Indiana Department of Environmental Management

Riffles & Pools

Office of Water Quality

idem.IN.gov

HOOSIER RIVERWATCH VOLUNTEER NETWORK

Greetings Riverwatchers!

My eye is on the winter forecast this week as they call for significant snow and ice across Indiana and the southern states. I hope everyone remains safe and warm at home during the snowfall. Perhaps being snowed in will allow us to slow down and reflect on our lives while enjoying a cup of hot cocoa. In regard to Hoosier Riverwatch, this year marks a significant point for reflection and remembrance. That's because 2026 is the 30th anniversary of the program.

Happy 30th Anniversary Hoosier Riverwatch!

In the early 1990's, an Indiana DNR committee called the Rivers Advisory Group envisioned a river stewardship program that would educate the public while forming partnerships for protecting our water resource. By 1996, an official coordinator was hired to spearhead that mission. The program bounced around between departments; once housed alongside the Lake and River Enhancement (LARE) program under the DNR's Division of Soil Conservation and later found in the Natural Resources Education Center with other environmental education programs such as Project Learning Tree and Go FishIN. By 2001, the first volunteer instructor training was held to allow for the broader reach of community scientists around the state. In 2012, the program finally came to rest within IDEM's Watershed Assessment and Planning branch.

Over its 30-year lifespan, Hoosier Riverwatch has seen over 5,000 volunteers become trained to sample water quality. The work completed by those volunteers has resulted in over 155,000 data points to date, whereas one data point is equal to one test (dissolved oxygen, pH, etc.). Taking the average, this is equivalent to over 14 tests being conducted every day for 30 years! Estimating each sampling event to be two hours, this output by volunteers would equate to staffing value of approximately $761,901! (Current national estimated value of a volunteer hour in the United States is $34.79.) It is easy to see how beneficial it is to have a volunteer base committed to the health of our waterways.

With new additions to Hoosier Riverwatch, like training videos, continuing education workshops, and the HRW Junior program, I feel like the next 30 years will be just as successful. But I'd like to recognize previous Hoosier Riverwatch coordinators for paving the way to where we are today. See the back page for a list of these individuals and THANK YOU to all who have been a part of the Hoosier Riverwatch story in the last 30 years.

Dylan Allison
Hoosier Riverwatch Coordinator

Winter 2026

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Upcoming Workshops

May 8 – Spencer

May 29 – Greenwood

June 12 – Greenwood
Advanced Macroinvertebrate Workshop

August 8 – South Bend

More workshops soon!

Hoosier Riverwatch is sponsored by IDEM

Chasing Salt

Scientists at Virginia Tech University and the University of Arkansas are chasing salt across watersheds, and Hoosier Riverwatch got to assist in collecting samples. Globally, soil and streams are getting saltier, and they want to know how carbon in forests near streams (also called riparian zones) is influenced by sodium chloride amounts where streamside forests and streams connect. They asked teachers, educators, families, and community members to engage in research to have more data to support understanding questions on how salt can stress forests, streams and the microbes, plants and animals that live in them.

Salt can enter a stream through agricultural practices and road salt, and it's not easy to remove. Streams can get stressed, or become toxic, from too much salt, similar to hypertension in humans. When forests and streams get stressed, food in the form of carbon (in this case strips of cotton) often gets eaten very fast or very slow. We can use the rate that carbon is eaten (or deteriorates) and compare that to a global study in forests and streams that don't have so much stress. Streamside forests are one line of defense for the stream's health, but more research is needed.

Samples were collected by partners in Virginia, West Virginia, North Carolina, Ohio, Kentucky, Indiana, Iowa, Nebraska, Missouri, Oklahoma, Arkansas, Mississippi, Alabama, Georgia, Illinois and Tennessee. Streams in the study vary from rural to urban. The Hoosier Riverwatch site was on Lawrence Creek in Fort Harrison State Park. Strips of cotton were placed in two stream sites as well as on the soil within the riparian zone. Temperature loggers were fixed in and out of stream. Additionally, soil and water samples were collected. The cotton strips were left for 30 days before being removed and dried for transport. The tensile strength of the cotton strips will be evaluated to determine the rate of deterioration compared with the quantity of sodium chloride at the site. The results of the studies will be shared with participants at a later date. For more information on the study, visit the Chasing Salt website here.

