

Riffles & Pools

Office of Water Quality www.idem.IN.gov



IDEM Office of Water Quality staff and interns spent a day learning water safety and wilderness first aid. It's good to prepare for, think through, and practice various emergency scenarios before heading out to sample. And it's always wise to take a buddy!

See page 5 for more on this story.

Greetings Riverwatchers!

It's been a good summer so far. Hard to believe many Indiana children have headed back to school already. My grandchildren in Michigan don't return to school until after Labor Day. Remember that? That was fun. Eking out every last minute out of that local swimming pool or ice cream shop or game of flashlight tag with the neighbor kids at night.

One thing that's better than back then, though, is the knowledge of what I am looking at when I turn over and examine rocks from a creek or stream. That was always a favorite activity anyway. But now I understand more about the significance of my findings. And I enjoy teaching such things to others and to see the awe and understanding in their faces, when they tie living creatures to the health of their environment, and ultimately back to our own health and well-being. The crucial link is understanding that our actions impact nature and that we ultimately reap what we have sown into the world around us. Hopefully, as a result, we will begin to make wiser choices in how we steward this planet of ours.

There are always more good and important things to discuss than there is room or time to do so here. So, enjoy. And we will see you here next edition!

— Carol Newhouse, Hoosier Riverwatch Coordinator

Autumn 2018

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MARK YOUR CALENDARS!

Upcoming Workshops

Sept. 9 – La Fontaine
Sept. 15 – Indianapolis

Advanced Workshops

Oct. 13 – Zionsville
Nov. 7 – Evansville

Check the [website](#) regularly for new workshops!

Hoosier
Riverwatch is
administered by



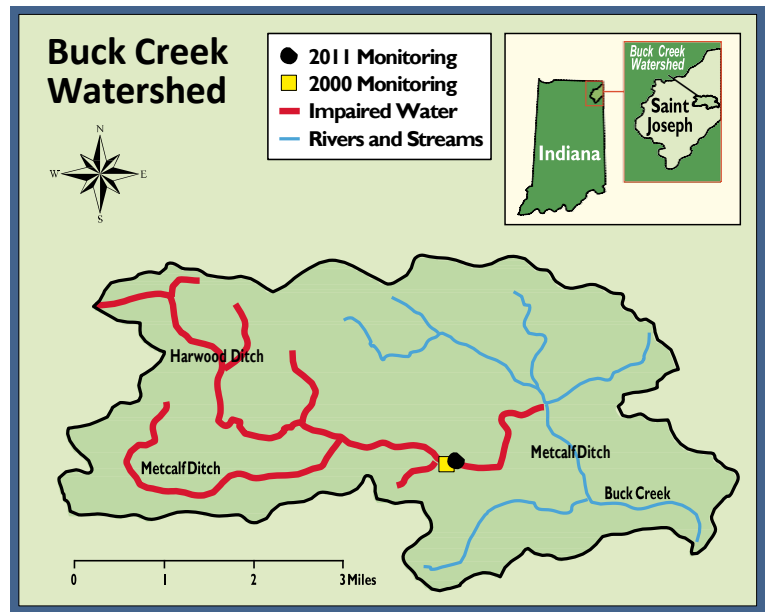
Watershed Success Stories: Metcalf Ditch

The 3rd installment of the [stories of watershed success](#) efforts collected by IDEM staff and grant recipients over the years:

Metcalf Ditch and its tributaries comprise 14.3 stream miles of the Buck Creek watershed; a subwatershed of the St. Joseph River watershed in northeast Indiana's Maumee River Basin in DeKalb County.

In 2000, while sampling chemical, physical, and biological parameters in this watershed, IDEM's monitoring staff found Metcalf Ditch scored only 22 points on their fish index of biotic integrity (IBI). Such a score qualified the ditch as being impaired for aquatic life use.

IDEM identified nonpoint source run-off as the main contributor to the impaired biotic community, as no single pollutant was found to be the cause. Land use in this predominantly agricultural area suggested that elevated sediments and nutrients were the cause. Key sources included run-off from row crops, livestock grazing/feeding, as well as leaking/failed septic systems.



