR/EFFORT: \_\_\_\_\_ WATER STAGE: \_\_\_\_\_

CANOPY (%OPEN): 95 PHOTOS (Y/N): N SECCHI DISK (inches): \_\_\_\_\_

AIR TEMP (F): 73.1 WATER TEMP ( F): 78 D.O. (ppm): 6

CONDUCTIVITY: \_\_\_\_\_ pH: \_\_\_\_\_ ALKALINITY: \_\_\_\_\_

TDS: \_\_\_\_\_

STREAM MEASUREMENTS AVG. WIDTH: \_\_\_\_\_ AVG. DEPTH: \_\_\_\_\_ MAX DEPTH: \_\_\_\_\_

STATION LENGTH: (1st date) \_\_\_\_\_ (2nd date) \_\_\_\_\_

WIDTH (ft)	DEPTH (in)		

ADDITIONAL COMMENTS/POLLUTION IMPACTS: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

DATE:9/17/2008

STATION: RM 7.3

NAME OF STREAM: Mississinewa River

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

COMMON NAME	NUMBER	PERCENTAGE	SIZE RANGE (INCHES)	TOTAL WEIGHT (POUNDS)	PERCENTAGE
Freshwater drum	34	19.0	4.3 - 19.7	24.42	9.3
Channel catfish	18	10.1	8.7 - 22.5	11.43	4.4
River carpsucker	14	7.8	12.0 - 17.5	16.75	6.4
Northern hogsucker	12	6.7	7.8 - 10.1	2.99	1.1
Bigmouth buffalo	11	6.1	13.0 - 21.8	27.75	10.6
Common carp	11	6.1	12.0 - 15.2	11.00	4.2
Bighead carp	8	4.5	21.8 - 36.7	89.75	34.2
Gizzard shad	8	4.5	5.0 - 17.3	3.14	1.2
Walleye	7	3.9	12.2 - 18.7	8.51	3.2
Shorthead redhorse	7	3.9	8.7 - 10.4	2.47	0.9
Bluntnose minnow	6	3.4	3.2 - 3.5	0.06	<0.1
Silver carp	5	2.8	22.3 - 25.1	23.55	9.0
Bluegill	5	2.8	5.0 - 6.4	0.59	0.2
Longear sunfish	5	2.8	3.6 - 5.3	0.35	0.1
Spotfin shiner	5	2.8	2.8 - 3.2	0.03	<0.1
White crappie	4	2.2	6.9 - 7.5	0.60	0.2
Paddlefish	3	1.7	39.2 - 39.5	22.96	8.7
Black buffalo	3	1.7	14.8 - 18.2	7.75	3.0
Black crappie	3	1.7	6.5 - 7.7	0.46	0.2
Quillback	2	1.1	12.8 - 14.1	2.15	0.8
Sauger	2	1.1	11.7 - 15.8	1.46	0.6
Golden redhorse	2	1.1	8.9 - 13.1	1.27	0.5
Spotted bass	1	0.6	16.2	2.65	1.0
White sucker	1	0.6	10.4	0.39	0.1
Logperch	1	0.6	5.5	0.04	<0.1
Suckermouth minnow	1	0.6	4.5	0.02	<0.1
<b>Total - Species</b>	179			262.54	

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

STREAM: Salamonie River RIVER MILE: 3.4

NEAREST TOWN: Lagro COUNTY: Wabash

QUADRANGLE: Lagro TWP: 27 N RNG: 7 E SEC: 12

LATITUDE: \_\_\_\_\_ LONGITUDE: \_\_\_\_\_

LATITUDE: \_\_\_\_\_ LONGITUDE: \_\_\_\_\_

U.S.G.S. GAUGING STATION LOCATION: Salamonie Reservoir Dam Outflow AVG. DISCHARGE (cfs): \_\_\_\_\_

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

DESCRIPTION OF SAMPLE SITE (Access, length, direction sampled): \_\_\_\_\_

Electrofished in an upstream direction directly downstream from the Salamonie Dam.

