

River & Streams Technical Committee
State of Indiana Report – 2012
North Central Division American Fisheries Society
Chair: Stephen J Jacquemin



The following accounts have been solicited from the Indiana American Fisheries Society membership and summarize the major lotic ecological research, restoration projects, management strategies, monitoring appointments, and conservation efforts ongoing across the state of Indiana.

Indiana Department of Environmental Management

In early June, IDEM with help from the National Park Service (NPS) and the Indiana Department of Natural Resources (IDNR) had three crews collecting 44 fish community samples on waterbodies in the East Branch Little Calumet River basin as part of a baseline study to provide data which characterizes the current condition of the watershed, identifies impairments, and designates critical areas for watershed improvement plans. Data collected from these targeted sites include monthly water chemistry for one year, bacteriological sampling (*E.coli*) during the recreational season, macroinvertebrate and fish communities once in the summer, fish tissue at three sites, habitat assessments, and flow at a subset of the sites. Fish community results will be summarized in the IAFS December newsletter; however, it may be interesting to some AFS members that one oriental weatherfish (*Misgurnus anguillicaudatus*) was collected in Samuelson Ditch in Porter County. In late September, 22 targeted sites will be sampled for fish and macroinvertebrate communities as part of another baseline study taking place in the Indian-Kentuck watershed near Madison Indiana in southeastern Indiana.

From July to September, IDEM collected 42 fish community samples at 38 sites on waterbodies in the Patoka River basin for the 2012 Probabilistic Monitoring Program. The goal of this program is to characterize the overall integrity of the river basin for aquatic life use support using data collected from random sites including water chemistry, *E.coli*, nutrient data,

macroinvertebrate and fish communities, as well as habitat evaluations. Fish community results will be summarized in the December newsletter; however, it may be interesting to some AFS members that several specimens of flier (*Centrarchus macropterus*) were collected in Bruner Creek near SR 64 and Patoka River near CR 600 W both in Dubois County. Fish and macroinvertebrate communities were sampled at an additional seven targeted sites in the South Fork Patoka River watershed where improvements had been made to see if increases could be observed in the Index of Biotic Integrity (IBI) scores. From the sites sampled for fish community, six sites showed improvement according to the IBI scores; HOWEVER, only one of the sites was not impaired (IBI>35) for fish community. Results from the macroinvertebrate samples showed three sites not impaired for macroinvertebrate community assessment (mIBI>35). Ultimately, from the sites sampled in the South Fork Patoka River watershed, only one was not impaired for both fish (IBI=40) and macroinvertebrates (mIBI=38), mainstem South Fork Patoka River near CR 300 E, which happened to be the segment originally provided for investigation of improvement or delisting for Impaired Biotic Communities (IBC).

Indiana Department of Natural Resources

The Indiana Wildlife Diversity Report was published this past year to provide a synopsis of the major management and conservation efforts pertaining to non-game species. The report outlines large scale continuation of statewide fish and mussel surveys. The complete 2011 Wildlife Diversity Report is freely available (www.in.gov/dnr/fishwild/files/fw-2011WildlifeDiversityReport.pdf).

Specific projects include:

- Target sampling for rare fishes in the southwestern corner of the state including bantam sunfish, cypress darter, and pygmy sunfish. To date pygmy sunfish have been located while bantam sunfish and cypress darter have not been collected.
- Lake sturgeon monitoring continues on the East Fork of the White River (since 1996) in an effort to assess spawning habits and population dynamics.
- The state endangered Northern Brook Lamprey is now part of an official monitoring effort.

Bureau of Water Quality (Muncie, IN)

The Bureau of Water Quality recently completed its yearly sampling on the West Fork of White River in Muncie, Indiana. During this time period 47 sites were sampled in order to evaluate the biological integrity of the fish community. In addition, 6 sites were sampled as part of a smallmouth bass and rock bass population estimate study. These sampling events yielded 19,254 fish representing 55 species.

In addition, working in conjunction with The Nature Conservancy, the Bureau of Water Quality is also assisting in the implementation of a two-stage ditch project located on a stretch of York Prairie Creek in Muncie, Indiana. The end goal of this project is to improve bank stability, reduce peak discharge during a heavy rain and improve water quality through sediment and nitrogen reduction.

