Indiana Department of Environmental Management

Riffles & Pools

HOOSIER RIVERWATCH

Office of Water Quality www.idem.IN.gov

"You can't get too much winter in the winter." – *Robert Frost*

Photo by Karen Becraft

Greetings Riverwatchers!

I like learning new things. Mostly I am a visual and a 'hands-on' learner. Sometimes, under the right circumstances, written or spoken words can even sink in and leave their impression on me. Do you know your own best learning style? How about those of the important people around you?

A recent move to the city has me meeting new neighbors, shopping new stores, frequenting new restaurants, and experiencing new events. It's an exciting time. Made more so, funny enough, when it somehow links to my past; like running into an old friend at a new festival or a favorite restaurant from college moving into my neighborhood. Along with new things, I apparently also like continuity. Who of us doesn't when the context is pleasant?

I appreciate that our workshops teach concepts using all of the above: with a written manual, an instructor to speak with, a PowerPoint presentation, hands-on practice with measuring devices, chemical tests, nets, and aquatic insects. We hope to produce some video shorts to add sound and motion to aid volunteers learn and practice their water sampling skills, whether in a workshop or at home.

Know that we do all we can to help you connect to your favorite old streams and creeks in ways that bring new and exciting understanding to you and your communities.

– Carol Newhouse, Hoosier Riverwatch Coordinator

Spring 2019

In this Issue:

- Flowers Creek Success Story
- The Hyporheic Zone
- Instructor Retreat
- Fish Consumption Advisory
- Dam Removal
- Purple Paint Law
- Award Nominations Due April 1

MARK YOUR CALENDARS!

Upcoming Workshops

April 27 – Indianapolis

April 27 & May 4 – South Bend

May 4 – Frankfort

May 8 – Paoli

May 19 – Valparaiso

May 29 – New Harmony

June 1 – Dubois

June 3 & 10 – Bloomington

Plus more!

Hoosier Riverwatch is administered by

IDEM

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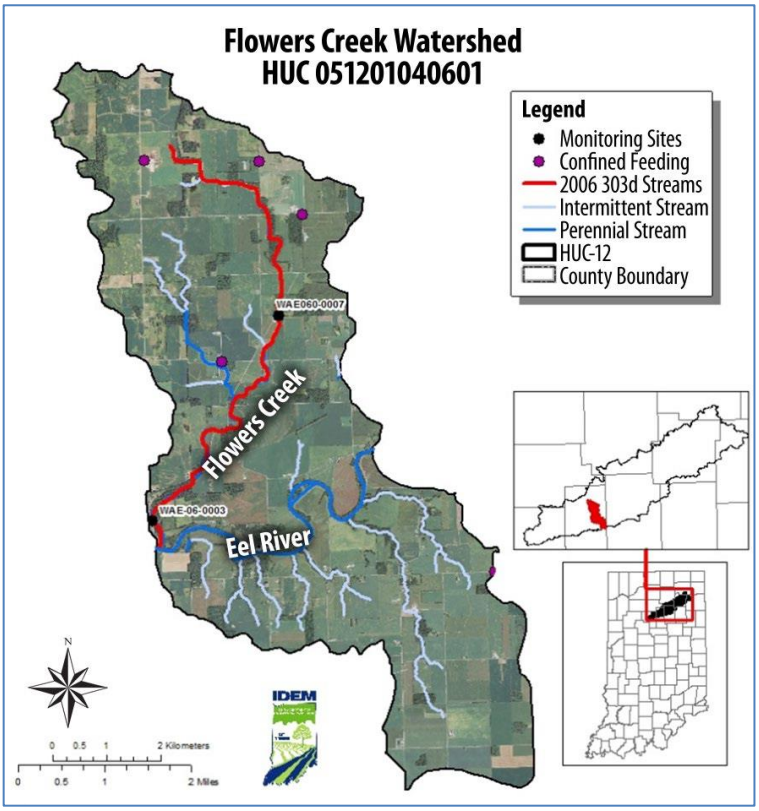
Watershed Success Stories: Flowers Creek

The 5th installment of the stories of watershed success efforts collected by IDEM staff and grant recipients over the years:

Flowers Creek is a 12.72-mile tributary of the Eel River in eastern Miami County, in north central Indiana. Its watershed is rural and highly agricultural (92% row crops and grazing lands). IDEM monitoring in 2003 showed high levels of phosphorus and ammonia coupled with low dissolved oxygen and impaired biological communities.

