



FFY 2023 Annual Report

INDIANA NONPOINT SOURCE PROGRAM

Indiana Department of Environmental Management
Office of Water Quality



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Introduction to the Nonpoint Source Pollution Management Program

Nonpoint source water pollution does not originate at single point sources, such as industrial or municipal wastewater discharge pipes, but comes from many diffuse sources in the environment. When rain falls or snow melts, water flowing over streets, parking lots, lawns, and agricultural fields carries pollutants such as motor oil, sediment, fertilizer (nutrients), bacteria, and pesticides. These pollutants are then deposited in the nearest stream, lake, wetland, or ground waters. Untreated runoff is a significant source of water pollution in Indiana, and sediment, nutrients, and bacteria are the leading pollutants of concern in the state. [Indiana's 2022 Integrated Water Monitoring and Assessment Report](#) estimates that nonpoint sources impact 14,010 miles of streams and unknown sources impact 11,663 miles of streams. While some nonpoint source pollution is naturally occurring (e.g., atmospheric deposition), most is a result of human activities such as bacteria from pet waste and faulty septic systems, fertilizers and herbicides from residential lawns and agricultural lands, and oil and toxic chemicals from energy production.

The federal Clean Water Act (CWA) was amended in 1987 to establish the Section 319 (§ 319) Nonpoint Source Pollution Management Programs to control nonpoint sources of water pollution. Section 319(h) provides the U.S. Environmental Protection Agency (U.S. EPA) with the authority to grant federal dollars to states to mitigate and prevent nonpoint source pollution in accordance with an approved state nonpoint source management program. The [Indiana State Nonpoint Source Management Plan](#) guides the usage of CWA §319 funds, which are administered by the Indiana Department of Environmental Management (IDEM), Office of Water Quality (OWQ), Watershed Assessment and Planning Branch (WAPB).

Indiana uses a watershed approach for nonpoint source pollution management to achieve and sustain water quality in the state. Watersheds are hydrologically defined geographic areas that drain into a specific waterbody. These hydrologic units have been delineated by the U.S. Geological Survey (USGS) using a national standard hierarchical system and are indicated by the number of digits in the hydrologic unit code (HUC). The HUC consists of two to twelve digits based on the level of classification (the more digits, the smaller the division of land area). Indiana has thirty-eight cataloguing units (HUC 8; Figure 1), which can be further subdivided into watersheds (HUC 10) and subwatersheds (HUC 12). For the purposes of this report, all local level hydrologic units (HUC 8-12) will be referred to as watersheds.

A watershed approach is necessary for environmental problems like nonpoint source pollution which results from various land use practices and interactions between air, land, and water. Pollution from runoff is a problem that spans political boundaries and affects resources that public and private sectors depend upon, concerning a multitude of programs, agencies, and citizens. The watershed approach allows for local governments and watershed groups to target their own priorities and develop implementation plans specific to their locality.

The watershed approach is based on four basic principles:

1. Geographic focus, based on hydrological rather than political boundaries.
2. Water quality objectives based on scientific data.
3. Coordinated priorities and integrated solutions.
4. Diverse, well-integrated partnerships.

IDEM's ongoing effort to implement the watershed approach includes:

- Ensuring that internal resources continue to be focused on addressing the most significant water quality issues facing Indiana by conducting a periodic review of OWQ activities and making any necessary adjustments.
- Improving internal coordination between water quality assessment and watershed planning and implementation programs to facilitate an integrated watershed management approach to restoring impaired waterways.
- Coordinating with local watershed groups, community groups, and other state and federal agencies to better leverage efforts in ways that will achieve greater improvements in water quality.

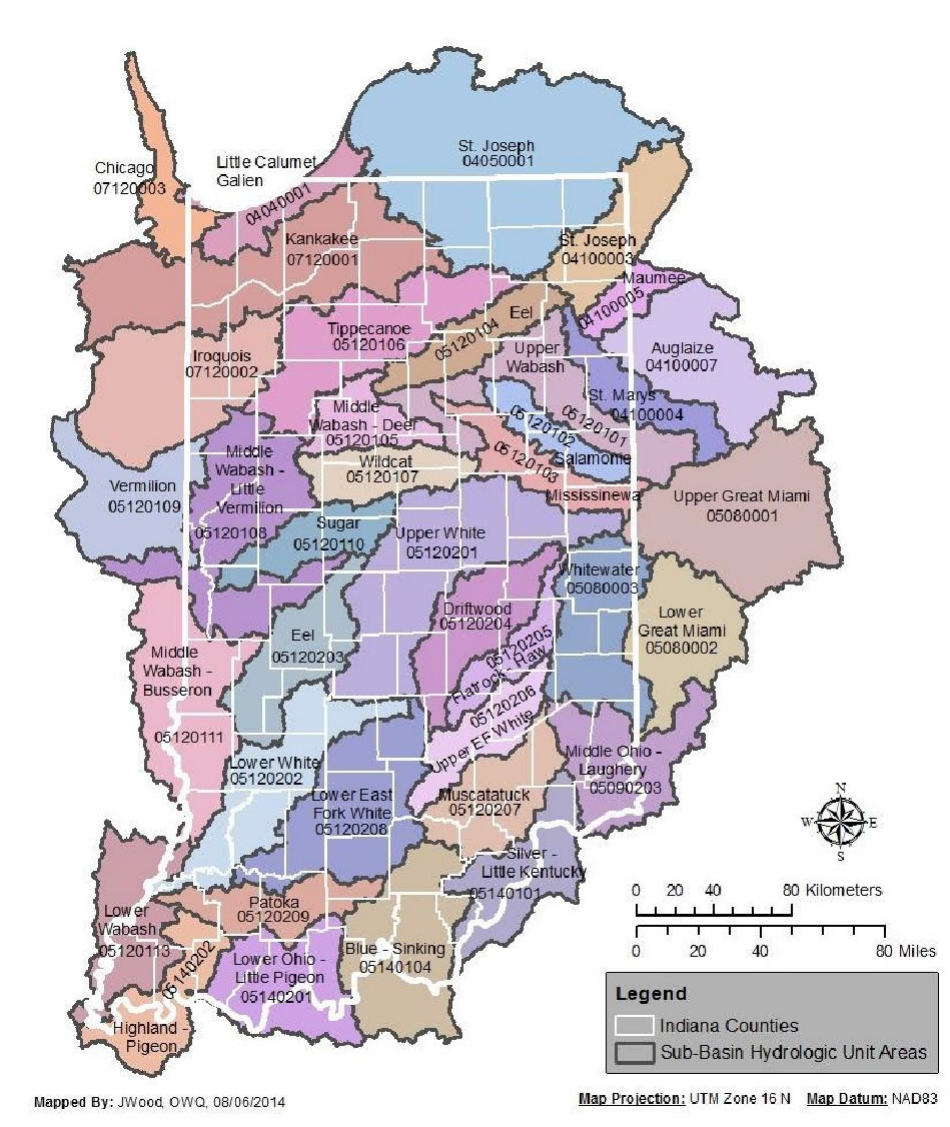


Figure 1. Indiana 8-digit HUC Watersheds

Project summaries reported in the fiscal year (FY) 2023 Nonpoint Source Program Annual Report were awarded between federal fiscal years (FFY) 2019 and 2023. The state FY 2023 began 1 July 2022 and ended 30 June 2023. This report was created in compliance with the grant agreement between Indiana's Nonpoint Source Program and the U.S. EPA to describe how the federal Clean Water Act Section 319 funds were used in the state. It describes the progress that the Nonpoint Source Management Program has made towards meeting the goals, objectives, and milestones of the [Nonpoint Source Management Plan](#) and how \$319 grant funds were utilized to help accomplish these goals. Further, it recognizes the efforts and achievements of the many agencies, groups, and individuals¹ working at the state and local level to address nonpoint source pollution in Indiana and describes how \$319 grant funds were awarded to projects.

Indiana's Nonpoint Source Management Plan

The Indiana State Nonpoint Source Management Plan ("Plan") guides the usage of CWA Section 319 funds received by IDEM from U.S. EPA. The Plan outlines IDEM's goals and objectives of nonpoint source water pollution management, while seeking to credit and provide synergy with other state, local, and federal nonpoint source efforts in Indiana.

Current U.S. EPA policy requires states to update their Plans every five years. Indiana completed an update of its Plan in 2019. The 2019 revision of the Plan is the most recent in a series of Plans that were completed in 2014, 2008, and 1999. In 2019, Indiana chose to provide its revised Plan in the form of an addendum to its [2014-2018 Plan](#). This 2019 Plan will be reviewed annually by program staff to assess its continued validity. The next full revision of this program plan will be completed in FFY 2023.

IDEM's approved [2019 Indiana State Nonpoint Source Management Plan](#) is a vision and mission-driven strategy to address nonpoint source pollution in Indiana. All goals, objectives, milestones, and measures of success are based upon the following two statements:

Program Vision:

The vision of Indiana's Nonpoint Source Pollution Program is to restore waters impaired by nonpoint source pollution and maintain water quality in healthy watersheds through locally-led partnerships.

Mission:

To work with our partners to make measurable improvements in, and prevent degradation of, water quality by addressing nonpoint source pollution through education, planning, and implementation.

The five goals in the [Indiana Nonpoint Source Management Plan](#) relate to: 1) utilizing partnerships to define and address nonpoint source pollution issues; 2) monitoring the status of those issues; 3) providing outreach and education to citizens of the state to raise awareness of nonpoint source pollution issues; 4) remediating the causes and sources of nonpoint source pollution; and 5) protecting areas already meeting water quality standards and those areas threatened by nonpoint source pollution. The 2019 update of the Plan was approved by the U.S. EPA on May 22, 2019 and will cover FFYs 2019-2023. This report is made in accordance with the grant agreement between Indiana Nonpoint Source Program and the EPA and will summarize the accomplishments toward meeting the goals and objectives of the 2019 revision of the Plan.

¹ Partner updates will reflect the same reporting period unless otherwise noted.

Nonpoint Source Management Goals and Progress

GOAL 1: UTILIZE PARTNERSHIPS TO LEVERAGE RESOURCES AVAILABLE FOR NONPOINT SOURCE MANAGEMENT

Cooperation with state, federal, local, and private partners is critical to Indiana's Nonpoint Source Pollution Program's success. Coordinating with these partners optimizes the funds, staff, physical resources, and political capital available to work on nonpoint source pollution issues in the state. IDEM's Nonpoint Source Pollution Program utilizes multiple partnerships to reach diverse stakeholder groups and further nonpoint source management goals in Indiana. Some of these partners and their achievements from this year are highlighted below. A full accounting of progress made during FFY 2023 toward the objectives of Goal 1 outlined in Indiana's State Nonpoint Source Management Plan can be found in Appendix A.

Indiana Conservation Partnership

The Indiana Conservation Partnership (ICP) is comprised of eight Indiana agencies and organizations who share a common goal of promoting natural resource conservation. To that end, the mission of the Indiana Conservation Partnership is to provide technical, financial, and educational assistance needed to implement economically and environmentally compatible land and water stewardship decisions, practices, and technologies. The ICP's soil health and nutrient management philosophies underpin its conservation initiatives in addressing the state's primary natural resource concerns. The principles of soil health are to minimize disturbance, optimize soil cover, optimize biodiversity, and provide continuous living roots. Nutrient management is best described by the "4 Rs"—applying the right nutrient source at the right rate at the right time in the right place. Each ICP initiative has at least an element of it rooted in promoting the soil health philosophy and most have a direct effect on nonpoint source pollution management in Indiana.

The ICP prepares an annual work plan that defines objectives for up to four conservation focus areas and includes the actions, responsible entities, and deadlines for achieving them. Additionally, the ICP meets bimonthly for partner updates and to collaborate, where possible, to optimize its resources for achieving water quality objectives. Particular emphasis is on delivering technical training to ICP staff and coordinating the various cost-share and grant programs.

Using the U.S. EPA Region 5 Model, the ICP has committed to report load reductions of sediment, nitrogen, and phosphorus achieved by the practices installed through the cost-share programs administered by the partner agencies. In 2022, landowners supported by the ICP installed more than 47,000 new conservation practices, up over 15,000 from 2021. 15,587 of these practices were modeled to quantify load reductions for calendar year 2022:

- Sediment- 1,808,331 tons
- Nitrogen- 3,913,043 pounds
- Phosphorus- 1,924,824 pounds

² IDEM, the Indiana State Department of Agriculture (ISDA), the State Soil Conservation Board, the Indiana Department of Natural Resources (IDNR), the Indiana Association of Soil and Water Conservation Districts (IASWCD), Purdue University Extension, the United States Department of Agriculture-Natural Resources Conservation Service (USDA-NRCS), and the USDA-Farm Service Agency (FSA).

Cover crops and no till farming practices implemented with ICP assistance in 2022 sequestered an estimated 48,000 tons of carbon, which is the equivalent to carbon emission of 34,843 cars.

Indiana's State Nutrient Reduction Strategy

Although originally developed as a result of the Hypoxia Task Force Action Plan for the Gulf of Mexico, [Indiana's State Nutrient Reduction Strategy \(SNRS\)](#) encompasses all waters of the state that drain to the Mississippi River, including the Wabash, White and Kankakee River systems, as well as those draining to Lake Michigan and to Lake Erie. Indiana surface and ground waters are adversely affected by excessive nutrients that come from many different sources. The resulting negative economic impacts include increasing the cost of treating public water supplies as well as reducing the recreational use of our treasured lakes, reservoirs, and streams.

The SNRS aims to capture present and future endeavors in Indiana that positively impact the state's waters, as well as to gauge the progress of conservation, water quality improvement, and soil health practice adoption. It represents Indiana's commitment to reduce nutrient discharges and runoff into waters from nonpoint and point sources alike.

The Indiana SNRS underscores the importance of continual outreach and education to conservation partnerships and the public regarding stewardship of Indiana's waters. The strategy acknowledges that the great potential to reduce nitrogen and phosphorus entering our waters depends on the cooperation of state, federal and local organizations, agricultural and urban programs and initiatives, as well as private sector and citizen endeavors. The strategy identifies measures such as the proper location and types of conservation practices on productive agricultural ground and at the edge-of-field, efficient nutrient management, and managed drainage. In addition, septic system maintenance, appropriate residential fertilizer applications, erosion control at construction sites, and urban best management practices such as green infrastructure will be key to controlling nutrient runoff. It recognizes a continued need for conservation efforts, education, outreach, and research in order to see progress.

Many of the efforts and initiatives taking place under the SNRS are highlighted in the Indiana State Department of Agriculture section further in this report. The SNRS, which is now on a five-year revision schedule, was updated in February 2021.

Indiana's Domestic Action Plan for the Western Lake Erie Basin

[Indiana's Great Lakes Water Quality Agreement \(GLWQA\) Domestic Action Plan \(DAP\)](#) to reduce phosphorous to the Western Lake Erie Basin (WLEB) was released February 28, 2018. The DAP emphasizes using existing programs and optimizing partnerships, effecting the most change with the least cost, prioritizing resources to areas with the most phosphorus export and/or reduction potential, seeking to engage citizens who are not participating in conservation efforts, and employing adaptive management. Indiana's goal is to meet the spring- time phosphorus targets for the Maumee River as it flows across the border into Ohio. The DAP includes an Action/Milestone table that tracks current and planned activities to address the issues outlined in the DAP.

Significant actions have been taken to address nutrient inputs from both urban and rural landscapes, including point and nonpoint sources, and to restore more natural hydrology and ecological functions. Implementation of long-term control plans for combined sewer overflow communities, such as the deep tunnel project in Fort Wayne, coupled with sewer extensions to areas with failing septic systems in Adams County, for example, will greatly reduce sewage and its nutrients from entering the waterways.

Native plantings and riparian buffers along the Maumee River will enhance natural hydrology and curtail soil erosion.

U.S. Department of Agriculture - Natural Resources Conservation Service³

For more than 80 years, USDA's Natural Resources Conservation Service (NRCS) has worked with farmers and landowners to help them manage natural resource concerns on their land and improve the health of their communities. Indiana NRCS continues to be one of the nation's leaders in helping people help the land by getting conservation on the ground and positively impacting acres in every corner of the state.

In 2022, Indiana NRCS staff throughout the state worked with producers to fund more than \$45 million worth of conservation practices on more than 219,000 acres of farm and privately owned forest land. The more than 1,000 contracts with producers will have a lasting positive impact on Indiana's soil, water, forestry, energy and wildlife resources while also helping to combat climate change. Following is a report of Indiana NRCS' investments and successes in fiscal year 2022.

For Federal Fiscal Year (FFY) 2022, NRCS programs in Indiana that support NPS pollution reduction/amelioration efforts included:

Agriculture Conservation Easements Program

The Agricultural Conservation Easement Program (ACEP) provides financial and technical assistance to help conserve agricultural lands and wetlands and their related benefits. Under the Wetlands Reserve Easements (WRE) component, NRCS helps to restore, protect, and enhance enrolled wetlands. During FFY 2022, NRCS helped Indiana landowners protect and restore 1,725 acres of wetlands and invested over \$4.2 million in wetland easements.

Conservation Stewardship Program

The Conservation Stewardship Program (CSP) is a voluntary conservation program that encourages producers to address resource concerns in a comprehensive manner by undertaking additional conservation activities and improving, maintaining, and managing existing conservation activities. Indiana received \$14.1 million in CSP funding in FFY 2022. A total of 211 new contracts received funding to treat 105,563 acres of cropland, pasture, and forest.

Environmental Quality Incentives Program

Indiana received more than \$27.1 million in EQIP funding in FFY 2022. A total of 854 contracts were approved that will address natural resource concerns on 112,177 acres of land over the life of the contracts. These contracts provided financial assistance to help plan and implement conservation practices that address natural resource concerns and for opportunities to improve soil, water, plant, animal, air and related resources on agricultural land and non-industrial private forestland. EQIP offered several targeted national initiatives that provided funding to specific geographic areas and/or resource concerns.

1. Climate Smart: NRCS offers a variety of programs, services, resources, and tools to help farmers, ranchers, forest landowners and partners pursue voluntary conservation efforts to deliver climate solutions. In FFY 2022, this initiative had 16 contracts which encompassed 5,873 acres and allocated \$650,069.

³ NRCS releases each fiscal year's report in the subsequent calendar year. Thus, NRCS released FFY 2022 reports in 2022 and therefore, this section of the report shares activities that took place in FFY 2022.

2. **Conservation Incentives:** Incentive contracts are an option available through EQIP that offers producers financial assistance to adopt conservation management practices on working landscapes. Producers may use incentive contracts as a “steppingstone” from correcting resource issues on specific land units through EQIP, to achieving sustainable stewardship on their entire operation. In FFY 2022, this incentive had 16 contracts which encompassed 9,152 acres and allocated \$1.54 million.
3. **Great Lakes Restoration Initiative (GLRI):** NRCS and partners work with producers and landowners to implement voluntary conservation practices that improve water quality, restore wetlands, enhance wildlife habitat, and sustain agricultural profitability in the Great Lakes. In FFY 2022, this project had 28 contracts which encompassed 8,761 acres and allocated \$1.42 million.
4. **Historically Underserved Farmers:** This fund category is for applicants defined as socially disadvantaged, veteran, limited resource or beginning farmer. In FFY 2022, this project had 193 contracts which encompassed 11,407 acres and allocated \$5.1 million.
5. **Mississippi River Healthy Basin Initiative:** Through MRBI, NRCS and its partners work with producers and landowners to implement voluntary conservation practices that improve water quality, restore wetlands, enhance wildlife habitat and sustain agricultural profitability in the Mississippi River Basin. In FFY 2022, this project had 14 contracts which encompassed 3,338 acres and allocated \$815,898.
6. **Monarch Butterfly Habitat Development Initiative:** The Monarch Butterfly Habitat Development Project is a multi-state effort focused on increasing monarch habitat on private lands through plantings of milkweed and nectaring farms as well as managing pesticide use in proximity to monarch habitat. In FFY 2022, this project had one contract which encompassed three acres and allocated \$3,265.
7. **National Water Quality Initiative:** NWQI is a joint initiative between NRCS and the Environmental Protection Agency (EPA) to address agricultural sources of water pollution, specifically nutrients, sediment, and pathogens in priority watersheds, with a special component for source water protection. This strategic approach leverages funds and provides streamlined assistance to help individual agricultural producers take needed actions in impaired watersheds. In FFY 2022, this project had 12 contracts which encompassed 1,492 acres and allocated \$336,897.
8. **Northern Bobwhite Quail:** NRCS offers technical and financial assistance to help landowners manage for early successional habitat. This assistance helps producers plan and implement a variety of conservation activities, or practices, that benefit the bobwhite and many other game and non-game species. In FFY 2022, this project had two contracts which encompassed 88 acres and allocated \$48,444.
9. **On-Farm Energy Initiative:** NRCS provides agricultural producers with technical and financial assistance that quantifies how energy can be used more efficiently to reduce input costs, increase productivity, and reduce air pollutants and greenhouse gas emissions. This initiative only offers assistance for 128 Conservation Activity Plans-Ag Energy Management Plans and certain energy conservation practices. In FFY 2022, this project had 10 contracts which encompassed 96 acres and allocated \$51,711.
10. **Organic Initiative:** NRCS provides financial payments and technical assistance to help producers implement conservation measures in keeping with organic production. Limited

resource and socially disadvantaged producers may obtain additional assistance. In FFY 2022, this project had four contracts which encompassed 68 acres and allocated \$26,457.

11. Specialty Crop: NRCS offers technical and financial assistance to specialty crop growers to enhance water, soil, air, and other natural resources. In FFY 2022, this project had 40 contracts which encompassed 371 acres and allocated \$366,490.
12. Western Lake Erie Basin Initiative (WLEB): NRCS and partners work with producers and landowners to implement voluntary conservation practices that improve water quality, restore wetlands, enhance wildlife habitat, and sustain agricultural profitability in the Western Lake Erie basin. In FFY 2022, this project had 26 contracts which encompassed 6,089 acres and allocated \$1.06 million.
13. Wildlife 5%: The goal of this initiative is to convert tall fescue and other non-native forages to native grasses and forbs and develop prescribed grazing plans to address the habitat needs of bobwhite quail and associated grassland/shrub land species. This category is available statewide on land which overlaps one of the Indiana DNR C.O.R.R.I.D.O.R.S. priority areas. In FFY 2022, this project had 94 contracts which encompassed 3,891 acres and allocated \$1.92 million.

Regional Conservation Partnership Program

The Regional Conservation Partnership Program (RCPP) promotes coordination between NRCS and its partners to deliver conservation assistance to producers and landowners. NRCS provides assistance to producers through partnership agreements and through program contracts or easement agreements. For FFY 2022, NRCS funded the following project that affected Indiana:

1. Big Pine Watershed- The Big Pine Watershed Partnership engages the power of the supply chain and the trust of agronomy retailers to further conservation in Indiana's Big Pine watershed through the targeted implementation of nutrient and sediment reducing practices to achieve watershed water quality objectives. In FFY 2022, this project had 3 contracts for \$94,753 on 1,905 acres.

Indiana Association of Soil and Water Conservation Districts

The mission of the Indiana Association of Soil and Water Conservation Districts (IASWCD) is to enable the conservation of the natural resources of Indiana. The IASWCD promotes the wise use of Indiana's natural resources by providing information and outreach in support of statewide efforts to develop and enhance Indiana's watershed programs that help address NPS pollution.

The IASWCD administers two high-impact statewide programs: Conservation Cropping Systems Initiative (CCSI) and Urban Soil Health (USH). These programs amplify state, regional, and local resources to boost support for conservation implementation on conventional, urban, and emerging farms through connecting growers and landowners to support systems and resources such as EQIP, CSP, or CREP programs, while building local capacity through supporting outreach and educational events and, in the case of USH, facilitating the development of locally led Working Groups. Both programs coordinate closely with local SWCDs as well as partner agencies.