**COLLECTION SUMMARY**

DATE: 9/17/2008 GEAR: Daytime Barge Electrofishing EFFORT: 0.64 h

CREW: Braun and Edgell

OTHER GEAR/EFFORT: \_\_\_\_\_ WATER STAGE: \_\_\_\_\_

CANOPY (%OPEN): 95 PHOTOS (Y/N): N SECCHI DISK (inches): \_\_\_\_\_

AIR TEMP (F): 55.8 WATER TEMP ( F): 71.7 D.O. (ppm): 5.84

CONDUCTIVITY: \_\_\_\_\_ pH: \_\_\_\_\_ ALKALINITY: \_\_\_\_\_

TDS: \_\_\_\_\_

STREAM MEASUREMENTS AVG. WIDTH: \_\_\_\_\_ AVG. DEPTH: \_\_\_\_\_ MAX DEPTH: \_\_\_\_\_

STATION LENGTH: (1st date) \_\_\_\_\_ (2nd date) \_\_\_\_\_

WIDTH (ft)	DEPTH (in)		

ADDITIONAL COMMENTS/POLLUTION IMPACTS: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

DATE:9/17/2008

STATION: RM 3.4

NAME OF STREAM: Salamonie River

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

COMMON NAME	NUMBER	PERCENTAGE	SIZE RANGE (INCHES)	TOTAL WEIGHT (POUNDS)	PERCENTAGE
Bluegill	99	32.7	3.0 - 7.0	9.08	6.3
Freshwater drum	67	22.1	4.8 - 21.7	31.00	21.7
Channel catfish	19	6.3	8.5 - 21.8	20.55	14.4
Shorthead redhorse	19	6.3	8.5 - 9.6	4.85	3.4
Sand shiner	18	5.9	1.5 - 2.4	0.02	0.0
Common carp	15	5.0	17.1 - 20.3	40.50	28.3
Bluntnose minnow	12	4.0	1.6 - 3.2	0.07	<0.1
Longear sunfish	9	3.0	3.0 - 5.0	0.40	0.3
Largemouth bass	7	2.3	2.9 - 15.3	5.39	3.8
Green sunfish	6	2.0	3.4 - 4.5	0.29	0.2
Smallmouth bass	5	1.7	2.8 - 14.5	2.29	1.6
White sucker	4	1.3	11.7 - 15.5	3.27	2.3
Bigmouth buffalo	3	1.0	14.8 - 22.2	10.25	7.2
River carpsucker	3	1.0	11.6 - 15.1	3.37	2.4
Quillback	2	0.7	9.0 - 15.4	1.98	1.4
Sauger	2	0.7	12.4 - 12.7	1.24	0.9
Northern hogsucker	2	0.7	9.5 - 10.3	0.94	0.7
Gizzard shad	2	0.7	8.9 - 11.9	0.58	0.4
Spotfin shiner	2	0.7	2.6 - 3.9	0.03	<0.1
Paddlefish	1	0.3	36.2	4.97	3.5
Walleye	1	0.3	13.9	0.89	0.6
Flathead catfish	1	0.3	11.1	0.47	0.3
Highfin carpsucker	1	0.3	9.1	0.33	0.2
Rock bass	1	0.3	6.1	0.17	0.1
Spotted bass	1	0.3	6.2	0.11	0.1
Logperch	1	0.3	5.4	0.05	<0.1
<b>Total - Species</b>	303			143.09	

## Appendix C

Back calculated length at age for select species captured from the Wabash River and tributaries,  
2008.

Back-calculated lengths-at-age for saugers captured from the Wabash River and tributaries in August and September 2008.

