

# Riffles & Pools

Office of Water Quality

idem.IN.gov



## Greetings Riverwatchers!

I hope everyone had a wonderful holiday season and a great start to 2023. We've certainly experienced some cold weather in recent months; it's hard to stay outdoors with a wind chill of -25°F! On the bright side, every day since the winter equinox has given us a little more sunlight. Before long, we'll be able to comfortably return to our favorite meandering streams and rushing rivers. Until then, grab a hot chocolate and enjoy this edition of *Riffles & Pools*.

In this edition, we explore the improvement of the Hogan Creek watershed, dive into some winter outreach activities at a local high school, and catch up with a volunteer who has been involved with Riverwatch her whole life.

Dylan Allison  
Hoosier Riverwatch Coordinator

### Winter 2023

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March 8 – Bristol, IN  
(Instructor Training)

March 17 – Indianapolis  
(Instructor Training)

May 19 – Bristol, IN

Sept. 9 – Bristol, IN

More Coming Soon!

Hoosier  
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## Where Are They Now? A Riverwatch Volunteer Story

From 1998 until 2007, Lyn Crighton served as the Hoosier Riverwatch Coordinator. During her nearly 10 years with the program, Lyn supported watershed education, data collection, and volunteer engagement. Her daughter was also born during that time. Interestingly, during her pregnancy, Lyn requested input from her peers and Riverwatch volunteers for what to name her daughter. Some of those reading this newsletter may have been involved with Riverwatch long enough to have voted on her name! I was able to talk with Lyn's daughter, Lily, to discover how Hoosier Riverwatch shaped her childhood and what she is up to today.

**Dylan:** Your mom mentioned you're in school, is that correct?

**Lily:** Yes, I'm at IU South Bend. I'm studying environmental sustainability.

**Dylan:** How are you liking it in school so far? Are you a freshman?

**Lily:** I am. This is my first year. I'm liking it a lot. The living conditions are really nice, and all of the professors are really good. My advisor is actually the head of the sustainability program. He is very passionate and all of my teachers who are in the sustainability program are all very passionate about it. It's a very sustainable campus. They've done a lot of things to change and make it a lot more environmentally friendly. Like having gardens out by all the housing and having compost bins. We also have beehives that we get honey from. It's really neat how the school has become a lot more sustainable.



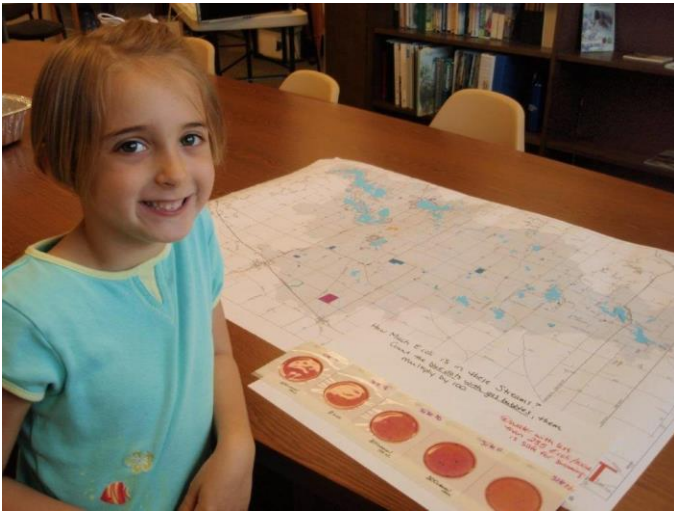
*Lily, age 5, Photo Courtesy Lyn Crighton*

**Dylan:** It's really neat when you find a school that offers hands-on, real-world experience. It's not all just in the classroom. Sounds like a good program there. Is your favorite part of school having those hands-on opportunities and the model that they show involving sustainability?

**Lily:** I'd say so. They even have some wetlands near the campus housing. They offer classes that you go down and you study all the plants and the wetland area. We have a big bridge that goes across the Saint Joe River over to campus. And on one side of it, they have all of these native plants all along the river. But we have a bunch of grass and green area by the housing, and we have a big problem with geese. I've always known, ever since I was little because of my mom, that if you plant native plants

along rivers and lakes it can reduce how much the geese get up on the land. I've been talking to my advisor about a project to plant natives on the other side of the river as well to help a little bit more. But that's just an idea right now.