The IASWCD provides significant resources to the Pathway to Water Quality (PWQ) Exhibit; a popular fixture at the Indiana State Fairgrounds since 1993. The exhibit is an excellent watershed demonstration site, showing how proper management practices at home, on the farm and in business can protect our

soil and water resources. The PWQ exhibit contains practical displays and information for anyone who uses the land. The PWQ exhibit is managed and maintained by the ICP. The IASWCD, through a 319 grant, USDA NRCS contribution, and matching state grants and private donations, provides a PWQ Coordinator to oversee the project and committee (\$15,000 per year). With participation from all ICP partners, in 2019 the IASWCD was able to apply for \$15,000 in additional 319 funds over four years, with a match of \$60,000 from all other ICP Partners. Additional funds have been spent on upgrades to the exhibit such as pervious pavement, a green roof gazebo and a septic system display. IDEM participates on the PWQ Advisory committee and helps staff the exhibit during the Indiana State Fair each year. In 2020, an Indiana American Water environmental grant was procured to provide updated signage and seating in an expanded area of the exhibit. What was once an adjoining exhibit space has become available, and by expanding into this area, the PWQ will be using a USDA NRCS soil health trailer and partnership staff to give live demonstrations regarding the soil benefits of conservation cropping systems. This new area was utilized for the first time at the 2021 Indiana State Fair with high attendance throughout the fair. This will continue in 2023, with exhibits focused on urban soil health being added to the new area.

The IASWCD Conservation INsight, a biweekly electronic publication, communicates issues, events and resources in watershed management to statewide audiences. The Conservation INsight is an excellent tool to acknowledge successful watershed practices through the Annual River Friendly Farmer Awards and the District Showcase Awards. The Indiana State Fair Farmer's Day provides an excellent setting for the award presentations. The Indiana Conservation Farmer of the Year and Friend of Conservation awards are presented annually during the Annual Conference of Indiana Soil and Water Conservation Districts. Acknowledgment through these venues, local and statewide media, and the Conservation INsight, offer additional opportunities to increase public awareness and support successful nonpoint pollution reduction practices.

The IASWCD provides support to Women4theLand (W4L) – Women's Conservation Circles by participation on the W4L Steering Committee. Women4theLand is a partnership of agricultural and natural resource conservation agencies and organizations working together to provide information, networking, education and resources to Indiana women landowners and farmers. IASWCD helps promote and develop W4L statewide events.

The IASWCD Funding Resources web page can be accessed through the IASWCD website. The web page is updated on a continual basis and provides pertinent development and education resources for Indiana's watershed groups, SWCDs and conservation partners. The web page features funding and grant information, organizational and professional development opportunities, and a calendar of events.

Lastly, the IASWCD hosts an annual conference engaging upwards of 350 attendees from across the Indiana Conservation Partnership, especially SWCD supervisors and staff. Conference tracks range from on-the-ground technical topics, to district management, to outreach and education. Attendees come away with a diverse and strengthened network in the conservation field, a renewed commitment to the mission of conservation, as well as new tools to enact that mission at the local level.

Conservation Cropping Systems Initiative (CCSI)

CCSI continues to provide training, outreach, and other soil health education support for partners across Indiana – contributing to the State's leadership in adoption of cover crops and other soil health practices that can help reduce nutrient and sediment loading in surface waters. Activities for 2022 included:

- Staffing:

- Expansion of CCSI Team - With funding through a USDA-NRCS Agreement along with Clean Water Indiana, Indiana Soybean Alliance and support from Purdue Extension, CCSI expanded staffing from 2 Program Managers to 4 and added an additional Agronomist in Q1 2023.
- Current Staff:
 - Lisa Holscher, Director lisa.holscher@in.nacdnet.net
 - Sheila Schroeder, Northwest Program Manager sheila.schroeder@in.nacdnet.net
 - Lois Mann, Northeast Program Manager lois.mann@in.nacdnet.net
 - Julie Loehr, Southwest Program Manager Julia.Loehr@in.nacdnet.net
 - Jessica Hoehn, Southeast Program Manager jessica.hoehn@in.nacdnet.net
 - Hans Schmitz, Conservation Agronomist hschmitz@purdue.edu
 - Bryan Overstreet, Conservation Agronomist boverstr@purdue.edu
- Training:
 - Revision of Curriculum
 - Core Soil Health Systems Training was held as a series of three virtual events and one in-person day. Fifty attendees attended at least one session, including several well-seasoned ICP staff members seeking a refresher class. These will continue to be held as virtual events in the future.
 - Continuing Soil Health Education – Best Management Practices for Herbicide Application and Cover Crop Termination. This training was designed with staff from USDA-NRCS and Purdue Extension Researchers to provide information and understanding of potential herbicide shortages – both from cover crop termination and from contract compliance perspectives. The training was attended by 130 individuals and recordings (available on the CCSI YouTube channel) were viewed 380+ times.
 - Soil Health and Sustainability for Midwestern Field Staff (3-Day Soil Health Training) was held in-person. A full class of 34 individuals attended the training.
 - Other Trainings:
 - Byron Seed Dealer Training – Assisting Barry Fisher, formerly with NRCS, a series of soil health trainings have been held for Byron Seed dealers, most of whom are from Plain communities.
 - Grow More Training – Developed by the National Wildlife Federation, a pilot training was held in partnership with Indiana SARE and focused on developing audience targeting and message framing strategies in order to create more impactful outreach events. This training will be expanded in 2023 to four sites.
- Outreach Events:
 - Since its official inception in January 2010, CCSI has participated in over 760 events, reaching over approximately 45,750 attendees.
 - In 2022, CCSI materially participated in 67 events, reaching over 5,200 individuals.
 - As people returned to in-person gatherings, the number of webinars hosted by CCSI declined. However, the first installation of 2022, focused on agrivoltatics, has been viewed over 3,750 times.
 - Select Event Highlights:
 - Black Loam Conference events – Led by Legacy Taste of the Garden and their local partners, CCSI assisted with a series of events targeting underserved communities, especially those facing food desert hardships. Events were held in Evansville, Bloomington, Ft. Wayne, and Gary, culminating in a capstone event at the Madame

- CJ Walker Center in Indianapolis. All told, approximately 260 individuals attended the events to learn about soil health, nutrition, programs, business planning and more.
- Americas Conservation Ag Movement (ACAM) Events – Supported by Farm Journal, the ACAM program hosted events with a younger farmer to promote adoption of soil health practices.
 - A leadup to Rulon Enterprises Peer Group Meeting featuring Dr. Ray Ward, founder of Ward Labs, and Keith Berns, Green Cover Seed.
- Podcasts, Website, Social Media, and Other Outreach
 - With staffing changes at Hoosier Ag Today, the podcast was in hiatus, but has resumed for at least 24 more episodes. Episodes have been downloaded over 12,200 from 18 different countries (not including the Hoosier Ag Today platform).
 - The CCSI website www.ccsin.org continues to be updated. Approximately 9,400 sessions were conducted by 5,800 unique users, including over 2,500 visits to “The Root Project”.
 - [The Root Project](#), launched in the fall of 2020, continues to expand. Full scale banners were produced and have been made available for partners to borrow for their own outreach/education efforts. In addition, slide imagery was created and was made available for free download with an initial posting of the slides on November 1, 2022. By November 4, imagery had been downloaded from every continent on earth except Antarctica.
 - Twitter posts continue to reach wide audiences, garnering just under 250,000 impressions in 2022. However, changes in Twitter (X) management have led to a substantial decline in platform activity.
 - Facebook 2022 daily total reach totaled over 57,000.
 - The CCSI YouTube channel has organically increased its reach. In 2022, nearly 11,500 views totaling over 1,000 hours were conducted from seven countries. The country with the second most views was India, with over 1,000 views.

Indiana State Department of Agriculture⁴

The [ISDA-Division of Soil Conservation](#) (Division) works alongside the [State Soil Conservation Board](#) (SSCB) to enhance the stewardship of Indiana’s soil and water resources. This is done by providing face-to-face, on-the-land technical and financial assistance for implementing conservation practices, supporting Indiana’s 92 Soil and Water Conservation Districts (SWCDs), and promoting the opportunities and benefits associated with caring for our soil and water resources.

The Division employs Resource Specialists (RSs) throughout the state to directly assist landowners with the planning and implementation of conservation practices addressing specific soil and water resource concerns. Resource Specialists work with regional Conservation Delivery Teams (CDT) alongside staff from the NRCS and SWCDs. The ISDA Resource Specialists assist with the planning, survey, design, and construction of thousands of practices annually. The common practices that these professionals work on include but are not limited to filter strips, grassed waterways, forested, and grassed buffers, water and sediment control basins, wetland restorations, and livestock watering systems. The Resource Specialists also work with the SWCDs to help them carry out Clean Water Indiana (CWI) programs, and

⁴ ISDA releases each fiscal year’s report in the subsequent calendar year. Thus, ISDA released FFY 2020 reports in 2021 and therefore, this section of the report shares activities that took place in FFY 2020.

assist with educational events for youth, adults, and farmers/landowners. The RSs also assist with the implementation of conservation practices using IDEM 319 dollars for watershed projects.

The Division also employs District Support Specialists (DSSs) to work cooperatively throughout the state with the local SWCDs to develop conservation priorities, goals, and business plans, as well as assist in the design of programs that reach landowners and the general public on the husbandry and management of soil and water resources. They prepare and conduct trainings for SWCD supervisors and staff, assist SWCDs in expanding their capacity to fulfill their role in their communities, provide facilitation for strategic planning and similar sessions, and provide information, guidance, and direct on-site assistance to SWCDs in carrying out their legal and operational responsibilities. The DSSs also provide guidance and assistance to the districts in applying for competitive CWI grants for implementing multi-district sediment and nutrient reduction projects.

The Division also employs Program Managers to help carry out the Division's many programs and initiatives, such as the Conservation Reserve Enhancement Program, the Clean Water Indiana program, the INField Advantage program, tracking Nutrient and Sediment Load Reductions on conservation practices, Data Analysis, the *Indiana State Nutrient Reduction Strategy*, and the Cover Crop and Tillage Transects.

Conservation Reserve Enhancement Program

The [Conservation Reserve Enhancement Program](#) (CREP) is designed to help alleviate some of the concerns of high nonpoint source sediment, nutrient, pesticide, and herbicide losses from agricultural lands by restoring buffers and wetlands to improve water quality, as well as protect land from frequent flooding and excessive erosion by planting hardwood trees in floodplain areas along rivers and streams. This program is possible through an agreement between the State of Indiana and the USDA-Farm Service Agency (FSA). Program participants receive both state and federal incentives to voluntarily enroll in the program and install water quality and erosion prevention practices on environmentally sensitive land directly adjacent to eligible surface waters or land located in the floodplain. ISDA administers the CREP program on behalf of the State.

The program covers 11 priority watersheds touching 65 counties with an acreage enrollment goal of 26,250 acres. The CREP watersheds include the Highland-Pigeon, Lower Wabash, Lower East Fork White, Lower White, Middle Wabash-Busseron, Middle Wabash-Deer, Middle Wabash-Little Vermillion, Tippecanoe, Upper East Fork White, Upper Wabash, and the Upper White.

Eligible practices through CREP include wetland restorations and bottomland timber establishments in the floodplain, as well as buffer practices that must be adjacent to a water body and include:

- Native Grasses
- Hardwood Tree Planting
- Wildlife Habitat
- Riparian Forest Buffers

According to the states tracking system, CREP Progress as of May 11, 2023, includes 22,471 acres of conservation practices installed utilizing \$10.5 million state dollars and protecting approximately 1,052 miles along Indiana's rivers, lakes, and streams. 8,195 acres are protected through bottomland timber establishments in the floodplain, and 6,148 acres are protected through wetland restorations. Enrollment in the CREP Program is over 23,708 acres, including those practices that are enrolled in the program but not yet installed on the ground. For every state dollar that is spent on CREP practices, the federal match is approximately \$4-\$13 depending on the practice.

Clean Water Indiana Program

The [Clean Water Indiana Program](#) (CWI) was established by the Indiana Legislature to provide financial assistance to SWCDs, landowners and conservation groups. The financial assistance supports the implementation of conservation practices that reduce nonpoint sources of water pollution through education, technical assistance, training, and cost sharing programs. The CWI fund is administered by the Division of Soil Conservation under the direction of the SSCB.

The CWI Program is responsible for providing local matching funds as well as grants for sediment and nutrient reduction projects for Indiana's SWCDs. For state fiscal year 2023, 13 applications were approved totaling \$616,115 and impacting 18 SWCDs. Information on all the approved grants is available on the CWI Program website. Applications for the 2024 CWI grant cycle will be accepted through September 8, 2023. CWI also contributes critical state matching funds for Indiana's CREP and supports other statewide initiatives such as the Indiana [Conservation Cropping Systems Initiative](#) (CCSI).

INField Advantage

[INField Advantage](#) (INFA) is a proactive, collaborative opportunity for farmers to collect and understand personalized, on-farm, field-specific data to optimize their management practices to improve their bottom line and benefit the environment. The program began in Indiana in 2010 and, in 2018, the impact had grown to include over 1,000 fields in more than 60 counties.

In 2019, the program received a Conservation Innovative Grant (CIG) from the USDA-NRCS which has been utilized to offer more practical and flexible trials for growers. The program is working with numerous private, public, and non-profit groups throughout Indiana to promote soil health management practices to broad audiences and provide insights to participants. The program itself is comprised of split-field trials surrounding cover crop impacts, nitrogen management, and tillage practice impacts. Participating farmers use precision agriculture tools, protocols, and technologies such as soil testing, biomass testing, and agronomic benching software to track changes at the field scale. Participating growers receive free in-field data and analysis giving them the tools to make environmentally and economically sound management decisions. Participants receive soil sampling and soil health assessments for the field(s) they enroll into the program. The results from the trials will be used to analyze overall impact of the program.

INFA is funded through the Indiana Corn Marketing Council and the Indiana Soybean Alliance with checkoff funds and is being offered at no additional charge to producers.

Cover Crop Premium Discount Program

The [Cover Crop Premium Discount Program](#) was launched in 2020 in partnership between ISDA, The Nature Conservancy, and the USDA Risk Management Agency (RMA). The goal of the program is to expand cover crop use among farmers in several counties in the state. The focus is to target first-time cover crop users but others are eligible as well. Eligible growers can receive a \$5.00/acre premium discount on the following year's crop insurance invoice for verified acres. The program achieved an enrollment of just over 7,000 acres in its first year with that number doubling to 15,000 acres enrolled the second year. In 2023, the goal was to enroll 35,000 acres which was met. In fact, interest exceeded available funding with producers applying for 48,155 acres.

Nutrient Load Reduction Modeling and Mapping

The Indiana Conservation Partnership (ICP) measures and tracks sediment, nitrogen, and phosphorus load reductions from individual conservation practices implemented on agricultural land to determine the impact of assisted conservation efforts statewide from all the ICP staff by using the EPA Region 5

Sediment and Nutrient Load Reduction Model. The model is used to analyze the sediment and nutrient load reductions achieved by conservation practices funded by state programs such as the CWI, CREP, IDNR's Lake and River Enhancement Program, as well as federally funded programs through § 319 administered by IDEM and the USDA's Farm Bill Programs like EQIP and CRP. Through this process of data collection and analysis, we can see the collective impact of the number of conservation practices that are implemented annually across several programs. The ICP utilizes the end products of this process to help measure load reduction trends by watershed for each calendar year and in cumulative years, and serves as a tangible component of the [Indiana State Nutrient Reduction Strategy \(SNRS\)](#).

Load reductions estimated by the model for Indiana each year are published in annual accomplishments reports, including watershed maps showing the nitrogen, phosphorus, and sediment reductions. To see these reports, visit <https://www.in.gov/isda/divisions/soil-conservation/indiana-state-nutrient-reduction-strategy/>. The estimates, paired with monitoring by state and federal partner agencies, as well as continued assessments of Indiana's CWA 303(d) list of impaired waters, will inform watershed prioritization and conservation resource management for the ICP's efforts and Indiana's SNRS.

Indiana Science Assessment

The Region 5 model is used to determine nitrogen and phosphorus load reductions that are tied directly to sediment. As a result, nutrients that are dissolved and carried by runoff waters are not accounted for in the model; therefore, the dissolved nutrients such as nitrate and dissolved phosphorus are missing from estimates using this model. Also, there are several practices that cannot be run through the model due to the practice not being tied to sediment, such as nutrient management. The [Indiana Science Assessment](#) was born out of the desire of the ICP wanting to strengthen and improve this existing method of capturing nutrient load reductions so that dissolved nutrients and other practices not tied to sediment can be captured. However, quantifying the nutrient load reductions and water quality improvement from individual practices is scientifically challenging, and the current Indiana method for determining nutrient load reductions would benefit from using the most recent research. This will allow for more accurate reductions to be tracked and better assess the progress being made on improving water quality. In addition, knowing the historic and ongoing trends of nutrient loads in the watersheds of the state is important in order to know where more conservation work is needed.

The Indiana Science Assessment strategy was developed and finalized in September of 2019 by a Core Team of representatives from different conservation agencies around the state, including ISDA, NRCS, the Indiana Chapter of The Nature Conservancy (TNC), the Indiana Agriculture Nutrient Alliance (IANA), IDEM, and the Purdue University College of Agriculture.

The Indiana Science Assessment has two components that will move the State Nutrient Reduction Strategy forward.

Component 1: Determine historic and ongoing nutrients loads leaving the state, and also by watershed basins used in the State Nutrient Reduction Strategy.

Component 1 of the Indiana Science Assessment determines water quality trends statewide at state borders and by major watershed basins by inputting water quality monitoring data from the IDEM Fixed Station Network and the United States Geological Survey's (USGS) stream gage network into the USGS model known as [Weighted Regressions on Time, Discharge, and Season](#) (WRTDS). Data was analyzed and run through the model to determine water quality trends of sediment, nitrogen and phosphorus loads and concentrations. A Trends report, titled [Trends of Sediment and Nutrient Loads in Indiana Watersheds](#) was released in June of 2022 on the results of this analysis and can be viewed at the ISDA Indiana Science Assessment website. Analyzing water quality monitoring information to determine loads and concentrations within each of the basins in the state will further help in prioritizing

watersheds for more targeted conservation efforts in the future. ISDA is also developing a web tool to display the results of the water quality trends report and to make the results more accessible to conservation partners and the public. This web tool is planned to be available later in 2023. The information within the water quality trends report will be used to draw comparisons of the basins in the state to determine the watersheds with the highest trends in nutrient loads and concentrations.

Component 2: Improve the method to quantify nutrient reductions from conservation practices, including dissolved nutrients, and determine efficiency of practices in reducing loads.

ISDA was awarded a grant from EPA through the Gulf of Mexico Hypoxia Task Force to help advance the state's nutrient reduction strategy, which is being used to help carry out Component #2. A Research Associate is working at Purdue University to compile, review, and analyze research data to identify and/or develop a standard tool and procedures for estimating nutrient load reductions from conservation practices, and be used in determining the percent efficiency of certain conservation practices on reducing the nitrogen and phosphorus loads. A science committee made up of researchers and experts from five academic institutions in Indiana and two federal research agencies (USDA, Agricultural Research Service (ARS) and the USGS) provides experience and guidance on the data analysis and practice criteria, as well as provides scientific input and evaluation of the process.

In the first phase of the assessment, ten conservation practices were selected by the Core Team to be researched and analyzed, and in Phase 2, 15 additional practices were selected, bringing the total to 25 practices. Preliminary Practice effectiveness has been determined for 12 practices, and 2-page fact sheets are being developed for each individual practice that will share results with the public in an understandable way. A few of these fact sheets will be available later in 2023. Also, a progress report for Year 1 and Year 2 has been completed and is available on the Indiana Science Assessment website.

This component also includes developing consistent definitions of conservation practices. The Core Team also developed a document providing the definitions of the initial ten conservation practices and criteria assessed in Phase 1 of the Science Assessment. This document can be found on the Indiana Science Assessment website. Definitions of other conservation practices will be available in future editions of this guide for practices that are added to the Indiana Science Assessment process.

Gulf Hypoxia Program

Through funding provided by the Bipartisan Infrastructure Law in 2022, funding was awarded to each of the Gulf of Mexico Hypoxia Task Force states, including Indiana. To manage these funds and resulting projects, the EPA Office of Water formed the Gulf Hypoxia Program (GHP).

In Indiana, funding provided through the GHP will initially be focused in three areas: staff capacity, soil sampling, and the Indiana Science Assessment. ISDA has hired a staff person to help manage the new GHP dollars and to provide support with the [SNRS](#) efforts. The staff person will manage and coordinate the soil sampling program that is being developed that aims to increase the frequency in which farmers/landowners sample soil and therefore improve nutrient use efficiency on agricultural land.

The Indiana Nutrient Research & Education Program (INREP) will also be created to continue and expand the work of the [Indiana Science Assessment](#). This program will allow for continued management and research analysis under Indiana's Science Assessment to determine efficiency of conservation practices on improving water quality.

Cover Crop and Tillage Transects

The [tillage transect](#) is a visual cropland survey conducted late winter to early spring in each county by Indiana Conservation Partnership (ICP) personnel and Earth Team volunteers. Using a predetermined

route, staff look at farm fields in their county collecting data on cover crops, tillage methods, plant cover, residue, etc., in order to estimate the adoption of these conservation practices by private landowner efforts in Indiana. The survey uses GPS technology and provides a statistically reliable method for estimating the amount of adoption of these conservation practices at the county and state scale, and annual trends.

According to the survey conducted in March and April of 2022, transect results revealed that Indiana farmers planted an estimated 1.5 million acres of living covers in all crops. Overwintering living covers (i.e. – cover crops and small grains, like wheat) are known for their environmental benefits. They are typically planted in the fall after harvest and keep living roots in the ground throughout the winter helping to increase organic matter in the soil, improve soil health, and help filter water off of the farm. Although the conservation transect does not differentiate between cover crops and small grains, Indiana farmers typically plant fewer than 200,000 acres of small grains annually, so cover crops vastly dominate the 1.5 million estimated acres. With the exception of corn and soybeans, cover crops are planted on more acres than any other commodity crop in Indiana.

Estimates from the 2023 transect on 2022 data will be available in the summer of 2023.

The tillage transect in Indiana counties has been conducted since 1990. To see trends in the use of no-till and conservation tillage, as well as trends in cover crops since 2011, visit the ISDA website at <https://www.in.gov/isda/divisions/soil-conservation/cover-crop-and-tillage-transect-data/>.

GIS Basin Story Maps of the Ten Major River and Lake Basins in Indiana

The GIS Story Map of the major river and lake basin in Indiana, developed by ISDA, has been updated and can be found on the SNRS website. The basin story maps can now all be found in one interactive web application highlighting each of Indiana's 10 major river and lake basins to help tell the story of conservation and showcase Indiana's efforts to enhance water quality within those basins. The Story Map features maps which allow users to learn detailed information about each basin, and view water monitoring locations along with links to water quality data. The Story Map also contains information about local, state, and federal cost-share programs, the number of conservation practices in specific watersheds, nutrient load reductions from installed conservation practices, tillage and cover crop trends, information on local watershed groups and organizations, and resources related to agricultural initiatives, urban programs, point-source information, and the Ground Water Monitoring Network. The GIS story map makes Indiana's SNRS more interactive. [Learn more](#)

Indiana Department of Natural Resources

The Indiana Department of Natural Resources (IDNR) supports several programs that impact nonpoint source pollution in the state. These programs include the Lake and River Enhancement Program, the Indiana Lake Michigan Coastal Program, and the Healthy Rivers Initiative.

Lake and River Enhancement Program

The Department's role in Lake and River Enhancement (LARE) is set forth in Indiana Code (IC 14-22-3.5). The Division of Fish & Wildlife administers the LARE program through financial grants awarded by the Director of Indiana Department of Natural Resources (IDNR) to sponsors to reduce sediment and nutrient inflow to Indiana's lakes and rivers, and to enhance aquatic habitat.

The funding for LARE comes from the lake and river enhancement fee paid annually by boat owners when registering their boats with the Bureau of Motor Vehicles; thus, the LARE program strives to

ensure the continued viability of Indiana's publicly accessible lakes and streams for multiple uses, including recreational opportunities. The IDNR Division of Law Enforcement receives a portion of the LARE grant funds to conduct aquatic safety programs and maritime patrols.

Grants have been made available for technical and financial assistance to local and county agencies as well as non-governmental entities (such as a lake or homeowner's association) for qualifying projects since 1989. The LARE program has two funding rounds: a spring and a summer round. In FFY 2022, 51 grants totaling \$1,506,640 were awarded to address control of invasive aquatic species, logjam removal from streams, and sediment removal from publicly accessible lakes. An additional twenty-five FFY 2022 grants for biological and engineering projects and watershed land treatment projects totaling \$1,291,900 were also awarded. In 2023, \$864,610 was awarded to 34 projects for logjam removal from streams, sediment removal from public accessible lakes, and to control aquatic vegetation and \$1,143,000 in biological and engineering grants were awarded to seventeen projects.