Photos Courtesy of IDEM

HRW Data Goes National

After streamside sampling, Hoosier Riverwatch volunteers share water quality data via the organization's website. Volunteers contributed over 4,000 data points in 2025 alone. Data is most valuable, however, when it is *used* rather than sitting on a hard drive. To facilitate the use of volunteer data, Hoosier Riverwatch offers it freely. The data is publicly available at hoosierriverwatch.com/search. Users can filter data by watershed, waterbody name, county, volunteer, and more.

This opens more questions and programmatic goals, however. How can we get this data into more hands? How can we ensure that Hoosier Riverwatch can be a collaborative partner in watershed management? How can we take our data sharing to the next level?

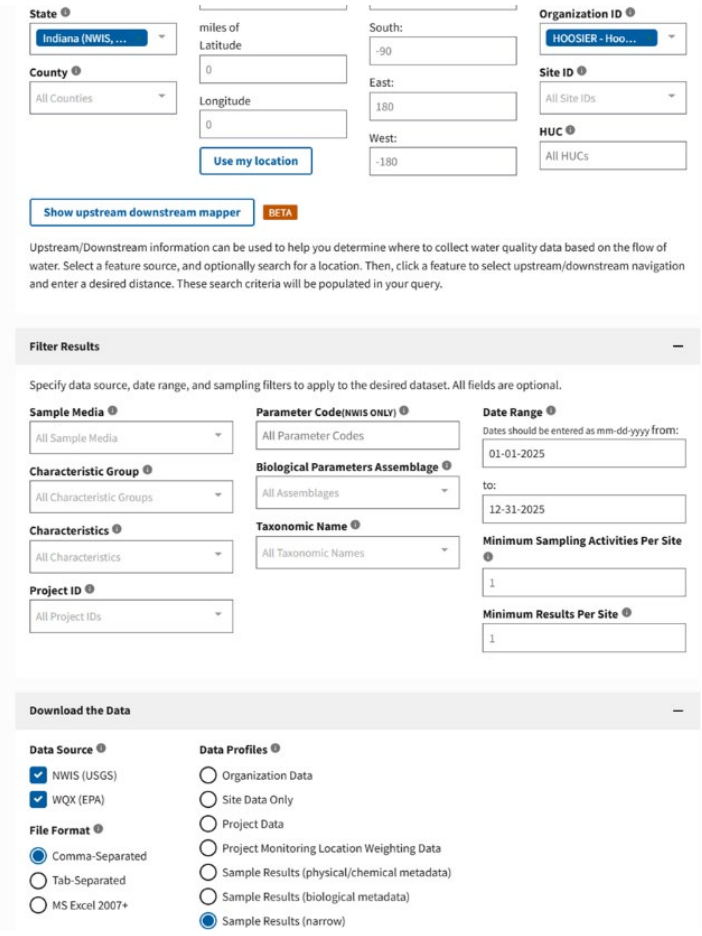
One answer is to partner with organizations with a national reach. Hoosier Riverwatch is doing just that by uploading our volunteer data to federally-linked tools, the Water Quality Portal (WQP) and 'How's My Waterway'. The WQP is the premiere source of water quality data in the United States and beyond. This cooperative service integrates publicly available water quality data from the United States Geological Survey (USGS), the Environmental Protection Agency (U.S EPA), and over 400 state, federal, tribal, and local agencies. 'How's My Waterway' is a tool published by the U.S. EPA to provide the general public with information about the condition of their local waters. Users can explore how streams stack up in regard to swimming, fish consumption, drinking water, and aquatic life. Through these tools, Hoosier Riverwatch volunteers are contributing to national water data! If you want to explore the WQP and 'How's My Waterway' portals, you can follow the directions below to find your Hoosier Riverwatch data.

To view your Hoosier Riverwatch data in the Water Quality Portal:

1. Start here: Water Quality Data Home
2. Choose 'Advanced' Box
3. Select State: Indiana
4. Select Organization ID: HOOSIER
5. Filter Results: Enter Date Range
6. Data Profiles: 'Sample Results (narrow)'
7. Click Download & Continue