In late 2008, Manchester University obtained a grant from IDEM which helped in the development of a watershed management plan, among other things. The steering committee began implementing the plan in early 2011 and many improved land management practices were implemented.

The efforts of many parties contributed to success in this effort. Water quality improvements are indicated by the recovery of fish community scores (up to 44 points from an earlier 24) as well as the continuation of supportive macroinvertebrate scores of 44.



Best management practices (BMPs) implemented in the Flowers Creek watershed included:

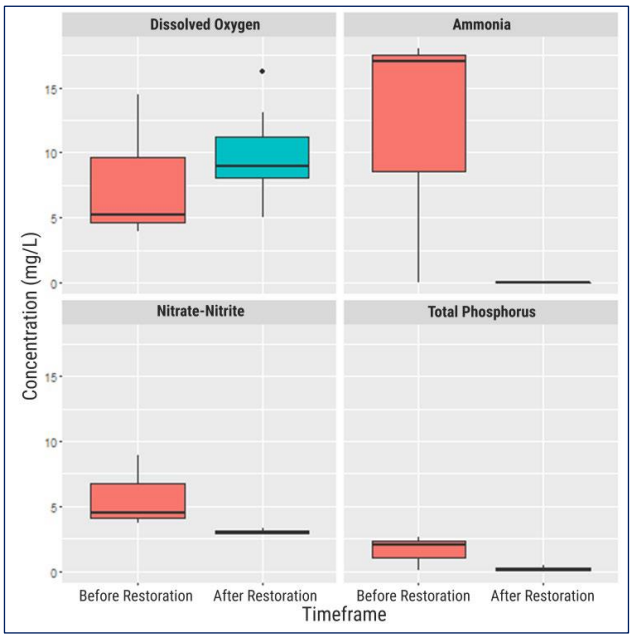
22,800 acres (ac.) of cover crops
4,500 ac. nutrient management
105 ac. forage/biomass planting
0.3 ac. heavy use protection
1 grade stabilization structure
214 ac. conservation tillage
11 ac. hardwood tree planting
3,540 feet livestock exclusion
97 ac. pest management
1 animal mortality facility
22 ac. grassed waterways
32 ac. other filter strips
12 ac. pollinator habitat
11 ac. riparian buffers
1 roof/cover

In 2003, Flowers Creek showed nutrient, dissolved oxygen, and fish community impairments. After implementing best management practices in the watershed, sampling showed full recovery of the fish community. Improvements made in nutrient and dissolved oxygen levels can be seen on the chart on following page.

Funds spent in the Flowers Creek watershed from 2008-2013 included:

- $1.099 million in Sec. 319 grants from IDEM for developing a watershed management plan, staffing technician positions, and installing best management practices
- $968,585 in USDA funds via the Conservation Reserve, Environmental Quality Incentives and Wildlife Habitat Incentive programs
- $733,333 from Manchester University in local matching funds
- $106,500 in Clean Water Indiana funds from the Indiana State Department of Agriculture and Miami County Soil and Water Conservation District (SWCD)
- $22,102 from the Indiana Department of Natural Resources' Lake and River Enhancement Program funds
- $5,436 in cost share funding from Miami County SWCD

Watershed Success Stories: Flowers Creek *(cont.)*



As seen in the box charts to the left, resampling of Flowers Creek by IDEM staff in 2015 revealed improved dissolved oxygen levels and lower nutrient concentrations (for ammonia, nitrate-nitrite, and total phosphorus) after implementation of the BMPs.

To learn more about what IBI scores mean to IDEM, please read the current Consolidated Assessment and Listing Methodology (CALM) at the bottom of IDEM's CALM page. IBI methodology is covered on pages G-16 through G-20.

You can also view completed watershed management plans for Indiana.

To explore more about how human activities affect water quality, see IDEM's interactive watershed graphic.

"Land health is the capacity for self-renewal in the soils, waters, plants, and animals that collectively comprise the land."

– Aldo Leopold

The Hyporheic Zone: Where Surface and Ground Water Meet

We know that a digestive system full of "good" bacteria is crucial to human health and well-being. Apparently the same may be true of streams.