Several LARE-funded projects feature active measures to improve aquatic habitat, including streambank stabilization with bioengineered practices, stabilization of shorelines on natural lakes, low-head dam removal, and various in-stream measures to benefit fish and other aquatic organisms. LARE projects also feature installation of filter strips, water and sediment control measures, and other practices to reduce erosion and sedimentation in targeted watersheds.

The end results of LARE-funded projects include healthier ecosystems and enhanced recreational opportunities for boating, fishing, and paddling activities. They can also result in increased economic value for businesses, communities, and individuals living near LARE-funded project sites.

Indiana Lake Michigan Coastal Program⁵

The purpose of the Indiana Lake Michigan Coastal Program (LMCP), funded primarily through the National Oceanic and Atmospheric Administration (NOAA), is to enhance the state's role in planning for and managing natural and cultural resources in the coastal region and to support partnerships between federal, state, and local agencies and organizations. The DNR is the lead agency implementing the LMCP and the program houses a full-time Coastal Special Projects Coordinator who provides technical assistance, education and outreach, and coordinates efforts toward the achievement of management measures that combat sources of NPS pollution.

The LMCP makes available approximately \$600,000 annually through the Coastal Grants Program for projects to protect and restore natural, cultural, and historic resources in Indiana's Lake Michigan coastal region. Project categories include land acquisition (example: riparian corridors), low-cost construction (example: natural area restoration and BMP installation), education and outreach, and planning/coordination/management (example: land use planning and ordinance development).

As part of the Coastal Zone Act Reauthorization Amendments of 1990 (CZARA), Congress created a stand-alone provision, Section 6217, which requires that states and territories with approved coastal zone management programs develop a Coastal NPS Pollution Control Program to address water quality impairment of coastal waters. The purpose of the program is to develop and implement management measures for NPS pollution to restore and protect coastal waters. The DNR LMCP and IDEM §319 Program staff work together to coordinate with other state and federal agencies such as state and local health departments, DNR, NRCS, local SWCDs, and not-for-profit organizations to meet the requirements of this program. The LMCP Special Projects Coordinator is responsible for 6217 development and implementation through collaboration with federal, state, and local partners. Only one 6217 Coastal Nonpoint Pollution Control Program measure, Operating Onsite Disposal Systems

⁵ Indiana Lake Michigan Coastal Program reporting period is July 1, 2020 – June 30, 2021.

(OSDS) remained to be approved. To meet this measure the state must ensure that operating septic systems within the Coastal Region are inspected at a frequency adequate to ascertain whether septic systems are failing. Indiana submitted its FINAL 6217 OSDS Measure program to NOAA and EPA in September 2020 and received preliminary approval in March 2021. Components of the submission include partnering with Purdue University Illinois Indiana SeaGrant in the creation of education modules and ordinance assistance, realtor associations for training and material dissemination, and partner agencies for targeted legislative action. It is also proposed that a tracking database will be developed with the Indiana Onsite Wastewater Professionals Association (IOWPA).

A key part of the strategy to develop an approvable measure is embodied in a Section 319 grant awarded to the LMCP. There are three critical elements of this strategy: 1) understanding the number and locations of septic systems in the Coastal Region (i.e., mapping); 2) collecting data to quantify the impact of septic systems on Coastal Region surface waters (i.e. *E. coli* and molecular source tracking efforts); and 3) providing effective, targeted outreach and education for homeowners with septic systems, realtors involved in transfers of homes with septic systems, septic professionals that service and inspect septic systems, and decision-makers that may be involved in the development and passage of septic system inspection ordinances needed to meet our remaining measure. The LMCP partnered with Indiana University Northwest to collect *E. coli* samples up and downstream from suspected contamination sites throughout the watershed. These samples were analyzed for presence of human gut bacteria markers using Molecular Source Tracking techniques.

The LMCP continues to lead the NW Indiana Septic System Coordination Work Group meetings to discuss septic nonpoint source pollution issues and solutions in NW Indiana.

Healthy Rivers Initiative (HRI)

The Healthy Rivers Initiative, led by the DNR, is the largest conservation initiative to be undertaken in Indiana. The initiative includes a partnership of resource agencies and organizations who are working with willing landowners to permanently protect 43,000 acres located in the floodplain of the Wabash River and Sugar Creek in west-central Indiana and another 26,000 acres of the Muscatatuck River bottomlands in southeast Indiana. HRI partners include the DNR, U.S. Fish & Wildlife Service, Natural Resources Conservation Service, and The Nature Conservancy in Indiana.

These projects involve the protection, restoration, and enhancement of riparian and aquatic habitats and the species that use them, particularly threatened, endangered, and/or migratory birds and waterfowl. This initiative will also be beneficial to the public and surrounding communities by providing flood protection to riparian landowners, increasing public access to recreational opportunities, and leaving a legacy for future generations by providing a major conservation destination for tourists.

Since HRI was launched in June of 2010, 38,309 acres of land are now permanently protected, over halfway to the goal of 70,000 protected acres. The DNR has acquired 12,173 acres in the Wabash River and Sugar Creek Conservation Areas, and 4,490 acres in the Austin Bottoms Conservation Area along the Muscatatuck River. Natural Resources Conservation Service has enrolled a total of 6,435 acres in easements (not owned by DNR) within the project boundary, to complement the prior existing 12,723 acres of state-owned land. To date, a total of 16,663 **new acres** are now open to the public for wildlife-based recreation through HRI.

Indiana State Revolving Fund Loan Program

In addition to providing low interest loans to Indiana communities for projects that improve wastewater

and drinking water infrastructure, the Indiana Clean Water State Revolving Fund (SRF) Loan Program finances projects that abate or prevent NPS pollution of Indiana's waters that meet the objectives in the State NPS Management Plan. The money loaned to these NPS projects is documented as match, when applicable, for the state §319 Grant Program. Eligible NPS projects must provide water quality benefits to their respective communities and may include one or more of the following:

- Wetland restoration/protection;
- Erosion control measures;
- Ground water remediation;
- Storm water BMPs;
- Source water and wellhead protection;
- Failing septic system - repair, replacement or connection to sewer;
- Brownfield remediation;
- Conservation easements; and
- Agricultural and waste management BMPs.

This reporting period, State Fiscal Year 2023 (July 1, 2022 - June 30, 2023), the SRF Program loaned \$55.2 million to eight communities for projects to reduce NPS pollution by extending sanitary sewers to areas with septic systems, thereby eliminating this potential source of pollution. Approximately 3,716 septic systems will be eliminated through these projects. The program also completed financings for \$1.2 million with two communities to improve stormwater management systems, and \$20 million with one community for soil remediation at a brownfield site. Throughout the life of the SRF NPS Program, \$507 million has been loaned for NPS purposes. Approximately 22,400 septic systems have been removed from service, 12 Brownfield sites have been remediated, and 11 projects were completed to improve stormwater infrastructure.

The NPS Program has also made a specific effort to coordinate with the Clean Water SRF (CWSRF) Program to link loan applicants with local watershed groups. Each quarter, when the CWSRF's Project Priority List is made available, the NPS program identifies those applications that fall within an area covered by a watershed management plan (WMP) or a Total Maximum Daily Load (TMDL) report. The NPS program then determines, with the help of CWSRF staff, whether or not those applicants have taken advantage of the 0.5% interest break available for projects that include a NPS or green infrastructure project. If no such project has been identified, and a WMP includes a project that may help the applicant qualify for the reduced interest rate, the application is flagged for contact. Interest rates are adjusted quarterly on the first of January, April, July, and October.

GOAL 2: MONITOR AND ASSESS INDIANA WATERS FOR NONPOINT SOURCE IMPAIRMENTS AND IMPROVEMENTS

Without monitoring and assessment, it would be difficult to quantify the magnitude of the nonpoint source pollution problem and improvements made in water quality through nonpoint source pollution abatement actions. In order to grasp the extent and impacts of nonpoint source pollution in the state, IDEM uses several water quality monitoring approaches, including targeted and probabilistic monitoring designs, as outlined in the [2022-2026 Indiana Water Quality Monitoring Strategy](#). Assessment of the data obtained through monitoring follows protocols outlined in [Indiana's 2022 Consolidated Assessment and Listing Methodology \(CALM\)](#). Highlights of significant progress in monitoring and assessment of Indiana's waters for nonpoint source pollution during FY 2023 are included below. A full accounting of

progress made this year toward the objectives of Goal 2 in the [Indiana Nonpoint Source Management Plan](#) can be found in Appendix A.

IDEM Surface Water Quality Monitoring Strategy

The Office of Water Quality conducts probability-based aquatic resource surveys using a random, stratified sampling design to statistically determine the degree to which waters within a basin support aquatic life, human health, and recreational uses. The OWQ collects surface water quality, biological, and habitat data to support watershed planning and restoration activities of the nonpoint source program. These efforts also support other programs in the state including public health advisories, development of water quality standards, and identification of water quality issues.

Water quality monitoring is conducted in a different basin each year using a nine-year rotating cycle. The first cycle began in 2011 and was completed in 2019 in the Lower Ohio River Basin. In FY 2023, monitoring was ongoing in the Great Miami-Whitewater River basin (05180003). The results of this monitoring effort will be used to:

1. Provide data to base statistically comprehensive assessments of state waters (305(b)).
2. Provide data on which site-specific assessments can be made for the waterbodies' attainment of Indiana's designated uses (303(d)). Identify impairments for which TMDLs should be created for nonpoint source pollution and point sources.
3. Provide baseline data for watershed management decisions.

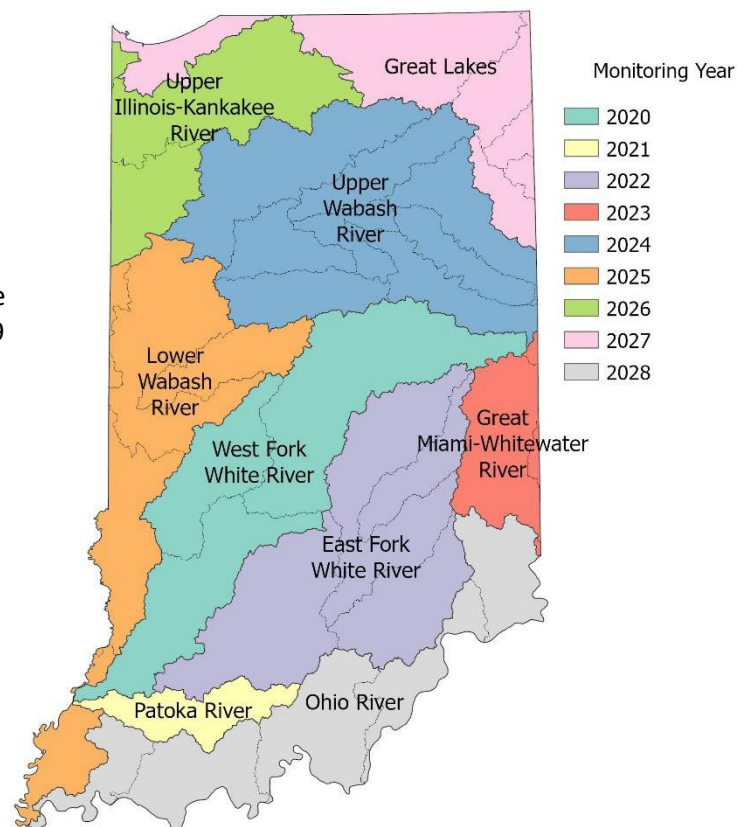


Figure 2. Major basins in Indiana that are monitored for surface water quality on a nine-year rotating cycle.

IDEM's nonpoint source monitoring also includes two types of targeted monitoring: watershed characterization monitoring and performance measure monitoring (monitoring for success, under the U.S. EPA's WQ-10(a) measure).

Watershed Characterization Studies

The main objective of the watershed characterization project is to use an intensive targeted watershed design to characterize the current condition of the watershed. IDEM uses a modified geometric site selection and targeted site selection process to get the necessary spatial representation of the entire study area. Sites within a watershed are selected based on a geometric progression of drainage areas starting with the area at the mouth of the mainstem stream and working upstream through the tributaries to

the headwaters (sites ≥ 5 square miles). Monitoring sites are then located at the nearest bridge with additional sites located at *pour points* (the lowest point in the basin through which all water flows) and, to the extent

possible, sites of concern to the stakeholders.

Study areas are selected based upon TMDL development needs and where there is a local group ready to complete watershed planning and begin implementation. Physical, chemical, and bacteriological data are collected monthly for twelve months at the pour points. The remaining sites are sampled monthly from April through October, which constitutes the recreation season. Biological data are collected once per year at each of the sites. These data are used to identify the sources and extent of impairment for TMDL development and for local watershed groups to designate critical areas and management decisions for their watershed management plans. The rigor of this monitoring design supports future performance measures monitoring to determine if improvements in water quality have occurred due to management and Best Management Practice (BMP) implementation.

The following is an update of all closed, ongoing, and planned watershed characterization studies in FY 2023.

- Black Creek (HUC 0512020206) - Water quality monitoring in the Black Creek watershed began in November 2021 and was completed in October 2022
- Big Raccoon Creek (HUC 0512010815) - Water quality monitoring in the Big Raccoon Creek watershed will begin in November 2022 and is to be completed by October 2023.
- Indian Creek (HUC 05120201170) – Water quality monitoring in the Indian Creek watershed will begin in November 2023 and is to be complete by October 2024.

Performance Measures/Monitoring for Success (Success Stories/WQ-10(a))

Part of U.S. EPA's strategy for showing improvement in nonpoint source pollution impairment is through Success Story submissions by the states. To show improvement, states must show that one or more of the waterbodies /impairment combinations primarily caused by nonpoint source pollution and identified on any state 303(d) list are removed.

Targeted monitoring to measure water quality improvement resulting from nonpoint source pollution grant projects was initiated in 2009. Performance monitoring targets watersheds that are impaired by nonpoint source pollution, receive nonpoint source funding, and meet threshold criteria. Threshold criteria can include the number of best management practices installed in a watershed, load reductions estimated, conclusion of a time lag for best management practice effectiveness, and group monitoring that indicates improvement. Sampling began in May 2022 at Silver Creek (051401010805), Rock Creek (051201010701), Majenica Creek (051201020403), Black Creek (041000050104), Maumee River (041000050103), Little Hogan Creek (050902030401), Goose Run (050902030404), Vestal Branch (051401010201), Indian Kentucky Creek (051401010201), and Deep River (040400010508). In 2023, IDEM began monitoring in 11 performance monitoring watersheds: Black Creek (041000050104), Pigeon Lake-Pigeon Creek (040500011001), Page Ditch (040500011105), Hickory Branch-Iroquois River (071200020405), Burnett Creek (051201080202), Elliott Ditch (051201080104), Rogers Ditch (051201111511), Big Branch (051201111504), Little Creek (051201130706), Big Creek (051201130709), Calumet River-Frontal Lake Michigan (040400010603). Reasons for impairment in these streams include E. coli, nutrients, pH, and failure to support aquatic life. Samples are still being processed and IDEM reserves judgment as to whether any of the sampling in these watersheds demonstrates improvement. Success stories, load reductions, and BMPs reported in FY 2023 are described under Goal 4 of this document.

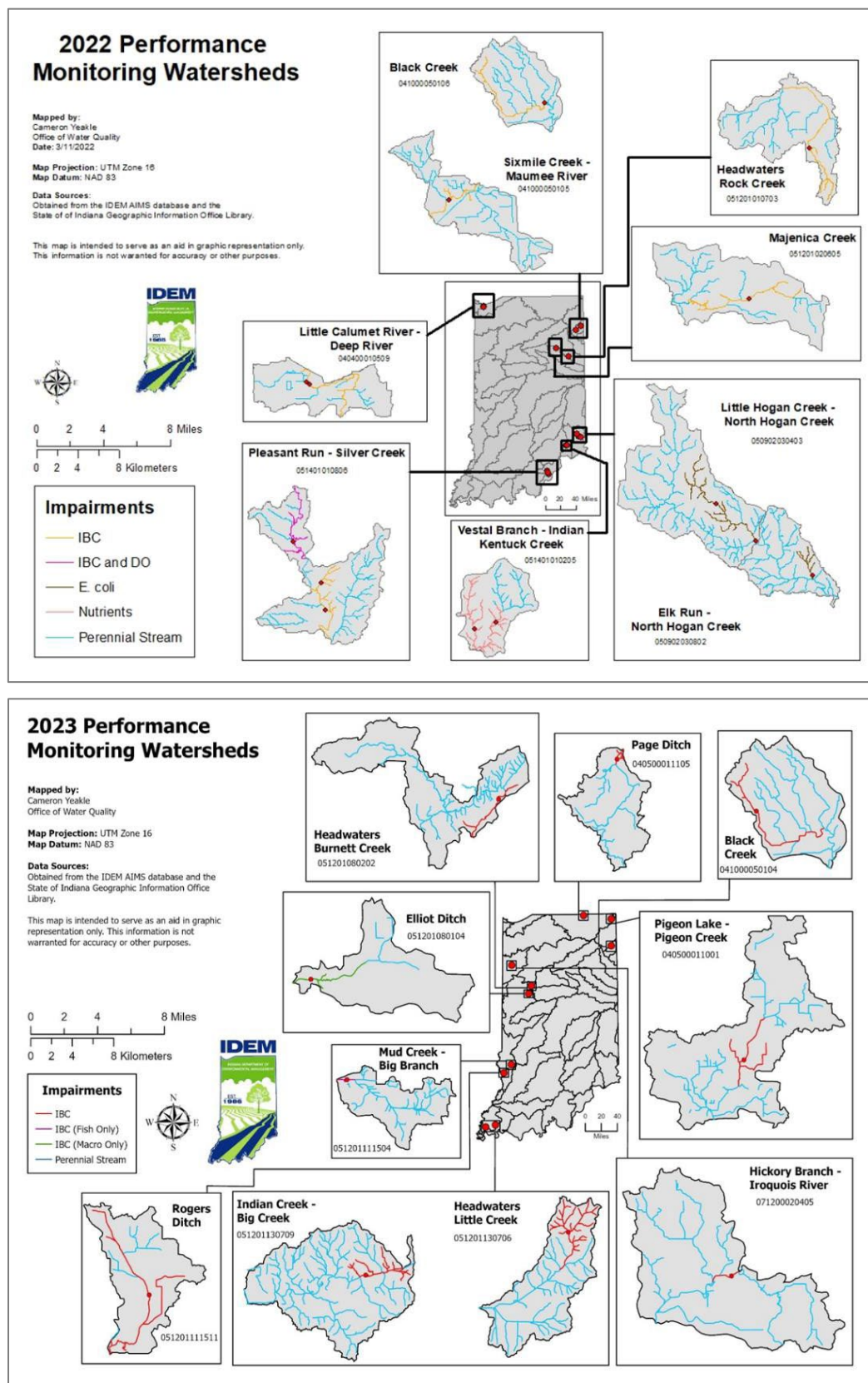


Figure 3. Performance monitoring watersheds in 2022 and 2023. Ground Water Monitoring Network (GWMN)

Across the State of Indiana, ground water monitoring showed arsenic at concentrations ranging from

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non-detectable levels to levels well above the maximum contaminant level (MCL) of 10 parts per billion (ppb) in over 11% of residential wells sampled. Arsenic is naturally occurring and found in rocks, soil, water, and plants in many areas of the U.S. Arsenic is released into the water through natural events like infiltration, dissolution of minerals from clay, and erosion of rocks. Arsenic can also be released into the environment through industrial activities like wood preservation, mining, and smelting. In 2018, 231 of the sites with arsenic levels of $\frac{1}{2}$ the MCL (5 ppb) or greater were resampled to determine the specific concentration of two forms of arsenic, arsenic III and arsenic V. The samples collected in 2018 showed that the majority of arsenic present in Indiana groundwater occurs in the form of arsenic V, likely due to the strong reducing conditions in the groundwater. The sampling event confirmed that arsenic concentrations show high spatial variability across the state. As a follow up in 2019, a small residential neighborhood in Nappanee in Elkhart County was intensively sampled to measure the variability of arsenic. Arsenic concentrations ranged from 13 to 140 ug/L over the 23-acre neighborhood, despite a similar geology across the study area. Statistical analysis of the full GWMN dataset showed that well depth and construction could account for small variations in arsenic levels across Indiana, but well depths alone could not explain the full variability of the arsenic levels observed in the Nappanee study area. Intensive sampling of additional areas across the state is expected to be conducted during the 2023 sampling season.

Beginning in the 2020 sampling season, a portion of the sites previously sampled for the GWMN were resampled to address cation-anion charge balance issues observed in the previous sampling. A total of 246 GWMN sites were resampled in 2020, and additional 125 sites were resampled in 2021. Evaluation of the data obtained from the resampling of sites in 2020 and 2021 is ongoing and once the charge balance issue is addressed, the geochemical modeling of the GWMN dataset can begin. Geochemical modeling will help evaluate the geochemistry of the aquifers of Indiana and determine the conditions under which arsenic is mobilized. The results of this study may allow IDEM to issue recommendations for well screen placement in newly drilled wells to minimize the amount of arsenic and assist in the creation of an arsenic hazard map in Indiana. A searchable database with information on arsenic levels in public drinking water in Indiana is available through IDEM's Drinking Water Branch at <https://myweb.in.gov/IDEM/DWW/>.

Additional Water Quality Monitoring

Entities other than IDEM conduct water quality monitoring programs around the state that are important to the Nonpoint Source Program. Many §319 projects conduct monitoring as part of their work to reduce nonpoint source pollution. These monitoring efforts and the subsequent data generated are shared and used by IDEM and others for many different purposes.

Hoosier Riverwatch Volunteer Monitoring Program

Hoosier Riverwatch (HRW) is a program hosted by IDEM's Watershed Assessment and Planning Branch and is a volunteer-based stream water quality monitoring initiative. It is designed to increase public awareness of stream water quality issues by training citizen volunteers to monitor wadeable streams near their homes, schools, and communities in Indiana. The mission of HRW 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." This mission is accomplished through the following goals:

- Educate citizens on watersheds and the relationship between land use choices and the resulting

water quality of nearby streams.

- Train citizens on the basic principles of stream water quality monitoring.
- Promote opportunities for involvement in water quality issues at the local watershed level.
- Provide water quality information to individuals or groups working to protect water resources.
- Support volunteer efforts through technical assistance, monitoring equipment, networking opportunities, and educational materials.

HRW accomplishes its mission through training and equipping certified volunteer instructors, who in turn lead workshops to train volunteer monitors. HRW provides monitoring equipment to eligible groups and loaner equipment to eligible individuals. HRW also manages an online database as a repository of data collected by volunteers and distributes water quality news to volunteers and stakeholders. In FY 2023, 26 HRW workshops were held, and 183 stream sites were sampled by volunteers.

HRW maintains about two dozen loaner trunks across the state, with equipment needed to monitor water quality. These trunks may be borrowed by trained HRW volunteers for varying lengths of time. In addition, HRW staff were awarded one equipment grant kits this year. Requests to refill expendable/expired supplies and/or lost or broken equipment are also filled on an as-needed basis. These can be received from three sources: trainers preparing for workshops, those who maintain or house loaner trunks, and groups who have been awarded an equipment grant kit and have either been putting data into the database or submitting it to IDEM's NPS staff. There were 65 refill requests during this federal fiscal year.

Indiana Clean Lakes Program

The Paul H. O'Neill School of Public and Environmental Affairs at Indiana University (IU) has been working with IDEM to use \$319 funds to administer the Indiana Clean Lakes Program (CLP) since 1989. The Indiana CLP is a comprehensive, statewide public lake management program that includes public information and education, technical assistance, volunteer lake monitoring, and lake water quality assessment.

Indiana has over 1,400 lakes, reservoirs, and ponds—many of which are under pressure from human activities like poorly managed land disturbing activities, suburbanization of lakeshores, boating impacts, and septic system discharges. These activities can result in erosion, sedimentation, and excessive nutrient concentrations reaching lakes. This can lead to accelerated eutrophication and related undesirable effects including nuisance algae, excessive plant growth, murky water, odor, and fish kills.