Metcalf Ditch and its tributaries, located in the Buck Creek watershed in northeast Indiana.

IDEM considers a fish index of biotic integrity (IBI) score ≥ 36 supportive of aquatic life use in rivers and streams. In 2000, Metcalf Ditch scored just 22 points on the IBI scale, qualifying it as impaired. In 2011, fish surveys here received an IBI score of 36. In 2012, IDEM removed the creek's impaired status and listed it as fully supporting aquatic life use.

The following funds were spent here or in the St. Joseph watershed as a whole from 1990-2012:

- \$2,757,183 in [Section 319 grants](#) from IDEM for implementing agricultural best management practices, developing a watershed management plan, conducting water monitoring, and piloting a septic system repair program
- \$53,997 in [Section 205\(j\) funds](#) from IDEM
- \$543,300 in local in-kind and cash match
- \$10,000 in [Clean Water Indiana](#) funds
- \$44,400 in federal funds to install 24,437 linear feet of filter strips along Metcalf Ditch
- \$1,740,000 in other state and federal grants to the greater Maumee River watershed

Major partners in this effort included the nonprofit St. Joseph River Watershed Initiative Partnership, the City of Fort Wayne, the DeKalb County Soil and Water Conservation District, and the Indiana Department of Natural Resources.

These efforts successfully reduced the amount of nonpoint source sediments and nutrients entering the waterways in this watershed, allowing stream habitat to improve. Subsequent sampling by IDEM staff indicated fish life has improved and the waterway is no longer listed as impaired for aquatic life use. What is good for the fish is also good for the people. Kudos to the local farmers, residents, and decision-makers who came together to help make this happen!

Workshop Pics



Set up and ready to teach, instructor Michael Wilhite moved his Orange County workshop to a picnic shelter when unexpected office rehab sent them scurrying for the day.



Michael Wilhite claims training and interaction flowed so well this way in Paoli (using PowerPoint printouts in lieu of a wall), that he may teach all future workshops outside! Thanks for being so flexible, everyone!



Participants look over macroinvertebrates caught during the Peru workshop taught by Jamin Beisiegel (far right).



Great turnout for the Hobart workshop taught by Candice Smith (lower center with tan cap). Love the enthusiasm from the Izaak Walton League host, members, and all attendees, posing here along the Deep River.



A sampling of the attendees at the Peru workshop this past May. Looks like a wonderful day for training and a good stream for sampling. Welcome to the Hoosier Riverwatch team, everyone! (Instructor Jamin Beisiegel stands center in a gray shirt.)

(Photos courtesy of Michael Wilhite, Jamin Beisiegel, and Jim Sweeney)



A Paoli workshop participant samples Lick Creek. This is what it's about, folks. Teaching Indiana citizens to step outside and study their own creeks and streams. To learn how healthy they are and to share that information with others. This is part and parcel of stewardship.

What We Do: A Sampling of IDEM Water Monitoring Programs

Fish Community Assessments (via electrofishing) can be done using a wearable backpack shocker, a towable platform such as a tote barge, or an electrofishing boat (pictured left to right below).

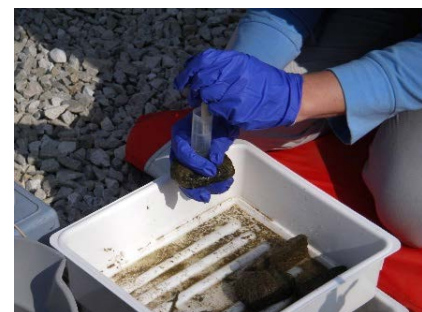


Macroinvertebrate Community Assessments are done by dipping/jabbing around diverse habitats in streams, or by kicking in riffles with a net (which will look very familiar to Riverwatch volunteers), and then by sieving and subsampling what was collected (see photos below). The sample is then returned to the lab for sorting and identification.