A blog post came across my desk recently, from Yellow Springs Instruments' water equipment website. It was by Patrick Higgins who, with his group, is working hard to restore Seattle's Thornton Creek. It seems that, in addition to restoring the physical attributes of the Thornton, they are trying to reintroduce bacteria and invertebrates in something called the hyporheic zone. I did a bit of exploring recently and learned about the amazing hyporheic zone. They are doing this by populating a collection basket in the zone of a healthy stream so they can colonize the Thornton with these same critters.

Turns out hyporheic zones consist of nutrient-rich sediment where streams interact with ground water in a vital way—chemically, biologically, and hydrologically. During this vital exchange, downwellings of oxygen- and organic-enriched water pass from surface to ground water; followed by upwellings to the stream of transformed, temperature-stable and nutrient-rich ground water. The interactions are complex. They drive many nutrient cycles and chemical reactions in streams. They are driven by stream morphology and discharge, as well as soil porosity. (Articles found on the American Geophysical Union and U.S. Forest Service websites are quite enlightening on these topics.)

Everything hinges on having the right bacteria and invertebrates living in the zone. And just as the medical community is learning to repair and repopulate unhealthy human digestive systems, so may ecologists and hydrologists find that inoculating stream beds with the proper fauna is just what the doctor ordered to help us remediate many human-made impacts on the natural world!

Riverwatch Instructor Retreat and Training Day

Instructors Cathy Meyer, Seth Harden, Sandy Belth, Julie Lowe, and Kriste Lindberg (all standing) look on while IDEM staffers Maddie Genco and Todd Davis (seated) demonstrate identifying macros to genus and species.

The 2018 workshop season ended on a high note as a dozen Hoosier Riverwatch-trained instructors descended on our Indianapolis office on a snowy day in early December.

The day was opened with introductions, a recap of the year's accomplishments, and handing out longevity certificates recognizing the years that each instructor has dedicated to this program.

Those receiving milestone certificates in 2018 included Shelley Chaffee (for 5 years) and Ann Ice, Jamin Beisiegel, Julie Speelman, Kevin Miles and Sarah Brichford (10 years). The combined total years of activity for current instructors is 261.

After much laughing, sharing, and handing out of awards, and not a small amount of chocolate consumption, time was well spent in two breakout sessions planned for the day. The first was led by instructor John Ulmer who walked his fellow instructors through hands-on reading of *E. coli* plates, as well as practice in sterile sampling techniques and setting up of *E. coli* samples. Instructors were given access to training materials so that they may begin offering this advanced training option to qualified volunteer monitors in their area.

The second session included hands-on curating of their own aquatic macroinvertebrate collections for use during workshops. They also got to hob nob with biologists in the IDEM bug lab to see how stream macroinvertebrate samples are sorted and identified there.

Instructors rotated sessions during the day so that they could participate in both sessions. The day ended with games and door prizes and more take-homes (think, foam coolers and night lights for those wanting to set up *E. coli* incubators for their own and for training purposes.)

Shelley Chaffee and Carrie Parmenter top off the vials in their bug collections.

17-year veteran instructor and career naturalist Mary Cutler caps off a vial of insects for her collection. Other bug collections are visible (foreground).

Sharon Partridge selects the macroinvertebrates she wishes to have in her collection.

Indiana Fish Consumption Advisory: New and Improved

Indiana was the first of the lower 48 states to issue a fish consumption advisory (FCA), as far back as 1972, for salmonids caught and eaten out of the Indiana waters of Lake Michigan. Eventually all states began issuing such advisories. The FCA is a good thing for Indiana as eating fish has many health benefits and the FCA helps fishermen make informed decisions about where to fish and how much of different types of fish can be safely consumed.

The cool thing about the newest online advisory is that it has mobile-friendly interactive map where you search for advisory information by address, waterbody name, or county. On a desktop, at least, you can scroll around the map and click on the waterbody you may be interested in. There is a "near me" option for finding FCAs, plus other useful information on the map and site.

The guide still divides the advisory by general and sensitive populations. The general population includes males 15 and over and females over 50. The sensitive population, by default, includes females under 50 and males under 15. Swimmers and boaters need not be concerned about picking up contaminants since they are in such low concentrations in the water. What does concern us is that the contaminants can be in the sediments and move up the food chain from insects to small fish and on up to larger and longer-lived fish. The FCA is helpful, therefore, in helping us decide the species, size, and amount of fish that can safely be eaten from Indiana waters.