Year Class	# Aged	Age				
		I	II	III	IV	V
2007	39	9.0				
	SD	1.9				
2006	12	7.0	11.0			
	SD	1.7	2.8			
2005	7	7.7	11.6	14.1		
	SD	1.8	1.9	1.2		
2004	2	6.4	11.3	14.3	15.8	
	SD	2.2	0.8	0.2	0.3	
2003	3	6.4	11.7	14.4	15.8	17.1
	SD	2.5	2.4	1.3	1.0	1.1
Mean*		7.5	11.4	14.3	15.8	17.1
SD		2.0	2.4	1.3	1.0	1.1

\*Does not include age groups with less than three samples.

Back-calculated lengths-at-age for smallmouth bass captured from the Wabash River and tributaries in August and September 2008.

Year Class	# Aged	Age						
		I	II	III	IV	V	VI	VII
2007	31	4.4						
	SD	0.7						
2006	9	3.4	7.0					
	SD	0.6	1.2					
2005	11	4.4	7.1	10.8				
	SD	1.0	1.6	1.4				
2004	2	3.7	6.2	9.3	12.5			
	SD	0.4	2.1	3.0	2.8			
2003	1	3.5	4.5	8.2	11.4	12.8		
	SD	0.0	0.0	0.0	0.0	0.0		
2002								
2001	1	3.4	4.9	7.5	11.3	13.2	14.7	16.7
	SD	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mean*		4.1	7.1	10.8				
SD		0.7	1.4	1.4				

\*Does not include age groups with less than three samples.

Back-calculated lengths-at-age for spotted bass captured from the Wabash River and tributaries in August and September 2008.

Year Class	# Aged	Age					
		I	II	III	IV	V	VI
2007	5	3.8					
	SD	0.4					
2006	9	3.6	5.2				
	SD	0.7	0.4				
2005	8	3.4	5.0	6.3			
	SD	0.5	0.4	0.5			
2004	3	4.0	5.2	7.8	9.3		
	SD	1.1	1.4	1.9	2.1		
2003	1	2.9	5.4	6.5	7.7	8.4	
	SD	0.0	0.0	0.0	0.0	0.0	
2002	1	3.2	7.8	9.2	11.4	12.6	13.9
Mean*		3.7	5.2	7.0	9.3		
SD		0.7	0.7	1.2	2.1		

\*Does not include age groups with less than three samples.

Back-calculated lengths-at-age for walleyes captured from the Wabash River and tributaries in August and September 2008.

Year Class	# Aged	Age								
		I	II	III	IV	V	VI	VII	VIII	IX
2007	21	10.0								
	SD	1.7								
2006	5	9.8	14.0							
	SD	1.9	2.3							
2005	9	8.8	13.1	16.0						
	SD	1.8	1.8	2.1						
2004	5	10.5	14.2	16.4	18.0					
	SD	0.5	2.0	2.5	2.5					
2003	1	8.3	16.0	19.7	22.7	23.7				
	SD	0.0	0.0	0.0	0.0	0.0				
2002	0									
	SD									
2001	1	9.1	12.1	16.7	22.2	24.9	26.4	27.2		
	SD	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
2000	0									
	SD									
1999	1	8.0	15.0	19.1	22.7	25.5	26.7	27.2	27.7	28.2
	SD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mean*		9.8	13.7	16.2	18.0					
SD		1.5	2.0	2.3	2.5					

\*Does not include age groups with less than three samples.

Back-calculated lengths-at-age for white crappies captured from the Wabash River and tributaries in August and September 2008.

Year Class	# Aged	Age			
		I	II	III	IV
2007	4	3.3			
	SD	0.3			
2006	11	3.3	6.4		
	SD	0.5	1.3		
2005	5	3.2	5.9	7.6	
	SD	0.3	0.3	0.7	
2004	2	3.6	6.8	9.3	10.5
	SD	0.7	2.0	1.1	0.7
Mean*		3.3	6.2	7.6	0.0
SD		0.4	0.8	0.7	0.0

\*Does not include age groups with less than three samples.