



FFY 2022 Annual Report Nonpoint Source Program

INDIANA DEPARTMENT OF ENVIRONMENTAL
MANAGEMENT
OFFICE OF WATER QUALITY

Table of Contents

Table of Figures.....	ii
Table of Tables.....	ii
Introduction to the Nonpoint Source Pollution Management Program.....	1
Indiana’s Nonpoint Source Management Plan.....	4
Nonpoint Source Management Goals and Progress	5
GOAL 1: UTILIZE PARTNERSHIPS TO LEVERAGE RESOURCES AVAILABLE FOR NONPOINT SOURCE MANAGEMENT.....	5
Indiana Conservation Partnership	5
U.S. Department of Agriculture - Natural Resources Conservation Service	6
Indiana Association of Soil and Water Conservation Districts.....	9
Indiana State Department of Agriculture.....	12
Indiana Department of Natural Resources	17
Indiana State Revolving Fund Loan Program	19
GOAL 2: MONITOR AND ASSESS INDIANA WATERS FOR NONPOINT SOURCE IMPAIRMENTS AND IMPROVEMENTS	20
IDEM Surface Water Quality Monitoring Strategy.....	20
Additional Water Quality Monitoring	22
GOAL 3: DEVELOP AND CONDUCT A STRATEGIC OUTREACH AND EDUCATION PROGRAM.....	28
Web-based Products.....	28
Watershed Specialists	28
Indiana Watershed Leadership Academy	29
Indiana Conservation Partnership Training and Certification Program	29
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.....	30
Section 319 Grant Program.....	30
Best Management Practices and Pollutant Load Reductions	33
Nonpoint Source Success Story.....	37
Section 205(j) Grant Program	39
Integrating the Nonpoint Source Pollution Program with the 303(d) Vision	39
GOAL 5: PROTECT SENSITIVE, VULNERABLE, AND HIGH QUALITY WATERS OF THE STATE SO THAT THEY MAY CONTINUE TO MEET THEIR DESIGNATED USES	41
Adaptive Management	42
Appendix A.....	43
Appendix B.....	62
Appendix C.....	63
Appendix D	66
Appendix E	67
Appendix F	72

Table of Figures

Figure 1. Indiana 8-digit HUC Watersheds.	2
Figure 2. Major basins in Indiana that are monitored for surface water quality on a 9-year rotating cycle.	20
Figure 3. Major river basins in Indiana.	35
Figure 4. Load Reductions by Basin in state FY 2022.	36
Figure 5: Number of BMPs Implemented in Indiana by Basin.	36
Figure 6. Little Deer Creek (HUC 051201050503) is in the Deer Creek watershed in north central Indiana.	37
Figure 7. Closing wheel equipment modification for no-till corn and soybean planting.	38
Figure 8. Indiana's TMDL priority framework under the Vision.	40

Table of Tables

Table 1. A summary of the best management practices implemented in Indiana during state fiscal years (FY) 2020-2022.	33
Table 2. A summary of the estimated load reductions reported for BMP implementation in state fiscal years (FY) 2020-2022.	34
Table 3. A summary of the cumulative total estimated load reductions in Indiana since FFY 1999.	35

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.

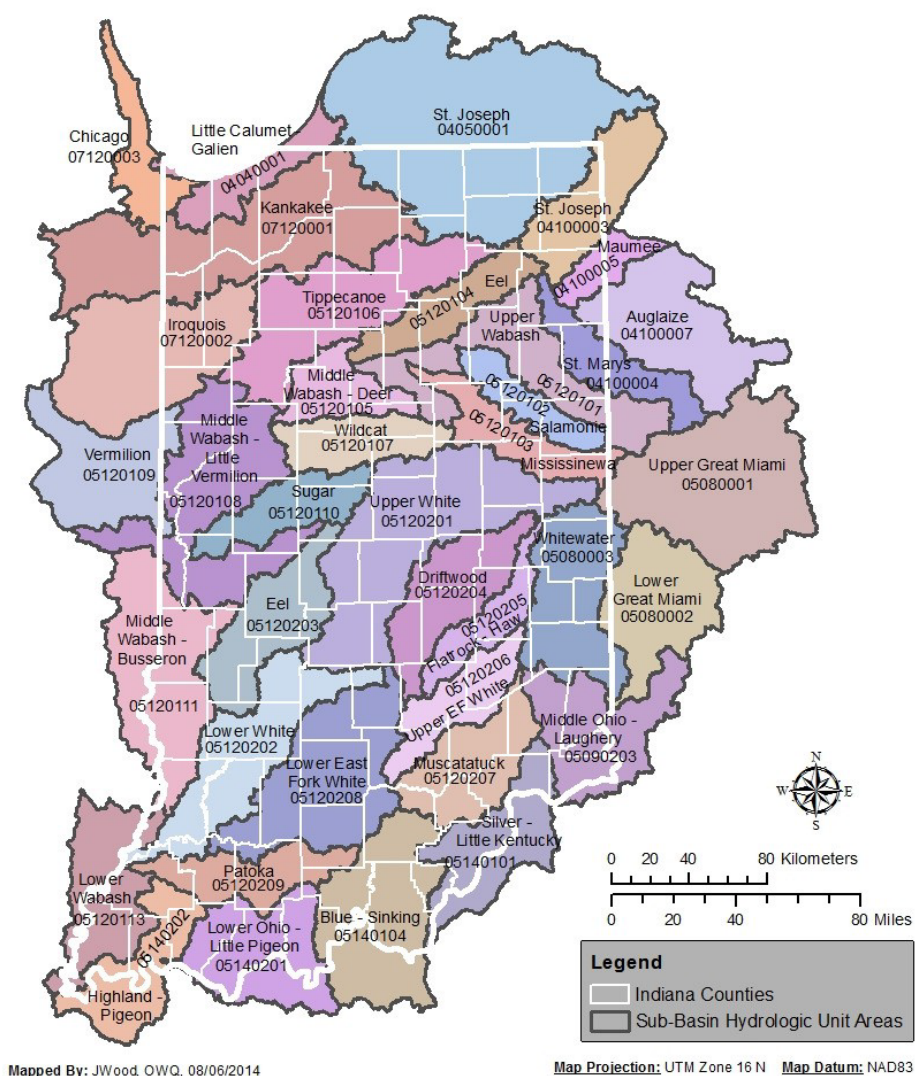


Figure 1. Indiana 8-digit HUC Watersheds.

Project summaries reported in the fiscal year (FY) 2022 Nonpoint Source Program Annual Report were awarded between federal fiscal years (FFY) 2019 and 2022. The state FY 2022 began 1 July 2021 and ended 30 June 2022. 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.

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

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.

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 2022 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 organizations² 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. Load reductions for calendar year 2021:

- Sediment- 906,418 tons
- Nitrogen- 1,989,823 pounds
- Phosphorus- 991,446 pounds

Cover crops and no till farming practices implemented with ICP assistance in 2021 sequestered 42,000 tons of carbon.

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).

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, 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, making use of social indicators to guide actions, 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 enumerates the 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.

NRCS helps landowners develop conservation plans and provides technical assistance for natural resource management, including the installation of conservation practices and systems that meet technical standards and specifications. NRCS also provides financial assistance through Farm Bill programs and targeted initiatives that work with partners on protecting critical natural resources in geographical areas of concern. NRCS' standards and specifications are utilized for many of the cost-share practices implemented through §319 grants, and NRCS Farm Bill conservation programs are utilized as one funding source for implementing local watershed management plans.

Despite the continued challenges that 2021 presented, work continued thanks to the extraordinary effort of our statewide staff. Even as our workforce was forced to work remotely for most of the year due to the COVID-19 pandemic, they continued to impact and help farmers and landowners throughout the state of

³ NRCS releases each fiscal year's report in the subsequent calendar year. Thus, NRCS released FFY 2021 reports in 2022 and therefore, this section of the report shares activities that took place in FFY 2021.

Indiana. More than 1,000 contracts were signed for our technical and financial assistance programs putting more than \$44 million of assistance into Indiana in order to protect and improve our soil, water, forestry, energy, and wildlife resources.

For Federal Fiscal Year (FFY) 2021, 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 2021, NRCS helped Indiana landowners protect and restore 1,705 acres of wetlands.

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 \$11.5 million in CSP funding in FFY 2021. A total of 137 new contracts received funding to treat 101,244 acres of cropland, pasture, and forest.

Environmental Quality Incentives Program

Indiana received more than \$23.6 million in EQIP funding in FFY 2021. A total of 857 contracts were entered into that will address natural resource concerns on 114,637 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. **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 2021, this project had 33 contracts which encompassed 8,318 acres and allocated \$933,628.
2. **Historically Underserved Farmers:** This fund category is for applicants defined as socially disadvantaged, veteran, limited resource or beginning farmer. In FFY 2021, this project had 69 contracts which encompassed 4,180 acres and allocated \$1.8 million.
3. **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 2021, this project had 21 contracts which encompassed 4,747 acres and allocated \$1.48 million.
4. **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 forms as well as managing pesticide use in proximity to monarch habitat. In FFY 2021, this project had two contracts which encompassed four acres and allocated \$3,163.
5. **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 2021, this project had 13 contracts which encompassed 10,729 acres and allocated \$1.17 million.

6. **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 2021, this project had 21 contracts which encompassed 777 acres and allocated \$131,440.
7. **Organic Initiative:** NRCS provides financial payments and technical assistance to help producers implement conservation measures in keeping with organic production. Beginning, limited resource, and socially disadvantaged producers may obtain additional assistance. In FFY 2021, this project had six contracts which encompassed 1,122 acres and allocated \$142,731.
8. **Specialty Crop:** NRCS offers technical and financial assistance to specialty crop growers to enhance water, soil, air, and other natural resources. In FFY 2021, this project had 12 contracts which encompassed 223 acres and allocated \$130,779.
9. **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 2021, this project had 10 contracts which encompassed 5,902 acres and allocated \$815,330.
10. **Working Lands for Wildlife Initiative:** 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 2021, this project had 100 contracts which encompassed 2,850 acres and allocated \$1.48 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. Collectively, RCPP projects included 42 contracts for \$609,435 on 5,530 acres in FFY 2021.

For FFY 2021, NRCS funded the following projects 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 2021, this project had 20 contracts which encompassed 7,892 acres and allocated \$716,241.
2. **Grasslands and Gamebirds Initiative:** Thirty-two partner conservation organizations have come together to address inadequate wildlife habitat by developing grassland and pollinator habitat. The primary goal of the initiative is to develop and manage grassland and pollinator habitat needed by "at risk" bird species. Other goals are to improve soil health and water quality, and to allow hunting access to the habitat established through this initiative. In FFY 2021, this project had five contracts which encompassed 48 acres and allocated \$53,804.

3. **Soil Health on Reclaimed Mine Lands:** The partners work with farmers, landowners, and mine operators to implement a suite of soil health practices on reclaimed mine lands in order to improve the health of the soil, reduce the amount of sediment laden runoff reaching our streams and rivers, and improve wildlife habitat. In FFY 2021, this project had three contracts which encompassed 1,441 acres and allocated \$150,405.
4. **Southern Indiana Young Forest Initiative:** This project was established by 11 partner organizations and focuses on 43 counties in southern Indiana that contain the majority of forested land and provide the best opportunities for incorporating early successional forest regeneration into a predominantly hardwood forest landscape characterized by advanced forest succession. Partners promote and use Best Management Practices, ranging from species-specific silvicultural guidelines to generalized private landowner management recommendations that benefit young forest indicator species like American Woodcock and Ruffed Grouse. In FFY 2021, this project had four contracts which encompassed 325 acres and allocated \$51,729.

IDEM's NPS Program was involved with each of these groups during the project development or the application process for the award.

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 Conservation Cropping Systems Initiative (CCSI) is a program of the Indiana Conservation Partnership (ICP). With oversight from ICP representatives and administrative responsibility from the IASWCD, CCSI works with ICP partners as well as numerous NGOs, commodity groups, and representatives of agriculture retail to provide education on, and promote adoption of, soil health practices on Indiana cropland. These improvements to soil health can result in improved water infiltration, less runoff, decreased erosion, and reduced incidence of flooding – all impacting the sustainability and productivity of Indiana's soil and water quality.