Water Chemistry can be collected in bottles, preserved, and shipped to laboratories for analysis. For biological correlations, basic water chemistry (and habitat) parameters are measured in situ (at the site) using a variety of electronic data sondes (just a step up from Riverwatch volunteers' 'in field' tests).

Algal Monitoring (below) can be done by collecting and measuring the amount of chlorophyll a in periphyton and phytoplankton samples. Periphyton samples are returned to the lab for diatom identification.



Flow Monitoring, *E. coli* Monitoring, etc. are also similar to Riverwatch procedures, except that equipment used is more technologically advanced. *E. coli* samples can be completed in far greater numbers than via volunteer efforts due to use of mobile van laboratories with incubators and other equipment. (Photo to the left shows one staff operating and the other auditing the use of a flow meter.)

Water Safety Training a Key Part of Any Monitoring Program

It is crucial for your own safety and well-being to realize that the natural world around us is ambivalent. This means that as much as we may love and enjoy water and the natural environment that we work or recreate in, such feelings are not/cannot be returned. We all need to recognize the raw power that nature contains and that it is neither benevolent, nor malevolent towards us as humans. Trees, wind, water, rocks, soils, storms, and the plants and creatures which dwell therein are lovely in their own way. But they are to be respected, if only because they just are and they act in their own way regardless of whether or not we happen to be present (except for that one spider that guards the bathroom door in the cabin I sometimes stay at; I am pretty sure it has it in for me).

But, jokes aside, realize that rocks roll. Sand shifts. Lightning strikes. Trees fall or they carry irritating substances; not to hurt us, but to protect themselves. Rivers are beautiful, and powerful. The force of a river current can sweep you off of your feet, carry you where you don't intend to go, wrap your expensive watercraft around a boulder like cellophane, and carry you underneath the waterline where your lack of gills is problematic if you cannot reach the surface again.

Knowing what can happen and being prepared ahead of time makes sense for you and your teammates. Team being a key term here, as well. Fieldwork is best done with at least one buddy. If you are in the field alone, it's a good idea to let someone know where you are going and when you expect to be back. That way when you do fall down a ravine with no cell phone signal and no hip radio on, people will know where to look for you (not that I, personally, have ever experienced that or anything). Key components of a safety protocol for your field team might include:

Tying knots



Throwing flotation devices



Treading water with gear on



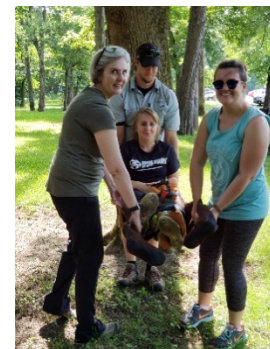
Dealing with flooded waders



Making splints/gurneys from available material



Efficient carrying techniques



Volunteers are reminded to sample in wadeable streams and avoid high water conditions. Still, it is a great idea to enroll in such training if it is available in your area. If not, search online and contact local safety personnel (or a scout troop!) about offering a class or two. And stay safe out there!

Dragonfly Gems

Just an “aha” moment to catch our breath and enjoy the beautiful photography of Karen Becraft (used by permission) and some amazing details about dragonflies and damselflies. Many websites, such as [Mother Nature Network](#), provide more facts, pictures, and videos about these fascinating creatures.



Dragonflies and damselflies are both members of Odonata, an order of carnivorous insects. In the nymphal stage they live, on average, two years in streams before emerging as an adult. Damselflies are more slender and long-bodied. They rest with wings folded parallel to and over their body. They appear more fluttery in flight than dragonflies, similar to a butterfly.



Dragonflies can move each of their wings independently from the others. They can fly in any direction, including backwards. They reach speeds of 18 miles per hour or can hover in one place. They are adept at hunting on the fly and consume huge amounts of mosquitoes and biting flies. Part of this is due to their many faceted, compound eyes and their ability to see many more colors and color variations than most of us can imagine.