All in all, fish are a great source of protein and omega-3 fatty acids. Research shows that fish consumption is associated with a lower risk in cardiovascular disease and it is an important nutrient for fetal and childhood development. The advisory in Indiana is a joint effort of the Indiana State Department of Health, IDEM, and the Indiana Department of Natural Resources.

The FCA website—and the corresponding IDNR fishing guide and website—do an excellent job of outlining consumption rates for general and sensitive populations, even for waterbodies that have not been tested. The FCA website includes other great tidbits and information including links to:

- The Ohio River FCA
- Eating fish from Florida waters while on vacation
- A fish wallet card produced by Purdue University that can guide your store-bought fish choices

Each year IDEM staff enjoy a fish fry. In 2018 the meal consisted primarily of silver carp collected from the Wabash River during summer sampling. Just doing our part to help reduce a nuisance aquatic species in Indiana waters!

Indiana Fish Consumption Advisory *(cont.)*

One final highlight regarding this topic is the removal of Clear Creek (Monroe County) and Pleasant Run Creek (Lawrence County) from the all-species Do Not Eat list. Fish in both waterbodies were impacted by PCB contamination—the first site by a landfill which was remediated in 2012 and the second by an industrial facility which was remediated in 2006-2007. While there is still an FCA for these waterbodies, the reduced PCB levels in fish tissue here is encouraging.

Dam Removal Slated in Harrison County

On October 5, 2018, IDEM staff conducted a site visit to Indian Creek in Harrison County. The purpose of the visit was to discuss removal of low head dams for the benefit of human safety and habitat improvement. Aside from the impoundments, Purdue University investigators have tagged Indian Creek as prime hellbender habitat.

Major funding for the removal of the two largest dams (owned by the city of Corydon) comes from the U.S. Fish and Wildlife Service's Ohio River Basin Fish Habitat Partnership. Dr. Jerry Sweeten of the Ecosystems Connections Institute and The Nature Conservancy plan to hire and oversee contractors for these removals in the upcoming fall (2019).

At least one landowner has asked for input from the group on removal of a rock dam on his property. It is unclear at this time what will become of the fourth and furthest downstream dam.

"Man did not weave the web of life. We are but a strand of it. Whatever we do to the web, we do to ourselves. All things are bound together. All things connect."

– Chief Seattle

Purple Paint Law

On July 1, 2018, the Purple Paint Law went into effect (see Indiana Code 35-43-2-2). It allows for the marking of private property via purple paint, similar to what is seen in this photograph. It should be an improvement over the expensive upkeep of fencing and easily removed signage.

The law allows for the painting of trees up to 100' apart and for posts no more than 36' apart (presumably sign posts, since the top 2 inches are to be painted). The law goes into more detail about the size, direction, and height of the paint mark; as well as the proper steps for applying paint along property shared by more than one owner.

Trained Riverwatch volunteers already know the importance of respecting private property rights and getting permission before accessing streams for sampling. These laws should aid not only our own volunteers, but anyone who spends time out-of-doors wandering Indiana.

IDEM Seeks Nominations for 2019 Governor's Awards for Environmental Excellence

The Indiana Department of Environmental Management (IDEM) is now accepting nominations for the 2019 Governor's Awards for Environmental Excellence. These awards recognize individuals and organizations who have implemented outstanding environmental strategies into their operations and decision-making processes.

"These are Indiana's most prestigious environmental recognition awards," said IDEM Commissioner Bruno Pigott. "Each year I look forward to seeing the innovative practices employed by Hoosiers and organizations."

IDEM and Governor Eric J. Holcomb's office will present seven awards, one in each of the following categories:

- Energy/Renewable Resources
- Environmental Education/Outreach
- Five Years of Continuous Improvement
- Greening the Government
- Land Use/Conservation
- Pollution Prevention
- Recycling/Reuse

Established in 1986, IDEM implements federal and state regulations regarding the environment. Through compliance assistance, incentive programs, and educational outreach, the agency encourages and aids businesses and citizens in protecting Hoosiers and Indiana's environment.

The public is invited to submit nominations, and organizations may self-nominate. Nominations are open to all Indiana facilities, government agencies, individuals, and other groups that implement exemplary environmental projects or initiatives with measurable results. An instructional webinar, eligibility requirements, and details about the nomination process are available on IDEM's website.