Soil Health Events

- Since its official inception in January 2010, CCSI has participated in over 700 events, reaching over approximately 42,300 attendees.
- In 2021, CCSI materially participated in 73 events, reaching approximately 4,650 individuals, including a series of webinars and virtual farm visits. Videos of the 2021 virtual events have been viewed over 1200 times.
- 2022 Webinars and Virtual Farm Visits are being organized. The first webinar was held on January 11 and the recording is available for viewing on the CCSI website www.ccsin.org.
- Registration for upcoming events may be found at www.ccsin.org/registration-other-events

Trainings

Due to ongoing Covid-19 restrictions, the full scope of CCSI-SARE Soil Health Trainings was again reduced.

- Core Cover Crops and Soil Health Systems Training was held as a series of 3 virtual events. Total attendance was up again – 77 total attendees. These will continue to be held as virtual events in the future.

- Soil Health and Sustainability for Midwestern Field Staff (3-Day Soil Health Training) was held in-person. Attendance was limited to 25 participants to maintain social distancing.
- Advanced Trainings and In-field Diagnostics Trainings were cancelled.
- Other Trainings:
 - TNC Advanced Soil Health Training for Ag Professionals – CCSI provided virtual support through the winter of 2021 and logistical support for in-person events that were held in August and November. Attendance ranged from 15-20 individuals.
 - Hoosier Chapter Winter Meeting – The Social Science of Conservation. CCSI provided support to host the meeting virtually. Opened to the general public, 110 individuals attended live from across the US, Canada, and Brazil.

Podcasts, Website, Social Media, and Other Outreach

- In the fourth season of CCSI-Hoosier Ag Today Soil Health Podcasts, nine were produced. Since their launch, over 10,000 downloads have been made of the episodes.
- The CCSI website www.ccsin.org continues to be updated. Approximately 7,000 unique users have used the site, including over 1,300 visits to “The Root Project”.
- The Root Project <https://www.ccsin.org/root-project>, launched in the fall of 2020, and downloads continue to grow. The Root Project was also featured in the Sept/Oct 2021 edition of the John Deere Furrow magazine, which has a circulation of approximately 500,000 in North America alone. A pilot project creating full-scale banners of select cover crop roots has been launched.
- Twitter posts continue to reach wide audiences, garnering just under 450,000 impressions in 2021.
- Facebook continues to reach audience in 2021 with engaged users totaling 6,300, a total daily reach just under 152,000, and garnering 185,000 total impressions.

Webinars and Virtual Farm Visits

With a quick pivot to virtual formats during 2020, CCSI purchased subscriptions to enable continued delivery of soil health outreach and education. In addition, several “virtual field day kits” were purchased for shipping to presenters, enabling live remote visits. Calendar 2021 topics included Soil Health Economics, High-residue Planter Set-up, Planter Modifications for High-residue Systems, and “Bio Strip-tilling”. Over 650 individuals attended the events “live” and recorded videos were viewed over 2400 times.

“Mini-Grants”

Due to a substantial decrease in travel and event expense as a result of COVID restrictions, a request for proposals was put out in April 2020. Local level partners were encouraged to submit proposals for projects that targeted outreach and education for soil health on Indiana cropland – with an emphasis on reaching those new(er) to soil health practices. Reviewed on a rolling basis, 19 projects totaling just over \$40,000 were approved. Projects ranged from \$500 to purchase and distribute Cover Crop Field Guides at grain elevators and seed dealers to \$7,800 to support multi-use portions of a soil health trailer. Most projects were under \$1,000. The mini-grant project also provided opportunities to better connect local partners with others working on similar projects – allowing leveraging of resources and serving as a concept incubator. Based on the success of the project, Indiana TNC is seeking funds to replicate the “mini-grant” process with CCSI.

Purdue Agricultural Center Partnerships

CCSI reached out to the Purdue Agricultural Centers (PACs) to explore the possibility of supporting soil health demonstration projects and strengthening the partnership with the PACs. Provided with spreadsheets of all demonstration and research projects the PAC superintendents considered to be related to soil health, CCSI has connected researchers with cover crop breeders interested in their projects. CCSI was also able to provide connectivity with seed suppliers and equipment dealers to secure deeper discounts on purchases. Looking to cropping year 2022, CCSI seed suppliers have already expressed interest in furthering partnerships with the PACs.

More information about the program, its activities, and resources may be found on its website ccsin.org.

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 \$16,000 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 benefits to soil 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 2022, 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 statewide. 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.

The IASWCD is a member of the National Association of Conservation Districts (NACD), whose mission is to serve conservation districts by providing national leadership and a unified voice for natural resource conservation. The NACD, in partnership with USDA's NRCS, awarded in early 2021, grants to several

Indiana districts and the IASWCD/CCSI to help boost technical assistance for agriculture and conservation implementation in Indiana.

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 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.

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.

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
- Filter Strips

According to the states tracking system, CREP Progress as of May 13, 2022, includes 21,633 acres of conservation practices installed utilizing \$9.89 million state dollars and protecting approximately 1005 miles along Indiana's rivers, lakes, and streams. 8,056 acres are protected through bottomland timber establishments in the floodplain, and 5,794 acres are protected through wetland restorations. Enrollment in the CREP Program is over 22,972 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 2022, 13 applications submitted by SWCDs were funded, totaling \$789,825 and impacting 18 SWCDs. Funded projects include cost-share programs, staffing for technical assistance and project coordination, equipment, educational displays, field days, and marketing and outreach programs. There was also one non-SWCD led project that was awarded funding totaling \$60,000 to the Southern Indiana Cooperative Invasives Management for regional specialists to help all counties address invasive species concerns. Applications for the 2023 CWI Grant cycle will be accepted through September 8, 2022.

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). The mission of CCSI is to improve the soil health on Indiana's cropland. The initiative does that by providing soil health trainings that are the core of soil health messaging by Indiana Conservation Partnership (ICP) staff. CCSI training has enabled the ICP to build teams of professionals who are able to provide consistent, science-based, and farmer-proven soil health messaging to Indiana farmers and landowners statewide. Rather than focusing solely on financial assistance, trained staff focus upon successful adoption of practices. Combined with CCSI's recruitment of experienced farmers to serve as advisors and mentors, the effects of this training are reflected in the adoption of practices without programmatic financial assistance.

In addition, CCSI provides assistance to local level partnerships by helping them develop and present their own field days geared to specific audiences. Since its official inception in 2010, CCSI has participated in

over 700 education events in over 84 of Indiana's 92 counties and has reached over 42,300 attendees. In 2021 alone, despite COVID-19 restrictions, CCSI participated in 73 events, reaching approximately 4,650 individuals, including a series of webinars and virtual farm visits. Videos of the 2021 virtual events have been viewed over 1200 times.

INField Advantage

[INField Advantage](#) (INFA) is a proactive, collaborative opportunity for farmers to collect and understand personalized, on-farm data to optimize their management practices to improve their bottom line and benefit the environment.

INFA started in 2010 as a pilot project in Jasper County in northwest Indiana, and included 15 producers, 39 fields and 2,700 acres. For the next 8 years, it expanded to include many areas of the state and the program had enrolled over 1,000 fields in more than 60 counties in Indiana.

In 2019, the program received a Conservation Innovative Grant (CIG) from the USDA Natural Resources Conservation Service 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, which with 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 the Upper White watershed in Randolph, Madison, Delaware, Henry, Hancock, Hamilton, Tipton, Marion, Johnson, Morgan, Hendricks, and Boone counties. The focus is to target first time cover crops 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. All counties in the state are eligible for \$5.00/acre for cover crops planted through USDA-RMA's Pandemic Cover Crop Program, but an additional \$5.00/acre is available through ISDA's Cover Crop Premium Discount Program in the Upper White targeted counties. 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.

Nutrient Load Reduction Modeling and Mapping

The Indiana Conservation Partnership (ICP) is currently using the EPA Region 5 Sediment and Nutrient Load Reduction Model to determine the impact on Indiana's water quality achieved by conservation best management practices (BMPs) implemented on agricultural land. It is part of a collective effort to generate a comprehensive statewide picture of installed voluntary conservation practices that are implemented through assistance from all the ICP staff. 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/>. 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.

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 Ag.

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.

Through this component, water quality monitoring data from the Indiana Department of Environmental Management's Fixed Station Network and the United States Geological Survey's (USGS) stream gage network is collected at key locations along the state borders and within each major river basin in the state. Data is analyzed and run through the USGS Weighted Regressions on Time, Discharge, and Season (WRTDS) model to determine water quality trends of nitrogen and phosphorus loads and concentrations. Analyzing water quality monitoring information to determine loading and trends within each of the basins in the state will further help in prioritizing watersheds for more targeted conservation efforts in the future. Partners and stakeholders within the state that are a part of the sub-committee for Component 1 include staff from the Indiana State Department of Agriculture, the Indiana Department of Environmental Management, the United States Geological Survey, and the Indiana Chapter of The Nature Conservancy.

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) was formed to provide experience and guidance on the data analysis and practice criteria, as well as provide scientific input and evaluation of the process.

This component also includes a collective list and 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 as practices are added to the Indiana Science Assessment process.

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 2021 late winter – early spring transect results, Indiana farmers set a conservation record by planting an estimated 1.5 million acres of overwinter living covers, the largest amount ever recorded by the ICP survey. 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 2022 late winter – early spring transect on 2021 data have not been calculated and will be available in the summer of 2022.

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

ISDA houses on its [website](#) a GIS Basin Story Map of each of the ten (10) major river and lake basins in Indiana. The purpose of the GIS Basin Story Map applications is to showcase Indiana's efforts to enhance water quality within the ten major river and lake basins in Indiana, as well as educate landowners, both rural and urban, about local, state, and federal cost-share programs, educational opportunities, and rural and urban conservation practices. The story maps feature interactive maps which allow users to click on watersheds, water monitoring locations along with links to water quality data, and educational sites to view detailed information about each basin. There is also information about local watershed groups and organizations, the number of conservation practices in specific subwatersheds, nutrient load reductions from BMPs, and links to active grants. The GIS story maps have made [Indiana's Nutrient Reduction Strategy](#) more interactive, and are updated each year with relevant information.

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 the spring of 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. Summer FFY 2022 grants for biological and engineering projects, and watershed land treatment projects will be awarded in early September.

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-

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

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 (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.

In September 2021, the LMCP, in conjunction with the NW Indiana Septic System Coordination Work Group, promoted the annual EPA SepticSmart Week with a proclamation of Septic Smart Week by the Indiana Governor.