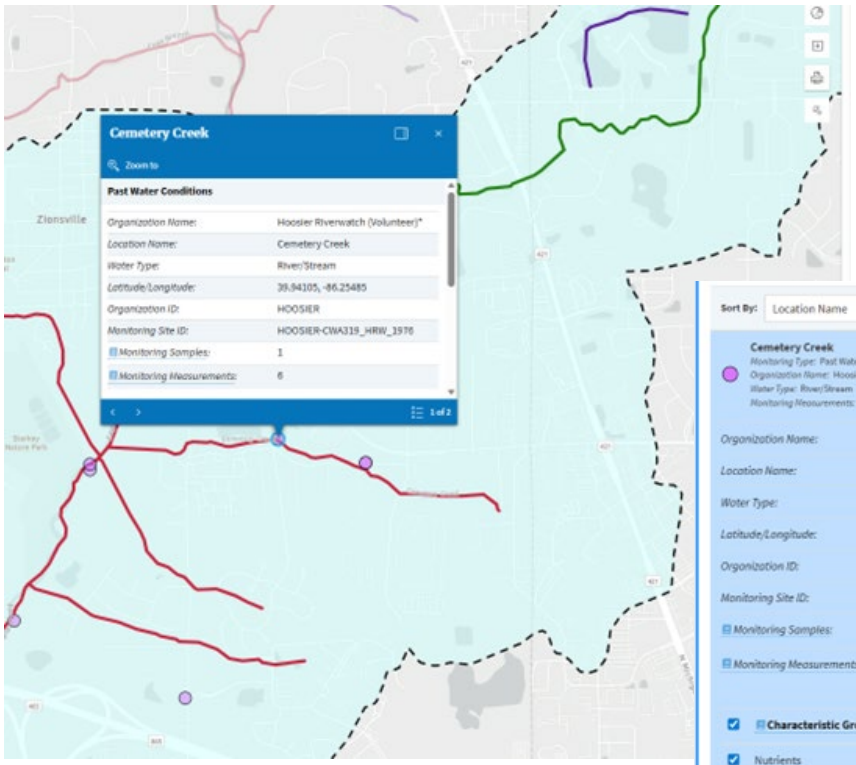
To further narrow your search:

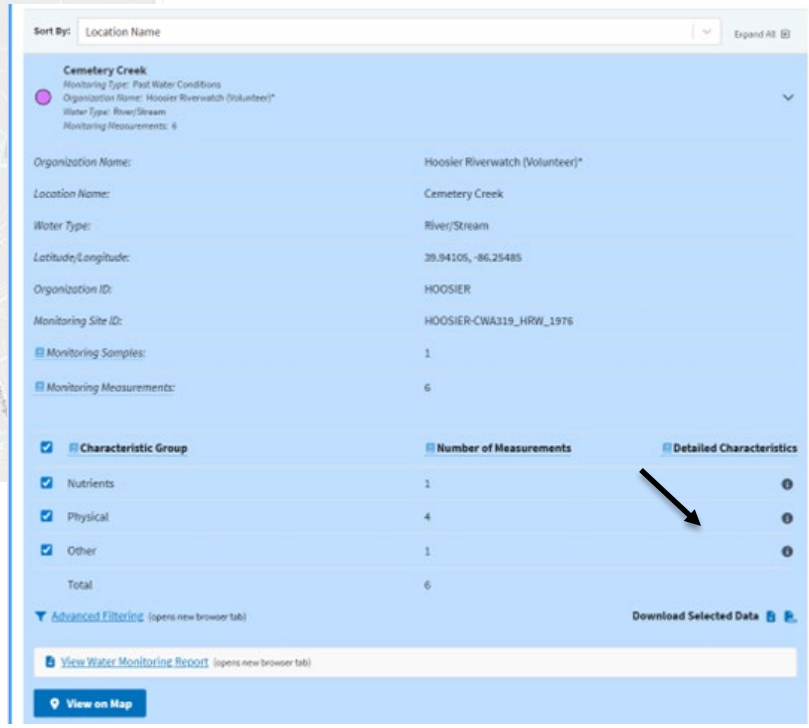
1. Choose Data Profiles: Project Data
2. Click Download & Continue
3. Find your Project Identifier from the download. (See project name which is based on your org. name or '*CWA319_HRW_101*' if you did not enter an org. name)
4. Enter your Project Identifier in the Project ID box
5. Data Profiles: Sample Results (narrow)
6. Click Download & Continue



To view your Hoosier Riverwatch data in How's My Waterway:

1. Start here: How's My Waterway - Home
2. Enter Indiana in the 'Let's Get Started' box
3. Zoom in on the map & select your watershed
4. Toggle ON & click 'Water Monitoring Locations' tab on right hand side of the screen (Sampling locations are displayed on the map as purple circles. Scrolling down will display location details for each site. Hoosier Riverwatch Monitoring Locations are identified by Org Name: Hoosier Riverwatch (Volunteer)*.)
5. Click 'Download Selected Data' after selecting the desired monitoring location





THIS SUCCESS STORY IS ALSO AVAILABLE ON THE U.S. EPA'S WEBSITE.