Nominations must be received by IDEM no later than **5 p.m. EDT on Monday, April 1, 2019**.

Awards will be presented at the 22nd Annual Pollution Prevention Conference and Tradeshow in September 2019. IDEM will also issue a statewide press release announcing the seven winners and summarizing their projects. For questions about the nomination process, please contact Cameron Maschino at (317) 233-5434 or GovAwards@idem.IN.gov.

Spring Cleanups Help Reduce Nonpoint Source Impacts

Keep America Beautiful's (KAB) Great American Cleanup began as a litter cleanup initiative designed to improve our environment by creating cleaner parks, streetscapes, and public spaces through litter removal. Beautifying our cities, towns, and environment helps keep trash and other pollutants from impacting our waterways. It is also a great chance for neighborhoods, businesses, service and youth groups, schools, and residents to work together to make a difference in their community. Local KAB affiliate Keep Indianapolis Beautiful is seeking volunteers for its Great Indy Cleanup on April 27, 2019. The City of Fort Wayne needs groups and individuals to help clean up littered roadsides, parks, trails, and riverbanks during its Great American Cleanup event on May 4, 2019. Other KAB affiliates that welcome volunteers include Keep Evansville Beautiful, Keep Stockwell Beautiful, and Keep Terre Haute Beautiful.

Project WET Adds Ground Water Episode

As you read earlier in this newsletter edition, ground water plays an important role in its connection and influence on rivers, streams, and even lakes. Such impact can flow both ways depending on whether (or when) the surface waterbody in question is gaining/adding or losing water to the surrounding ground water.

If you are an educator (e.g., teacher, naturalist, homeschooler, etc.) and want to learn more or are wondering how to teach these ideas to your students, check out the new Water Education TV episode produced by Project WET. Step-by-step instructions are available in Project WET's Discover Ground Water & Springs Activity Booklet in its online store.

Riverwatch Spring To-Do List

- ❑ Check the quantity and expiration dates of your water monitoring supplies.
- ❑ Use the online Equipment Refill Request to order perishable supplies.
- ❑ Check out a local loaner kit or apply for your own equipment grant award, if eligible.
- ❑ Submit data to the Hoosier Riverwatch database.
- ❑ Use the Search and Visualize tools on the database to locate and share data with others.
- ❑ Sign up and take an advanced workshop to expand your knowledge base.

Worth Mentioning

Congratulations to Dr. Rod N. Williams, associate professor and hellbender advocate, for being among the outstanding members of Purdue University's teaching faculty who were inducted into Purdue's Book of Great Teachers on Dec. 11, 2018! Purdue Agriculture's Help the Hellbender website provides information about Dr. Williams' efforts as well as videos, podcasts, and how the public can help.

Photos courtesy of Purdue University

A hearty shout out to fellow IDEM staffer Lindsay Hylton, who successfully published her master's thesis on "Microplastic Pollution in Indiana's White River: An Exploratory Study" in the *2018 Proceedings of the Indiana Academy of Science*. She says the greatest challenge was repeated efforts to engineer her own unique surface water sampling device (pictured here). She says it made the end results that much more rewarding!

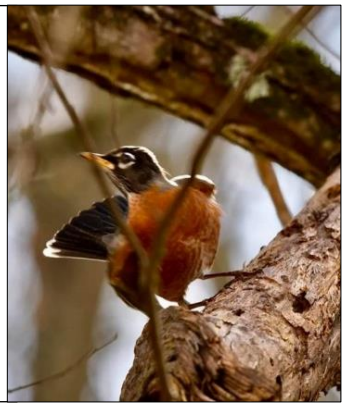
Photo by Lindsay Hylton

Worth Mentioning *(cont.)*

The tree and lawn outside my office window were frequented by robins this winter. In fact I have heard many speak of seeing robins. I know they over-winter here, as I have seen them in the woods while hiking or skiing. But, coming out of the woods on even a sunny winter day seemed rather novel to me.

Sources say that 60% of a robin's diet consists of fruit and berries. So, maybe they were after the fruit of the hawthorn tree outside the window. Or were they hoping for a worm or two stirring in the sun-warmed earth?