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, 38,130 acres of land are now permanently protected, over halfway to the goal of 70,000 protected acres. The DNR has acquired 12,077 acres in the Wabash River and Sugar Creek Conservation Areas, and 4,407 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 16,484 **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 2022 (July 1, 2021 - June 30, 2022), the SRF Program loaned \$20.2 million to three communities for projects to reduce NPS pollution by extending sanitary sewers to areas with septic systems, thereby eliminating this potential source of pollution. Approximately 1226 septic systems will be eliminated through these projects. The program also completed financing for \$1.1 million with one community to improve a stormwater management system. Throughout the life of the SRF NPS Program, \$430 million has been loaned for NPS purposes. Approximately 19,095 septic systems have been removed from service, eleven Brownfield sites have been remediated, and nine 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 gains 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 [Indiana Water Quality Monitoring Strategy 2017-2021](#). 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 2022 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 9-year rotating cycle. The first cycle began in 2011 and was completed in 2019 in the Lower Ohio River Basin. In FY 2022, monitoring was ongoing in the Patoka River basin (05120209) and sampling began in the East Fork White River watershed (HUC 05120204, 05120205, 05120206, 05120207, 05120208). The results of this monitoring effort will be used to:

1. Provide data on which 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.

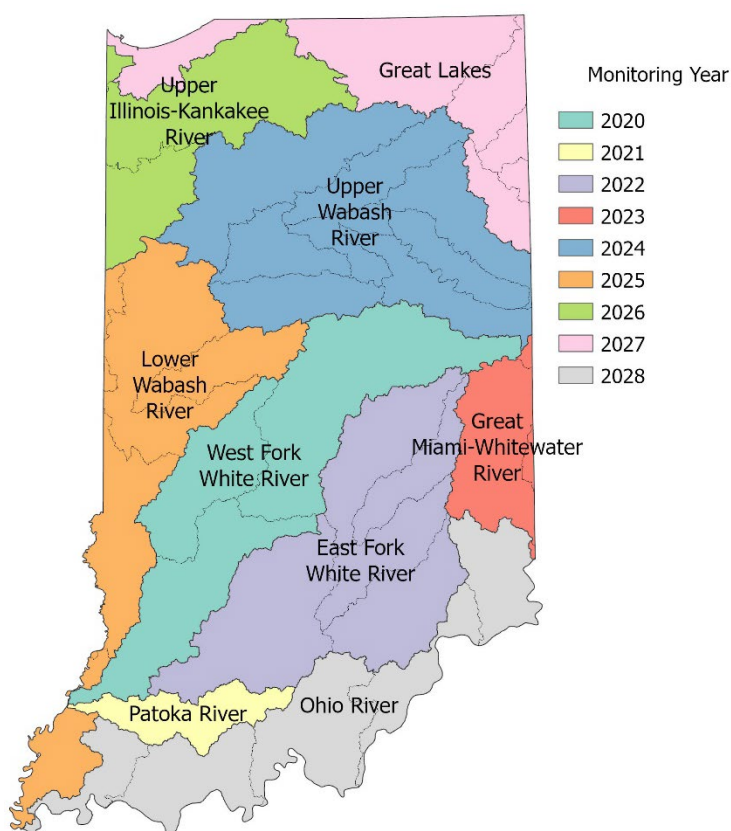


Figure 2. Major basins in Indiana that are monitored for surface water quality on a 9-year rotating cycle.

3. Provide baseline data for watershed management decisions.

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 target 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 BMP implementation.

The following is an update of all closed, ongoing, and planned watershed characterization studies in FY 2022.

- Vernon Fork-Muscatatuck River (HUC 0512020707) - Water quality monitoring in the Vernon Fork-Muscatatuck River watershed began in November 2020 and concluded in October 2021.
- Black Creek (HUC 0512020206) - Water quality monitoring in the Black Creek watershed began in November 2021 and is to be completed by 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.

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), Mejenica 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). 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 2022 are described under Goal 4 of this document.

Ground Water Monitoring Network (GWMN)

Across the State of Indiana, ground water monitoring showed arsenic at concentrations ranging from 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. 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. Addressing the charge balance issues will allow for geochemical modeling of the GWMN dataset to 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 2022, 12 HRW workshops were held and 52 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 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 48 refill requests during this federal fiscal year.

Indiana Clean Lakes Program

The School of Public and Environmental Affairs (SPEA) 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-SPEA staff and students. The current grant agreement, which is in effect from May 2019 through April 2023, includes the following components:

- Annual sampling of 80 lakes and reservoirs (selected via a randomized approach) at one site for a variety of parameters. 2021 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. Volunteers are also trained to identify aquatic macrophytes and aquatic invasive species, including zebra mussels.
- Education and outreach through the production and distribution of the newsletter, Water

Column; maintenance of the [Indiana Clean Lakes Program](#) website; preparation of brochures and fact sheets; 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 has been funded for six years with \$319 funds to collect and interpret scientific data about water quality and water quantity in the School Branch watershed (the project began on January 11, 2016 and will end on November 30, 2022). 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 is also being completed. Data from the study will be 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 2022. 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 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 actively 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 available to the public. The website provides general information on the External Data Framework along with a frequently asked questions (FAQ) page, data solicitation schedules and timelines, and a technical assistance page. 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 three options for data submittal through OWQ's Secondary Data Portal. All participants in the External Data Framework will enter the system through a single Secondary Data Portal where they may select to 1) enter their data online via user-friendly forms into a database that will produce a Microsoft (MS) Excel file formatted for upload into OWQ's Assessment Information Management System (AIMS) database, 2) use a MS Excel template provided by OWQ that can directly upload into AIMS, or 3) request the development of an electronic data interchange 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 Secondary 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 WQX with "CWA319" in the project ID. In 2021, four datasets were uploaded into the national dataset: St. Mary's River, Lower Kankakee River, Lake Monroe, and Deer Creek-Sugar Creek watershed projects. 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 2022 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 secondary 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 our ability to confidently use 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 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 interactive 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. Two applications (apps) created in and reported on in 2021 include the [TMDL-NPS Story Map](#) and the [WMP and TMDL Report Search Tool](#) (WATRS Tool). The WATRS Tool is updated on a rolling basis as TMDLs and WMPs are approved by EPA. The [Indiana Impaired Waters e303d Tool](#) was updated in FY 2022 to combine information from the WATRS tool with EPA ATTAINS data on 303(d) identified impaired waters of the state. It was created to provide a more complete overview of the activities and information for a given watershed.

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 2022 are:

- Assisted approximately 64 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 500 people have participated in the Academy learning skills in organization and communication, watershed technology, geographic information systems, policy, watershed science, and leadership. The 2022 Academy was held in a hybrid virtual and in-person format with thirty-two participants in attendance. There were 6 three-hour long virtual workshops held biweekly from January to March. A two-day face-to-face workshop was held in March where participants gave 5-minute lightning talks on watershed or work-related topics. The program concluded with an in-person graduation ceremony on May 25, 2022.

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 and the Senior Project Manager attended the graduation ceremony to support the graduates and network with prospective grantees. The IWLA is funded in part through §319 grants. FFY 2017 funds were awarded to IWLA through January 8, 2022 and FFY 2021 funds were awarded with the agreement beginning in January 2022 and ending in December 2025.

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 2020, the ICP surveyed the partnership for training needs. A survey was developed to collect information on specific needs for training workshops. Twenty-five training needs were identified as "high priority" and included topics such as invasive plant identification, backyard conservation and wildlife, pollinators, cover crops, and weed identification. In FY 2022, there are seven sessions located across the state for invasive plant identification training. The training sessions calendar and recordings from past sessions are available on the ICP [website](#).

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 2022 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 2022 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 2022 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 to 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 2022 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 2022) 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 2020 [§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 2022) 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 2022) 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 2–3-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.

Eight watershed projects allocated for funding in FY 2022 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 projects allocated for funding in FFY 2022 include program support funding, one planning project, and one ongoing assessment project. Currently, there are 46 open or pending §319 projects, of which 34 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 (2019-2022).

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 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 2022, watershed groups spent approximately \$1,039,301 (reported through May 10, 2022) 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 \$1,392,397 and \$1,454,038 in funding to implement BMPs in state fiscal years 2020 and 2021, 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) 2020-2022.

BMP	Approximate Number FY 2020	Approximate Number FY 2021	Approximate Number FY 2022
Cover Crop (acres)	23,375	30,768	10,005
Fence (feet)	18,993	34,052	21,710
Grassed Waterway (acres)	7.4	11	1.2
Heavy Use Area Protection (sq. ft)	83,613	125,718	79,720
Nutrient Management (acres)	299	6,707	0
Pasture and Hay Planting (acres)	774	367	77
Residue Management, No-Till (acres)	6,756	3,096	0
Tree and Shrub Establishment (each)	12	48	260
Watering Facility (each)	13	17	19
Rain Barrels (each)	6	4	2
Rain Gardens (sq. ft)	300	1,289	693
Native Planting (sq. ft)	0	675	39,094
Streambank and Shoreline Protection (sq. ft)	2,470	3,222	165

Additional BMPs implemented this year include adding access roads, equipment modification, grassed swales, stormwater runoff control, 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 Spreadsheet Tool for the Estimation of Pollutant Load (STEPL) 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 2022 compared with the last two years are shown in Table 2.

Table 2. A summary of the estimated load reductions reported for BMP implementation in state fiscal years (FY) 2020-2022.

Nonpoint Source Pollutant	Estimated Reduction FY 2020	Estimated Reduction FY 2021	Estimated Reduction FY 2022
Sediment (tons/yr.)	127,831	122,508	61,096
Phosphorus (lbs. /yr.)	144,250	241,287	65,795
Nitrogen (lbs. /yr.)	284,443	530,984	134,146
Biological Oxygen Demand (lbs. /yr.)	135	80	300
Chemical Oxygen Demand (lbs. /yr.)	873	238	1,580
Suspended Solids (lbs. /yr.)	625	5,482	62,706
TKN (lbs. / yr.)	7	0	0
Pathogens (coliform)*	1.324E+18	1.324E+18	0*
<i>E. coli</i> *	-	1.98E+13	9.04E+14

*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.

A summary of the cumulative total estimated load reductions reported in Indiana from §319 projects since reporting begin in FFY 1999 through May 10, 2022, are shown in Table 3.

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.)	1,315,864
Phosphorus (lbs. /yr.)	1,886,157
Nitrogen (lbs. /yr.)	3,718,528

BMPs and Load Reductions in FFY 2022

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 3).

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 10% 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 2022 in each of the five basins (Figures 4 and 5).

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 Subcommittee. Many efforts are currently underway to target harmful algal blooms and reduce the amount of phosphorus entering Lake Erie.

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 were no implementation projects in the Upper Mississippi River Basin in FY 2022.

Fifteen projects working in the Wabash River Basin this year reduced nutrient loads to the river as shown below. The estimated load reductions achieved include 21,191 tons of sediment, 94,635 pounds of phosphorous, and 165,026 pounds of nitrogen.

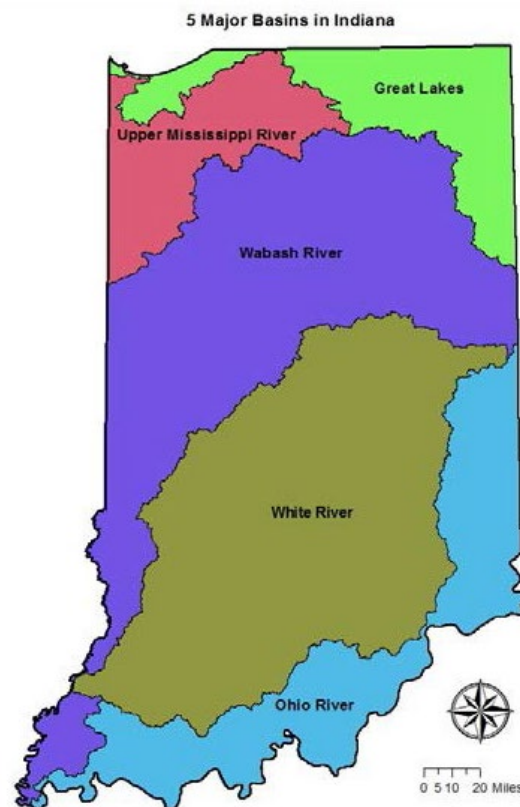


Figure 3. Major river basins in Indiana.

Six projects in the White River Basin worked to reduce nitrogen, phosphorus, and sediment in the watershed. The estimated load reductions are 42,900 tons of sediment, 45,650 pounds of phosphorous, and 156,007 pounds of nitrogen.