Indiana's CLP is coordinated by IU staff and students. The current grant agreement, which is in effect from April 2023 through May 2025, includes the following components:

- Annual sampling of 80 lakes and reservoirs (selected via a randomized approach) at one site for a variety of parameters. 2023 sampling occurred as scheduled.
- Training and support of a corps of volunteer lake monitors to collect water transparency data using a Secchi disk. A select volunteer group also collects chlorophyll-a and total phosphorus data.
- Education and outreach through web engagement on social media or [Indiana Clean Lakes Program](#) website; maintenance of the website with program data, current information, ongoing activities and educational resources about lake and watershed issues; and participation in the annual Indiana Lakes Management Conference.

- Providing technical assistance and expertise on lake-related issues.

Section 314 of the CWA charges IDEM with responsibility for assessing and reporting the trophic status and trend in trophic condition of Indiana's public lakes. The State of Indiana began assessment of lake nutrient levels and effects in the early 1970s. Continued monitoring is necessary to:

- Report the status of lake eutrophication levels to the U.S. EPA in the State's Integrated Water Quality Monitoring and Assessment Reports.
- Determine and track trends in eutrophication levels of lakes and reservoirs to inform restoration priorities and activities.
- Provide data needed to support development of nutrient water quality criteria, as required by U.S. EPA.
- Provide data needed to determine if lakes and reservoirs are meeting water quality criteria and supporting the beneficial uses designated in Indiana's water quality standards.

Over the years, the Indiana CLP has continually provided IDEM a wealth of data for its CWA §314 and 305(b) assessments and for the development of its 303(d) List of Impaired Waters, which identifies waterbodies in need of restoration. These data are not only used to make waterbody-specific assessment and listing decisions, but the data set provided the foundation for the development of IDEM's assessment methodology for lakes and reservoirs. The Indiana CLP data, collected over more than three decades, have also been analyzed extensively by IDEM for the purposes of considering numeric nutrient water quality criteria for lakes and reservoirs. Although this work continues, the data set provided by the program and IDEM's analyses have helped inform the Agency's current approach to reducing nutrient loading to Indiana lakes and reservoirs.

Monitoring for the National Water Quality Initiative

IDEM is currently working with several partners to monitor at various scales in the School Branch watershed, part of the Eagle Creek watershed (HUC 051202011108), in Hendricks County, Indiana. This watershed is the focus of a collaborative, public-private partnership tied to the national initiative for agricultural conservation cropping systems. IDEM has provided the USGS with §319 grant funds to investigate three reaches of School Branch to determine if differences in physical, chemical, and biological indicators of stream water quality and quantity are related to long-term agricultural conservation cropping systems in the watershed. USGS was funded in 2016 with §319 funds to collect and interpret scientific data about water quality and water quantity in the School Branch watershed. In an ongoing project, the USGS operates three monitoring stations to continuously measure stream discharge. At one of these stations, real-time water-quality sensors and representative sampling are used to measure continuous and synoptic concentrations and loads of nitrogen, phosphorus, and suspended sediment in stream water. Continuous ground water levels and synoptic ground water quality are also measured. Chemical indicators of water quality and hydrologic data are used to understand the sources and transport of nitrogen, phosphorus, and sediment in the watershed. Biological inventories are used as additional indicators of water quality. A tile drain synoptic study was also completed. Data from the study is available at <https://pubs.er.usgs.gov/publication/sir20215061> and is communicated by the USGS through internet webpages, presentations, and publications.

In addition, IDEM has monitored two fixed station sites on School Branch monthly since April 2014 and continued through FY 2023. IDEM and USGS data (as well as data collected by other project partners) will be evaluated to determine whether goals of the project have been met.

Additional watersheds, such as Ell Creek and Silver Creek, have been monitored for NWQI in the past.

NRCS and IDEM are continuing to partner to evaluate the benefits of NWQI in future watersheds.

External Monitoring and the External Data Framework

IDEM recognizes that numerous universities, municipalities, watershed groups, and grassroots organizations throughout the state who participate in water monitoring activities. There are also regulated facilities that conduct monitoring above and beyond their permit requirements. Section 303(d) of the CWA requires that states consider all existing and readily available water quality data and related information in developing their 303(d) List of Impaired Waters. IDEM is required to solicit this information from external organizations for potential use in its 305(b) water quality assessments. Water quality data and information received from external organizations are reviewed for their usability in making assessments.

In 2015, OWQ developed the External Data Framework to provide a systematic, transparent, and voluntary process for external organizations to submit their water quality data for consideration in various OWQ programs. The External Data Framework describes OWQ policy regarding the agency use of external data, the guidelines for submitting data, and the technical assistance necessary to facilitate greater collaboration between OWQ and external parties.

[The External Data Framework website](#) is now active and provides general information on the EDF to the public. OWQ has also developed several presentations and other outreach materials to promote participation in the External Data Framework. The website offers two guidance documents: The [General Guidance for the Office of Water Quality External Data Framework](#), which provides an overview of the External Data Framework and addresses some of the more common questions regarding its structure, policies, and participation; and the [Technical Guidance for the Office of Water Quality External Data Framework](#), which provides more specific information regarding the requirements and recommendations of the External Data Framework that external organizations can use to develop their monitoring plans, improve the quality of the data they collect, and determine whether data sets they obtain from others are suitable for use in their projects.

OWQ's External Data Framework website also includes a page that describes two options for data submittal to OWQ's. All participants in the External Data Framework may select to 1) use a MS Excel template provided by OWQ that can directly upload into IDEM's Assessment Information Management System (AIMS), or 2) request the development of an electronic data import that will automatically feed their data into OWQ's AIMS database. Once data are in the AIMS database, they will be reviewed and ranked based on their data quality and made available to OWQ staff for use in their programs and by request to the public.

Data may be submitted to the External Data Framework at any time for consideration by the OWQ for potential use in its programs. OWQ programs can access data submitted through the External Data Framework at different times depending on their varying needs. Two OWQ programs – the Integrated Reporting and TMDL Programs – have more specific timelines in which they review the data submitted through the External Data Framework. Regardless of when they are submitted, all data sets are reviewed by OWQ and evaluated for their potential use by OWQ programs. These data and their associated quality assurance information can be accessed by other programs within IDEM or the public by request to the External Data Coordinator.

Data submitted by grantees of Indiana's Nonpoint Source Program are considered external data. These data are collected as a condition of IDEM's Section 319 grant with U.S. EPA and uploaded into U.S. EPA's Water Quality Exchange (**WQX**) WQX with "CWA319" in the project ID. In 2022, eight datasets were uploaded into the national dataset: 2018 Region of the Great Bend WREC Blitz CWA 319; 2017 Upper Wabash River Phase III 205j; 2019 Lost River 37361 CWA 319; 2020 Region of the Great Bend 50141 CWA 319; 2020 Lower Pigeon Creek 49762 CWA

319; 2020 Highland Pigeon 47568 CWA 319; 2016 Upper Salamonie River Implementation CWA 319; and 2016 Mill Creek – Blue River Watershed Project CWA 319.

The OWQ secured funding through CWA Supplemental 106 (also called “Monitoring Initiative Funds”) to develop an online tool to help improve the data quality documentation that External Data Framework participants provide with their data submittals. This tool will facilitate the design of water quality monitoring projects and the development of associated quality assurance project plans (QAPP) by participants in the External Data Framework. The first phase of application development and testing of the “QAPP Tool” was completed as of June 30, 2021. QAPP Tool testing and maintenance is still ongoing in FY 2023 and IDEM is now in the process of uploading instructional content and technical assistance materials provided by an earlier (FFY 2013) CWA Supplemental 106 project. The 2013 project also produced a matrix to help IDEM choose the best platforms and cost-effective software to use in delivering content to participants. The content will be delivered online through an interactive interface that will benefit both OWQ and External Data Framework participants.

With the QAPP Tool, data collectors can develop a QAPP that contains all the informational requirements in U.S. EPA’s QA-G5 Guidance for Quality Assurance Project Plans. For Indiana users, the QAPP Tool assists in the development of QAPPs required for Nonpoint Source Program projects and provides guidance for anyone submitting external data through IDEM’s External Data Framework (EDF). For the NPS program, the tool also facilitates and streamlines the QAPP review and approval process. Below is a list of some of the key features and benefits provided by the QAPP Tool:

- Users can develop their QAPP online in a self-paced, guided process through a series of online forms. Users can save work in progress and download/print their finalized QAPP as a PDF.
- While developing their QAPP, users can access learning and other support materials in a variety of formats (video, downloadable documents, links to outside sources, etc.), tailored to their unique needs and the section they are working on.
- Users can upload additional materials if needed to append to their QAPP.
- When users have questions, they can interact directly with OWQ staff from within the tool using the Inquiry function. With this function, users can submit their questions within a given section of the QAPP, which triggers an email notification to OWQ staff that assistance is needed. Likewise, OWQ staff can respond to the inquiry within the admin area of the tool and upload or provide links to any additional technical assistance materials the user might need. This allows OWQ staff to provide highly targeted technical, yet streamlined, assistance to individual users.
- Users also can validate their QAPP prior to submitting it for review and approval (if required). The validation process checks to make sure all the required sections of the QAPP are complete and highlights those that are not.
- Users can also submit the finalized QAPP to OWQ for review and approval (if required) directly within the tool. Submittal of a finalized QAPP triggers an email to the OWQ staff member responsible for reviewing it. Once approved, the final OWQ approver can sign the approval page directly in the app.
- Completed QAPPs (as well as QAPPs in progress) are accessible at any time by both the users that authored them and OWQ staff and can be revised at any time and resubmitted for re-approval if required.

- The QAPP Tool allows anyone interested in documenting the quality of the data they are collecting to develop a QAPP. While the “marketing” of this tool will be targeted toward organizations interested in sharing their data with IDEM, there are no barriers to its use by anyone in Indiana or elsewhere who are required to or have an interest in developing a QAPP.

Understanding the quality of external data sources is the key to confidently using these data. However, developing a QAPP to document the quality of data being collected has been a very arduous process for OWQ’s NPS program projects and EDF participants. While the key requirements of a QAPP have not changed, the QAPP Tool makes meeting those requirements much easier. The online tool was developed to deliver technical expertise in an easy-to-use interface. This tool will not only improve the ability to serve OWQ programs but will also prove beneficial to any organization with an interest in improving the quality of the data they collect.

GOAL 3: DEVELOP AND CONDUCT A STRATEGIC OUTREACH AND EDUCATION PROGRAM

Outreach and education programs are used to help raise awareness of nonpoint source pollution issues to citizens of Indiana. Many citizens still do not have the basic knowledge or understanding of nonpoint source pollution, how a watershed functions or how their behaviors lead to water quality impairments. Without this understanding, they are less likely to change their behavior or support nonpoint source pollution reduction efforts. IDEM works to achieve unified messaging so that any campaigns on nonpoint source pollution are consistent with partners across the state.

In this past year, IDEM’s Nonpoint Source Program continued to update its [website](#) with current information to educate citizens on nonpoint source pollution, provide grantees with information and guidance to successfully complete their nonpoint source pollution grant projects, share information about nonpoint source pollution grant projects and their successes, and communicate with stakeholders and partners on nonpoint source pollution efforts. IDEM has also continued to provide technical and/or financial support to education/outreach and training initiatives such as the Indiana Watershed Leadership Academy (IWLA) sponsored by Purdue University, the Indiana Lakes Management Society, the ICP’s Training and Certification Program, and citizen monitoring training through Hoosier Riverwatch and the Indiana Clean Lakes Program. IDEM nonpoint source program staff continues to engage interested groups and communities, through direct contact, conference attendance, involvement in statewide and regional committees, and webinar and other training opportunities. A full accounting of progress made this year toward the objectives of Goal 3 in the [Indiana Nonpoint Source Management Plan](#) can be found in Appendix A.

Web-based Products

IDEM’s NPS program hosts several web-based tools that integrate information about water quality, watershed health, and activities that are on-going in the OWQ. These tools are useful to watershed specialists in-house, external partners, watershed groups planning projects, and for public education and outreach. In addition to continually updated applications such as the [TMDL-NPS Story Map](#), [WMP and TMDL Report Search Tool](#) (WATRS Tool), and the [Indiana Impaired Waters e303d Tool](#), the [IDEM Funding Matrix](#) was updated in FY 2023 to integrate new and revised funding information for grantmaking activities available to watershed groups in the state. It was created to provide information on monetary sources available in addition to those at IDEM for funding watershed improvement work.

Watershed Specialists

The Watershed Specialists support watershed-based efforts throughout the state, providing financial, organizational, and technical assistance to local watershed groups, while also continuing to serve as grant Project Managers. Key accomplishments for FY 2023 are:

- Assisted approximately 65 active and developing watershed projects.
- Participated in the planning for the 2023 IASWCD Annual Conference.
- Assisted Purdue University with the Indiana Watershed Leadership Academy by meeting the participants and explaining the Watershed Specialists' role.
- Worked with others in the Watershed Assessment and Planning Branch to develop watershed characterization studies and WQ-10(a) targeted monitoring sites.
- Continued to participate in the ICP's Pathway to Water Quality advisory committee to improve the Indiana State Fair exhibit that reaches tens of thousands of Hoosiers each year.
- Provided extensive support to the committee, led by IDEM, that is dedicated to implementing the *Domestic Action Plan* for Indiana under Annex 4 of the Great Lakes Water Quality Agreement.
- Coordinated actions between the watershed characterization/TMDL project staff and the nonpoint source program.

Indiana Watershed Leadership Academy

IDEM is continuing to partner with Purdue University to conduct the Indiana Watershed Leadership Academy (IWLA) to meet the needs of watershed coordinators, agency staff, and others who want to become more effective watershed leaders. Leading the development of a scientifically-sound watershed management plan that actively involves, engages, and is supported by the community requires people who have broad skills and know how to employ diverse tools and strategies related to watershed management.

Since 2006, more than 532 people have participated in the Academy learning skills in organization and communication, watershed technology, geographic information systems, policy, watershed science, and leadership. Thirty-one participants attended the 2023 Academy. Face-to-face meetings were held in January and March and six hour-long virtual sessions were held every two weeks in between. The program concluded with an in-person graduation ceremony on May 24, 2023.

The IDEM Nonpoint Source Program participates in the IWLA in several ways. NPS staff participate once a year in a steering committee meeting to discuss the future of the Academy and the NPS Section Chief participated as a session speaker to educate participants on how Indiana implements the Clean Water Act framework for improving water quality. The Watershed Specialists attended the first face-to-face session to network with potential new contacts and attended the graduation ceremony to support the graduates. The IWLA is funded in part through a FFY 2021 \$319 grant.

Indiana Conservation Partnership Training and Certification Program

Since September 2009, IDEM has participated with other members of the Indiana Conservation Partnership (ICP) in developing a Training and Certification Program (TCP) to meet staff training and certification needs across the partnership. The ICP TCP operates with the help of a volunteer planning team.

In FFY 2023, the ICP again surveyed the partnership for training needs. A survey was developed to collect information on specific needs for training workshops. When the survey concludes training needs will be prioritized and a statewide map of respondents' training requests by number and County will be generated in order to better target trainings. In FY 2023, there are six sessions located across the state and virtually for pollinator training. Additionally, pasture management and forage identification workshops are planned for FY 2024. The training sessions calendar and recordings from past sessions are available on the ICP [website](#).

Hydrological Improvement Success Story

In 2021, a lowhead dam was removed from the Eel River at Logansport in Cass County, Indiana. The goal of the removal was to increase safety for recreation and improve fish passage for aquatic life by reconnecting the Eel and Wabash River drainages. In FY 2023, the Indiana Department of Natural Resources aquatic biologist reported on fish surveys conducted upstream of the dam removal. The report indicated that riffles had reformed in the Eel River and those riffles were sampled to look specifically for two species known from the Eel downstream of the Logansport dam, but not found above, the Tippecanoe Darter (*Etheostoma tippecanoe*) and Bluebreast Darter (*Etheostoma camurum*). While no Bluebreast Darters were encountered, two male Tippecanoe Darters were collected. Steelcolor Shiner (*Cyprinella whipplei*), Streamline Chub (*Erimystax dissimilis*), and Brindled Madtom (*Noturus miurus*) were also collected – additional species that were not known from the Eel River upstream of the Logansport dam prior to removal. The dam removal appears to have met the goal of allowing fish populations to access larger areas of their range.

Watershed Group Recognition

Each year, the Governor of Indiana presents multiple organizations with the Governor's Award for Environmental Excellence. There are seven categories under which an organization or community may be recognized, including:

1. Energy Efficiency/Renewable Resources
2. Environmental Education/Outreach
3. Five-Years Continuous Improvement
4. Greening the Government
5. Land Use/Conservation
6. Pollution Prevention
7. Recycling and Reuse

In FY 2023, the Big Pine Creek Watershed Project was recognized with a Governor's Award for Environmental Excellence in Land Use/Conservation. Like most of Indiana's nonpoint source watershed projects, the Big Pine Creek Watershed Project is a water-quality improvement program focused on preventing nutrient and sedimentary run off. The project covers Benton, Warren, Tippecanoe and White counties. In addition to implementing practices like cover crops, other goals include educating farmers and landowners on the impacts they have on the watershed, as well as raising funds to support this work. Since the program's inception, it has prevented over 110,000 tons of sediment from entering local waterways, hosted 6,500 participants at area events, reached 30% of watershed residents regarding the importance of water quality in the watershed, and raised over \$6 million to accomplish this work.



Figure 4. Representatives from Big Pine Creek Watershed receive the Governor's Award for Environmental Excellence.

GOAL 4: IMPROVE INDIANA'S WATER QUALITY, INCLUDING SURFACE AND GROUND WATER, BY REDUCING NONPOINT SOURCE POLLUTANTS SUCH AS NUTRIENTS, SEDIMENT, AND BACTERIA; RESTORING AQUATIC HABITATS; AND ESTABLISHING FLOW REGIMES THAT MIMIC NATURAL CONDITIONS

The heart of Indiana's Nonpoint Source Program is its effort to restore waterbodies impaired by NPS pollution. A primary focus of the NPS program is to help improve conditions so that the state's water quality goals of "swimmable" and "fishable" are met. The Watershed Planning and Restoration Section

(WPRS), which houses the Nonpoint Source Program, administers two federal pass-through grant programs aimed at improving water quality in the state: the CWA §319(h) and §205(j) programs. Section 319(h) funding is predominantly used for the development and implementation of comprehensive watershed management plans (WMPs) that guide efforts to restore water quality in impaired waterways. Section 205(j) funding is used for the development of comprehensive WMPs along with monitoring projects to better assess water quality in Indiana. This has resulted in measurable improvements, especially in terms of estimated pollutant load reductions (Table 2). The WPRS also administers the TMDL program and the 303(d) Vision, and efforts are underway to revisit and integrate both the Nonpoint Source and TMDL program priorities. More information about the §319 and §205(j) grant programs and the TMDL program may be found on [IDEM's website](#). A full accounting of progress made in FY 2023 toward the objectives of Goal 4 in the [Indiana Nonpoint Source Management Plan](#) can be found in Appendix A.

Section 319 Grant Program

The §319 Grant Program is a major resource for reducing nonpoint source pollution in Indiana. In FY 2023 Indiana anticipates receiving \$3,777,000 in §319 funds that will be used for Nonpoint Source Program support (technical staff and administration) and nonpoint source pollution projects. It may be important to note that as of the writing of this report, though FFY 2023 funds have been allocated, they have not yet been received. As a result of non-federal partnerships discussed under Goal 1, the Maintenance of Effort (MOE) level requirement under §319(h)(9) will be met this year.

Federal §319 grant funds require that a 40% match of project funding dollars be from a non-federal source. Match for Indiana's NPS pollution projects is provided by the project sponsor and its partners. Match for IDEM's staffing and program support activities is provided by the Indiana State Revolving Fund Loan Programs administered by the Indiana Finance Authority. The State Revolving Fund Loan Programs provide low-interest loans, funded by federal capitalization grants, to Indiana communities for projects that improve wastewater and drinking water infrastructure, including nonpoint source pollution projects that are tied to a wastewater loan. The federal funds loaned by the state and subsequently repaid by the borrower to the state are considered state funds. These funds are "recycled" to provide loans for other projects and can be used as match for the Nonpoint Source Pollution Program. To date, all the State Revolving Fund projects used for Nonpoint Source Program match involve extending sewers to areas with failing and aging septic systems. Removing these septic systems eliminates nonpoint source pollutants including pathogens and nutrients. Since extending sewers is considered a point source activity, only the homeowners' cost to decommission the septic tank and hook up to the lateral is documented as match.

Section 319 Funding Priorities

U.S. EPA requires states to use at least 50% of their annual appropriation of §319 funds (called watershed project funds) to implement watershed-based (i.e., watershed management) plans in areas containing one or more impaired waters. A limited amount of watershed project funds may be allocated to the protection of unimpaired and high-quality waters if the state has listed protection as a priority in their [state nonpoint source management plan](#). Protecting sensitive, vulnerable, and high quality waters of the state is Goal 5 of the updated [Indiana Nonpoint Source Management Plan](#). The EPA provides Indiana with an equal or lesser amount of program dollars which fund other activities that address NPS pollution including education, watershed planning, and program support.

Each year, IDEM solicits applications for projects that will reduce nonpoint source pollution in Indiana's surface waters. Projects are selected based on their ability to make measurable improvements in water quality and to protect water quality designated uses (i.e., recreation, aquatic life, and public water

supply). IDEM established the following four priorities for FFY 2023 funds. Projects focusing on these priorities through planning and implementation activities were considered a priority for funding:

- A. Develop a WMP or implement an IDEM-approved WMP that will reduce nutrient loads within the following 8-digit HUC watersheds (prioritized in [Indiana's State Nutrient Reduction Strategy](#)). See Appendix B for the Nonpoint Source Priority Watersheds (FFY 2023) map for these HUC-8 Priorities.
 - 1. Upper Wabash (05120101).
 - 2. Middle Wabash-Deer (05120105).
 - 3. Middle Wabash-Little Vermillion (05120108).
 - 4. Middle Wabash Busseron (05120111).
 - 5. Lower Wabash (05120113).
 - 6. Upper White (05120201).
 - 7. Lower White (05120202).
 - 8. Maumee River (04100003, 04100004, 04100005, 04100007).
- B. Develop a WMP or implement an IDEM-approved WMP that includes a 10-digit HUC watershed with a surface water drinking water intake and waters identified in Category 4A and 5A of the Draft 2022 [§303\(d\) List of Impaired Waterbodies](#). This priority is derived from Goal 5, Objective 5.2 of the [Indiana State Nonpoint Source Management Plan](#). See the Nonpoint Source Pollution Priority Watersheds (FFY 2023) map for the Drinking Water Priority watersheds.
- C. Develop a WMP or implement an IDEM-approved WMP that includes a 10-digit HUC watershed that impacts outstanding state resource waters and/or waters with endangered, threatened, or rare species. This priority derives from Goal 5, Objective 5.5 of the Indiana State Nonpoint Source Management Plan. See the Nonpoint Source Pollution Priority Watersheds (FFY 2023) map for the Protection Priority Watersheds.
- D. Implement a WMP that meets the [IDEM 2009 Watershed Management Plan Checklist](#).

Section 319 Grant Projects

Grant applications are submitted each year by project sponsors, reviewed by a committee of WPRS staff, and selected for funding based on the Nonpoint Source Program's priorities and the quality of the proposal. Projects are administered through grant agreements that spell out the tasks, schedule, and budget for the project. Projects and grant agreements are typically administered over a two–three-year period. Projects are selected based on their expected impact on water quality. They are guided by the development of watershed management plans that must meet the criteria in IDEM's WMP Checklist and the EPA's 9 Key Elements for a successful watershed management plan. WMPs outline local water quality concerns and guide the implementation of cost-share programs to employ BMPs in critical areas of the watershed. The projects must also design education and outreach programs to bring about behavioral changes for stakeholders in the watershed and encourage BMP implementation. IDEM Project Managers or Watershed Specialists work closely with the project sponsors to help ensure that the project runs smoothly, and the tasks of the grant agreement are fulfilled. Site visits are conducted at least quarterly to communicate with the project sponsors, provide guidance and technical assistance,

tour the watersheds and see the BMP installations, and work through any issues to ensure a successful project close-out.