Two dragonflies strike an obelisk pose. This orientation keeps their body cooler by exposing less of it to the sunlight. Female dragonflies oviposit (lay their eggs) in the water. Even young dragonfly nymphs are lightning fast at catching their prey; eating other insects, tadpoles, and small fish. Dragonflies are at risk of impacts due to human-induced pollution and habitat loss. Dragonfly sanctuaries exist in various places around the world to protect these amazing creatures; the aerialists who inspire many of our own technological developments within the realm of human flight and vision.



Mark Your Calendars

2018 Basic Training Workshop Schedule

A Hoosier Riverwatch Basic Training workshop will introduce you to hands-on water quality monitoring methods. You will learn about aquatic habitat and practice chemical and biological assessment techniques. Each workshop is held both indoors and outdoors unless weather or water conditions permit otherwise. All interested persons age 18 and over are welcome to attend. Once trained, certified educators are qualified to teach these methods and topics to their students.

- Sunday, Sept. 9** **La Fontaine, IN** – Wabash Chapter of the Izaak Walton League of America (IWLA), 10439 S. Old State Road 13 (9 AM – 4 PM). Instructor will be Carol Newhouse. Contact Jim Sweeney of IWLA, Porter County Chapter, at jp55biod@att.net or 219-322-7239 for information or to register.
- Saturday, Sept. 15** **Indianapolis, IN** – Holliday Park Nature Center, 6363 Spring Mill Road (9:15 AM – 4:30 PM). Contact John Ulmer at hoosierwatersheds@gmail.com or 317-769-3500 for more information or to register.

2018 Advanced Workshop Schedule

These half-day workshops will focus on ***E. coli* sampling** and introduce the **Hoosier Riverwatch online database**. Participants must have completed a full-day, basic training workshop prior to signing up for an advanced workshop.

- Saturday, Oct. 13** **Zionsville, IN** – SullivanMunce Cultural Center, 225 W. Hawthorne St. (9 AM – noon). Contact John Ulmer at hoosierwatersheds@gmail.com or 317-769-3500 for more information or to register.
- Wednesday, Nov. 7** **Evansville, IN** – Wesselman Woods Nature Center, 551 N. Boeke Rd. (9 AM – Noon). Instructor will be Carol Newhouse. Sign up at [Eventbrite](https://www.eventbrite.com). Or contact Carrie Parmenter at carrie.parmenter@in.nacdn.net or 812-838-4191 (x3) for more information or to register.

Fishy Find

IDEM biologists were pleased to find a Scarlet Shiner while sampling in Mosquito Creek, Harrison County, in late June. Here's a nice photo of it. Readers will be glad to know that the fish collected during a community assessment are identified, weighed, and measured before being released back to the stream from which they were taken. Occasionally some may be kept and preserved as voucher specimens to verify identification.



Mussel Reminder

A reminder to our volunteer stream monitors that, in order to protect endangered mussels in the state, it is illegal for us to have mussel shells of any kind in our possession; be they dead or alive. If clams, mussels, or any bivalve is picked up in your net while sampling for benthic macroinvertebrates, please return them to the stream site where you found them. (Photo by Kriste Lindberg)



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Nature never did betray the heart that loved her.

– William Wordsworth

IDEM Office of Water Quality Mission

The Office of Water Quality's mission is to monitor, protect, and improve Indiana's water quality to ensure its continued use as a drinking water source, habitat for wildlife, recreational resource, and economic asset.

The office achieves this by developing rules, guidance, policies, and procedures; assessing surface and ground water quality; regulating and monitoring drinking water supplies and wastewater facilities; protecting watersheds and wetlands; and providing outreach and assistance to the regulated community and the public while supporting environmentally-responsible economic development.

Hoosier Riverwatch Mission

The mission of Hoosier Riverwatch is to involve the citizens of Indiana in becoming active stewards of Indiana's water resources through watershed education, water monitoring, and cleanup activities. [Hoosier Riverwatch](http://www.hoosierriverwatch.com) is a water quality monitoring initiative sponsored by the Indiana Department of Environmental Management's *Office of Water Quality*.



Managers, staff, and interns of the IDEM Office of Water Quality spent a day in the field learning and practicing a variety of important water safety and wilderness first aid protocols.