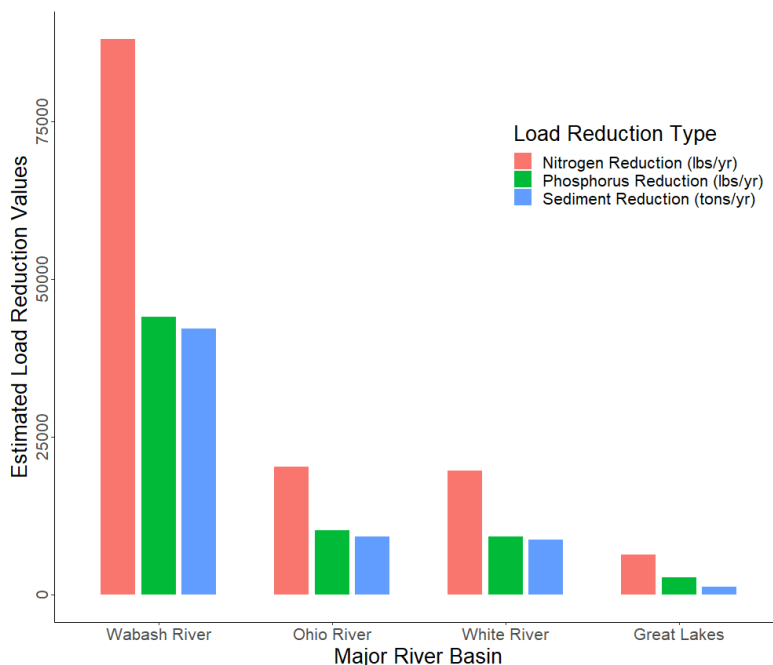


Figure 4. Load Reductions by Basin in state FY 2022.

Ten projects worked in the Ohio River Basin to reduce nitrogen, phosphorus, and sediment. These reductions came primarily from implementation of cover crops and residue management BMPs. These BMPs have estimated reductions of 29,203 tons of sediment, 29,931 pounds of phosphorous, and 59,528 pounds of nitrogen.

Combined, the projects in areas that ultimately drain to the Gulf of Mexico had estimated load reductions of 93,294 tons of sediment, 170,216 pounds of Phosphorous, and 380,561 pounds of Nitrogen.

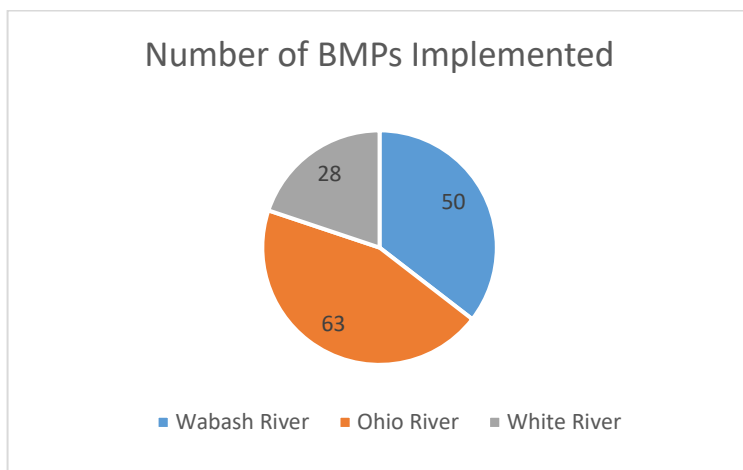


Figure 5: Number of BMPs Implemented in Indiana by Basin.

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.

Agricultural Best Management Practices are a Boon for Macroinvertebrate Communities in Little Deer Creek

Waterbody Improved

Little Deer Creek is an 11.94-mile-long tributary of Deer Creek in Carroll and Howard counties. The Indiana Department of Environmental Management (IDEM) listed the stream on its Clean Water Act (CWA) Section 303(d) List of Impaired Waters in 2016 for high levels of *Escherichia coli* and in 2018 for impaired biotic communities. These and other pollutants have been a persistent problem in the greater Deer Creek-Sugar Creek watershed and led to the creation of the Deer Creek-Sugar Creek Watershed Management Plan (WMP) in 2014. Various agricultural best management practices (BMPs) were implemented in the following years, and follow up sampling on Little Deer Creek in 2019 indicated that the segment now fully supports aquatic life. IDEM will propose to remove the biotic community impairment from its impaired waters list in 2022.

Problem

Little Deer Creek joins with Deer Creek in Carroll County, just southeast of Camden, in north central Indiana (Figure 6). Its water flows through the larger Deer Creek-Sugar Creek watershed and eventually drains into the Wabash River. The Little Deer Creek subwatershed covers approximately 20 square miles, with agricultural land uses accounting for the majority of the subwatershed. According to the 2014 Deer Creek-Sugar Creek WMP, a 2013 windshield survey identified livestock access and streambank erosion as the major stream-related concerns for Little Deer Creek. Figure 6. Little Deer Creek (HUC 051201050503) is in the Deer Creek watershed in north central Indiana.

In 2015, IDEM's Probabilistic Monitoring Program sampled Little Deer Creek (INB0553_01) and discovered a failing Index of Biotic Integrity (IBI) score of 32 for its macroinvertebrate community. An IBI score of less than 36 in Indiana indicates that a stream is not supporting a well-balanced aquatic community. This led IDEM to list the segment on its 2018 CWA Section 303(d) List of Impaired Waters for impaired biotic communities.

Story Highlights

In fall 2010, the Carroll County Soil and Water Conservation District (SWCD) submitted a CWA Section 319 Nonpoint Source Program grant application to IDEM and identified watershed partners that would

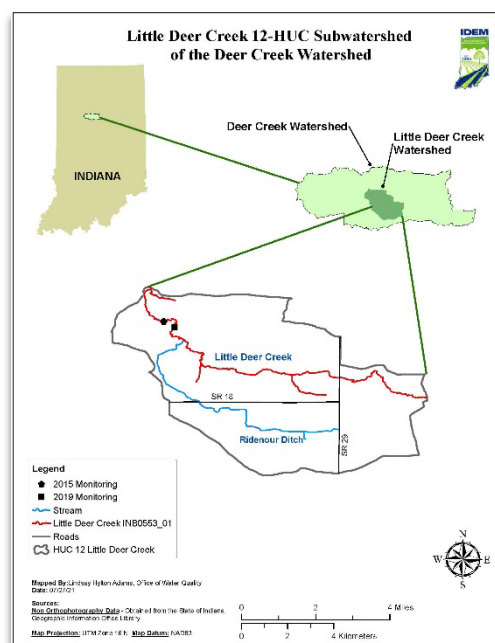


Figure 6. Little Deer Creek (HUC 051201050503) is in the Deer Creek watershed in north central Indiana.

become part of the project's steering committee. The purpose of the grant was to produce a WMP for the Deer Creek-Sugar Creek watershed, provide education and outreach to the community, assess stakeholder opinions, monitor water quality, and develop a cost-share program. The project's overarching goal was to improve water quality in the Wabash River. The grant was awarded, and the Deer Creek-Sugar Creek WMP was approved in 2014.

The Carroll County SWCD received a 319 implementation grant in 2011 and again in 2017, totaling \$859,626, which supported implementing over 3,995 acres of cover crops, 203 acres of nutrient management with manure, 124 acres of no-till field management, 130 acres of mulch-till field management, 0.2 acres of grassed waterways, one waste facility closure, one stream crossing, two heavy use protection areas, one mulch-till equipment modification, one nutrient management equipment modification, one no-till equipment modification, three cover crop equipment modifications, and one conservation plan in the Little Deer Creek subwatershed (Figure 7). Additionally, the U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) helped implement 2,178 square feet of seasonal high tunnel for crops and 1,018 acres of cover crops in the subwatershed in 2015–2017 through the Environmental Quality Incentives Program (EQIP).



Figure 7. Closing wheel equipment modification for no-till corn and soybean planting.

Results

In 2019, IDEM returned to Little Deer Creek to conduct follow up performance monitoring on the stream. The monitoring now showed an improved macroinvertebrate IBI score of 40. The fish IBI (which was not previously failing) had also remained the same, with a score of 46. Although the Qualitative Habitat Evaluation Index score decreased from the 2015 score, it was still passing and showed improvement in the individual scores for bank erosion and riparian zone quality. As a result, IDEM is proposing to remove the biotic community impairment for Little Deer Creek from the list of impaired waters in 2022.

Partners and Funding

The Little Deer Creek subwatershed has benefited greatly from various partnerships aimed at restoring the greater Deer Creek-Sugar Creek watershed. The Wabash River Enhancement Corporation was responsible for writing the Deer Creek-Sugar Creek WMP, in addition to guiding plan development, coordinating and facilitating committee meetings, and planning and implementing water quality and watershed information gathering. Purdue University was also responsible for collecting and analyzing water quality data and conducting stakeholder surveys. The \$859,626 in CWA 319 grant funding awarded to the Carroll County SWCD for planning and implementation projects in 2011 and 2017 resulted in the development of the WMP, extensive agricultural BMP implementation within the Little Deer Creek subwatershed, as well as technical assistance and education efforts. Furthermore, the Carroll County SWCD provided local match of around \$96,133 in 2015–2019 for these BMPs and a total of \$890,626 to date for the two 319 projects as a whole. The NRCS also played a role in the watershed's improvement by providing BMP promotion, design and installation at a total cost of \$53,768 through EQIP.

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 \$386,729 in FFY 2021 funds. These funds will be used for one watershed management plan development project with Washington County SWCD for Twin Creek-Lick Branch. Two monitoring projects were also funded, one with Ohio River Valley Water Sanitation Commission (ORSANCO) and one with U.S. Geological Survey. IDEM received \$738,000 for projects under expanded Section 604(b) FFY 2022. Four watershed planning projects have been proposed: 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. Additional projects with USGS and ORSANCO have also been proposed. A list of all 205(j) projects open or pending during this fiscal year is in Appendix F of this report.

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

In FFY 2014, U.S. EPA announced that it was working with states to develop and implement a new framework to achieve the goals of CWA §303(d). This framework is known as the Long-Term Vision for Assessment, Restoration, and Protection under the Clean Water Act §303(d) Program. In FFY 2015, IDEM Nonpoint Source Pollution Program worked with the TMDL program to identify priorities according to the IDEM's TMDL Program Priority Framework (Figure 8) that would complement Nonpoint Source Pollution Program efforts. In FY 2022, IDEM TMDL continued to implement the vision by monitoring for watershed characterization in priority 10-digit watersheds, working with local watershed groups to raise awareness of water quality issues, and completing TMDL reports for submission to U.S. EPA.

Also in FFY 2022, as EPA and states worked to define the outcomes of Vision 1 and how to transition between the Vision periods, IDEM TMDL staff continued to revise the list of candidate watersheds for future TMDLs using IDEM's TMDL Program Priority Framework. The framework identifies watersheds that are good candidates for a TMDL based upon ability to meet aquatic life designated use, status as an impaired water, a lack of an existing TMDL or WMP, and stakeholder interest. Additional criteria include whether a watershed contains a surface water intake and/or a public access point, watersheds that are home to endangered or threatened species, or watersheds aligned with other State of Indiana priorities. IDEM will enter its bridge TMDLs into ATTAINS by the end of FY 2022 as required.

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 (examples include North Laughery Creek, Lower Salt Creek, Maria No Business Creek, Vernon Fork Muscatatuck).