**Dylan:** It's nice to know that your professors support initiatives like that. Do you have a least favorite part of school?



Lily, age 6, Photo Courtesy Lyn Crighton

**Lily:** I can't think of anything. Maybe waking up early for classes.

**Dylan:** Your mom told me about how she asked for input from Riverwatch volunteers for your name. Ultimately these people voted on Lily. Do you feel any particular way about that?

**Lily:** I think it's cool! I remember when she first told me, I was jokingly mad – "I can't believe you voted on my name!". Every conference or training, everybody would vote. Now that I've gotten older, I think it's pretty cool that people from all around the state and country have voted on my name and helped create that part of me.

**Dylan:** It is a neat story and Lily is a good name. It could've been something way out there.



Lily, age 5, Photo Courtesy Lyn Crighton

**Lily:** Well some people wanted to name me Brooke. Some people wanted to call me River. One of my grandmas voted Stella. There were a bunch of names suggested!

**Dylan:** Do you have early memories of going to a workshop or being out in nature with your mom?

**Lily:** Oh my goodness. So many memories. One of the first ones I remember, she was leading a workshop. We went out to the lake,



Lily, age 9, Photo Courtesy Lyn Crighton



Lily, age 9, Photo Courtesy Lyn Crighton

and we were using nets to gather macroinvertebrates. We would sort them into buckets and find out the water quality of the lake. I also remember all through elementary school, my mom would come to my classroom. She would take all of my classmates to the nearby river and catch these bugs. Everyone always thought it was so gross, but I always thought it was so cool! My mom also did *E. coli* testing. I would go to her office after we got all the samples, and we would do all the petri dishes. I would help count for all the *E. coli*. I've been doing

that since I was ten.

I mostly remember just getting out, wearing the big boots, getting in the rivers, and doing water quality testing and thinking it was the coolest thing ever. And ever since I was little, I was so interested because what my mom showed me and the experiences I had with her. It really made me who I am today. It also made me good with people. I'm a very sociable person. Now I know how to work with people and direct people on what to do. When I was 4 years old, she had a river rafting program with high school students. All the high school students were pointing out lily pads and I replied, "that's not lily pads, that's Spatterdock." I was teaching them stuff at 4 years old. This past summer my mom did the program with 6th graders, and I was able to be a volunteer instructor and it was a great learning experience for me. And last year was also when I did the official Hoosier Riverwatch training and finally got certified.

**Dylan:** What are your hopes for the future? Any career goals?

**Lily:** So, there's actually two, and it kind of depends what way I go towards. I'm thinking about moving to IUPUI in Indy next year because IU South Bend only offers sustainability. They don't offer environmental science and IUPUI does. If I decide to go there and choose environmental science there's a good chance that I might do what my mom does and run a non-profit organization that helps with water quality.



Lily, age 14, Photo Courtesy Lyn Crighton

I also have a big dream of going to other countries and working with leaders in those countries to help solve some of their environmental problems by doing projects. I love traveling. That's one of my favorite things. That might be a far-out goal, but I think it would be really, really cool.



Lily, age 18, Photo Courtesy Lyn Crighton

**Dylan:** What kind of advice would you give to young volunteers with Riverwatch or to young people who are interested in the environment and following a similar path to what you've begun?

**Lily:** I'd say that if you have even the slightest interest in [the environment], you should take the time and learn more about it and how many different things you can do to help because there's a lot going on in the world right now. If you find something that you can do, then pursue it. If it's something you're interested in, really work towards getting your goals completed, even if it seems hard. All of this environmental stuff is kind of a big crazy thing, like it's just a big task. You have to find the right thing for you, and you can help accomplish big things.

**Dylan:** I think that's good advice. The environmental field can be very somber at times. But you take the small victories, and they add up, right?

**Lily:** The small things that we all do add up. Sometimes it can seem like your head can get to you and make you think you can't do it. But if you stick to it, you can help with the bigger problems.