Eleven watershed projects allocated for funding in FFY 2023 address one or more of the Nonpoint Source Program priorities. These projects will be developing or implementing WMPs in watersheds with impaired waterbodies. The remaining project allocated for funding in FFY 2023 was for program support funding. Currently, there are 50 open or pending §319 projects, of which 33 are implementing watershed management plans and installing BMPs in critical areas of the watershed. [Table 1](#) lists some of these BMPs. These implementation projects are achieving nonpoint source pollutant load reductions ([Table 2](#)), and improved water quality. All §319 projects open or pending during this fiscal year are located in Appendix C. Appendix D features a map showing the watersheds throughout Indiana where nonpoint source pollution projects (both §205(j) and §319, planning and implementation) are open, pending, or completed (2020-2023).

Project information for all §319 projects is entered and maintained in U.S. EPA's Grant Reporting and Tracking System (GRTS) database. State Revolving Fund or other projects used as match for the Nonpoint Source Pollution Program are also entered at the end of the grant cycle. GRTS enables U.S. EPA and states to demonstrate the accomplishments achieved with the use of §319(h) grant funds. The data are also used by U.S. EPA to respond to inquiries received from Congressional committees, the White House, and various constituent groups. Project information in GRTS includes the project schedule, budget, description, type of BMPs implemented, location of BMPs, estimated pollutant load reductions, and progress reports. Final reports and deliverables for all projects are also entered into GRTS. The public may view this information on the [GRTS Home Page](#). Section 319 projects that closed this fiscal year are summarized in Appendix E, along with a summary of compliance with the Programmatic §319 Grant Conditions.

The Nonpoint Source Pollution Program is continually working to update and improve guidance for grantees to help them as they work towards implementing their nonpoint source pollution grant project. Most information needed can be found on the [IDEM website](#); much of it in the [Nonpoint Source Pollution Grants Compendium](#), which is comprised of all the guidance, instructions, and requirements for §319/205(j) grantees.

Best Management Practices and Pollutant Load Reductions

Best management practices (BMPs) are land management techniques that mitigate pollution of the watershed and are compatible with the productive use of the resource. BMPs are used in both urban and agricultural areas. A project that is implementing a WMP administers a cost-share program to help landowners implement BMPs in critical areas to reach the goals of the WMP. If the planning process was successful, landowners will be aware of the water quality problems in their local watershed(s) and the ways to reduce the nonpoint source pollution, and they will be ready to participate in the cost-share program. When appropriate, IDEM encourages grantees to consider BMPs that will meet multiple objectives. For example, in the waters of the Coastal Zone, restoration activities undertaken with §319 funds will also be in accordance with the CZARA §6217(g) measures. IDEM is currently modeling this "bigger bang for the buck" concept through its TMDL/Nonpoint Source Pollution Program. TMDLs are being written on the TMDL-WMP template that allows watershed groups to incorporate TMDL data into their WMPs and streamline the watershed planning process. In addition, IDEM is encouraging a systems approach to implementing BMPs. Project groups are encouraged to work with landowners to implement a systems approach and prioritize cost-share recipients that propose a conservation cropping system

(e.g., nutrient management conservation system or a conservation cropping system for soil health and water quality) rather than a single BMP.

In the state fiscal year 2023, watershed groups spent approximately \$893,209 (reported through June 1st, 2023) to install BMPs in critical areas of Indiana's watersheds. Table 1 lists some of the BMPs implemented this state fiscal year compared to the last two fiscal years based on data from IDEM's Project Tracking database. Watershed groups used an estimated \$1,454,038 and \$1,039,301 in funding to implement BMPs in state fiscal years 2021 and 2022, respectively. Total summaries reported here reflect the year of BMP implementation, regardless of the year the cost-share program was funded.

Table 1. A summary of the best management practices implemented in Indiana during state fiscal years (FY) 2021-2023.

BMP	Approximate Number FY 2021 2021	Approximate Number FY 2022 2022	Approximate Number FY 2023
Cover Crop (acres)	30,768	10,005	13,823
Fence (feet)	34,052	21,710	18,356
Grassed Waterway (acres)	11	1.2	2.71
Heavy Use Area Protection (sq. ft)	125,718	79,720	92,967
Nutrient Management (acres)	6,707	0	1,391
Pasture and Hay Planting (acres)	367	77	440
Residue Management, No-Till (acres)	3,096	0	4.8
Tree and Shrub Establishment (each)	48	260	58
Watering Facility (each)	17	19	7
Rain Barrels (each)	4	2	1
Rain Gardens (sq. ft)	1,289	693	0
Native Planting (sq. ft)	675	39,094	4.4
Streambank and Shoreline Protection (sq. ft)	3,222	165	220

Additional BMPs implemented this year include adding access roads, animal trails and walkways, water and sediment control basin, and waste facility closure. The number of BMPs implemented each year varies depending on several factors including the weather, the focus of project implementation efforts guided by a watershed management plan, the change in focus and availability of other federal and state program grant funds, and changes in BMP promotion and recommendation in the agricultural community.

Indiana's Nonpoint Source Pollution Program evaluates the effectiveness of BMP installations by estimating pollutant load reductions. Load reductions are measures that can be used to estimate the quantity of pollutants that were prevented from entering streams and lakes. Pollutant load reductions are primarily estimated using the Region 5 Load Estimation Model. This simple Excel workbook model provides a gross estimate of pollutant reductions (sediment, phosphorus, and nitrogen) from structural and agricultural field practices and urban BMPs. Reductions achieved through practices related to nutrients (not tied to sediment), bacteriological, and pesticide management are not captured through this estimation method; another model or method for estimating these load reductions must be used. In addition to the Region 5 Model, the Pollution Loading and Estimation Tool (PLET) model also is available and is used by some groups in Indiana. This model uses simple algorithms to calculate nutrient and sediment loads from different land uses and the load reductions that would result from the implementation of various BMPs. In addition, Indiana has created an Indiana *E. coli* Calculator (IEC), based upon the Bacterial Indicator Tool, to estimate bacterial load calculations. For each watershed, the

annual nutrient loading is calculated based on the runoff volume and the pollutant concentrations in the runoff water based on factors such as the land use distribution and management practices.

Estimated load reduction data for each BMP implemented under a section 319 grant funded project (including BMPs not funded with §319 dollars and used as matching funds) are submitted by the project sponsor and entered by the IDEM project manager into the project tracking database at IDEM and the U.S. EPA GRTS database. Estimated load reductions vary depending on factors including the type of BMP implemented, the number of acres treated, land use, soil type, and in some cases, rainfall amounts. Urban BMPs generally provide lower estimated load reductions than agricultural BMPs. An estimate of the load reductions for BMPs implemented FY 2023 compared with the last two years are shown in Table 2. A summary of the cumulative total estimated load reductions reported in Indiana from §319 projects since reporting begin in FFY 1999 through July 14, 2023, are shown in Table 3.

Table 2. A summary of the estimated load reductions reported for BMP implementation in state fiscal years (FY) 2021-2023.

Nonpoint Source Pollutant	Estimated Reduction FY 2021	Estimated Reduction FY 2022	Estimated Reduction FY 2023
Sediment (tons/yr.)	122,508	61,096	50,244
Phosphorus (lbs. /yr.)	241,287	65,795	54,269
Nitrogen (lbs. /yr.)	530,984	134,146	137,043
Biological Oxygen Demand (lbs. /yr.)	80	300	0
Chemical Oxygen Demand (lbs. /yr.)	238	1,580	0
Suspended Solids (lbs. /yr.)	5,482	62,706	0
TKN (lbs. / yr.)	0	0	0
Pathogens (coliform)*	1.324E+18	0*	0*
E. coli*	1.98E+13	9.04E+14	0

*Prior to 2021 the Spreadsheet Tool for Estimating Pollutant Loadings (STEPL) and the Ohio Septic Load Reduction Spreadsheet were used to calculate pathogens (as coliforms) for the purposes of BMP reduction, mostly from septic system removals. However, with the advent of the use of the Indiana *E. coli* calculator, the program could start to estimate *E. coli* reductions from agricultural and urban practices installed by the program. This change reduced reported coliforms by more accurately representing the *E. coli* reductions in the state.

Table 3. A summary of the cumulative total estimated load reductions in Indiana since FFY 1999.

Nonpoint Source Pollutant	Total Estimated Reduction
Sediment (tons/yr.)	1,436,804
Phosphorus (lbs. /yr.)	2,044,842
Nitrogen (lbs. /yr.)	4,061,762

BMPs and Load Reductions in FFY 2023

To show the work that is being done in the different basins of the state and help target future resources, the achieved load reductions have been summarized for the following five major basins: Great Lakes, Upper Mississippi River, Wabash River, White River, and Ohio River (Figure 4).

Approximately 82% of Indiana (including the Wabash River and White River basins) drains to the Ohio River which flows into the Mississippi River until it reaches the Gulf of Mexico. Eight percent of Indiana drains (through Illinois) to the Upper Mississippi River and approximately ten percent of Indiana drains to the Great Lakes (Lake Michigan and Lake Erie). The charts on the following pages show the number of best management practices installed and the load reductions achieved in the state fiscal year 2023 in each of the five basins (Figures 5 and 6).

Nutrient load reductions to the Great Lakes are important because excess nutrients can result in harmful algal blooms. Phosphorus reduction in Lake Erie has become a focus at the state and national level to try and mitigate the issues resulting from large algal blooms. Indiana is engaged in the Great Lakes Water Quality Agreement Annex 4

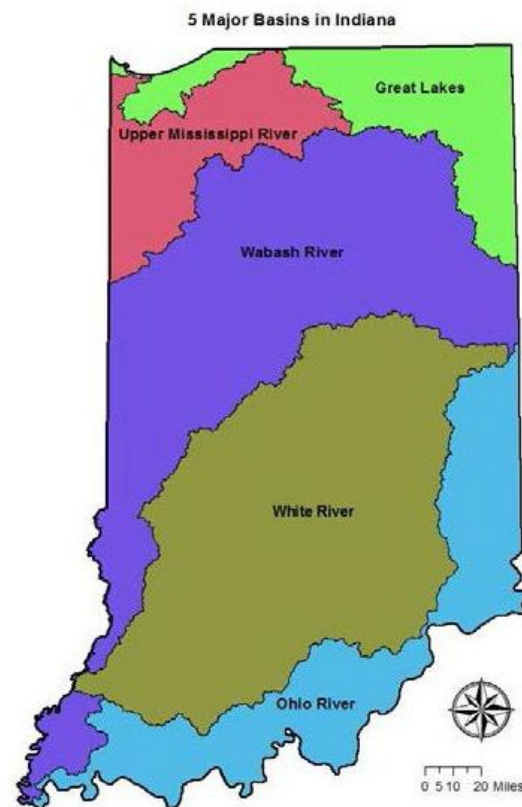


Figure 5. Major river basins in Indiana.

Subcommittee. Many efforts are currently underway to target harmful algal blooms and reduce the amount of phosphorus entering Lake Erie. However, no implementation projects were reported in the Great Lakes in FY 2023.

As part of the Mississippi River watershed, Indiana is involved in the Mississippi River/Gulf of Mexico Hypoxia Task Force to eliminate the annual dead zone (or hypoxic zone) in the Gulf of Mexico. Nutrient loads from the Mississippi/Atchafalaya River Basin are contributing to eutrophication and harmful algal blooms in the Gulf. The development of [*Indiana's State Nutrient Reduction Strategy*](#) represents the state's commitment to reducing nutrient runoff from point and nonpoint sources. Nutrient reduction in the state benefits the local water quality and downstream in the Mississippi, Gulf of Mexico, and Great Lakes.

There was one implementation project this year in the Upper Mississippi River Basin that installed 532 acres of cover crop which led to the reduction of nitrogen by 1,563 pounds, phosphorus by 781 pounds, and sediment by 553 tons.

There were eight projects that implemented BMPs in the Wabash River Basin this year that reduced nutrient loads to the river as shown below in figure 5. An estimated 6,311 acres of cover crop were planted, and nutrient management plans were applied to 137.3 acres. The estimated load reductions achieved included 16,335 tons of sediment, 19,789 pounds of phosphorus, and 41,998 pounds of nitrogen.

Five projects in the White River Basin worked to reduce nitrogen, phosphorus, and sediment in the watershed. An estimated 2,444 acres of cover crop were planted, 23,988 square feet of heavy use area

protection was installed, and 1,253 acres implemented a nutrient management plan. Various other BMPs were implemented this year within the White River Basin, including watering facilities, water and sediment control basins, pasture and hay planting, access roads, conservation tillage, and critical area planting. The estimated load reductions were 12,554 tons of sediment, 11,831 pounds of phosphorus, and 49,853 pounds of nitrogen.

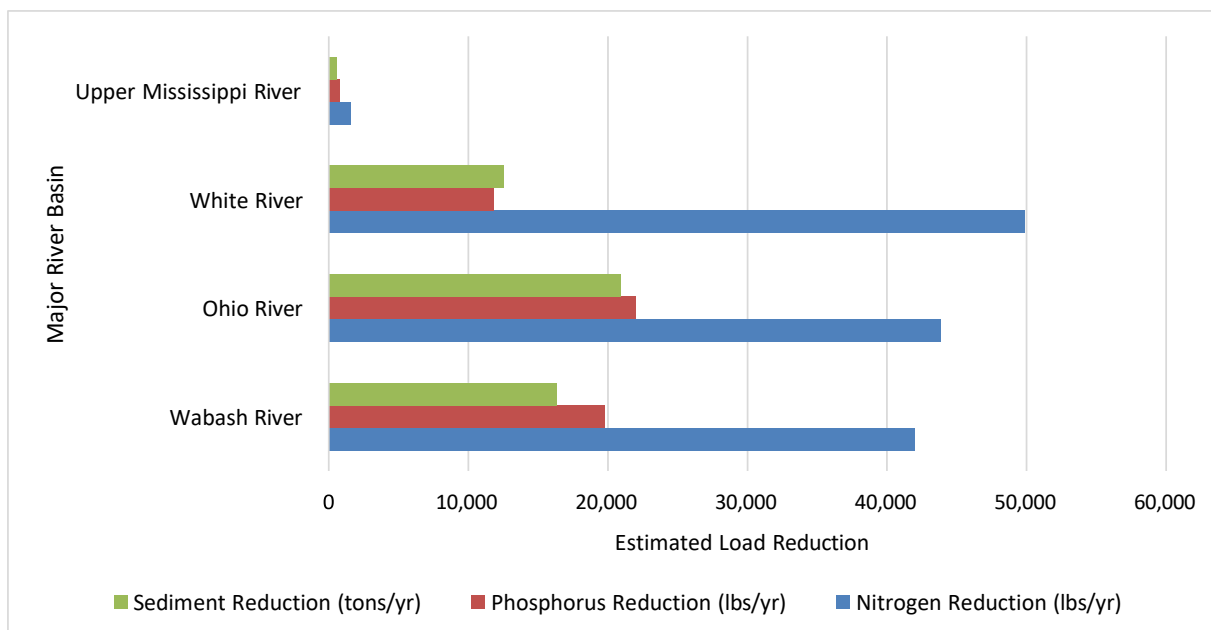


Figure 6. Load Reductions by Basin in state FY 2023.

Six active projects in the Ohio River Basin worked to reduce nitrogen, phosphorus, and sediment. These reductions came primarily from implementation of cover crops, 4,596 acres, and heavy use area protection, 68,904 square feet, among others. These BMPs have estimated reductions of 20,886 tons of sediment, 21,971 pounds of phosphorous, and 43,834 pounds of nitrogen.

Combined, the projects in areas that ultimately drain to the Gulf of Mexico had estimated load reductions of 50,329 tons of sediment, 54,372 pounds of phosphorous, and 137,249 pounds of nitrogen.

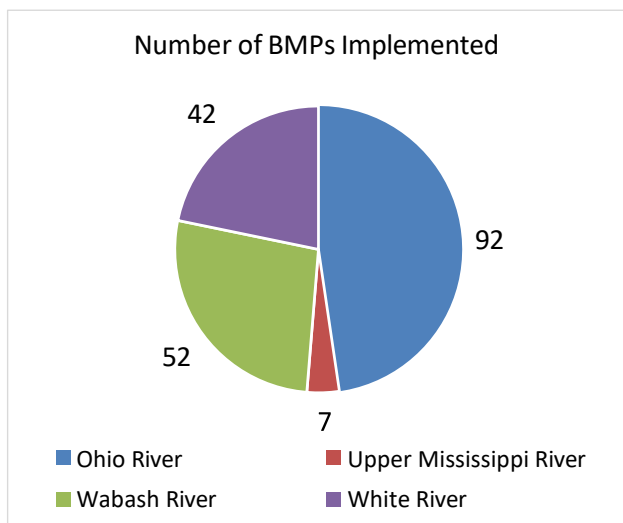


Figure 7: Number of BMPs Implemented in Indiana by Basin.

Nonpoint Source Success Story

Section 319 Nonpoint Source Pollution Success Stories are stories about nonpoint source pollution-impaired waterbodies where restoration efforts have led to documented water quality improvements. Many stories are about waterbodies that have achieved water quality standards for one or more pollutants and/or designated uses after having been previously included on the State's 303(d) List of Impaired Waters.

Aquatic Life in Big Creek Benefits from Land Conservation Practices

Waterbody Improved

Nutrients from fertilizer, livestock, and failing septic systems are the primary detriments to water quality in the Big Creek and Central Muscatatuck watershed. In 2010, the Indiana Department of Environmental Management (IDEM) listed three segments of Big Creek and one unnamed tributary segment on the state's Clean Water Act (CWA) section 303(d) list of impaired waters. Forty-four miles of stream were listed for failure to support aquatic life after a 2006 survey revealed that the fish community consisted of mostly tolerant species and few sensitive fishes. Project partners implemented a variety of land management and best management practices (BMPs) in the watershed between 2006 and 2019. Sampling in 2019 revealed that the water quality standards for aquatic life use are now being met. As a result, IDEM removed the three segments of Big Creek and the unnamed tributary segment from the 303(d) impaired waters list.

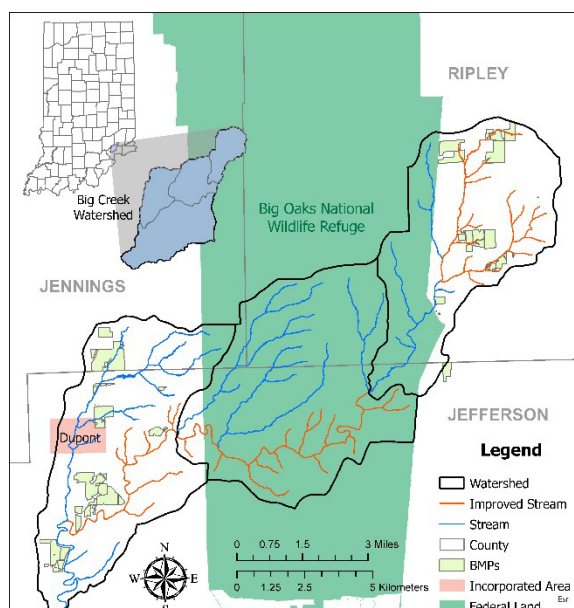


Figure 8. The Big Creek watershed is in southeastern Indiana.

Problem

The Big Creek area of the Muscatatuck watershed is in southeastern Indiana and includes parts of Jennings, Jefferson, and Ripley counties (Figure 1). Big Creek was designated by the Natural Resources Commission as an outstanding river in 1997 due to the stream's environmental and aesthetic interest. This section of Big Creek flows through the Big Oaks National Wildlife Refuge. Despite the high-quality landscape directly surrounding part of the stream, the watershed receives nutrient runoff from septic systems and agricultural practices in the Big Creek headwaters. Other impairments have been documented due to exploded ordnances and metal contamination from a former military base that is now part of the Big Oaks Wildlife Refuge.

Story Highlights

IDEM used CWA section 319 funds to help support the creation of a watershed management plan in 2006. The plan for the greater Central Muscatatuck watershed was completed in 2009. State and federal programs were used to install BMPs in the Big Creek area of the watershed, including cover crops (340 acres), livestock exclusion fencing (382 feet), heavy use area protection (561 acres), animal trails and walkways (480 feet), watering troughs and facilities (15 units), pasture and hayland planting (81 acres), and others (Figure 2). The 319-funded BMP implementation phase for Central Muscatatuck watershed began in 2009 with the first of three implementation projects. The third and final phase of

implementation was concluded in 2021. Land management practices in the Big Oaks National Wildlife Refuge likely contributed to improvements and included invasive species control, pollinator habitat restoration, and controlled burns. Habitat enhancements also included dams built by beavers that were

encouraged to expand their range on the refuge. The vegetation and wetlands created by the habitat restoration slowed the seepage of water into streams and allowed for greater filtration of nutrient runoff.

Results

IDEM reassessed the biological community in 2019 and determined that the fish communities showed improvement and met water quality standards for fully supporting aquatic life use. For a waterbody to be considered as fully supporting aquatic life, the index of biotic integrity (IBI) score must be at least 36. A waterbody is classified as biologically impaired if the fish community IBI score is below the target benchmark. Results of the 2019 sampling event showed improvement in the fish community IBI compared to the 2006 sampling (Table 1). Due to these results, IDEM removed the four segments (INW0714_02, INW0712_01, INW0711_T1002, and INW0711_01) from the 303(d) list of impaired waters in 2022.



Figure 9. Multiple BMPs were implemented to improve water quality in the watershed, including fencing to keep livestock out of streams (top), a watering facility installed on a concrete heavy use protection area pad (bottom left), and cover crops (bottom right).

Partners and Funding

Multiple partners collaborated to restore the biotic communities in the Big Creek watershed. IDEM provided four rounds of funding totaling \$1,589,757 in CWA section 319 grants to Historic Hoosier Hills Resource Conservation & Development (RC&D), who coordinated the cost-share program to implement the Central Muscatatuck watershed management plan. Historic Hoosier Hills RC&D provided \$975,990 in landowner and in-kind matching funds to complete the projects that benefited the Big Creek area and the greater Central Muscatatuck watershed (hydrologic unit code [HUC]-10s: 0512020706 and 0512020701). The U.S. Department of Agriculture provided \$140,678 and \$49,838 in funding for BMPs in the Big Creek area (HUC-12s: 051202070101, 051202070102, and 051202070104) through the Environmental Quality Incentives Program and the Conservation Reserve Program, respectively. The Indiana Department of Agriculture provided \$538,535 in Clean Water Indiana funding for projects throughout Ripley, Jennings, and Jefferson counties, and they provided technical assistance for the installation of BMPs.

Table 4. Fish community IBI scores, before (2006) and after (2019) restoration, for four stream segments in the Big Creek area of the Central Muscatatuck watershed.

Stream Segment	2006 IBI Score	2019 IBI Score
Camp Creek – Big Creek (INW0714_02)	32	48
Marble Creek - Big Creek (INW0712_01)	18	50
Headwaters Big Creek (INW0711_T1002)	28	36
Headwaters Big Creek (INW0711_01)	26	36

Section 205(j) Grant Program

The §205(j) Grant Program is dedicated to water quality management planning and monitoring. Funds are used to determine the nature, extent, and causes of point and nonpoint source pollution problems and to develop plans to resolve these problems. There is no match required for these funds. IDEM received \$738,000 in FFY 2022 funds, including \$456,000 in Bipartisan Infrastructure Law (BIL) funds. These funds will be used for the development of four local watershed management plans, two monitoring projects, and an assessment of Indiana’s total maximum daily load and nonpoint source program efforts towards integrating climate change and environmental justice concerns. The four watershed planning projects are: Shelby County SWCD will be creating a WMP for Little Blue River watershed; the City of Ft. Wayne will be creating a WMP for Cedar Creek watershed; Vermillion County SWCD will create a WMP for Mill Creek watershed; and the City of Goshen will complete a WMP for the Lower Elkhart River watershed. Two monitoring projects were also funded, one with Ohio River Valley Water Sanitation Commission (ORSANCO) and one with U.S. Geological Survey. A list of all 205(j) projects open or pending during this fiscal year is in Appendix F of this report.