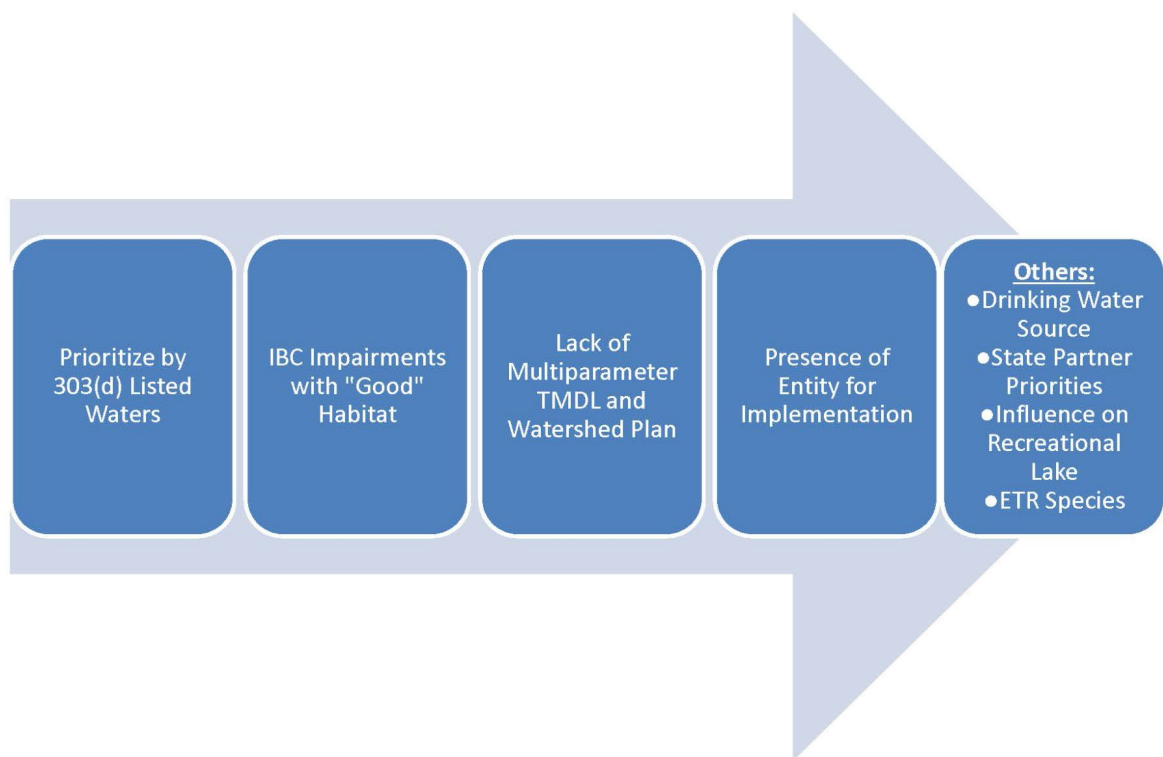


Figure 8. Indiana's TMDL priority framework under the Vision.

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 2022, IDEM has continued its efforts to protect vulnerable landscapes, species, and designated uses. One example of this is in the South Fork Blue River watershed – a watershed in the karst region of southern Indiana. This area is known for its sinkholes, springs, caves, and disappearing streams. The South Fork Blue River empties into the Blue River, the last remaining Indiana refuge of the state-endangered eastern hellbender (*Cryptobranchus alleganiensis*) and work in the watershed is intended to benefit the species by maintaining the water quality in the Blue River as well as improving water quality to the point of providing favorable habitat in the South Fork. 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.

In 2022, the IDEM Nonpoint Source Pollution Program encouraged its applicants to work in sensitive, vulnerable, and high-quality waters by making these waters a priority of the solicitation. Ninety-eight watersheds were defined under this priority. Six applications proposed to address a protection watershed and were in turn recommended to EPA for funding under the §319 or 205(j) grant programs.

Adaptive Management

The Nonpoint Source Program continues to recover well from the most hard-hitting effects of the global pandemic, such as education and monitoring aspects hampered by the need to isolate and landowners reluctant to take on financial risk at an uncertain time. With the high vaccination rate and lowered incidence of disease, education has mostly approached former levels or taken on a virtual nature when possible. The exception to this has been the Hoosier Riverwatch Program, which not only suffered from the effects of the pandemic, but also the loss of a long-time coordinator and then that coordinator's replacement. Twelve of the twenty anticipated workshops took place this year. The new coordinator and program management have provided ideas for how to keep this from recurring for another year and to attempt to get more workshops scheduled this calendar year.

Staff turnover has also kept the program from completing changes to its watershed management plan checklist as it had intended. A new staff lead has been identified for the project and IDEM anticipates completing the project in FY 2023. IDEM has also had conversations with its sibling agency, the ISDA, regarding how to work more closely together on sediment and nutrient messaging subsequent to the end of the reporting period. It is anticipated that more movement will be made on that issue in FFY 2023.

The State Nonpoint Source Management Plan will need to be revised by the end of FY 2023 and IDEM is already considering how it may serve the program best to change goals or objectives, particularly on educational items that have not seen much movement, as well as how we are interfacing with partners.

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.						
Objective			FFY Start	FFY End	Frequency	Complete
4.8		Update IDEM 2009 WMP Checklist. Progress: Work on the checklist paused once again for several months. It is currently being edited. NPS staff met on 6/9/2022.	2019	2021 2023	one-time	Ongoing – Some progress

APPENDIX A

Reportable Activities for state fiscal year 2022 (1 July 2021 – 30 June 2022)

Goal 1: Utilize partnerships to leverage resources available for nonpoint source pollution management.						
Obj. #	MM	Objective	FFY Start	FFY End	Frequency	Complete
1.1		Assist Indiana Department of Natural Resources, Lake Michigan Coastal Program to obtain full approval of the final outstanding septic measure on the LMCP CNPCP. Progress: Interim approval of the final measure of the CNPCP was received in 2021 and final approval of the program is awaited. IDEM assistance is provided to DNR-LMCP as requested.	2019	2022	Completed	Completed
1.1	a	Nonpoint source pollution Northwest watershed specialist will assist the LMCP with on-site disposal systems measures as needed/requested. Progress: FFY17 Lake Michigan Coastal Program (LCMP) project (#26374) closeout was successful this year. The NE WSS attended several Costal Advisory Board meetings and provided input for the 2022 LMCP Grants pre-proposal review.	2019	2022	Completed	Completed
1.1	b	Nonpoint source pollution Northwest watershed specialist will manage and assist IDNR Coastal Program with grant "On Site Disposal System Outreach and Education/Targeted Source Tracking Project" for successful completion beyond the final measure acceptance. Progress: FY17 Lake Michigan Coastal Program project (26374) closeout was successful. A septic map was created showing the location of all known and probable septic system parcels within the Lake Michigan Coastal Zone. Forty-one outreach events were completed resulting in the distribution of 104 "We're Pumped" yard signs. Twenty Neighborhood Ambassadors were trained.	2019	2022	Completed	Completed
1.2	a	Provide implementation support for the Coastal Zone TMDLs. Progress: The NE WSS attended Coastal Advisory Board meetings and provided input for the 2022 LMCP Grants pre-proposal review. NW WSS attended meetings for and provided support for Trail Creek implementation. No BMPs or load reductions were reported this fiscal year in the Lake Michigan Coastal Zone.	2019	2023	Ongoing	Ongoing – Complete for 2022
1.2	b	Provide implementation support for the Coastal Zone WMPs. Progress: FY17 Lake Michigan Coastal Program project closeout was successful. The NE WSS provided input for the 2022 LMCP Grants pre-proposal review. NW WSS attended meetings for and provided support for Trail Creek implementation. No BMPs or load reductions were reported this fiscal year in the LM Coastal Zone.	2019	2023	Ongoing	Ongoing – Complete for 2022
1.3	a	Northwest watershed specialist will continue to participate in relevant meetings regarding the CNPCP. Progress: The final management measure Indiana needed to receive approval upon received interim approval in March 2021. NOAA has advised that, as of February 2022, the federal agencies are updating their older interim decision documents to prepare	2019	2023	Ongoing	Ongoing - Significant progress

Goal 1: Utilize partnerships to leverage resources available for nonpoint source pollution management.						
Obj. #	MM	Objective	FFY Start	FFY End	Frequency	Complete
		a comprehensive proposed decision to solicit for public comment. Until that draft is ready for review, nothing further is required of the state to complete the CNPCP.				
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. Progress: See each sub-objective below for a progress report. LARE: Watershed Specialists recommended LARE program funding to approximately 13 stakeholders. GLRI: GLRI program funding was recommended to stakeholders for 1 project. RCPP: IDEM pledged monitoring support for Purdue's "Farmers Helping Hellbenders" 2022 RCPP proposal. Septic funding information was shared with approximately 12 stakeholders. Clean Water Indiana grants were promoted as a source for match funds to 2 groups.	2019	2023	ongoing	Ongoing - Significant progress
1.4	a	Forward solicitation or information as it becomes available. Progress: The watershed specialists share funding opportunities and statewide initiative information with groups and stakeholders in their regions as notices become available. There were approximately 56 announcements sent to groups.	2019	2023	ongoing	Ongoing - Significant progress
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 watershed specialists attended 2 ICP planning meetings. The Branch Chief participated in bimonthly ICP Leadership meetings.	2019	2023	ongoing	Ongoing - Significant progress
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: The watershed specialists share funding opportunities with groups and stakeholders in their regions as notices become available. Examples of funding that have been passed along include LARE funding was recommended to a total of 13 projects, GLRI funding was recommended to 1 project, and Clean Water Indiana grants were suggested to 2 groups. The 319-grant solicitation was sent directly to all SWCD contacts in Indiana and the website was maintained with up to date information.	2019	2023	ongoing	Ongoing - Significant progress
1.4	d	Include program information in relevant TMDLs as methods for implementation. Progress: The Maria Creek (approved Sept. 14, 2021), Raccoon Creek (in progress), and Black Creek (in progress) TMDLs include a description of the programs listed in Objective 1.4 as means	2019	2023	ongoing	Ongoing - Significant progress

Goal 1: Utilize partnerships to leverage resources available for nonpoint source pollution management.						
Obj. #	MM	Objective	FFY Start	FFY End	Frequency	Complete
		to implement nonpoint source programs in the Reasonable Assurances/Implementation section.				
1.4	e	Coordinate with ICP partners on meetings and workshops. Progress: The watershed specialists attended 2 ICP planning meetings. The Section Chief spoke about how to apply for nonpoint source grants at a Lunch and Learn workshop presented for members of the ICP in spring 2022.	2019	2023	ongoing	Ongoing - Significant progress
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 watershed specialists attended 2 ICP planning meetings. The Branch Chief participated in bimonthly ICP Leadership meetings.	2019	2023	ongoing	Ongoing - Significant progress
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: As a whole, the IDEM WSS provided watershed planning and implementation assistance to at least 195 distinct groups in FY 2022.	2019	2023	ongoing	Ongoing - Significant progress
1.7		Continue to align the TMDL and WMP planning process with the TMDL vision. Progress: The TMDL program continued to participate in meetings in this FFY to discuss EPA expectations for "Vision 2.0." The group has a candidate pool of watersheds from which to choose future projects that will be formalized in the near future. In addition, to further the education and integration goals, the group now hosts a story map online at (https://storymaps.arcgis.com/stories/3139fdaf61624baabb993355eaa98173) and a web tool that integrates information from the TMDL and WMP programs (WMP and TMDL Reports Search [WATRS] Tool).	2019	2023	ongoing	Ongoing - Significant progress
1.7	c	Maria Creek TMDL. Progress: The public meeting was held 7/8/21. The 30-day public comment period for the final draft was held 7/12/21 – 8/12/21. The TMDL was approved by EPA on 9/14/21.	2020	2022	ongoing	Complete
1.7	d	Vernon Creek TMDL. Progress: When data assessments were completed for the watershed characterization study, there were 15 stream segments where additional impairments were identified, including impairments for <i>E. coli</i>, aquatic life, and dissolved oxygen. A public notice was posted to the TMDL main webpage and to the IDEM Public Notices page. The public comment period occurred from 3/16/22-4/30/22. The draft public meeting was held July 14 at Jennings County Public Library in North Vernon, Indiana. The TMDL report will be submitted to EPA for approval this FFY.	2021	2022	ongoing	Ongoing - Significant progress