Lily, age 18, Photo Courtesy Lyn Crighton

**Dylan:** Anything else you'd like to add or say to the readers or volunteers that are with Riverwatch today?

**Lily:** I'm glad that people are in Riverwatch, and they want to make a difference. I'm very thankful for the whole program. And I'm thankful for the upbringing it gave me and how it's made me who I am.

**Thank you to both Lyn and Lily Crighton for the chance to learn about their amazing story!**



## NONPOINT SOURCE SUCCESS STORY

# Indiana

## Aquatic Life Use Restored in Two Hogan Creek Watershed Streams

### Waterbodies Improved

The Indiana Department of Environmental Management (IDEM) listed South Hogan Creek on its Clean Water Act (CWA) Section 303(d) List of Impaired Waters in 2002 due to high levels of *Escherichia coli* and impaired biotic communities. In 2014, IDEM also listed Little Hogan Creek on its Section 303(d) List for *E. coli* and impaired biotic communities. To address these concerns and others, partners developed and implemented the Hogan Creek Watershed Project (HCWP) in 2005, out of which the Hogan Creek Watershed Management Plan (WMP) was developed. After years of best management practice (BMP) implementation and education and outreach in the watershed, monitoring at South Hogan Creek and Little Hogan Creek revealed that both segments now fully support aquatic life. IDEM will propose to remove both biotic community impairments from its impaired waters list in 2022.

### Problem

Hogan Creek flows from its headwaters in northeast Ripley County until it reaches its confluence with the Ohio River, just north of the town of Aurora in southeastern Indiana. Within the greater Hogan Creek watershed (HUC 0509020304) are Little Hogan Creek and South Hogan Creek, in adjacent subwatersheds, comprising approximately 14.5 miles of stream combined (Figure 1). The Hogan Creek watershed is approximately half agricultural and half forested land. According to the 2007 Hogan Creek WMP, the Hogan Creek Steering Committee identified the top five concerns within the watershed as water quality, dumping of garbage, failed septic systems, erosion of cropland and urbanization. A windshield survey conducted by members of the Hogan Creek Technical Committee in 2006 identified numerous farms that allowed livestock direct access to two tributaries of Hogan Creek and had numerous overgrazed pastures.

In 2000, IDEM's Probabilistic Monitoring Program sampled South Hogan Creek (INV0343\_01) and discovered a failing Index of Biotic Integrity (IBI) score of 20 for its fish community. In Indiana, an IBI score of less than 36 indicates that a stream is not supporting a well-balanced aquatic community. This caused IDEM to list the segment on its 2002 CWA Section 303(d) List of Impaired Waters for impaired biotic communities. IDEM returned to the same site in 2014 to reevaluate the fish community through its Performance Monitoring Program and again discovered a failing IBI

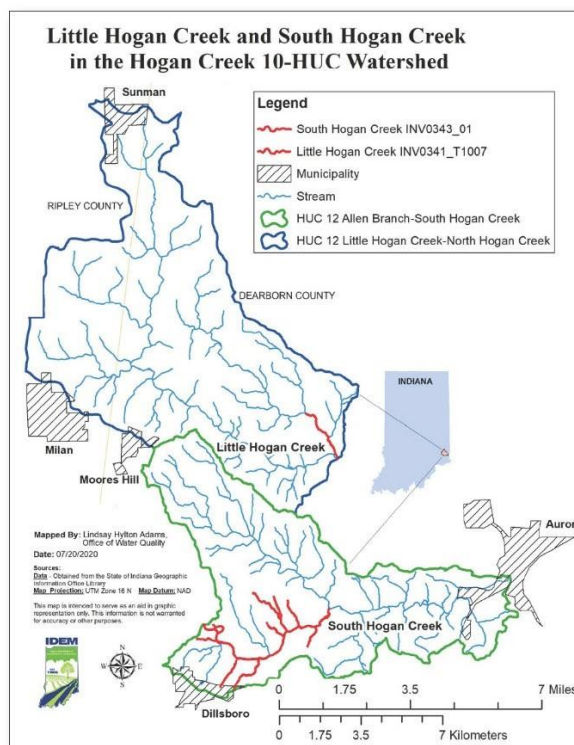


Figure 1. Hogan Creek is in southeastern Indiana.

score of 30. In 2010, IDEM's Probabilistic Monitoring Program sampled Little Hogan Creek (INV0341\_T1007) and found the segment to have a failing IBI score of 34 (30 at the site revisit) for its macroinvertebrate

community. This led IDEM to list this segment on its 2014 CWA Section 303(d) List of Impaired Waters for impaired biotic communities.