Additionally, IDEM received its FFY 2023 205j grant from U.S. EPA since its last report. IDEM received \$742,000 in FFY 2023 funds, including \$507,000 in BIL funds. These funds will be used for the development of two local watershed management plans, four monitoring projects, and a contractor-assisted update to Indiana’s State Nonpoint Source Management Plan. The Monroe County SWCD will create a WMP for the Beanblossom Creek watershed and the Warrick County SWCD will create a WMP for the Little Pigeon Creek watershed. IDEM will increase its monitoring for poly- and perfluoroalkyl substances in fish tissue. The U.S. Geological Survey will continue monitoring for the NWQI School Branch Project and will utilize funds for monitoring loads on the Iroquois River leaving the state. ORSANCO will continue monitoring on the Ohio River for early warning detection of harmful algal blooms in drinking water.

Integrating the Nonpoint Source Pollution Program with the 303(d) Vision

Indiana continues to align its CWA Total Maximum Daily Load and Nonpoint Source Programs to receive the maximum benefit to water quality by working with local watershed stakeholders to utilize nonpoint source funds to implement TMDLs. The presence of a local stakeholder group willing to implement is an important component of Indiana’s TMDL Vision Priority Framework. Likewise, the Nonpoint Source

Pollution Program continues to work with groups following TMDL completion to write 9-Element watershed management plans that can be implemented using §319 funds. In this FFY, Indiana accepted a proposal from the Greene County Soil and Water Conservation District to use 319 funds to create and implement a watershed management plan that would fulfill the requirements of the Black Creek TMDL, anticipated to be submitted to and approved by U.S. EPA in late 2023. Additionally, Indiana has worked with the Parke County Soil and Water Conservation District to create a proposal to implement the Big Raccoon TMDL, once it is complete and approved.

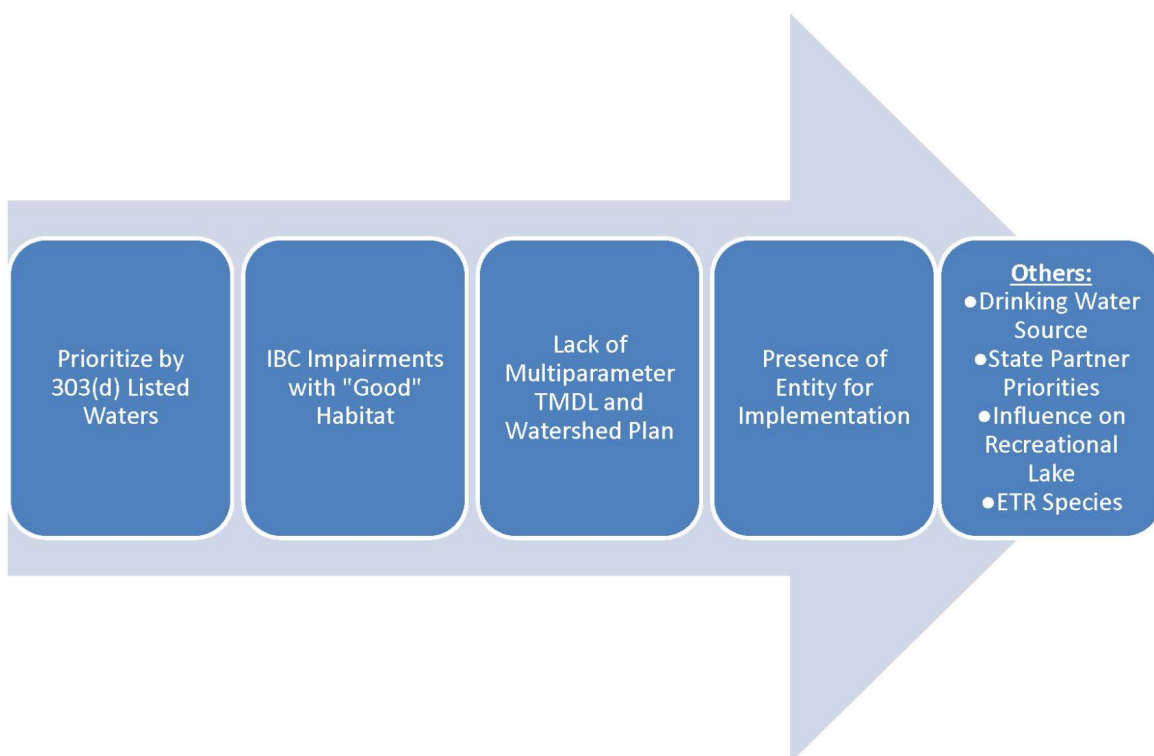


Figure 10. Indiana's TMDL priority framework under the Vision.

GOAL 5: PROTECT SENSITIVE, VULNERABLE, AND HIGH QUALITY WATERS OF THE STATE SO THAT THEY MAY CONTINUE TO MEET THEIR DESIGNATED USES

Prior to FFY 2013, IDEM's Nonpoint Source Pollution Program emphasized the restoration of impaired waters, while the issue of protecting sensitive, threatened, or high-quality waters was largely unrecognized. For the purposes of this goal, the Nonpoint Source Pollution Program considers "sensitive, vulnerable and high quality waters" to include water quality assessment Category 1 waters, watersheds including karst landscapes, outstanding state resource waters (OSRWs), outstanding national resource waters (ONRWs), drinking water source waters, cold/coolwater/salmonid waters, and waterbodies harboring endangered species.

In 2023, IDEM continued its efforts to protect vulnerable landscapes, species, and designated uses by making these waters a priority of the solicitation. Ninety-eight watersheds were defined under this priority. Three applications proposed to address a protection watershed and were in turn recommended to EPA for funding under the §319 or 205(j) grant programs.

An exciting update occurred in the Blue River watershed in 2023. This watershed has been featured in prior NPS Annual Reports. The Blue River is the last remaining Indiana refuge of the state-endangered eastern hellbender (*Cryptobranchus alleganiensis*) and work in the larger watershed is intended to benefit the species by maintaining the water quality in the Blue River to promote reproduction of the species within the river. Section 319 work on the Blue River in Indiana began with FFY 1997 funds on a reforestation project that continued in 1998. Additional planning work started in the Mill Creek-Blue River watershed in 2010 utilizing FFY 2010 §319 funds and implementation utilized FFY 2013 §319 and 2016 §319 funds. The South Fork Blue River restoration project began with monitoring in preparation for a TMDL in November 2014. A local group had completed a watershed management plan for the project by October 2017 and implementation began in November 2017. Implementation has been ongoing in the watershed to present. There has been an RCPP readiness project carried out in the larger Blue Sinking watershed implementation utilizing RCPP and other funding continues. In the summer of 2023, researchers from Purdue University discovered a larval hellbender in the Blue River, which they have described as evidence of reproduction of the salamander occurring in the Blue River itself. It has been 40 years since a juvenile hellbender has been reported from the Blue River, despite the presence of adult hellbenders in the river. Water quality improvement and the introduction of additional broodstock are the variables that have changed and led to a successful breeding of salamanders in the wild.

Adaptive Management

The Nonpoint Source Program has continued to accomplish the majority of its goals despite turnover in key staff positions. Notable areas in which the program falls short of meeting its objectives include outreach and education and revision of the State Nonpoint Source Management Plan. Indiana has set aside a sizeable amount of FY 2023 604(b) funds through which to procure contractor support for plan revision and is in the process of working with the Department of Administration to procure those resources. However, without issuance of U.S. EPA's final program guidance for state nonpoint source programs, which is expected fall/winter 2023, it seems premature to complete a plan that will need an immediate revision. Indiana continues to work with Region 5 on this issue.

APPENDIX A

Reportable Activities for 2023

Goal 1: Utilize partnerships to leverage resources available for nonpoint source management.						
Obj. #	MM	Objective	FFY Start	FFY End	Frequency	Complete
1.2	a	Provide implementation support for the Coastal Zone TMDLs. Progress: IDEM TMDL staff provided assistance to IDEM Permits staff on implementing the Deep River TMDL's WLA.	2019	2023	ongoing	Ongoing – complete for 2023
1.2	b	Provide implementation support for the Coastal Zone WMPs. Progress: IDEM NW WSS met with and provided support to the Partnership for Trail Creek watershed group in implementing the Trail Creek WMP.	2019	2023	ongoing	Ongoing – complete for 2023
1.3	a	Northwest watershed specialist will continue to participate in relevant meetings regarding the CNPCP. Progress: The NW WSS participates on the DNR's Coastal Advisory Board on a quarterly basis. The NW WSS also participates in meetings as necessary with the DNR LMCP to discuss our current 319 on-site disposal system project as well as potential future projects that will meet the goals of the CNPCP.	2019	2023	ongoing	Ongoing – complete for 2023
1.3	b	Integration of CNPCP goals and objectives in new WMP efforts in the Coastal Zone. Progress: No new Coastal Zone WMP efforts began in FY 2022. There are no ongoing WMP efforts in the Coastal Zone	2019	2023	ongoing	Ongoing – no need for this FFY
1.4		Support the Conservation Reserve Enhancement Program (CREP), Resource Conservation Partnership Program (RCPP), Great Lakes Restoration Initiative (GLRI), Lake and River Enhancement (LARE), Clean Water Indiana (CWI), and other Indiana Conservation Partnership (ICP) and statewide initiatives as they become available. See below for progress on components of this objective.	2019	2023	ongoing	Ongoing – significant progress made
1.4	a	Forward solicitation or information as it becomes available. Progress: Watershed Specialists have forwarded various funding information initiatives as they became available this reporting period to 77 groups.	2019	2023	ongoing	Ongoing – significant progress made
1.4	b	Participate in ICP planning meetings to determine priorities for funding/initiatives that align with WMP critical areas, water quality, and/or TMDL priority areas (every other month). Progress: The Branch Chief participated in bimonthly ICP Leadership meetings. The NPS Section Chief began attending ICP Leadership meetings as well in March 2023.	2019	2023	ongoing	Ongoing – some progress made
1.4	c	Promote the programs through the watershed specialists and work with watershed groups to identify/recommend projects that would fit well under the priorities for each funding source. Progress: Funding/solicitation information was recommended to at least 77 groups. WSS	2019	2023	ongoing	Ongoing – significant progress

Goal 1: Utilize partnerships to leverage resources available for nonpoint source management.						
Obj. #	MM	Objective	FFY Start	FFY End	Frequency	Complete
		worked with 19 groups on specific projects that could benefit from specific ICP program funding.				made
1.4	d	Include program information in relevant TMDLs as methods for implementation. Progress: The Raccoon Creek (in progress), Black Creek (in progress) and Indian Creek (in progress) TMDLs include a description of the programs listed in Objective 1.4 as means to implement nonpoint source programs in the Reasonable Assurances/Implementation section.	2019	2023	ongoing	Ongoing – complete for 2023
1.4	e	Coordinate with ICP partners on meetings and workshops. Progress: The SW WSS participated in 2 planning meetings for the ICP Training and Certification Program, which held six in-person and virtual pollinator training sessions across the state.	2019	2023	ongoing	Ongoing – complete for 2023
1.5		Utilize the ICP as an advisory group for priority state nonpoint source pollution policies and updates by participating in bimonthly leadership meetings. Progress: The Branch Chief and Section Chief participated in bimonthly ICP Leadership meetings.	2019	2023	ongoing	Ongoing – complete for 2023
1.6		Continue to provide technical assistance to local watershed groups through the watershed specialist or project manager as documented through quarterly site visit reports and the Section 319 Annual Report. Progress: Watershed Specialists provided technical assistance to approximately 79 watershed groups this reporting period.	2019	2023	ongoing	Ongoing – significant progress made
1.7		Continue to align the TMDL and WMP planning process with the TMDL vision. Progress: The TMDL program continued to participate in meetings this FFY to discuss EPA expectations for “Vision 2.0.” Waters for the bridge metric were entered into ATTAINS by the deadline. According to Indiana’s priority framework, TMDLs continue to be completed where watershed groups are willing and waiting to implement, typically utilizing 319 funds.	2019	2023	ongoing	Ongoing – some progress made
1.7	c	Continue using prioritization process to determine TMDL project watersheds. Progress: The FY 2026 TMDL has been determined to be the Indian Creek – White River watershed.	2020	2023	ongoing	Ongoing – some progress made
1.7	d	Review and revise TMDL priority process. Progress: IDEM continues to review and revise its priority process to determine if further gains could be made utilizing a different strategy. So far, we have decided to stick with the current strategy.	2022	2023		Ongoing – some progress made
1.8	a	Continue support of the School Branch Project. Progress: This monitoring project currently has support from a \$205j grant under contract 68804 which will expire on 2/27/24. A new 319 contract is anticipated to be funded utilizing FY 2023 funds which, as of the writing of this report, have not been received. USGS published findings from the School Branch study here: https://doi.org/10.3133/sir20215099, https://pubs.usgs.gov/publication/sir20215061	2019	2023	ongoing	Ongoing – significant progress made

Goal 1: Utilize partnerships to leverage resources available for nonpoint source management.						
Obj. #	MM	Objective	FFY Start	FFY End	Frequency	Complete
1.8	b	Coordinate with NRCS on at least an annual basis to share in the decision-making on next steps for the Initiative. Progress: In FY 23, IDEM discussed project coordination with NRCS on NWQI projects. Annual coordination was confirmed to be the method moving forward. Indiana had 5 NWQI projects in FY 2023: School Branch monitoring project; the Muncie Creek planning project; and implementation in the Blue Sinking, Black River, and Lake Wawasee watersheds. IDEM participates in the NRCS State Technical meetings where NWQI projects are discussed.	2019	2023	annually	Complete for 2023
1.9		Support implementation of the <i>State Nutrient Reduction Strategy</i> and the <i>Indiana GLWQA Annex 4 Domestic Action Plan</i> . Progress: IDEM NPS grant priorities included a priority for reducing loads within the prioritized watersheds in the State Nutrient Reduction Strategy. Projects that supported the GLWQA DAP efforts were St. Joe Implementation (FY18, 32071), Flatrock WMP (FY19, 38657), and Cedar Creek WMP (FY22 70742).	2019	2023	ongoing	Ongoing – significant progress
1.9	a	Review priorities of both documents and import objectives of nonpoint source pollution related importance to the state nonpoint source pollution program plan. Progress: These documents are reviewed annually before the annual solicitation is prepared to incorporate important priorities into the solicitation. In FFY 2023, no additional priorities were added to the solicitation or project plan as a result of reviewing these documents. The DAP is being updated in FY 23, so will need to be scanned more thoroughly for changes for FY 24.	2019	2023	ongoing	Ongoing – complete for 2023
1.11		Coordinate with CWSRF to link loan applicants and local watershed groups. Progress: NPS staff communicate with CWSRF staff on an as-needed basis. CWSRF staff always present a nonpoint source project as an option to loan applicants when it is applicable.	2019	2023	ongoing	Ongoing – little progress
1.11	a	IDEM nonpoint source pollution program will cross-reference the monthly State Revolving Fund project status report with active 319 projects and/or other known watershed efforts to identify watershed opportunities and meet quarterly (March, June, September, December) with CWSRF Loan Program to communicate those that may benefit from State Revolving Fund funding. Progress: IDEM continues to engage with communities that have applied for CWSRF funding. Though NPS and CWSRF staff have found that monthly coordination is too frequent, both programs remain engaged and committed to using all available funding sources to improve water quality.	2019	2023	ongoing	Ongoing - some progress made
1.11	b	Annually, the nonpoint source pollution program will notify the CWSRF and DWSRF program of the 319 projects that are approved for funding, upon notice from U.S. EPA. Progress: IDEM has not yet received notice that the 319 projects have been approved for funding, but provided information on projects passed on to SRF on 8/29/2023	2019	2023	annually	Complete for 2023
1.11	c	Where there are potential projects, a fact sheet describing the potential nonpoint source pollution project opportunity is included in the State Revolving Fund packet to the community,	2019	2023	ongoing	Ongoing – Complete

Goal 1: Utilize partnerships to leverage resources available for nonpoint source management.						
Obj. #	MM	Objective	FFY Start	FFY End	Frequency	Complete
		and the nonpoint source pollution staff promotes the potential nonpoint source pollution project, provides contacts for technical assistance, and provides information on other funding sources active in the watershed, such as NRCS, Clean Water Indiana, 319, 205(j), etc. Progress: The CWSRF loan program always promotes NPS projects to its applicants. Since no potential projects were identified this fiscal year, no additional contacts/fact sheets were provided to CWSRF applicants.				for 2023
	d	The CWSRF program communicates to the nonpoint source pollution program the projects with nonpoint source pollution BMPs funded through CWSRF that were identified in the approved WMPs. Nonpoint source pollution staff ensures that this information is input to GRTS. This information is included in the Annual 319 Report to U.S. EPA. Progress: The majority of CWSRF NPS BMPs are septic system removals. This information is uploaded into GRTS on a regular basis.	2019	2023	ongoing	Ongoing – significant progress made
1.12		Work with partners to model, assess, and prioritize critical watersheds in the state. Progress: IDEM is participating in the State Nutrient Reduction Strategy Science Assessment project to prioritize workload in the state	2019	2023	ongoing	Ongoing – some progress made
1.13		Utilize IDEM watershed specialist or project manager to assist partners with nonpoint source pollution planning and implementation activities. Progress: As a whole, the IDEM Watershed Specialists provided watershed planning and implementation technical assistance to at least 79 watershed groups.	2019	2023	ongoing	Ongoing – significant progress made

Goal 2: Monitor and assess Indiana waters for nonpoint source pollution impairments and improvements.						
Obj. #	MM	Objective	FFY Start	FFY End	Frequency	Complete
2.1		Require the use of the <i>Environmental Monitoring for Watershed Groups</i> handbook for 319 grantees. Progress: The Handbook is provided to all grantees as guidance during QAPP development and core parameters must be included in the monitoring program. All grant agreements executed in FFY 2022 included the core parameters outlined in the Handbook	2019	2023	ongoing	Ongoing – significant progress made
2.2		Import 319 grantee data meeting appropriate data quality criteria into AIMS or the Hoosier Riverwatch Database to be uploaded into STORET on a routine basis. Progress: IDEM imported 319 grantee data meeting appropriate data quality criteria into AIMS for 8 projects: 2016 Upper Salamonie River Implementation CWA 319 2016 Mill Creek – Blue River Watershed Project CWA 319	2019	2023	ongoing	Ongoing – significant progress made

Goal 2: Monitor and assess Indiana waters for nonpoint source pollution impairments and improvements.						
Obj. #	MM	Objective	FFY Start	FFY End	Frequency	Complete
		2017 Upper Wabash River Phase III 205j 2018 Region of the Great Bend WREC Blitz CWA 319 2019 Lost River 37361 CWA 319 2020 Region of the Great Bend 50141 CWA 319 2020 Lower Pigeon Creek 49762 CWA 319 2020 Highland Pigeon 47568 CWA 319				
2.3		Invite the participation of local project leaders when conducting 305(b) CWA assessments on watershed characterization monitoring data completed for TMDL and WMP development. Progress: A representative from the Friends of Goose Pond was invited to attend and participated in the assessments meeting on the watershed characterization data for the Black Creek TMDL.	2019	2023	ongoing	Ongoing – complete for 2023
2.4		Evaluate results of the monitoring program and make adaptive management decisions on an annual basis. Progress: The branch held its annual review of the monitoring program on 2/21/2023. No large programmatic changes were made affecting the Nonpoint Source or TMDL programs.	2019	2023	annually	Complete for 2023
2.5		Continue to fund the Clean Lakes Program (volunteer and professional) data collection for use in CWA 305(b) and 314 assessments and 303(d) listings. Progress: Indiana University continues to sample for the Clean Lakes Program under a FFY 2022 §319 grant. This contract is open until 3/31/2025.	2019	2023	ongoing	Ongoing – significant progress made
2.6		Direct IDEM resources to perform watershed characterization monitoring of at least one watershed annually to support TMDL and watershed planning efforts. Progress: In October 2022, monitoring ended for the Black Creek project. It is anticipated that the Black Creek TMDL report will be submitted to EPA in the fall of calendar year 2023. In November 2022, IDEM began monitoring for the Big Raccoon TMDL project. Monitoring for Big Raccoon is scheduled to be completed in October 2022. The SW WSS worked with TMDL staff and watershed groups to evaluate and select Indian Creek-White River as the next TMDL; monitoring will begin in November 2023.	2019	2023	annually	Complete for 2023
2.6	c	Maria Creek TMDL and WMP. Progress: Monitoring for this project began in November 2019 and concluded in October 2020. The final TMDL report was approved by U.S. EPA on 9/14/2021. The WMP contract was executed 12/10/2020 and is on track to be completed on 12/9/2024.	2020	WMP-2023	ongoing	Ongoing – significant progress made
2.7		Utilize IDEM resources to monitor the School Branch Watershed for the National Water Quality Initiative (NWQI) as described in the sampling design developed by IDEM and NRCS. Progress: IDEM continues to monitor the School Branch watershed of Eagle Creek through its fixed station monitoring program and through joint funding agreements with the USGS. All of the	2019	2023	ongoing	Ongoing – significant progress made

Goal 2: Monitor and assess Indiana waters for nonpoint source pollution impairments and improvements.						
Obj. #	MM	Objective	FFY Start	FFY End	Frequency	Complete
		data collected (including IDEM data) will be evaluated at regular intervals during the study. The report covering the first three years of data is available at https://pubs.usgs.gov/sir/2021/5061/sir20215061.pdf. IDEM taxonomists identified three macroinvertebrate samples collected by USGS for the School Branch Watershed for the National Water Quality Initiative.				
2.8		Continue support of the Hoosier Riverwatch voluntary monitoring program as part of IDEM's monitoring and assessment schemas. Progress: Approximately 183 stream sites have been sampled in 2023. Those sites were sampled 405 times collectively.	2019	2023	ongoing	Ongoing – significant progress made
2.8	b	Provide support for 20 Hoosier Riverwatch workshops (volunteer trainings) and maintain current loaner/teaching trunks. Progress: Twenty-nine workshops were conducted in 2023.	2019	2023	annually	Complete for 2023
2.8	c	Provide support for maintenance and upgrades of the Hoosier Riverwatch water quality monitoring database and associated websites. Progress: the online database website was enhanced by the contractor to include a real time calendar for upcoming workshops which is easier to maintain and advertise events. The contractor has continued to provide necessary services and updates as necessary including the addition of new sampling protocols. The database and website continue to function as designed.	2019	2023	ongoing	Ongoing – significant progress made
2.9		Accept external data through the External Data Framework. Progress: See each of the subobjectives below for more detail.	2019	2023	ongoing	Ongoing - significant progress
2.9	a	Use the External Data Framework to accept external data for various uses including nonpoint source pollution assessment, planning and de-listing. Progress: Eight nonpoint source projects have provided data into the EDF since Sept 2022: 2018 Region of the Great Bend WREC Blitz CWA 319 2017 Upper Wabash River Phase III 205j 2019 Lost River 37361 CWA 319 2020 Region of the Great Bend 50141 CWA 319 2020 Lower Pigeon Creek 49762 CWA 319 2020 Highland Pigeon 47568 CWA 319 2016 Upper Salamonie River Implementation CWA 319 2016 Mill Creek – Blue River Watershed Project CWA 319 In addition, IDEM has received data from US Steel Midwest EDP.	2019	2023	ongoing	Ongoing – significant progress
2.10		Utilize IDEM resources to delist waters, or otherwise demonstrate water quality improvements, where nonpoint source pollution has been abated. Progress: IDEM accomplishes this objective	2019	2023	ongoing	Ongoing – significant