City of Elkhart Aquatic Biology (Elkhart, IN)

The City of Elkhart continues to monitor fish communities on the rivers and streams of Elkhart and St. Joseph Counties. We also continue to monitor macroinvertebrates and chemical concentrations concurrently. Additional aspects of our program include fish tissue analysis in support of the fish consumption advisory, game fish studies, and research related to endocrine disruption.

Duke Energy

Duke Energy samples the Middle Wabash River in the vicinity of Wabash River Station near Terre Haute, IN and Cayuga Station near Cayuga, IN. This work is part of the power plant's NPDES permits to prove a balanced and indigenous aquatic fish and aquatic macroinvertebrate population exists downstream of the stations.

EA Engineering, Science, and Technology, Inc.

WABASH RIVER---The Wabash River from Darwin Ferry to York, IL is being sampled to determine how the fish community has changed since a power plant in this area shut down. Fish are sampled monthly from July through October by electrofishing at 5 locations and seining at 2 locations. Sampling began in 2011 and is expected to continue through 2013. Results from the first year of monitoring suggest that although there have been some

changes to the fish community, those changes appear to be system-wide, rather than being restricted to the area downstream of the former power plant. Most of the new species collected in 2011 were either invasives (e.g., silver and bighead carp) or native species that have moved up from the lower river (e.g., blue catfish, spotted gar). The most surprising species collected was silver shiner (3 collected), which is known from the upper Wabash but which has never been collected from the middle or lower Wabash. In fact, these specimens represent the first time this species has been reported in Illinois.

OHIO RIVER---EA continues to monitor fish near several power plants on the Ohio River as part of the Ohio River Ecological Research Program (ORERP). Fish are collected by electrofishing and seining seasonally at 6 locations near each plant. This program is now 40 years old and the Tanners Creek Plant near Lawrenceburg has participated in the ORERP every year. In years when river flows are low and/or air temperatures are high, avoidance of the warmest portions of the plume is often seen. However, such avoidance is usually restricted to the midsummer and appears to have no long-term effect near any of the Indiana power plants. Depending on the plant, 40-60 species are collected each year and, for the river as a whole, the ORERP has collected 130 species of fish.

Manchester University

Manchester University is currently involved in a variety of monitoring and restoration projects in and around the Eel River.

Projects in Jerry Sweeten's lab include:

- Two low-head dams are still scheduled to be removed from the Eel River this summer. We have monitored above and below each dam for two years in anticipation of the removal.
- Research on redbreast dace (*Clinostomus elongatus*) in Mill Creek (a tributary to the Wabash River) is nearing completion. The major components of this study includes: Augmentation of RSD in Asher Branch, Culture procedures of RSD, Genetic analysis of RSD, and Early life-history documentation of RSD.
- 319 nonpoint source pollution grant for the Middle Eel River from North Manchester to Mexico, IN. We have completed the fourth year of work under this grant where we have used automatic water samplers to examine the following: Nitrogen, Phosphorus, and Suspended

sediment. We have also examined the fish community and mussel community in the 30 mile study reach. Cost-share conservation practices with agricultural producers= \$212,000. We have applied for and received a three year extension on this project and an additional \$250,000 cost-share funds.

- Mississippi River Basin Initiative. With our Natural Resources Conservation Service partners we have cost-shared over \$3 million with agricultural producers in the middle Eel River watershed.

- A newly funded paired-watershed study was funded to examine the efficacy of fall cover crops in reducing nutrient and sediment loads. Fish community structure and function will also be examined over the three year study period.

- Smallmouth bass research continues as a long-term monitoring project where we are examining both habitat and water quality as it relates to SMB year-class strength.

Ball State University

Ball State University is currently involved in a variety of monitoring and restoration projects across the Ohio River Basin.

Projects in Mark Pyron's lab include:

- Detailed GIS assessment of substrate, flow, and fish assemblage along the middle and lower Wabash River.

- Survey of Ohio River watershed oxbow habitats for fish and habitat information.

- Planning joint venture with Army Corps and USGS to modify levees along the Patoka mainstem to restore floodplain connectivity and improve habitat for fishes.

- Assessment of freshwater drum diet, growth, and population dynamics in the Wabash River.

Technical Report Contributors

The River & Streams Technical Committee thanks Drew Holloway (BWQ), Daragh Deegan (City of Elkhart), Mark Pyron (BSU), Brant Fisher (IDNR), Jerry Sweeten (MU), Jason Doll (BSU), Bryan Kalb (Duke Energy), Stacey Sobat (IDEM), and Greg Seegert (EA) for their contributions to this report.