Goal 1: Utilize partnerships to leverage resources available for nonpoint source pollution management.						
Obj. #	MM	Objective	FFY Start	FFY End	Frequency	Complete
1.7	e	Black Creek TMDL Progress: A public kickoff meeting to introduce the TMDL project and solicit input was held on 9/4/21 at the Goose Pond Fish & Wildlife Area Visitor Center. Data gathering for this project began in November 2021 and will continue until October 2022.			ongoing	Ongoing – significant progress
1.7	f	Big Raccoon -Wabash River TMDL Progress: Project kickoff is set to occur in Fall 2022			ongoing	Ongoing – some progress
1.7	g	Lake Manitou TMDL Progress: IDEM employees met with the Lake Manitou Association on 6/1/21 to discuss interest and the process for doing a TMDL on the lake. Staff have begun to develop the outline of the report.			ongoing	Ongoing – some progress
1.8		Continue to partner with the IN-USDA-NRCS on the National Water Quality Initiative (NWQI) for as long as the Initiative remains a national and state priority. Progress: In FY 2022, Indiana had 5 NWQI projects: the School Branch monitoring project, the Muncie Creek and Lake Wawasee Planning projects, and the Upper Sinking-Blue River Watershed and Black River Watershed implementation projects. Section 319 implementation funding is also being provided for the South Fork Blue River portion of the Upper Sinking-Blue River watershed and Section 319 monitoring support is being provided for the School Branch monitoring project.	2019	2023	ongoing	Ongoing - Significant progress
1.8	a	Continue support of the School Branch Project. Progress: This project currently has support from a \$319 grant. Phase I of the project opened on January 11, 2016 and closed on January 10, 2020. Phase II opened on May 31, 2019 and is set to close on November 30, 2022. School Branch projects are for monitoring support only. IDEM is working with USGS to set up a new grant cycle for continued funding for the School Branch project. USGS published findings from the School Branch study here: https://doi.org/10.3133/sir20215099	2019	2023	ongoing	Ongoing - Significant progress
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: IDEM attends meetings and/or conference calls with NRCS on a regular basis to discuss the NWQI. Meeting and calls this fiscal year were held on 6/27/2022.	2019	2023	annually	Complete for 2022
1.9		Support implementation of the State Nutrient Reduction Strategy and the Indiana GLWQA Annex 4 Domestic Action Plan. Progress: IDEM NPS grant priorities included a priority for reducing loads within the prioritized watersheds in the State Nutrient Reduction Strategy. Watershed specialists participated in the WLEB Partnership meeting on 10/06/21 and 3/16/2022. Projects that supported the GLWQA DAP efforts were St. Mary's (FY 16, 19146),	2019	2023	ongoing	Ongoing - Significant progress

Goal 1: Utilize partnerships to leverage resources available for nonpoint source pollution management.						
Obj. #	MM	Objective	FFY Start	FFY End	Frequency	Complete
		GLRI Upper Maumee (FY17, 47496), St. Joe Assessment (FY17, 414990), St. Joe Implementation (FY18, 32071), and Flatrock WMP (FY19, 38657).				
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 2022, no additional priorities were added to the solicitation or project plan as a result of reviewing these documents.	2019	2023	ongoing	Ongoing - Complete for 2022
1.10		Dedicate an average of \$100,000 in 319 funds to the Coastal Zone (Little Calumet-Galien watershed, HUC 04040001) annually until all of the remaining conditions of the LMCP CNPCP are met. Progress: All measures of Indiana's Coastal Nonpoint Control Plan have been conditionally approved. The DNR and IDEM are awaiting federal notice of public comment of the CNPCP. An MOU with DNR is currently active to work on the voluntary portions of the on-site measure of the CNPCP.	2019	until full approval	annually	Complete
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. For example, SRF and NPS staff worked together to begin to build the Clean Watersheds Needs Survey in late 2021/early 2022. CWSRF staff always present a nonpoint source project as an option to loan applicants when it is applicable.	2019	2023	ongoing	Ongoing - Significant progress
1.11	a	IDEM nonpoint source pollution 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 - Complete for 2022
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: The NPS program notified the SRF programs of the 319 projects that were approved for funding for FFY 2022.	2019	2023	annually	Complete for 2022
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, and the nonpoint source pollution staff promotes the potential nonpoint source pollution project, provides contacts for technical assistance, and provides information on	2019	2023	ongoing	Ongoing - Complete for 2022

Goal 1: Utilize partnerships to leverage resources available for nonpoint source pollution management.						
Obj. #	MM	Objective	FFY Start	FFY End	Frequency	Complete
		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.				
	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. In FY 2022, SRF replaced 1226 septic units in 3 loans.	2019	2023	ongoing	Ongoing - Complete for 2022
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 - Significant progress
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 64 watershed groups.	2019	2023	ongoing	Ongoing - Significant progress

Goal 2: Monitor and assess Indiana waters for nonpoint source pollution impairments and improvements.						
Obj. #	M M	Objective	FFY Start	FFY End	Frequency	Complete
2.1		Require the use of <i>the 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
2.2		Import 319 grantee data meeting appropriate data quality criteria into AIMS or the Hoosier Riverwatch Database to be uploaded into WQX on a routine basis. Progress: IDEM imported 319 grantee data meeting appropriate data quality criteria into AIMS for St. Mary's River watershed, Lower Kankakee River watershed, Lake Monroe, and Deer Creek-Sugar Creek watershed projects.	2019	2023	ongoing	Ongoing - Significant progress

Goal 2: Monitor and assess Indiana waters for nonpoint source pollution impairments and improvements.						
Obj. #	M M	Objective	FFY Start	FFY End	Frequency	Complete
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: Vernon Fork project leaders participated in the Vernon Fork TMDL Assessment on 2/16/22.	2019	2023	ongoing	Ongoing - Some progress
2.4		Evaluate the logistics and 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 2/17/2022. No significant changes were made in monitoring for the TMDL or Nonpoint Source programs.	2019	2023	annually	Ongoing – significant progress
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 2018 \$319 grant. This FFY 2018 grant has been extended through FFY2023. This grant will fund the program through the 2023 sampling season. In the 2021 sampling season, 80 lakes were sampled for assessment. CLP submitted 2020 lake data to IDEM.	2019	2023	ongoing	Ongoing – significant progress
2.6		Direct IDEM resources to perform watershed characterization monitoring of at least one watershed annually to support TMDL and watershed planning efforts. Progress: IDEM continues to meet this objective. While all subobjectives identified at the writing of the State NPS Plan have been met, IDEM continues to monitor for one TMDL/WMP project per year. In October 2021, monitoring ended for the Vernon Fork Muscatatuck project. It is anticipated that the Vernon Fork TMDL report will be submitted to EPA in FFY 2022. In November 2021, IDEM began monitoring for the Black Creek TMDL project. Monitoring for Black Creek is scheduled to be completed in October 2022. The SW WSS worked with TMDL staff and watershed groups to evaluate and select Raccoon Creek as the next TMDL; monitoring will begin in November 2022.	2019	2023	annually	Ongoing - Significant progress
2.6	b	Laughery Creek TMDL and WMP. Progress: Monitoring for this project began in November 2018 and was completed in October 2019. The TMDL went on public notice July 8, 2020 through August 8, 2020. The final TMDL report was approved by U.S. EPA on September 2, 2020. The WMP project began on 12/15/2019 and is on track to be completed on time.	2019	WMP-2022	one-time	Complete
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 12/10/20 and is on track to be completed on time.	2020	TMDL-2021 WMP-2023	one-time	Complete
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 though its fixed station	2019	2023	ongoing	Ongoing - Significant progress

Goal 2: Monitor and assess Indiana waters for nonpoint source pollution impairments and improvements.						
Obj. #	M M	Objective	FFY Start	FFY End	Frequency	Complete
		monitoring program and through joint funding agreements with the USGS. All of the 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 52 stream sites have been sampled in 2022.	2019	2023	ongoing	Ongoing – significant progress
2.8	b	Provide support for 20 Hoosier Riverwatch workshops (volunteer trainings) and maintain current loaner/teaching trunks. Progress: Twelve workshops were conducted in 2022. Though the global pandemic continues, it is expected that workshop numbers will be increase as people continue returning to normal activities as their health allows.	2019	2023	annually	Complete
2.8	c	Provide support for maintenance and upgrades of the Hoosier Riverwatch water quality monitoring database and associated websites. Progress: IDEM provided an additional \$6,600 in FY 2021 funds to the current grant contract in order to complete needed enhancements to the database.	2019	2023	ongoing	Ongoing – significant progress
2.9		Accept external data through the External Data Framework. Progress: See each of the sub-objectives below for more detail.	2019	2023	ongoing	Ongoing - Some 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: The ability for IDEM to use external data submitted through the EDF will be determined on a case-by-case basis. This is consistent with the function of the EDF, which is designed to streamline the submittal of water quality data from external sources and then reviewing and ranking them based on their level of data quality. Since it is the data quality that determines the uses for which the data are reliable, that will vary from data set to data set. The EDF is inclusive by nature, providing three tiers of potential uses, which provides a place for most any data set. The highest quality data sets, those which meet our Tier 3 data quality criteria, can and will be used in assessment and listing/delisting decisions. For most other uses, particularly those lacking potential regulatory impacts, the data quality criteria are somewhat less stringent. Tier 2 data allows much more flexibility with regard to the types of data that can be used for nonpoint source assessment and watershed planning while still ensuring a level of data quality commensurate with those uses. IDEM is also seeking new ways to provide technical assistance to EDF participants and	2019	2023	ongoing	Ongoing – significant progress

Goal 2: Monitor and assess Indiana waters for nonpoint source pollution impairments and improvements.						
Obj. #	M M	Objective	FFY Start	FFY End	Frequency	Complete
		NPS projects alike in designing their water quality monitoring study to achieve better data quality and to more easily document their data quality.				
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 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, an additional 2021 Success Story, Little Deer Creek in the Middle Deer-Wabash watershed, was published to EPA's website. The 2022 Success Story segment will be Big Creek in the Muscatatuck watershed. Indiana anticipates uploading details to the database by the reporting deadline.	2019	2023	ongoing	Ongoing - Significant 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. 2022 performance monitoring is focused on where there is a lowhead dam removal (Little Calumet-Deep River) and where significant nonpoint source actions have taken place.	2019	2023	annually	Complete for 2022
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: In 2022, IDEM will sample the Vestal Branch – Indian Creek (051401010205), Black Creek (041000050106), Sixmile Creek (041000050105), Headwaters Rock Creek (051201010703), Majenica Creek (051201020605), Little Hogan Creek-North Hogan Creek (050902030403), Elk Run-North Hogan Creek (050902030802), Pleasant Run-Silver Creek (051401010806), and Little Calumet-Deep River (040400010509)(). As of the writing of this report, the monitoring season has yet to be completed, so we will report on whether or not any of these watersheds resulted in a delisting in the next NPS Annual Report.	2019	2023	annually	Ongoing – significant progress
2.11		Continue the Ground Water Monitoring Network (GWMN). Progress: Approximately 125 sites were resampled in 2021 to allow for geochemical modeling to evaluate the mobility of arsenic in Indiana aquifers. 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/.	2019	2023	ongoing	Ongoing - Significant progress