Goal 2: Monitor and assess Indiana waters for nonpoint source pollution impairments and improvements.						
Obj. #	MM	Objective	FFY Start	FFY End	Frequency	Complete
		by monitoring annually for water quality improvements due to nonpoint source measures and delisting segments based upon the water quality data and ensuing assessments. Since the last Annual Report, the 2022 Success Story (Big Creek in the Muscatatuck watershed) was published to EPA's website. For FFY 2023, Indiana has been working with EPA HQ to update the FY 2020 Hogan Creek Success Story with additional delistings and additional waterbodies with delistings. Technical difficulties with GRTS has delayed entry of the story.				progress
2.10	a	Evaluate water quality data submitted through the External Data Framework process, as well as grantee monitoring, to identify watersheds that should be surveyed for possible nonpoint source pollution water quality improvements. Progress: At this time, significant data sets have not been submitted into the EDF. 2023 performance monitoring is focused where significant nonpoint source actions have taken place, in the Black Creek (041000050104), Pigeon Lake-Pigeon Creek (040500011001), Page Ditch (040500011105), Hickory Branch-Iroquois River (071200020405), Burnett Creek (051201080202), Elliott Ditch (051201080104), Rogers Ditch (051201111511), Big Branch (05120111504), Little Creek (051201130706), Big Creek (051201130709), Calumet River-Frontal Lake Michigan (040400010603) watersheds.	2019	2023	annually	Ongoing – some progress
2.10	b	Use additional resources (e.g., staff, funds, and technical support) to monitor water quality in watersheds where nonpoint source pollution restoration activities have occurred. The monitoring data will be compared to baseline information, if available, to gauge the efficacy of the work. Progress: Monitoring in 2022 showed improvements in Rock Creek (IBC), Little Hogan (DO) and Goose Run (DO), Vestal Branch (pH and nutrients), and Silver Creek (IBC and DO). In 2023, IDEM sampled in the Black Creek (041000050104), Pigeon Lake-Pigeon Creek (040500011001), Page Ditch (040500011105), Hickory Branch-Iroquois River (071200020405), Burnett Creek (051201080202), Elliott Ditch (051201080104), Rogers Ditch (051201111511), Big Branch (05120111504), Little Creek (051201130706), Big Creek (051201130709), Calumet River-Frontal Lake Michigan (040400010603) watersheds and results are forthcoming.	2019	2023	annually	Ongoing – complete for 2023
2.11		Continue the Ground Water Monitoring Network (GWMN). Progress: IDEM was unable to sample for the GWMN during the 2022 sampling season due to the DWB's focus on PFAS sampling in public water supplies. GWMN sampling will restart in 2023 with the intensive sampling of small areas with known arsenic issues to further study the variability of arsenic in various hydrogeologic settings.	2019	2023	ongoing	Ongoing – some progress
2.12		Long-term goal: Analyze the findings of all ground water data taken by the state to characterize the causes, sources, and magnitude of nonpoint source pollution in ground water. Progress: Analysis of GWMN data has been delayed by the DWB's focus of PFAS and HABs sampling of public water supplies. With the upcoming completion of this project, analysis of GWMN data is expected to resume.	TBD	TBD	ongoing	Ongoing – some progress

Goal 2: Monitor and assess Indiana waters for nonpoint source pollution impairments and improvements.						
Obj. #	MM	Objective	FFY Start	FFY End	Frequency	Complete
2.12	b	Gather data for completing the analysis and reporting mechanism. Progress: Analysis of GWMN data has been delayed by the DWB's focus of PFAS and HABs sampling of public water supplies. With the upcoming completion of this project, analysis of GWMN data is expected to resume.	2019	2023	ongoing	Ongoing – no significant progress

Goal 3: Develop and conduct a strategic outreach and education program.						
Obj. #	MM	Objective	FFY Start	FFY End	Frequency	Complete
3.2		Continue meetings with partners to discuss strategic messaging for the state on septic system care. Progress: The Indiana Lake Michigan Coastal Program's current grant contract includes a task to design and create a short course on septic system ownership and management. Upon completion, this short course will be available to present to homeowners, realtors, real estate lenders, planners, health department staff, home inspectors, and government staff within the state.	2019	2023	ongoing	Ongoing – some progress
3.2	b	Work with partners to identify the target audience and deploy education methods. Progress: The Indiana Lake Michigan Coastal Program's current grant contract includes a task to design and create a short course on septic system ownership and management. Upon completion, this short course will be available to present to homeowners, realtors, real estate lenders, planners, health department staff, home inspectors, and government staff within the state. In addition, watershed specialists worked with 6 watershed groups on septic system maintenance education programming.	2020	2023	ongoing	Ongoing – some progress
3.2	c	Reconvene IDEM's internal septic subcommittee on septic care and meet regularly. Progress: the NPS group discussed septic issues at monthly staff meetings as they arose.	2019	2023	ongoing	Ongoing – little progress
3.2	d	Publicize success stories. Progress: IDEM was not made aware of any septic success stories in FFY 2023.	2019	2023	ongoing	Ongoing – no progress
3.2	e	Support technical events (such as IEHA annual conference) to exchange information between government partners, watershed groups, and citizens. Progress: Watershed Specialists were present and available at the ILMS Annual Conference, INAFSM conference, the Indiana Water Summit, and Greening the Statehouse to help promote information exchange.	2019	2023	ongoing	Ongoing – some progress
3.2	f	Assist in providing outreach on septic systems in the Lake Michigan Coastal Zone. Progress: IDEM is currently providing FY 2020 funds to develop and provide messaging on the importance of inspection and maintenance of septic systems in the Coastal zone. The current	2019	2023	ongoing	Ongoing – significant progress

Goal 3: Develop and conduct a strategic outreach and education program.						
Obj. #	MM	Objective	FFY Start	FFY End	Frequency	Complete
		contract (63816) expires on 6/12/2024.				
3.2	g	Translate lessons learned from Northwest Indiana, statewide. Progress: Expected progress in northwest Indiana has slowed, so lessons learned have not materialized. No progress was made on this goal this FFY.	2020	2023	ongoing	Ongoing – no progress
3.2	h	Develop and maintain septic outreach HUB on IDEM's website (ITOSS), POS materials and other. Progress: IDEM has a grant project with the Lake Michigan Coastal Program to develop a short course module for homeowners, realtors, real estate lenders, planners, health department staff, home inspectors and government staff related to septic systems that they plan to develop as a website/digital content. When this is complete, IDEM plans to link to it through our current NPS website.	2019	2023	ongoing	Ongoing – little progress
3.2	i	Continue to support Pathway to Water Quality's work, financially and otherwise with the Indiana State Department of Health. Progress: IDEM currently participates in the Pathway to Water Quality steering committee, sending 2 staff members to the committee, and funds the current coordinator with funds from a FFY 2019 319 grant (contract number 40994) which is set to expire on 4/21/2024.	2019	2023	ongoing	Ongoing – significant progress
3.2	j	Promote the use of the Revolving Loan Fund for Septic upgrades and repairs. Progress: No progress was made this FFY.	2019	2023	ongoing	Ongoing – no progress
3.3	a	Meet with partners to discuss issues regarding hydromodification (IDEM Wetlands, DNR, US Army Corps, Silver Jackets, and AFSM). Progress: The NE WSS meets regularly with the Indiana Silver Jackets to discuss issues regarding hydromodification. Meetings were held on 9/29/22, 10/20/22, 11/10/22, 12/1/22, 1/19/23, 2/16/23, 2/27/23, 3/16/23, 4/20/23, 5/18/23, 6/15/23, 8/17/23.	2019	2023	Ongoing	Ongoing – significant progress
3.3	b	Assist IDEM Wetlands Program with meeting goals and objectives of the State Wetland Plan. Progress: The NE WSS worked with partners on the Silver Jackets to complete an Indiana Wetland Education project utilizing funding from the USACE.	2019	2023	ongoing	Ongoing – significant progress
3.3	c	Assist Indiana Department of Natural Resources meet Goals and Objectives with their Stream Mitigation Program. Progress: The WSS sent out IN SWMP enrollment information to 59 stakeholders.	2019	2023	ongoing	Ongoing – some progress
3.3	d	Support low head dam removal to improve nonpoint source pollution impacts on water resources. Progress: Supported dam safety and removal efforts through Indiana Silver Jacket partnerships.	2019	2023	ongoing	Ongoing – some progress
3.3	e	Reconvene IDEM's internal hydromodification subcommittee on state issues and initiatives and meet quarterly. Progress: IDEM's internal hydromod subcommittee met on 10/25/22.	2019	2023	ongoing	Ongoing – some progress

Goal 3: Develop and conduct a strategic outreach and education program.						
Obj. #	MM	Objective	FFY Start	FFY End	Frequency	Complete
3.4	a	Meet with partners to discuss issues regarding sediment and nutrient pollution (ICP partners, USGS). Progress: WSS attended Indiana Silver Jackets, CCSI Regional Meetings, WLEB meetings, and 2 ICP TCP planning meetings to discuss trainings needed on these topics. Discussed monitoring/modeling projects with USGS.	2019	2023		Ongoing – significant progress
3.4	b	Publicize success stories. Progress: IDEM wrote up the success story of the Blue River Farmers Helping Hellbenders (conservation practices decreasing sediment that smothers hellbender habitat and nutrients that leads to low dissolved oxygen) for ACWA’s 50 years of the Clean Water Act storymap.	2019	2023	ongoing	Ongoing – significant progress
3.4	c	Support implementation of the <i>State Nutrient Reduction Strategy</i> education/outreach goals. Progress: the NPS program worked with 79 different groups that had nutrient reduction goals.	2019	2023	ongoing	Ongoing – significant progress
3.4	d	Support implementation of the <i>Indiana Annex 4 DAP</i> education/outreach goals. Progress: the NE WSS attended the Indiana GLWQA DAP Advisory Committee and WLEB RCPP meetings. The RCPP project educates producers on production practices related to water quality issues in the WLEB.	2019	2023	ongoing	Ongoing – significant progress
3.4	e	Reconvene IDEM’s internal sediment and nutrient pollution subcommittee on state issues and initiatives and meet quarterly. Progress: the NPS group discussed sediment and nutrient issues at monthly staff meetings as they arose.	2019	2023	ongoing	Ongoing – little progress
3.5		Continue to provide citizen monitoring training through Hoosier Riverwatch and the Clean Lakes Program. Progress: Hoosier Riverwatch instructors have provided 29 workshops this year and the Clean Lakes Program has instructed 16 adults and 150 youths in 2 workshops/outreach events.	2019	2023	ongoing	Ongoing – significant progress
3.6	a	Produce 5 “Success Stories” (U.S. EPA WQ-10a Strategic Measure) by 2023 and publicize within Indiana. Progress: Seven NPS Success Stories will have been completed in 2023 and entered into the GRTS database. Those stories are Hogan Creek, Hogan Creek update, Big Creek (Muscatatuck), Little Deer Creek, Stump Ditch/Kilmore Creek, Tributary to South Fork Wildcat, and Boyles Ditch.	2019	2023	Ongoing	Complete
3.6	b	Publicize any awards given to watershed groups related to their water quality efforts in Indiana. Progress: The Big Pine Creek Watershed Project was awarded the Governor’s Award for Environmental Excellence. More information about this project is on page 33 of this report.	2019	2023	ongoing	Ongoing – some progress
3.7		Provide cost-effective outreach to audiences in Indiana. Progress: Outreach was provided in conjunction with other IDEM and partner agencies through Hoosier Riverwatch workshops, Master Naturalist days, the Pathway to Water Quality exhibit, Earth Day presentations, the Black Creek field demonstration, and the Indiana wetlands workshops.	2019	2023	ongoing	Ongoing – significant progress
3.7	a	Continue to participate in the Pathway to Water Quality at the Indiana State Fairgrounds.	2019	2023	ongoing	Ongoing –

Goal 3: Develop and conduct a strategic outreach and education program.						
Obj. #	MM	Objective	FFY Start	FFY End	Frequency	Complete
		Progress: IDEM currently participates in the Pathway to Water Quality steering committee, sending 2 staff members to the committee, and funds the current coordinator with funds from a FFY 2019 319 grant (contract number 40994) which is set to expire on 4/21/2024. At least 5 IDEM staff participated in running the exhibit in 2023 and in FY 23, IDEM donated some monitoring equipment to add to the exhibit.				some progress
3.7	b	Continue to support the Indiana Watershed Leadership Academy with technical support. Progress: IDEM NPS continues to support the IWLA financially and with technical assistance as needed. The SE WSS attends annual steering committee meetings and NPS staff attend face-to-face meetings to engage with participants.	2019	2023	ongoing	Ongoing – some progress
3.7	c	Participate in regional meetings as needed to inform watershed interest groups of nonpoint source pollution program information. Progress: NPS program staff attended the IASWCD Annual conference this FY to provide information on the next update to this plan and asked for program feedback. WSS also attended CCSI regional meetings and steering committee meetings.	2019	2023	ongoing	Ongoing – some progress
3.7	d	Provide regular communication to regional groups of nonpoint source pollution watershed efforts. Progress: Watershed specialists provide funding, training, and program updates to distribution lists of active or prospective watershed groups on a regular basis.	2019	2023	ongoing	Ongoing – significant progress
3.8		Long-term goal: use 319 funds to leverage for partner-based statewide initiatives including widely disseminated materials such as statewide television/radio commercials/billboards or actionable projects based on above identified workgroups.	2019	2023	ongoing	Ongoing – little progress
3.8	a	Support partners for the state initiatives on septic system care. Progress: 319 continues to fund grantees to host workshops for septic system care. In the absence of a strong state-led initiative, these groups fill the gaps at the local level.	2019	2023	ongoing	Ongoing – some progress
3.8	b	Support partners for the state initiatives on hydromodification. Progress: statewide progress on hydromodification includes 2 partner education projects on wetlands/floodplains and lowhead dam removals. Overall, there is good communication and momentum on hydromodification issues among state and federal partners in the state.	2019	2023	ongoing	Ongoing – some progress
3.8	c	Support partners for the state initiatives on sediment and nutrient pollution. Progress: statewide progress on sediment and nutrient pollution includes efforts related to the science assessment and several RCPP projects, in which IDEM is engaged. While education is not the main thrust of these projects, there is good communication and momentum on sediment and nutrient pollution issues among state and federal partners in the state.	2019	2023	ongoing	Ongoing – some progress
3.9		Continue to build capacity for water quality improvement in the state. Progress: See each sub-objective below for a progress report.	2019	2023	ongoing	Ongoing – complete for 2023

Goal 3: Develop and conduct a strategic outreach and education program.						
Obj. #	MM	Objective	FFY Start	FFY End	Frequency	Complete
3.9	a	Continue to educate leaders through Purdue University's Indiana Watershed Leadership Academy. Progress: IDEM NPS continues to support the IWLA financially and with technical assistance as needed. Financial assistance is currently provided under a FFY 2021 grant under contract number 58554, which is due to expire on 12/31/25.	2019	2023	ongoing	Ongoing – complete for 2023
3.9	b	Continue to support the ICP's Training and Certification Program on watershed related issues by sitting on the Technical Research Board and the advisory team. Progress: the SW WSS participated on the advisory committee of the ICP TCP. The committee developed a survey to collect information on training needs and sponsored 6 face-to-face and virtual pollinator workshops to fulfill previously-identified training needs within the Partnership.	2019	2023	ongoing	Ongoing – complete for 2023

Goal 4: Improve Indiana's water quality, including surface and ground water, by reducing nonpoint source pollutants such as nutrients, sediment, and bacteria; restoring aquatic habitats; and establishing flow regimes that mimic natural conditions.						
Obj. #	MM	Objective	FFY Start	FFY End	Frequency	Complete
4.1	a	Utilize the TMDL-WMP template for TMDLs sampled for and written so that they provide the best detail for the development of 9-Element WMPs that are implementable using 319 funds. Progress: All TMDLs developed in FY 2023 were written using the TMD-WMP template.	2019	2023	ongoing	Ongoing – complete for 2023
4.1	b	Link TMDLs with watershed characterization monitoring projects for Section 319 watershed management planning applications. Progress: Monitoring for Black Creek TMDL took place from Nov 2021-Oct 2022. The Greene County SWCD wrote an application for and was awarded a FFY 2022 319 planning and implementation grant which began on 1/12/23 and is expected to expire on 1/11/2027. Monitoring for Big Raccoon-Wabash River TMDL began in November 2022 and will end in October 2023. A proposal for the Big Raccoon WMP was submitted by the Parke Co SWCD for FFY 2024 319 funding and will be considered during this year's application review.	2019	2023	ongoing	Ongoing – significant progress made
4.2		Promote integration of WMPs with local comprehensive plans. Progress: Data and information gathered for the Upper White WMP was also used for The White River Report Card, which was put together by The White River Alliance. This report card is intended to be used as an educational piece with local officials as planning and economic development decisions are being made.	2019	2023	ongoing	Ongoing – some progress
4.4		Use Section 319 funding to support implementation of WMPs that meet the U.S. EPA'S 9 Key Elements of a Watershed Plan (including staff support and outreach as well as the placement of BMPs in critical areas as identified in the WMPs). Progress: In FFY 2023, ten WMP	2019	2023	ongoing	Ongoing – significant progress

Goal 4: Improve Indiana's water quality, including surface and ground water, by reducing nonpoint source pollutants such as nutrients, sediment, and bacteria; restoring aquatic habitats; and establishing flow regimes that mimic natural conditions.						
Obj. #	MM	Objective	FFY Start	FFY End	Frequency	Complete
		implementation projects were chosen to receive funding and were proposed to U.S. EPA, including Walnut Creek-Tippecanoe River, Upper Mississinewa River, Lower Salt Creek, Lake Monroe, Lower East Fork White River, Lower Pigeon Creek, Lower Kankakee, Whitewater River, Deer Creek, and Otter Creek.				
4.5		Repair previously-installed BMPs with the caveats outlined in the program policy. Progress: no BMPs were repaired this FFY.	2019	2023	ongoing	Complete for 2023
4.6		Continue to leverage LARE and CWI funds to address erosion, sedimentation and nutrient input concerns as long as the General Assembly continues to approve appropriations. Progress: As the opportunity arises, LARE and CWI projects are used as match for nonpoint source pollution projects.	2019	2023	annually	Complete for 2023
4.7		Coordinate with IDNR with their Stream Mitigation Program. Progress: Sent out IN SWMP program enrollment information to 59 stakeholders.	2019	2023	ongoing	Ongoing – some progress
4.9		Show restoration in at least 5 12-digit watersheds (at least 5 WQ-10) in the five-year cycle 2019-2023. Progress: Including its 2023 submission, Indiana has submitted 13 water quality improvements in 7 success stories over the past 5 years. One Success Story (Boyles Ditch) was submitted in 2019. One Success Story (Hogan Creek) was submitted in 2020. Three Success Stories were submitted for WQ-10a in FFY 2021: Little Deer, Unnamed Tributary to South Fork Wildcat, and Stump Ditch/Kilmore Creek. One Success Story (Big Creek) was submitted in 2022. A Success Story will be submitted for 2023 (Hogan Creek update).	2019	2023	annually	Complete for 2018-2023 cycle
4.10		Continue to geolocate all BMPs installed through the Section 319 grant program in order to enhance the BMP GIS layer located in the nonpoint source pollution program. Progress: BMPs are mapped upon receipt of the invoice and location information from the local project.	2019	2023	ongoing	Ongoing – significant progress
4.11		Solicit for proposals to use Section 319 funding to support implementation of WMPs that meet the U.S. EPA'S 9 Key Elements of a Watershed Plan (includes staff support as well as BMPs). Progress: The solicitation announcement for FY 2023 was published on April 1, 2022. Twenty-one notices of intents were received on or before June 1st, 2022. Full proposal applications were due September 1st, 2022. A total of 17 full proposals were received and reviewed by Nonpoint source pollution staff. Eleven proposals were submitted to EPA for funding consideration, and an additional 2 planning proposals, and 4 monitoring proposals requested to be funded by CWA §205j base funds.	2019	2023	annually	Complete for 2023
4.11	a	Provide financial and technical support to install agricultural BMPs in critical areas identified in the plan. Progress: A list of the BMPs installed using §319 funding during FFY 2023 is available in Table 1 of this report.	2019	2023	annually	Complete for 2023

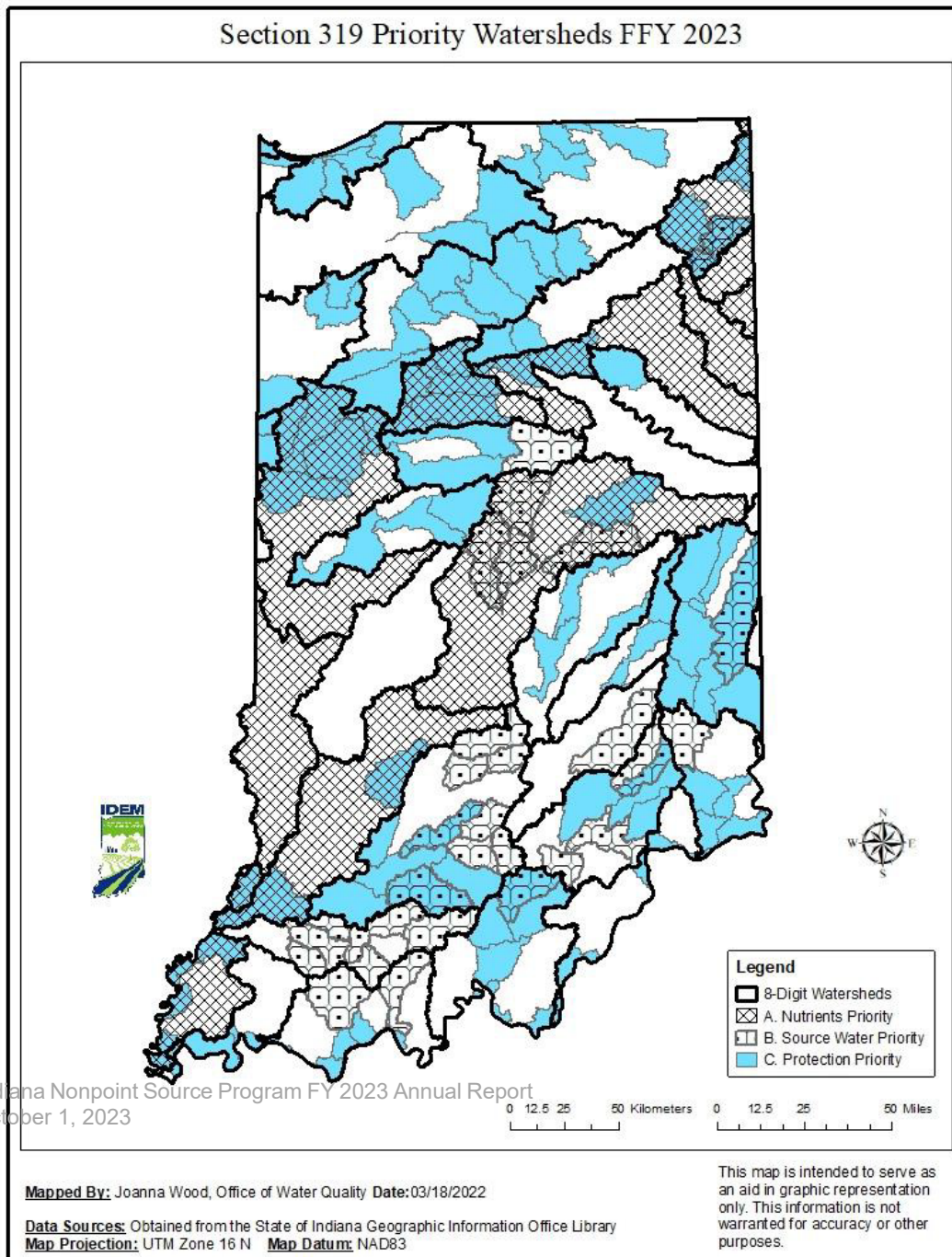
Goal 4: Improve Indiana’s water quality, including surface and ground water, by reducing nonpoint source pollutants such as nutrients, sediment, and bacteria; restoring aquatic habitats; and establishing flow regimes that mimic natural conditions.						
Obj. #	MM	Objective	FFY Start	FFY End	Frequency	Complete
4.11	b	Provide financial and technical support to install urban and/or residential BMPs in critical areas identified in the plan. Progress: A list of the BMPs installed using §319 funding during FFY 2023 is available in Table 1 of this report.	2019	2023	annually	Complete for 2023
4.11	c	Provide financial and technical support to install forestry BMPs in critical areas identified in the plan. Progress: A list of the BMPs installed using §319 funding during FFY 2023 is available in Table 1 of this report.	2019	2023	annually	Complete for 2023
4.11	d	Provide financial and technical support to install abandoned mine BMPs in critical areas identified in the plan. Progress: A list of the BMPs installed using §319 funding during FFY 2023 is available in Table 1 of this report.	2019	2023	annually	Complete for 2023
4.11	e	Provide financial and technical support to install hydrological and aquatic habitat BMPs in critical areas identified in the plan, including dam removal. Progress: A list of the BMPs installed using §319 funding during FFY 2023 is available in Table 1 of this report.	2019	2023	annually	Complete for 2023