Photo by Karen Becraft



I watched a family of bluebirds checking out some promising hidey holes in the middle of Nashville, Indiana one day this winter. They appeared to be bested by a family of small sparrows also searching for new digs. Apparently the lone bluebird who stayed behind while his family went off in search of food thought that he was outnumbered. Rather than waste precious energy rumbling in the streets of artsy Nashville, he moved on. I have often thought them a rare sight even in good weather. What good fortune to watch them on an otherwise dreary day. Now, if I can only find a barn owl to add to my list …

Photo by Karen Becraft

From robins in the lawn to lakes frozen over, December and January sure gave us a variety of weather this year. Who knows what we can expect before sampling season begins again?

Regardless, as I write this newsletter, HRW instructor Lyn Crighton was out enjoying a mile-long skate across Tippecanoe Lake. I wonder how many steps that would log on a fitness tracker? Anybody know?

Photo courtesy of Lyn Crighton

Take your kids on a virtual midwinter adventure as you surf the internet for the phenomenon known as ice disks (or ice circles). The one pictured here was on the Vigala River in Estonia in 2016. A 300-foot-wide ice circle was on the Presumpscot River in Maine last month. Ice disks occur across the globe. They form when river ice breaks loose but remains trapped in the current. The slow, repetitive spinning of the ice in the current rounds it nicely. I wonder if this is how humans first came up with the idea of the wheel.

Photo by Luc Saffre
(Image licensed under CC BY-SA 4.0)

Worth Mentioning *(cont.)*

A lovely sight with ice boats lined up on Lake Wawasee in mid-February. I wonder who won. Just imagine the thrill and beauty of speed with what I imagine is near silence. Someone fill me in. What do you hear when racing (or just tooling around) in one of these? Does it sound like ice skating? Maybe the flap of a sail, the whoosh of ice underneath amid the whoops and hollers of friends and family?

Photo by Andy Allen

Kudos to the Indiana Geological and Water Survey for featuring waters (and watersheds) of Indiana on their 2019 wall calendar. The poster shows a map of the state depicting our waterways that drain five primary watersheds, and numbered text describing various surface water features. IGS' mission is to provide geologic information and counsel that contribute to the wise stewardship of the energy, mineral, and water resources of the state.

Photo courtesy of Indiana Geological and Water Survey

Snowflakes start when water vapor adheres to a dust grain floating in the atmosphere. As it freezes it forms flat sides until it has formed a 6-sided prism with a top and bottom. Changes occur as it rises and cools in the atmosphere. As the flat sides draw in, the edges between them are drawn out forming 6 branches. With more cooling, side branches sprout. With alternating warm and cool air, additional side branches grow. This continues as it adds more water, continuing to freeze and grow. At last the flake grows heavy and falls to earth. Air temperatures during the descent change the shape of each flake even more, making them all look slightly different from one another.

Photo of snowflake on sweater fibers by Karen Becraft

A friend was able to capture some interesting photos this winter of a family of deer walking along the water's edge until one of them encounters this fox. In the photo to the right the deer first spies the fox on the bank. After both animals got over their initial surprises, they went on their respective ways (as seen by the fox and his reflection [left photo]).

So, when out along the creeks, fields, and woods of Indiana, be sure to keep your eyes peeled for the local tenants. And enjoy the encounters when you do.

Photos by Mike Schuelke

Mark Your Calendars

2019 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.