NONPOINT SOURCE SUCCESS STORY

Indiana

Flat Creek Recovery: Watershed Planning and Implementation Leads to Multiple Delistings

Waterbody Protected

Flat Creek stretches nearly 54 miles across the Middle Patoka River watershed in southwest Indiana. Between 2006 and 2012, monitoring by the Indiana Department of Environmental Management (IDEM) indicated multiple water quality issues resulting in portions of Flat Creek being added to the Clean Water Act (CWA) Section 303(d) list of impaired waters due to low dissolved oxygen, high nutrients and poor biological communities. Contributions from nonpoint source pollution in the watershed include agriculture, on-site sewage disposal systems, and wildlife, among other sources. Implementing the 2012 Middle Patoka Source Water Protection Plan resulted in the installation of a variety of best management practices (BMPs). Follow-up monitoring by IDEM in 2019 documented water quality improvements, leading to multiple removals from the 2022 list of impaired waters. Subsequent monitoring in 2024 found additional improvements in biological communities in Flat Creek, and IDEM will propose to remove these impairments from the list in 2026.

Water Quality Challenge

The Flat Creek watershed spans Pike and Dubois counties (Figure 1). The Flat Creek watershed (hydrologic unit code [HUC] 0512020905) is one of five HUC-10 scale watersheds that make up the larger Middle Patoka River watershed. Land use in the watershed is mostly forested, with a mixture of agriculture and hay/pastureland. However, numerous land-disturbing activities, such as mining, occurred across the areas that drain to Flat Creek. As many as 45 of the 54 total stream miles of Flat Creek have been listed on the impaired waters list. Between 2006 and 2012, IDEM conducted routine monitoring within Flat Creek that identified four segments as impaired for biological communities, dissolved oxygen (DO), and nutrients, among other pollutants. The most upstream segment (INP0951_06) had failing index of biotic integrity (IBI) scores (i.e., scores of less than 36 in Indiana), which indicates that biological communities of fish and/or macroinvertebrates are not sufficiently supported. Middle portions of Flat Creek (INP0952_02 and INP0952_04) showed both failing IBI scores and low DO levels (i.e., levels below 4.0 milligrams per liter [mg/L]) on multiple occasions. The tailwaters of Flat Creek (INP0953_01) indicated failing IBI scores, low DO and excessive nutrients. In Indiana, an impairment for nutrients is indicated on a weight-of-evidence approach, where a co-occurrence of related measurements must be met on the same event. These measurements factor in phosphorus, nitrogen, pH and DO levels and visual observations. In the case of Flat Creek, total phosphorus (TP) (0.53 mg/L) and DO (0.86 mg/L) were both outside of target levels during the same sampling event.

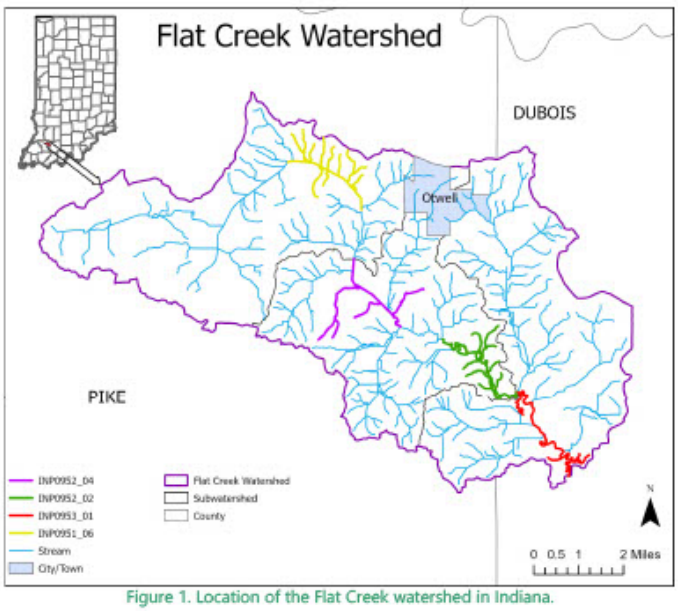


Figure 1. Location of the Flat Creek watershed in Indiana.