Goal 2: Monitor and assess Indiana waters for nonpoint source pollution impairments and improvements.						
Obj. #	M	Objective	FFY Start	FFY End	Frequency	Complete
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: Nonpoint source contamination of groundwater in Indiana was analyzed during FFY2021. However, the focus in Indiana's source water protection efforts has shifted with the national attention on PFAS, which is not under NPS purview.	TBD	TBD	complete	Ongoing - no additional 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: IDEM continues to meet this objective. See each of the sub-objectives below for more detail. The NE WSS attended the septic system coordination work group meeting on 2/3/22 in partnership with the DNR.	2019	2023	ongoing	Ongoing – some progress
3.2	b	Work with partners to identify the target audience and deploy education methods. Progress: The LMCP project closed this fiscal year and included education and outreach campaigns on septic system maintenance. The project mapped the density of septic system parcels to identify 20 septic served neighborhoods as target audiences for education and outreach. The NW WSS worked with the group to deploy the best education methods and the project trained 20 Neighborhood Ambassadors from each neighborhood to educate locally.	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 their monthly staff meetings.	2019	2023	ongoing	Ongoing – minimal progress
3.2	d	Publicize success stories. Progress: IDEM was not made aware of any septic success stories in FFY 2022.	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: The WSS attended the planning meeting for the 2023 IASWCD Annual Conference and planned and provided support for the 2022 Indiana Lakes Management Society conference. The Section Chief spoke about Indiana's performance monitoring program at the 2022 National Training Workshop on Water Quality Data, Assessment, and Plans.	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
3.2	f	Assist in providing outreach on septic systems in the Lake Michigan Coastal Zone. Progress: IDEM is currently providing FY 2020 and 2022 funds to develop and provide messaging on the importance of inspection and maintenance of septic systems in the Coastal zone.	2019	2023	ongoing	Ongoing – significant progress
3.2	g	Translate lessons learned from Northwest Indiana, statewide. Progress: The work that the LMCP is doing through their current projects is in partnership with the Indiana Onsite Wastewater Professionals Association. It is intended that the database that will be built to house inspection information will be robust enough to house data statewide, but we are currently in the pilot phase.	2020	2023	ongoing	Ongoing - Some progress
3.2	h	Develop and maintain septic outreach HUB on IDEM's website (ITOSS), POS materials and other. Progress: Indiana's publicly available Funding Matrix has information on the State Revolving Fund loans for septic improvement projects. Buy-in for a septic HUB has not yet been obtained.	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: SE WSS acted as PWQ chair through 2021 and attended steering committee meetings and/or workdays on 07/07/21, 07/14/21, 07/20/21, 07/28/21, 09/30/21, 11/10/21, 12/08/21, 02/09/22, 03/09/22, 04/13/22, 05/11/22, 06/08/22 and served as Day Coordinator for 3 days during the State Fair. The estimated attendance for PWQ at the Indiana State Fair was 39,600 participants.	2019	2023	ongoing	Ongoing – significant progress
3.2	j	Promote the use of the Revolving Loan Fund for Septic upgrades and repairs. Progress: Watershed specialists promote the State Revolving Fund for these types of BMPs whenever possible. The State Revolving Fund is listed with others in the funding matrix made available to our grantees and the public via our website. Looking forward to FY 2023, the SE WSS has been working with a watershed group to put forth a project to work with their financial institutions to explore the possibility of creating a linked-deposit-type program in one watershed in Indiana. Should this project be successful, the NPS program has had preliminary discussions with the SRF program about how we could incorporate SRF funds into this type of scenario and expand the program.	2019	2023	ongoing	Ongoing – some progress
3.3	a	Meet with partners to discuss issues regarding hydromodification (IDEM Wetlands, DNR, US Army Corps, Silver Jackets, AFSM). Progress: NE WSS attended Silver Jackets meetings monthly with participation from USACE, DNR, and AFSM; attended the USACE interagency FPMS Project discussion meeting in February 2022; and assisted with development of Silver Jackets' IN Stream Health Story Map to promote stream health.	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 hosted Indiana Water Resource Regulatory Update & Discussion	2019	2023	ongoing	Ongoing – some

Goal 3: Develop and conduct a strategic outreach and education program.						
Obj. #	MM	Objective	FFY Start	FFY End	Frequency	Complete
		Webinar on 2/23/22 through ILMS, assisted with project development and educational material on wetlands through a Story Map (USACE), and participated in wetland presentations throughout Indiana.				progress
3.3	c	Assist Indiana Department of Natural Resources meet Goals and Objectives with their Stream Mitigation Program. Progress: NE WSS sent DNR INSWMP information to NE watershed stakeholders that DNR is looking for potential mitigation sites. Efforts resulted in 6 conversations about potential mitigation sites.	2019	2023	ongoing	Ongoing – some progress.
3.3	d	Support low head dam removal to improve nonpoint source pollution impacts on water resources. Progress: NE WSS discussed potential funding for dam removal projects with 3 partners, attended a low head dam collaboration meeting on 7/22 (with Silver Jackets partners), and advertised section 206 funding opportunities for low head dam removal to stakeholders.	2019	2023	ongoing	Ongoing – significant progress
3.3	e	Reconvene IDEM’s internal hydromodification subcommittee on state issues and initiatives and meet quarterly. Progress: The subcommittee met quarterly on 4/25/22, 1/25/21, 11/2/21, and 7/22/21.	2019	2023	ongoing	Ongoing – some progress
3.4	a	Meet with partners to discuss issues regarding sediment and nutrient pollution (ICP partners, USGS). Progress: WSS worked with around 30 partners to assist with reducing sediment and nutrient pollution. Indiana Conservation Partnership Leader meetings held bimonthly to discuss these issues, as well as specialized Science Assessment meetings (related to the Indiana State Nutrient Reduction Strategy) and Domestic Action Plan for Western Lake Erie meetings.	2019	2023		Ongoing – significant progress
3.4	b	Publicize success stories. Progress: A Watershed Restoration Story Map was published which highlights success stories. The website has over 1,200 views https://www.in.gov/idem/nps/partnerships/	2019	2023	ongoing	Ongoing – no need for this FFY
3.4	c	Support implementation of the <i>State Nutrient Reduction Strategy</i> education/outreach goals. Progress: NPS staff worked with 15 groups that had stated nutrient reduction goals as a part of their implementation projects. In addition, one of the education/outreach goals of the SNRS is to expand cover crop use in Indiana to 10,000 acres in 2021. In FY 2022, 11,531 acres of cover crops were installed as part of the 319 program.	2019	2023	ongoing	Ongoing – significant progress
3.4	d	Support implementation of the <i>Indiana Annex 4 DAP</i> education/outreach goals. Progress: The NPS program annually reports nutrient load reductions from funded practices for inclusion in ICP calculated totals. 319 funds are available for outreach projects in the Western Lake Erie Basin.	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	e	Reconvene IDEM's internal sediment and nutrient pollution subcommittee on state issues and initiatives and meet quarterly. Progress: The NE WSS attended the Western Lake Erie Basin (WLEB) Partnership Meeting on 10/6/21.	2019	2023	ongoing	Ongoing – some progress
3.5		Continue to provide citizen monitoring training through Hoosier Riverwatch and the Clean Lakes Program. Progress: Twelve HRW training workshops were conducted in fiscal year 2022.	2019	2023	ongoing	Ongoing – some progress
3.6	a	Produce 5 "Success Stories" (U.S. EPA WQ-10a Strategic Measure) by 2023 and publicize within Indiana. Progress: Three Success Stories were submitted for WQ-10a in FFY 2021 (Little Deer, Unnamed Tributary to South Fork Wildcat, and Stump Ditch/Kilmore Creek) and one Success Story is in progress for Big Creek and will be submitted in 2022.	2019	2023	annually	Ongoing – significant progress
3.6	b	Publicize any awards given to watershed groups related to their water quality efforts in Indiana. Progress: The NE WSS is a board member of the Indiana Lake Management Society and outstanding project awards were published in the ILMS Lake View Newsletter in June 2021. No other awards have come to the attention of the NPS group.	2019	2023	ongoing	Ongoing – some progress
3.7		Provide cost-effective outreach to audiences in Indiana. Progress: IDEM makes education a priority of its NPS website, with useful information for all audiences. In addition, various programs have printed materials that can be provided to groups at low cost to the agency and no cost to the recipient.	2019	2023	ongoing	Ongoing – some progress
3.7	a	Continue to participate in the Pathway to Water Quality at the Indiana State Fairgrounds. Progress: SE WSS acted as PWQ steering committee chair through 2021 and attended steering committee meetings on 7/7/21, 7/14/21, 7/20/21, 7/28/21, 9/30/21, 11/10/21, 12/08/21, 02/09/22, 03/09/22, 04/13/22, 05/11/22, 06/08/22 and served as Day Coordinator for 3 days during the State Fair. The NE WSS assisted with Pathway to Water Quality on 8/4/21, 8/11/21, & 8/18/21.	2019	2023	ongoing	Ongoing – significant progress
3.7	b	Continue to support the Indiana Watershed Leadership Academy with technical support. Progress: The IWLA continues to be supported financially and technically by the NPS program at IDEM. Financially, the IWLA is supported by a FFY 2017 \$319 grant that ended on 1/8/22 and a FFY 2021 \$319 grant that began on 1/1/22 and ends 12/31/25. Major deliverables of the grant include sponsoring the Academy (both face-to-face and distance learning portions), providing guidance and materials for useful group projects, an evaluation of the program, and upgrades of lesson modules. An IDEM staff person serves as project manager and serves on the steering committee. The NPS Section Chief presented information on the Clean Water Act and the NPS program's role in improving water quality. In FFY 2022, the Academy had 31 participants. NPS staff participated in the IWLA graduation ceremony 5/25/22.	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
3.7	c	Participate in regional meetings as needed to inform watershed interest groups of nonpoint source pollution program information. Progress: NPS staff participated in the Conservation Cropping Systems Initiative (CCSI) Regional meetings on 4/17/22, 12/1/21, and 9/29/21. NE WSS Participated in Friends of the St. Joseph River meetings, Silver Jackets meetings, and regularly attended steering committee meetings for ongoing projects. The SW WSS attended steering committee meetings for 12 current projects and met with 4 prospective watershed groups.	2019	2023	ongoing	Ongoing – significant progress
3.7	d	Provide regular communication to regional groups of nonpoint source pollution watershed efforts. Progress: Watershed Specialist communicate with groups in their regions on an as-needed basis. In sum, WSS sent out emails with information related to nonpoint source pollution watershed efforts to stakeholders at least 49 times.	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. Progress: See each sub-objective below for a progress report. SW WSS worked with 5 groups to install and coordinate signage. In the NE, the St. Mary's (Fy 16; 19146) included billboards in their education.	2019	2023	ongoing	Ongoing – some progress
3.8	a	Support partners for the state initiatives on septic system care. Progress: Upper Maumee (FY 17 47496) and Lower St. Joe (FY 18 32071) ran ads for Septic Smart Week. NE WSS Sent out GLCAP program information to stakeholders on 5/6/22. SW WSS worked with 4 groups on septic system maintenance education programming. SE WSS worked with 4 groups on septic system maintenance education programming.	2019	2023	ongoing	Ongoing – significant progress
3.8	b	Support partners for the state initiatives on hydromodification. Progress: NE WSS attends SilverJacket meetings on a monthly basis (which contains USACE, DNR, ASFPM). Attended USACE interagency FPMS Project Discussion meeting in Feb 2022. Developing IN Stream Health StoryMap to promote stream health (SilverJackets)	2019	2023	ongoing	Ongoing – significant progress
3.8	c	Support partners for the state initiatives on sediment and nutrient pollution. Progress: Projects to reduce sediment and nutrient pollution were highlighted in the ILMS Lake View newsletters. The NE WSS assisted with organization of the ILMS Annual Lake Management Conference. St. Mary's Initiative project supports 7 billboards in Adams and Allen County promoting 4R Nutrient Stewardship Program.	2019	2023	ongoing	Ongoing – significant progress
3.9		Continue to build capacity for water quality improvement in the state. Progress: See each sub-objective below for a progress report. SW WSS met with 4 prospective watershed groups.	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
3.9	a	Continue to educate leaders through Purdue University's Indiana Watershed Leadership Academy. Progress: The IWLA continues to be supported financially and technically by the NPS program at IDEM. Financially, the IWLA is supported by a FFY 2017 §319 grant that ended on 1/8/22 and a FFY 2021 §319 grant that began on 1/1/22 and ends 12/31/25. Major deliverables of the grant include sponsoring the Academy (both face-to-face and distance learning portions), providing guidance and materials for useful group projects, an evaluation of the program, and upgrades of lesson modules. An IDEM staff person serves as project manager and sits on the steering committee. The NPS Section Chief presented information on the Clean Water Act and the NPS program's role in improving water quality. In FFY 2022, the Academy had 31 participants. NPS staff participated in the IWLA graduation ceremony 5/25/22.	2019	2023	ongoing	Ongoing – significant progress
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 ICP Training and Certification Program continues to meet with support from IDEM WSS.	2019	2023	ongoing	Ongoing