Goal 5. Protect sensitive, vulnerable, and high quality waters of the state so that they may continue to meet their designated uses.						
Obj. #	MM	Objective	FFY Start	FFY End	Frequency	Complete
5.1		Continue to encourage watershed planning activities in watersheds with Category 1 waters. Progress: Category 1 waters in Indiana include waters that are habitats for endangered, rare, and threatened species and waters used as source waters. In FFY 2023, the §319 solicitation included priorities for developing a WMP for a 10-digit HUC watershed that 1) has a surface water drinking water intake and waters identified as impaired or 2) impacts outstanding state resource waters and/or waters with endangered, threatened, or rare species. Four proposals received in FFY 2023 met the source water priority and four proposals met the OSRW/ETR priority.	2019	2023	ongoing	Ongoing – complete for 2023
5.2		Prioritize for planning watersheds with source water intakes. Progress: NPS projects in watersheds with a surface drinking water intake were prioritized in the FFY 2023 solicitation. Source waters are also a priority of the Indiana Conservation Partnership. Two of the proposed planning projects include a surface water intake.	2019	2023	annually	Complete for 2023
5.3		Participate as requested in Phase II wellhead protection planning. Progress: Most communities	2019	2023	ongoing	Ongoing –

		have completed Phase II wellhead protection planning. As public water supplies request to coordinate with local watershed groups on subsequent planning activities, watershed specialists can make those connections. No requests were made this fiscal year. WSS did attend the Indiana Alliance of Rural Water source water protection planning meeting this year.				complete for 2023
5.5		Fund 319-eligible protection strategies identified in critical areas of IDEM-approved 9-Elements watershed management plans proposed by Section 319 grant applicants whose implementation applications rank high enough for funding. Progress: No protection strategies have been funded by 319 this FFY.	2019	2023	annually	Complete for 2023
5.6		Support implementation of Statewide Wildlife Action Plans Goals and Objectives that align with nonpoint source pollution protection. Progress: The SWAP lists many conservation actions for identified "Species of Greatest Conservation Need." Multiple action items can be addressed through NPS grant projects, including • Reduce nutrient and toxin loads • Develop and promote farming technologies and practices that have conservation benefits • Enhance public, stakeholder, and landowner education and awareness • Reduce sediment and nutrient loads • Reduce point and non-point source pollution • Protect and restore riparian buffer zones • Remove dams • Implement agricultural best management practices to improve water quality • Reduce flashiness in watersheds • Develop alliances and partnerships • Increase acres of riparian buffers • Reduce stream bank erosion. Quantified measures include sediment reductions of 50,244 T/yr and nutrient reductions of 54,269 lbs/yr of phosphorus and 137,043 lbs/yr of nitrogen. Examples of active watershed projects in streams with known populations of endangered species include the Blue River projects, the Southern Whitewater, Salt-Pipe Creek, Lost River, Region of the Great Bend of the Wabash River, Lower Salamonie, Lake Monroe, Vernon Fork, Elkhart, Headwaters Yellow River, Indian-Kentuck, North Laughery, and Browns Wonder-Sugar Creek.	2019	2023	ongoing	Ongoing – some progress
5.7		Support implementation of the State Wetland Plans Goals and Objectives that aligns with nonpoint source pollution protection. Progress: The NE WSS participated in a workgroup to complete an Indiana wetlands education project with other members of the Silver Jackets, funded by the USACE. This included hosting 4 wetlands workshops around the state as well as building a storymap that is posted to IDEM's website at https://www.in.gov/idem/wetlands/resources/workshops/.	2019	2023	ongoing	Ongoing – significant progress
5.8		Work with IDEM's Ground Water section and watershed groups, as well as CWSRF and DWSRF, to identify wells in need of proper decommission. Progress: IDEM's Ground Water Section no longer participates in private well decommissioning. When wells in need of decommissioning come to the attention of NPS staff, they will work with DWSRF or DNR, depending upon the user of the well. No wells in need of decommissioning came to the attention of NPS staff in FFY 2023.	2019	2023	ongoing	Ongoing – no progress this FFY

Indiana State Nonpoint Source Pollution Management Plan 2023 Action Register

APPENDIX B



APPENDIX C

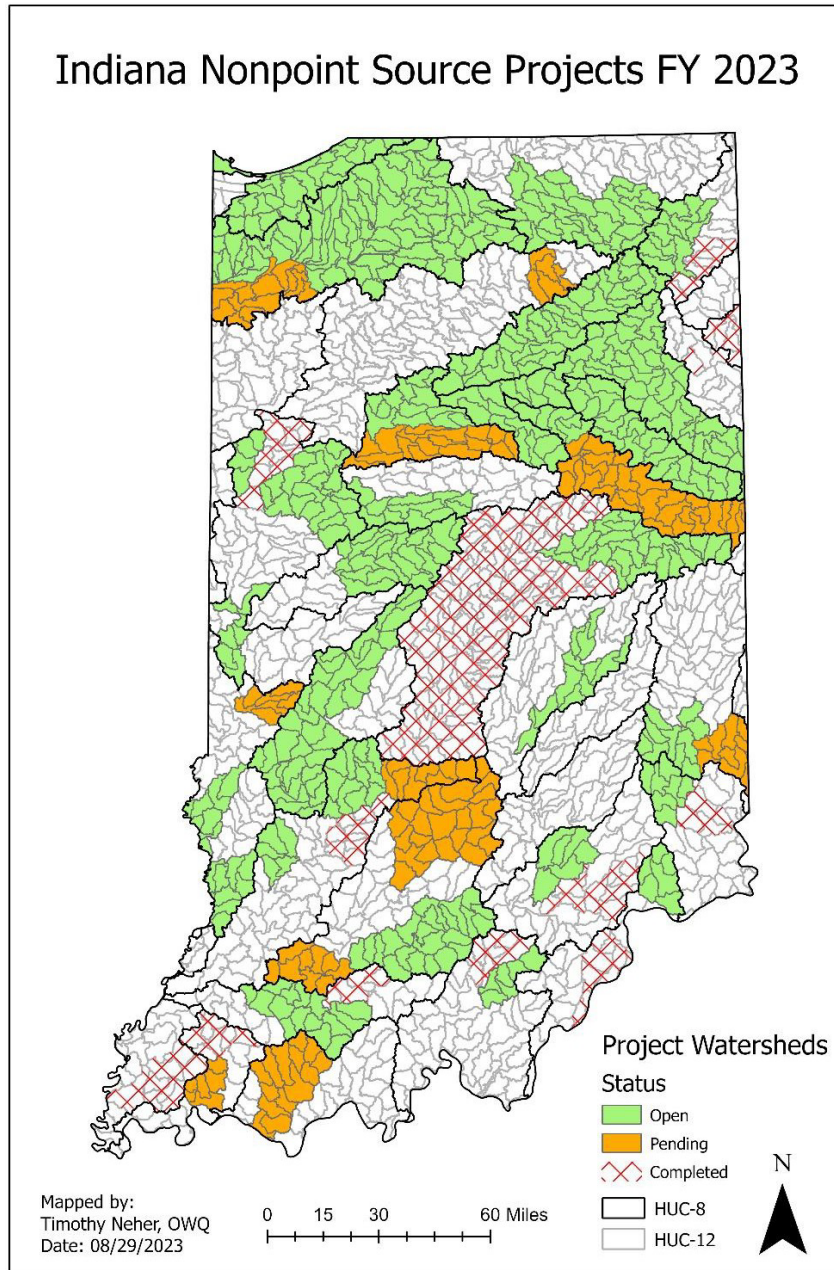
Open and Pending 319 Projects							
FFY	Contract #	Contractor	Project	Status	Start Date	End Date	Project Type
2019	37186	Dearborn County SWCD	Whitewater River Watershed	Open	2/1/2020	12/30/2023	Restoration/Implementation
2019	68405	Indiana Department of Environmental Management	Kankakee Super Gage at Shelby	Open	12/5/2022	2/28/2024	Assessment
2019	37162	Decatur County SWCD	Salt-Pipe Creek	Open	11/1/2019	10/31/2023	Restoration/Implementation
2019	37187	Historic Hoosier Hills	Indian Kentuck Watershed	Open	3/25/2020	3/24/2024	Restoration/Implementation
2019	37907	Clinton County SWCD	Browns Wonder-Sugar Creek	Open	10/28/2019	10/27/2023	Restoration/Implementation
2019	40994	Indiana Association of Soil and Water Conservation	Pathway to Water Quality	Open	4/22/2020	4/21/2024	Education
2019	41471	Sullivan County SWCD	Turtle Creek, Turman Creek, Kelley Bayou	Open	5/12/2020	2/29/2024	Restoration/Implementation
2019	37151	Historic Hoosier Hills	North Laughery Creek	Open	12/15/2019	12/14/2023	Combo
2020	47519	Sullivan County SWCD	Maria & No Business Creek	Open	12/10/2020	12/9/2024	Combo
2020	63816	Indiana Department of Natural Resources	OSDS, Capacity Enhancement, and Tracking	Open	6/12/2022	6/12/2024	ProgramSupport
2020	48894	Ouabache Land Conservancy	Otter Creek	Open	1/7/2021	1/6/2024	Restoration/Implementation
2020	49760	Benton County SWCD	Big Pine Creek Watershed	Open	11/17/2020	11/16/2023	Restoration/Implementation
2020	48941	The Watershed Foundation	Walnut Creek-Tippecanoe	Open	3/10/2021	3/9/2024	Restoration/Implementation
2020	48881	Washington County SWCD	South Fork Blue River	Open	1/25/2021	3/24/2024	Restoration/Implementation
2020	48870	Carroll County SWCD	Deer Creek-Sugar Creek	Open	12/2/2020	12/1/2024	Restoration/Implementation

Open and Pending 319 Projects							
FFY	Contract #	Contractor	Project	Status	Start Date	End Date	Project Type
2021	73004	Indiana Department of Environmental Management	AIMS EnfoTech Enhancement	Open	5/15/2023	5/15/2024	ProgramSupport
2021	60144	Clay County SWCD	Lower Eel River Watershed	Open	1/28/2022	1/28/2025	Restoration/Implementation
2021	71435	JMA Communications, LLC	Indiana Lakes Reach Index	Open	3/3/2023	3/2/2025	ProgramSupport
2021	61096	EcoLogik, Inc.	Hoosier Riverwatch & QAPP Maintenance	Open	3/29/2022	3/29/2025	ProgramSupport
2021	58554	Purdue University	Indiana Watershed Leadership Academy	Open	1/1/2022	12/31/2025	Education
2021	58552	Clinton County SWCD	South Fork Wildcat Creek Phase 3	Open	1/15/2022	1/14/2025	Restoration/Implementation
2021	58548	Shelby County SWCD	Lower Big Blue River Watershed	Open	11/15/2021	11/14/2024	Restoration/Implementation
2021	59519	Knox County SWCD	Snapp Creek-Kelso Creek WMP	Open	12/21/2021	12/21/2023	Planning
2021	58550	Montgomery County SWCD	Upper Sugar Creek WMP	Open	11/18/2021	11/17/2023	Planning
2021	58545	Putnam County SWCD	Big Walnut Watershed Alliance Implementation	Open	11/23/2021	11/22/2024	Restoration/Implementation
2021	58587	Elkhart River Restoration Association, Inc.	Upper Elkhart River WMP	Open	12/3/2021	12/3/2023	Planning
2021	58547	Wabash River Defenders	Treaty Creek-Wabash River	Open	11/24/2021	11/23/2024	Restoration/Implementation
2021	58589	Marshall County SWCD	Headwaters Yellow River	Open	11/24/2021	11/23/2024	Restoration/Implementation
2021	58551	Huntington County SWCD	Upper Wabash River Phase 3	Open	11/9/2021	11/8/2024	Restoration/Implementation
2022	69119	Greene County SWCD	Black Creek Watershed	Open	1/12/2023	1/11/2027	Combo
2022	68993	Trustees of Indiana University	Indiana Clean Lakes Program	Open	4/1/2023	3/31/2025	Assessment

Open and Pending 319 Projects							
FFY	Contract #	Contractor	Project	Status	Start Date	End Date	Project Type
2022	68646	Decatur County SWCD	Salt-Pipe Creek Watershed	Open	2/1/2023	5/1/2026	Restoration/Implementation
2022	69065	Owen County SWCD	Fish Creek Watershed	Open	1/18/2023	1/17/2025	Planning
2022	68577	Friends of Lake Monroe	Lake Monroe Watershed Management Plan Implementation	Open	11/28/2022	5/28/2025	Restoration/Implementation
2022	68369	Orange County SWCD	Lost River Watershed Implementation	Open	12/19/2022	12/18/2025	Restoration/Implementation
2022	68451	Wells County SWCD	Lower Salamonie River Watershed Implementation Project	Open	1/1/2023	1/1/2026	Restoration/Implementation
2022	68776	Jennings County SWCD	Vernon Fork Muscatatuck Watershed	Open	1/4/2023	1/3/2027	Combo
2022	69069	Patoka Lake Regional Water & Sewer District	Patoka Watershed Clean Sweep	Open	12/21/2022	12/20/2025	Restoration/Implementation
2022	68119	Wabash River Enhancement Corp.	Region of the Great Bend of the Wabash River	Open	1/27/2023	1/26/2026	Restoration/Implementation
2023		Lawrence County SWCD	Lower Salt Creek Watershed Project Phase 1 Implementation	Pending			Restoration/Implementation
2023		Ouabache Land Conservancy	Otter Creek Watershed Implementation	Pending			Restoration/Implementation
2023		Carroll County SWCD	Deer Creek-Sugar Creek Implementation	Pending			Restoration/Implementation
2023		Dearborn County SWCD	Whitewater River Watershed	Pending			Restoration/Implementation
2023		Jasper County SWCD	Lower Kankakee Watershed Initiative Implementation	Pending			Restoration/Implementation

Open and Pending 319 Projects							
FFY	Contract #	Contractor	Project	Status	Start Date	End Date	Project Type
2023		Vanderburgh SWCD	Lower Pigeon Creek Implementation	Pending			Restoration/Implementation
2023		Pike County SWCD	Lower East Fork White River WMP Implementation	Pending			Restoration/Implementation
2023		Trustees of Indiana University	Indiana Water Quality on Wheels Exhibit	Pending			Education
2023		Delaware Co. SWCD	Upper Mississinewa River Watershed 319 Implementation Phase 2	Pending			Restoration/Implementation
2023		The Watershed Foundation	Walnut Creek-Tippecanoe River WMP Ph 2 Implementation	Pending			Restoration/Implementation
2023		Lake Monroe Water Fund	Innovative Funding for NPS Improvement	Pending			Restoration/Implementation

APPENDIX D



APPENDIX E

The section summarizes \$319 funded projects that closed in fiscal year 2023 (1 July 2022 – 30 June 2023).

FY 2020

Lower Pigeon Watershed Management Plan (Contract # 49762)

The Vanderburgh County Soil and Water Conservation District developed a watershed management plan for the Lower Pigeon Creek Watershed. The two-year development of the plan was led by the watershed coordinator and guided by 25 steering committee members. The plan included water quality monitoring to identify problem areas and pollutants of highest concern. Several best management practices were identified to help reduce nitrate, suspended solids, and *E. coli* concentrations in the water to meet long-term project goal target concentrations by 2052. The steering committee also held many public meetings, and 12 workshops and field days as an initiative to educate and interact with individuals in the watershed. More than 300 individuals engaged with the project throughout 2021 and 2022, and the watershed management plan was approved by IDEM and the EPA in January 2023.

Region of the Great Bend of the Wabash River Implementation (Contract # 50141)

The Wabash River Enhancement Corporation (WREC) implemented a watershed management plan in the Burnett Creek-Wabash River, Wea Creek and Kickapoo-Wabash River Critical Area sub-watersheds. The targeted cost-share program funded 19 BMPs throughout the watershed. These BMPs included 1 rain barrel, 1 bioswale, 164 urban trees, 40,462.2 square feet of turf to native plantings, 3,898 acres of cover crops, 4 acres of conservation cover, 93,778 square feet of grassed waterways, 1 urban retrofit, and 1 rain garden. The WREC exceeded education program requirements, holding seven community events, and doubled their required program match. The WREC maintained and expanded their partnerships, such as continued to have a presence at the Native Plant Fest and Pollinator Palooza, as well as partnering with The Arts Federation and Imagination Station. A 2021 Riverfest scavenger hunt was a success, and WREC video products continue to be a resource for education which have been viewed by hundreds.

Highland Pigeon Watershed Management Plan (Contract # 47568)

The Gibson County Soil and Water Conservation District developed a watershed management plan for the Highland Pigeon watershed. The group has completed the watershed management plan and corresponding Quality Assurance Project Plan (QAPP). Water quality was monitored at nine sites in the watershed for a year, using the Hoosier Riverwatch techniques for sample collection, and the Microbac Labs for analysis. The group also measured habitat and macroinvertebrates at the monitoring locations. The group held outreach activities, namely a multi-county soil health expo at the Gibson County Fairgrounds Toyota Center. The event gathered 150 locals in attendance.

FY 2019

Lost River Watershed Implementation (Contract # 37361)

The Orange County Soil and Water Conservation District developed and promoted a cost share program to implement the Lost River Watershed Management Plan. This was the third implementation phase of the Lost River Project (LRP). The project reached over 400 people in outreach events and provided 37 participants with cost-share funding to install BMPs. The third phase of implementation installed new access roads, cover crops, heavy use area protection, pasture and hay planting, pipeline, watering facilities, and fencing. These BMPs reduced sediment by an estimated combined yearly total of 32,941 tons of sediment, 33,357 pounds of phosphorus, and 65,849 pounds of nitrate. In addition, the project implemented the Cover Crop Project which held a cover crop drone application demonstration and a cover crop and soil health workshop. The workshop was attended by 46 attendees, and the success of the cover crop planting was monitored monthly. The project formed many partnerships during the third phase, namely the Indiana Karst Conservancy, Paoli High School, and the Conservation Cropping Systems Initiative.

FY 2018

Clean Lakes Program (Contract # 31746)

The Indiana Clean Lakes Program was managed by the Indiana University's O'Neill School of Public and Environmental Affairs in Bloomington, Indiana. The long-time program reports the status of lake eutrophication levels to the U.S. EPA in the State's 305(b) water quality reports and 303(d) listing of impaired waterbodies. The program's components were to inform and educate the public on lake water quality, provide technical assistance, expand volunteer lake monitoring, assess lake water quality, and promote coordinated work between other State and Federal Lake Programs to enhance the protection of Indiana Lakes. The group conducted 18 outreach events and interacted with over 375 individuals. The group switched their sampling scheme from geographical sampling to a randomized lake assessment sampling, and concluded it was more effective at reporting trends and the results were more applicable to the entire state of Indiana than previously before.

Plummer Creek Implementation II (Contract # 30680)

The Greene County Soil and Water Conservation District developed and promoted the cost-share program to implement BMPs that addressed water quality concerns in the Plummer Creek watershed, in accordance with the 2016 Watershed Management Plan. The second phase implementation project was highly successful, exceeding match requirements by \$6,129 and completely obligating cost-share funding within the first three months of the project. Various BMPs were installed within the watershed in critical areas, including nutrient management plans, conservation tillage, cover crops, and a variety of livestock related BMPs. The installed BMPs were estimated to reduce sediment by 6,824 tons/year, nitrogen by 35,783 pounds/year, and phosphorus by 1,003 pounds/year. The project also held outreach events, had a presence on social media, and developed education materials. The estimated communication of the project with the public was around 100 stakeholders per month, based on the group's social media reach, monthly USDA office traffic, and event attendance.

School Branch Water Quality Investigation (Contract # 29917)

The U.S. Geological Survey led a monitoring study of water quality and quantity in the School Branch Watershed. The project components were to measure the hydrologic cycle, monitor continuous water quality parameters, intensive sampling, biological assessments, and multi-media communication. The data collected from the project is publicly available and the data collected was published in a multiple scientific investigative report (Bunch and others, 2021, Downhour and others, 2021). The project was also highlighted in many outreach opportunities, including field days and demonstrations on site, and the data was shared at scientific conferences and meetings. Many collaborators were involved in the monitoring project, including federal, state, local agencies, university partners, and agricultural producers. The data collected helped to understand the effects of land use and management practices on water quality and water quantity in the watershed.

Fourteen Mile Creek/Goose Creek-OH River Watershed Implementation (Contract # 29443)

The Clark County Soil and Water Conservation District implemented the Watershed Management Plan in the Fourteen Mile Creek/Goose Creek Ohio River Watershed. Various BMPs were installed through the cost-share program, including fencing, alternative watering systems, heavy use area protection, roof run-off system and underground outlet, animal trails and walkways, critical area planting, cover crops, forage/biomass seeding, and a grassed waterway. The estimated load reductions of pollutants from nonpoint sources were 5,720 tons per year of sediment, 5,915 pounds per year of phosphorus, and 111,841 pounds per year of nitrogen. The group prepared newsletters, print media news releases, and social media posts to interact with the public. The public attended events, cleanup efforts, and participation in the cost-share assistance for implementing BMPs. The group held two workshops, one on septic system inspections at the time of property sales, and the other on cover crops.

Lower East Fork White Watershed Management Plan and Implementation (Contract # 30630)

The Pike County Soil and Water Conservation District developed and implemented a watershed management plan for the Lower East Fork White River Watershed. The Watershed Management Plan was successfully developed and approved by the state. BMPs were implemented over 6,140 acres the next year with cost-share implementation dollars and stakeholder funded match projects. The implementation phase contained 19 stakeholders or producers who participated in the cost-share program. Estimated load reductions by the implemented BMPs were over 22,238 tons of sediment, 21,030 pounds of phosphorus, and 62,665 pounds of nitrogen. Additionally, an education and outreach program was implemented within the Lower East Fork White watershed. The program held a workshop on septic system maintenance, as well as various events such as a soil health cover crop cookout, an urban soil health event, and a stream cleanup event.

APPENDIX F

Open and Pending 205(j) Projects							
FFY	Contract #	Contractor	Project	Status	Start Date	End Date	Project Type
2020	48449	Delaware Co. SWCD	Upper White WMP	Open	12/2/2020	12/1/2023	Planning
2021	56800	Washington County SWCD	Twin Creek-Lick Branch	Open	9/30/2021	1/29/2024	Planning
2021	56382	Ohio River Valley Water Sanitation Commission	Operation of Two Continuous Monitors on the Ohio	Open	7/1/2022	6/30/2023	Assessment
2021	43799	U. S. Geological Survey	Nutrient Supergage and HABs at New Harmony	Open	9/16/2021	9/23/2024	Assessment
2022	N22-02	Indiana Department of Environmental Management	Per- and Polyfluoroalkyl Substances in Fish Tissue	Open	6/1/2023	12/31/2025	Assessment
2022	70742	Fort Wayne City Utilities	Cedar Creek Watershed Management Plan	Open	2/22/2023	2/21/2025	Planning
2022	68932	Shelby County SWCD	Little Blue River Watershed Management Plan	Open	12/13/2022	12/12/2024	Planning
2022	70736	Ohio River Valley Water Sanitation Commission	Operation of Two Continuous Monitors on the Ohio	Open	7/1/2023	1/1/2025	Assessment
2022	68804	U. S. Geological Survey	USGS School Branch Monitoring	Open	2/28/2023	2/27/2024	Assessment
2022	68996	City of Goshen	Lower Elkhart WMP	Open	1/12/2023	1/11/2025	Planning
2022	N22-01	Indiana Department of Environmental Management	Climate Change & Environmental Equity assessment	Open	9/1/2022	8/30/2027	Assessment
2022	70728	Vermillion County SWCD	Mill Creek - Wabash River WMP	Open	3/1/2023	2/28/2025	Planning
2023		U. S. Geological Survey	School Branch	Pending			Assessment
2023		Indiana Department of Environmental Management	Per- and Polyfluoroalkyl Substances in Fish Tissue	Pending			Assessment
2023		Monroe County SWCD	Beanblossom	Pending			Planning

Open and Pending 205(j) Projects							
FFY	Contract #	Contractor	Project	Status	Start Date	End Date	Project Type
2023		U. S. Geological Survey	Continuous Monitoring Supergage at Iroquois River	Pending			Assessment
2023		Ohio River Valley Water Sanitation Commission	Operation of two Continuous Monitors on the Ohio River	Pending			Assessment
2023		Indiana Department of Environmental Management	NPS Management Plan	Pending			Program Support
2023		Warrick County SWCD	Little Pigeon	Pending			Planning