Results

In 2019, IDEM conducted follow-up monitoring on multiple segments of Flat Creek. The headwaters (INP0951_06) showed passing scores for both fish and macroinvertebrate IBI scores, showing an improvement overall in the macroinvertebrate community; as a result, IDEM delisted the stream for impaired biotic communities (IBC) in 2022. The middle portions of Flat Creek also showed improvements and passing scores for IBC and DO. Results of the upper segment (INP0952_02) showed improved DO levels that averaged 8.4 mg/L in 2019; however, macroinvertebrate IBI scores were still failing. The lower segment (INP0952_04) showed increases and passing scores in both fish and macroinvertebrate IBI scores in 2019. DO levels in the lower segment showed improvement but remained impaired due to a low measurement (3.87 mg/L) at the same time. Therefore, impairments for IBC and DO were delisted among the upper and lower segments in 2022. Monitoring in the tailwaters of Flat Creek (INP0953_01) in 2019 showed multiple improvements, including passing IBI scores, increased DO levels and reduced phosphorus values, which resulted in delistings for IBC, DO, and nutrients on this segment. Finally, additional follow-up monitoring was conducted in 2024 in the middle portion of Flat Creek (INP0952_02), which found passing IBI scores for both fish and macroinvertebrates (Figure 4). IDEM will propose delisting IBC for this segment in 2026.

Figure 3. A septic system educational event where attendees observed an installation and learned about proper function and maintenance.

Best Management Practice	Number Installed	Units	Comments
Watershed Management Plan	1	INDIVIDUAL UNITS	
Heavy Use Area Protection	625	FT	
Porous Pavement	80	SQUARE FEET	
Nutrient Management	7108.46	AC	Includes NRCS practices
Cover Crop	7892.18	AC	Includes NRCS practices and local practices through IN State Department of Agriculture.
Water & Sediment Control Basin	180	INDIVIDUAL UNITS	Includes NRCS practices
Pasture & Hayland Planting	45.33	AC	Includes IN State Department of Agriculture practices.
Water & Sediment Control Basin	9094	SQUARE FEET	
Conservation Cover	5.53	AC	
Grassed Waterway	1743.49	ACRES	
Nutrient Management	3596.73	AC	
Waste Utilization	1138.2	ACRES	
Conservation Tillage	1390.9	ACRES	
Riparian Forest Buffer	17.2	ACRES	
Forest Stand Improvement	10	ACRES	
Grassed Swale	8.2	ACRES	
Critical Area Planting	.9	ACRES	
Use Exclusion	105.3	ACRES	
Access Road	100	FT	
Fence	4567	FT	
Grade Stabilization Structure	13	INDIVIDUAL UNITS	
Mulching	7.1	ACRES	
Pasture & Hayland Management	10.8	FT	
Spring Development	1	INDIVIDUAL UNITS	
Tree/Shrub Establishment	281.95	ACRES	Includes CRP/CREP.
Upland Wildlife Habitat Management	37.98	ACRES	Includes CRP/CREP.
Waste Storage Facility	5	INDIVIDUAL UNITS	
Watering Facility	3	FT	
Lined Waterway or Outlet	314	FT	
Roof Runoff Management	797	INDIVIDUAL UNITS	
Animal Mortality Facility	2	INDIVIDUAL UNITS	
Comprehensive Nutrient Management Plan (CNMP)	4	INDIVIDUAL UNITS	
Filter Strip	16.1	ACRES	Includes CRP/CREP.
Forage Harvest Management	105.3	ACRES	
Hedgerow Planting	5100	FT	
Prescribed Grazing	35.1	FT	
Subsurface Drain	18159	FT	

Partners and Funding

Partner Type	Agency	Funding	Notes
Federal	NRCS - WHIP	$32,554	Total amount across entire Flat Creek HUC10 from 2006-2024.
Federal	Clean Water Act Section 319	$360,000	Funding for second round of implementation of the Middle Patoka Source Water Protection Plan. Total funding amount was part of the larger Middle Patoka watershed project.
Federal	USDA FSA SOURCEWATER PROTECTION INITIATIVE	$240,000	Funded Source Water Protection positions for the Alliance of Indiana Rural Water Foundation during various years. Approximately $120,000/year. These funded positions developed the original Middle Patoka Source Water Protection Plan.
Federal	NRCS - CSP	$565,428	Total amount across entire Flat Creek HUC10 from 2006-2024.
Federal	Clean Water Act Section 319	$279,850	Funding for first round of implementation of the Middle Patoka Source Water Protection Plan. Total funding amount was part of the larger Middle Patoka watershed project.
Federal	FSA - CRP/CREP	$202,618	
Federal	NRCS - EQIP	$1,657,960	Total amount across entire Flat Creek HUC10 from 2006-2024.
Federal	Clean Water Act Section 319	$65,000	Funding for Patoka Clean Sweep project. Total funding amount was part of the larger Middle Patoka Watershed project.
State	INDIANA STATE DEPARTMENT OF AGRICULTURE	-	Local area received funding to install agricultural BMPs that impact water quality through Clean Water Indiana grants.
Other	ALLIANCE OF INDIANA RURAL WATER FOUNDATION, INC.	$186,567	Match amount provided for first round of implementation of the Middle Patoka Source Water Protection Plan as part of the 319 program federal award amount. Total funding amount was part of the larger Middle Patoka watershed project.
Other	PATOKA LAKE REGIONAL WATER & SEWER DISTRICT	$43,334	Clean Sweep project. Total funding amount was part of larger scale work in the Middle Patoka watershed.
Other	PIKE COUNTY SOIL AND WATER CONSERVATION DISTRICT	$240,000	Match amount provided for second round of implementation of the Middle Patoka Source Water Protection Plan as part of the 319 program federal award amount. Total funding amount was part of the larger Middle Patoka watershed project.