Saturday, April 27	**Indianapolis, IN** – Holliday Park (9:15 AM – 4 PM). Instructor will be John Ulmer. Contact John at hoosierwatersheds@gmail.com or 317-769-3500 to register.
Saturday, April 27 & Saturday, May 4	**South Bend, IN** – St. Patrick's County Park (8:30 AM – 12:30 PM). *Must attend both sessions to receive certification.* Instructor will be Shelley Chaffee. Contact Shelley at schaffee@sjcparks.org or 574-654-3155 to register *by April 19.*
Saturday, May 4	**Frankfort, IN** – Camp George C. Cullom (8:30 AM – 4:00 PM). Instructor will be Leah Harden. Contact Leah at 765-659-1223 (x3) or leah.harden@in.nacdnet.net to register *by Wednesday, May 1*.
Wednesday, May 8	**Paoli, IN** – Orange County SWCD Office (9 AM – 3 PM). Contact Michael Wilhite at 812-203-3033 or orangeswcd@gmail.com to register. You may also register online at www.OrangeSWCD.org.
Sunday, May 19	**Valparaiso, IN** – Meadowbrook Nature Preserve (9 AM – 3 PM CST). Instructor will be Nicole Messacar. Contact Sarah Barnes at 219-242-8558 or sbarnes@heinzetrust.org to register.
Wednesday, May 29	**New Harmony, IN** – Old Dining Hall, Posey County Fairgrounds (7:30 AM – 3 PM). Instructors will be Carrie Parmenter and Ann Ice. Contact Carrie Parmenter at carrie.parmenter@in.nacdnet.net or 812-838-4191 (x3054) to register *by May 24*. You may also sign up via Eventbrite.
Saturday, June 1	**Dubois, IN** – Patoka Regional Water District Office (9 AM – 3 PM EST). Instructor will be Nicholas Servis. Contact Judi Brown at judi.brown@in.nacdnet.net or 812-482-1171 (x3446) to register.
Monday, June 3 & Monday, June 10	**Bloomington, IN** – Karst Farm Park (5:30 PM – 8:30 PM). *Must attend both sessions to receive certification.* Instructors will be Cathy Meyer, Kriste Lindberg, and Sandy Belth. Contact Monroe County Parks and Recreation at 812-349-2800 or parks@co.monroe.in.us to register.
Thursday, June 20	**North Webster, IN** – North Webster Community Center (8:30 AM – 4:30 PM). Instructors will be Darci Zolman and Lyn Crighton. Contact Paige Hubner at admin@watershedfoundation.org or 574-834-3242 to register.

Continued on next page ►

Mark Your Calendars *(cont.)*

2019 Basic Training Workshop Schedule

Saturday, June 22 — **Greenwood, IN** – Greenwood Nature Center (8 AM – 4 PM). Instructors will be Carol Newhouse and Deanna Garner. Contact Mike Weaver at 317-887-4711 or stormwater@greenwood.in.gov to register.

Tuesday, July 23 — **Battle Ground, IN** – Brier Environmental Education Center, Tippecanoe Battlefield (8:30 AM – 4:30 PM). Instructors will be Mary Cutler and Darci Zolman. Contact Mary Cutler at 765-567-2993 or mcut@msn.com to register *by July 19*.

Friday, September 6 — **Bristol, IN** – Baldwin Schoolhouse, Bonneyville Mill County Park (9 AM – 4 PM). Instructor will be Krista Daniels. Contact Krista at kdaniels@elkhartcounty.com or 574-875-7422 to register *by September 3*. You may also register at www.elkhartcountyparks.org.

2019 Advanced *E. coli* Workshop Schedule

Advanced workshops are typically half-day in length. Participants must have completed a full-day, basic training workshop prior to signing up for an advanced workshop.

Saturday, June 8 — **Greenwood, IN** – Greenwood Nature Center (9 AM – Noon). Instructors will be Carol Newhouse and Deanna Garner. Contact Mike Weaver at 317-887-4711 or stormwater@greenwood.in.gov to register.

Saturday, Oct. 12 — **Zionsville, IN** – SullivanMunce Cultural Center (9 AM – Noon). Instructor will be John Ulmer. Contact John at hoosierwatersheds@gmail.com or 317-769-3500 to register. Workshop will include background and hands-on practice with *E. coli* sampling, as well as introduction to the Hoosier Riverwatch online database.

IDEM Office of Water Quality Assistant Commissioner Martha Clark Mettler drives passengers BB-8 and K-2SO towards their launch point. IDEM staffers donated these and other toys to Toys for Tots after the agency's holiday drive for donations. Note that the passengers are all safely seat belted or in an approved safety box (?) and that the car was stopped during the taking of this selfie. No droids or employees were injured during the filming process. It is hoped that BB and K-2 made it safely to their final destination and received a warm and hearty welcome at their new assignments!

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Office of Water Quality, Watershed Assessment and Planning Branch

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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 is a water quality monitoring initiative sponsored by the Indiana Department of Environmental Management's *Office of Water Quality*.

In college they taught us that Nature designed it so that the least palatable berry is the most nutritious—making for a hearty, though bitter, snack at the end of a long winter—when all other food sources are exhausted and spring has not yet sprung. Swallowing such a bitter pill has saved many a bird's life. A lesson we might do well to remember now and then.

Photo by Karen Becraft