## Story Highlights

The Dearborn County Soil and Water Conservation District (SWCD) initiated the HCWP in 2005 and created the Hogan Creek Steering Committee to oversee it. The goals of the project were to educate community members about water quality, develop a WMP, perform water quality testing and conduct an extensive outreach program. The committee completed the Hogan Creek WMP in 2007.

The HCWP received four 319 implementation grants from 2008 to 2018 (totaling \$757,851 to date). These funds supported implementing over 2,200 acres of cover crops; 56,398 feet of fencing; and over 98,439 square feet of heavy use area protection (HUAP) in the two subwatersheds containing Little Hogan Creek and South Hogan Creek. Additionally, the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) helped implement numerous BMPs in the subwatersheds in 2005–2019, including 114 acres of cover crops; 19,000 feet of fencing; 192 acres of forage/biomass planting; 245 acres of prescribed grazing; 14 watering facilities; and 0.2 acres of wetland creation. Further, the Indiana State Department of Agriculture Clean Water Indiana (CWI) Program supported additional BMPs in these subwatersheds in 2013–2019, including 2,005 acres of cover crops; 112 acres of no-till management; 37 acres of forage and biomass planting; and more.

## Results

IDEM conducted Performance Monitoring in 2015 on Little Hogan Creek, which showed great improvement. The macroinvertebrate IBI score was 44 and no longer failing. The fish IBI (which had not been failing) had also slightly improved. IDEM also conducted Performance Monitoring on South Hogan Creek in 2019, which showed a greatly improved fish IBI score of 50. The macroinvertebrate IBI (which had not been failing) had remained the same. In addition, the stream habitat was flourishing and showed small improvement from the previous visit, with a Qualitative Habitat Evaluation Index score of 77 (Figure 2). IDEM has determined that a score of less than 51 is indicative of



Figure 2. South Hogan Creek now fully supports aquatic life use.

poor habitat. Because South Hogan and Little Hogan creeks now fully support aquatic life, IDEM will propose to remove both biotic community impairments from its list of impaired waters in 2022.

## Partners and Funding

Various partners have helped restore the greater Hogan Creek watershed over the past 15 years. IDEM awarded the Dearborn County SWCD \$78,376 in CWA 205j funds to develop the Hogan Creek WMP, in addition to an award of \$757,851 in CWA 319 funding to carry out the four implementation projects. Dearborn County and other local partners provided local match totaling \$888,085 for BMPs and other associated project costs. The project's success was also due to its strong partnerships with Historic Hoosier Hills Research Conservation and Development (HHH RC&D) Program and the Ripley County SWCD in project implementation. HHH RC&D assisted with administrative duties and outreach; Ripley County assisted with the project's outreach, education and cost-share efforts. At the county level, in 2013 and 2018 Dearborn County SWCD received a total of \$91,542 in CWI grants and Ripley County SWCD received \$150,000 in 2015–2016. NRCS was also a key partner for the project's cost-share program. In the two subwatersheds containing Little Hogan Creek and South Hogan Creek, NRCS provided BMP promotion, design and installation at a total cost of \$190,746, through its Conservation Stewardship, Environmental Quality Incentives and Wildlife Habitat Incentives programs.



U.S. Environmental Protection Agency  
Office of Water  
Washington, DC

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## For additional information contact:

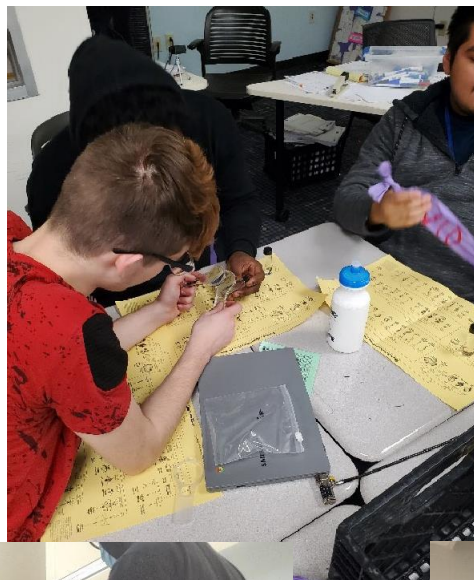
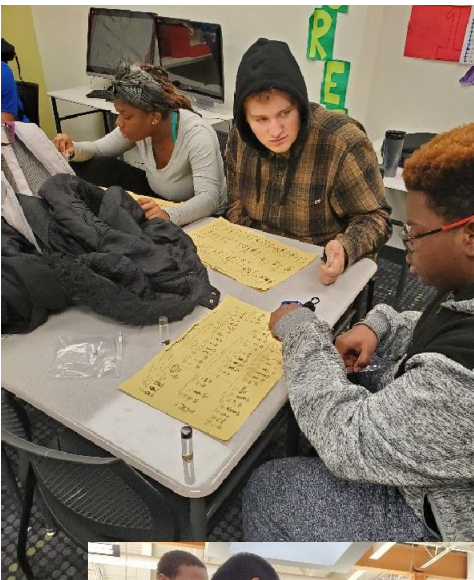
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## Indy Met Meets Hoosier Riverwatch

Winter months may keep you out of the rivers, but outreach with local youth is still possible! Hoosier Riverwatch was able to engage with students at Indianapolis Metropolitan High School this past December. Camptown's REACH for Nature program is conducting a Teen Indiana Master Naturalist course for the students. Hoosier Riverwatch Coordinator, Dylan Allison, was able to lead a discussion on water as part of their curriculum.

Students engaged in discussions surrounding watersheds, the hydrologic cycle, how land use relates to water quality, as well as careers within IDEM and the field of watershed management. Even though the activities kept them indoors, students had an opportunity to conduct a simulated macroinvertebrate sampling through the use of preserved specimens and identification keys. Students left with a better understanding of water quality and the methods professionals use to measure it. Hoosier Riverwatch plans to conduct a real stream sampling in the spring when the weather permits.



*Left: Students work in small groups to identify macroinvertebrate samples by using dichotomous keys.*

*Below: A student conducts an activity demonstrating the porosity of different types of soils.*



*Above: Students and staff work together to balance a cup of water with comparison to the balance of water needs within a watershed.*







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## Call Out For Instructors!

Do you have an interest in outreach and engaging with the public? Do you enjoy getting your feet wet and sampling in our streams and rivers? If so, you may be interested in becoming a Hoosier Riverwatch Instructor! Benefits include receiving monitoring equipment from IDEM and an invitation to Instructor Gatherings. For more information, reach out to [DJAlliso@IDEM.IN.gov](mailto:DJAlliso@IDEM.IN.gov) or register at the instructor training links below.

## Mark Your Calendars

**Wednesday, March 8<sup>th</sup>**

**Bristol, IN – INSTRUCTOR TRAINING (must have basic workshop training)**  
Baldwin Schoolhouse, Bonneyville Mill County Park (10 AM – 3 PM)  
Instructor Dylan Allison. [Register](#) by March 1<sup>st</sup>

**Friday, March 17<sup>th</sup>**

**Indianapolis, IN – INSTRUCTOR TRAINING (must have basic workshop training)**  
Fort Harrison State Park (10 AM – 3 PM)  
Instructor Dylan Allison. [Register](#) online.

**Friday, May 19<sup>th</sup>**

**Bristol, IN – Baldwin Schoolhouse, Bonneyville Mill County Park (9 AM – 4 PM)**  
Instructors Krista Daniels and Jenna Wait. [Register](#) by May 12<sup>th</sup>.

**Saturday, September 9<sup>th</sup>**

**Bristol, IN – Baldwin Schoolhouse, Bonneyville Mill County Park (9 AM – 4 PM)**  
Instructors Krista Daniels and Jenna Wait. [Register](#) by September 1<sup>st</sup>.

**More Workshops Coming Soon!**

## 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 groundwater 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 clean-up activities. Hoosier Riverwatch is a water quality monitoring initiative sponsored by the **Indiana Department of Environmental Management's Office of Water Quality**.

For more information, go to [idem.IN.gov/riverwatch](http://idem.IN.gov/riverwatch).