HUC	Stream ID	Impairment	Historical Data	Results	Status
51202090501	Flat Creek (INP0951_06)	IBC	Fish IBI = 38 (2006) Macro IBI = 30 (2006)	Fish IBI = 36 (2019) Macro IBI = 36 (2019)	Delisting
51202090502	Flat Creek (INP0952_02)	Dissolved Oxygen	Average DO = 7.2 mg/L (2006)	Average DO = 8.4 mg/L (2019)	Delisting
		IBC	Fish IBI = 34 (2006) Macro IBI = 36 (2012) Fish IBI = 38 (2019) Macro IBI = 32 (2019)	Fish IBI = 38 (2024) Macro IBI = 38 (2024)	Delisting
	Flat Creek (INP0952_04)	IBC	Fish IBI = 30 (2012) Macro IBI = 32 (2012)	Fish IBI = 40 (2019) Macro IBI = 38 (2019)	Delisting
		DO	Average DO = 3.9 mg/L (2012)	Average DO = 6.0 mg/L (2019)	Improvement
51202090503	Flat Creek (INP0953_01)	IBC	Fish IBI = 42 (2012) Macro IBI = 34 (2012)	Fish IBI = 38 (2019) Macro IBI = 38 (2019)	Delisting
		Nutrients	Average TP = 0.27 mg/L (2012)	Average TP = 0.21 mg/L (2019)	Delisting
		Dissolved Oxygen	Average DO = 3.35 mg/L (2012)	Average DO = 5.5 mg/L (2019)	Delisting

Figure 4. Water quality results in the Flat Creek watershed.

For additional information contact:
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Winter Weekend Getaway

Hoosier Riverwatch was invited back to the Clifty Falls State Park Winter Weekend Getaway event this year. Without the threat of a looming snowstorm like in 2025, attendance was high as participants enjoyed a variety of speakers. Presentations included live birds of prey, pollinators, freshwater mussels, wildlife Jeopardy, and more. The Hoosier Riverwatch presentation invited participants to try hands-on sampling with water samples collected at the park. Visit DNR's website for more information on the inn and Clifty Falls State Park programming.

Photos Courtesy of IDEM

Mark Your Calendars

2026 Workshops

Friday, May 8	**Spencer** – Owen County SWCD (10 a.m. – 4 p.m.) Instructor: Dylan Allison Register online
Friday, May 29	**Greenwood** – Greenwood Nature Center (10 a.m. – 4 p.m.) Instructor: Dylan Allison Register online
Friday, June 12	**Advanced Macroinvertebrate Workshop** (basic training prerequisite) **Greenwood** – Greenwood Nature Center (10 a.m. – 4 p.m.) Instructor: Dylan Allison Register at online
Saturday, August 8	**South Bend** – St. Patrick's County Park (Time TBD) Instructors: Jan McGowan & Dr. Kate Barrett Registration coming soon! Check our calendar.

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Thanks to all past Hoosier Riverwatch coordinators!

- Jason Bowling, Feb. – Aug. 1996
- Sarah Hippensteel, Aug. 1996 – Dec. 1997
- Jeff Muse, Jan. 1998 – Sept. 1998
- Lyn Crighton, Sept. 1998 – Oct. 2007
- Lisa Ritter-McMahan, Nov. 2007 – July 2014
- Carol Newhouse, Aug. 2014 – Sept. 2021
- Ross Carlson, Nov. 2021 – Feb. 2022

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 annual instructor gatherings. For more information, reach out to Riverwatch@idem.IN.gov.

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**.