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: The TMDL program continued to utilize their template in developing TMDLs for WMP development. Staff continue to make modifications to the template to align with IDEM's WMP checklist. TMDL staff have participated in internal discussions relating to the NPS checklist.	2019	2023	ongoing	Ongoing – significant progress
4.1	b	Link TMDLs with watershed characterization monitoring projects for Section 319 watershed management planning applications. Progress: Monitoring for the Maria Creek TMDL took place on 7/7/2020, 8/18/2020, 9/15/2020, 10/13/2020, and 2/1/2021. The Sullivan County SWCD applied for, and was awarded, a 319 grant to write a WMP to implement the Maria Creek TMDL using FFY 2020 funds. Monitoring for the Vernon Fork TMDL took place on 11/16/2020, 12/15/2020, 1/11/2021, 3/8/2021, 4/12-13/2021, 5/11-12/2021, and 6/8-9/2021. Sampling site recon for the Black Creek TMDL occurred on 2/22/2021 and 3/23/2021. A meeting for the Lake Manitou TMDL was held on 6/1/21.	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
4.2		Promote integration of WMPs with local comprehensive plans. Progress: In NE IN, the NE WSS has worked to incorporate Sylvan Lake improvement efforts (regulatory efforts) with Upper Elkhart WMP development.	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 2022 eight WMP implementation projects were chosen to receive funding and were proposed to U.S. EPA, including Region of the Great Bend Wabash River, Salt-Pipe Creek, Black Creek, Lake Monroe, Lost River, Vernon Fork Muscatatuck, Lower Salamonie, and Patoka Clean Sweep.	2019	2023	ongoing	Ongoing – significant progress
4.5		Repair previously-installed BMPs with the caveats outlined in the program policy. Progress: 1 BMP was repaired in FFY 2022.	2019	2023	ongoing	Ongoing – some progress
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 2022
4.7		Coordinate with IDNR Stream Mitigation Program. Progress: The NE WSS sent DNR INSWMP information to NE watershed stakeholders that DNR is looking for potential mitigation sites. Efforts resulted in 6 conversations about potential mitigation sites.	2019	2023	ongoing	Ongoing – some progress
4.8		Update IDEM 2009 WMP Checklist. Progress: Work on the checklist paused once again for several months. It is currently being edited. NPS staff met on 6/9/2022.	2019	2021	one-time	Ongoing – Some progress
4.9		Show restoration in at least 5 assessment units (at least 5 WQ-10) in the five-year cycle 2019-2023. Progress: One Success Story (Boyles Ditch) was submitted in 2019. 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 Story, Big Creek, will be submitted for 2022.	2019	2023	annually	Ongoing – significant progress
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 FFY 2022 solicitation was published on April 1, 2021. Twenty-eight notices of intent to apply were received on or before June 1, 2021. Full proposals were due September 1,	2019	2023	annually	Complete for 2022

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
		2021 and 20 eligible applications were received and reviewed by Nonpoint source pollution staff. Thirteen proposals were forwarded to EPA for funding consideration, with 2 additional planning proposals and one monitoring proposal requested to be funded by CWA §205j base funds. It is anticipated that once the guidance becomes available, an additional 2 plans and 2 monitoring projects will be recommended for 205j funding under the Bipartisan Infrastructure Law, 1 of those monitoring projects will be for emerging contaminants.				
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 2022 is available in Table 1 of this report.	2019	2023	annually	Complete for 2021
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 2022 is available in Table 1 of this report.	2019	2023	annually	Complete for 2021
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 2022 is available in Table 1 of this report.	2019	2023	annually	Complete for 2021
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 2022 is available in Table 1 of this report.	2019	2023	annually	Complete for 2021
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 2022 is available in Table 1 of this report.	2019	2023	annually	Complete for 2021

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 2022, 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. Five proposals	2019	2023	ongoing	Ongoing – significant progress

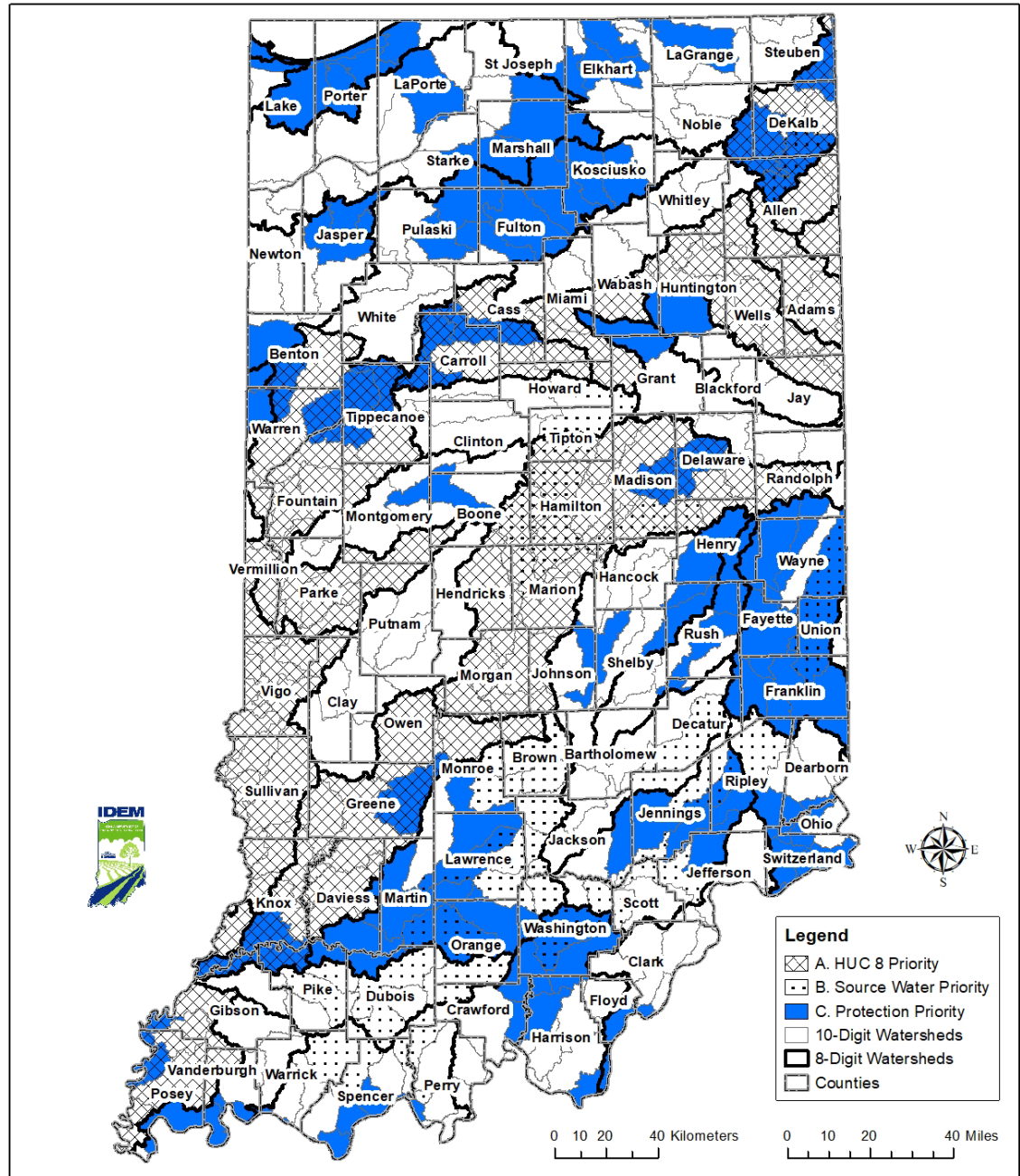
		met the drinking water priority (including 1 proposed for 205j funding) and eight proposals met the OSRW/ETR priority (including 2 proposed for 205j funding).				
5.2		Prioritize for planning watersheds with source water intakes. Progress: NPS projects in watersheds with a surface drinking water intake were prioritized in the FFY 2021 and 2022 solicitations. Source waters are also a priority of the Indiana Conservation Partnership. None of the proposed planning projects include a surface water intake.	2019	2023	annually	Complete For 2022
5.3		Participate as requested in Phase II wellhead protection planning. Progress: Most communities 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 protection planning meeting.	2019	2023	ongoing	Ongoing – no need for this FFY
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 were funded in FFY 2022.	2019	2023	annually	Complete for 2021 – No need in this FFY
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 <ul style="list-style-type: none"> • 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 61,096 tons and nutrient reductions of 65,795 lbs of phosphorus and 134,146 lbs of nitrogen (Table 2).	2019	2023	ongoing	Ongoing – significant progress
5.7		Support implementation of the State Wetland Plans Goals and Objectives that aligns with nonpoint source pollution protection. Progress: NE WSS participated in the Indiana Water Resource Regulatory Update & Discussion webinar on 2/23/22 hosted by ILMS. NE WSS also attended virtual forum on IN Wetlands on 10/5/21 & Mentoring the Next Generation of Wetland on 10/6/21.	2019	2023	ongoing	Ongoing – Some 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 FFY2022.	2019	2023	ongoing	Ongoing – no need for this FFY
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Indiana State Nonpoint Source Pollution Management Plan 2022 Action Register

Appendix B

Section 319 Priority Watersheds (FFY 2022)



Mapped By: Joanna Wood, Office of Water Quality **Date:** 03/23/2021

Data Sources: Obtained from the State of Indiana Geographic Information Office Library

Map Projection: UTM Zone 16 N **Map Datum:** NAD83

This map is intended to serve as an aid in graphic representation only. This information is not warranted for accuracy or other purposes.

Appendix C

Open and Pending 319 Projects							
FFY	Contract #	Contractor	Project	Status	Start Date	End Date	Type
2018	29443	Clark County SWCD	Fourteen Mile Creek/Goose Creek-OH River Watershed	Open	12/28/2018	12/27/2022	Restoration/Implementation
2018	29917	U. S. Geological Survey	School Branch Water Quality Investigation	Open	5/31/2019	11/30/2022	Research
2018	30630	Pike County SWCD	Lower East Fork White WMP & Implementation	Open	1/23/2019	7/22/2022	Combo
2018	30680	Greene County SWCD	Plummer Creek Implementation II	Open	3/18/2019	3/17/2023	Restoration/Implementation
2018	31746	Indiana University	Clean Lakes Program	Open	5/1/2019	4/30/2023	Assessment
2019	37162	Decatur County SWCD	Salt-Pipe Creek	Open	11/1/2019	1/31/2023	Restoration/Implementation
2019	40994	Indiana Association of Soil and Water Conservation	Pathway to Water Quality	Open	4/22/2020	4/21/2024	Education
2019	37907	Clinton County SWCD	Browns Wonder-Sugar Creek	Open	10/28/2019	10/27/2022	Restoration/Implementation
2019	37361	Orange County SWCD	Lost River Watershed Implementation	Open	12/19/2019	12/18/2022	Restoration/Implementation
2019	37186	Dearborn County SWCD	Whitewater River Watershed	Open	2/1/2020	4/30/2023	Restoration/Implementation
2019	41471	Sullivan County SWCD	Turtle Creek, Turman Creek, Kelley Bayou	Open	5/12/2020	5/11/2023	Restoration/Implementation
2019	37151	Historic Hoosier Hills	North Laughery Creek	Open	12/15/2019	12/14/2023	Combo
2019	37187	Historic Hoosier Hills	Indian Kentuck Watershed	Open	3/25/2020	3/24/2023	Restoration/Implementation
2020	48941	The Watershed Foundation	Walnut Creek-Tippecanoe	Open	3/10/2021	3/9/2024	Restoration/Implementation
2020	47568	Gibson County SWCD	Highland Pigeon WMP	Open	11/16/2020	11/15/2022	Planning
2020	48870	Carroll County SWCD	Deer Creek-Sugar Creek	Open	12/2/2020	12/1/2023	Restoration/Implementation
2020	48881	Washington County SWCD	South Fork Blue River	Open	1/25/2021	3/24/2024	Restoration/Implementation
2020	50141	Wabash River Enhancement Corp.	Region of the Great Bend of the Wabash River	Open	1/27/2021	1/26/2023	Restoration/Implementation
2020	48894	Ouabache Land Conservancy	Otter Creek	Open	1/7/2021	1/6/2024	Restoration/Implementation

Open and Pending 319 Projects

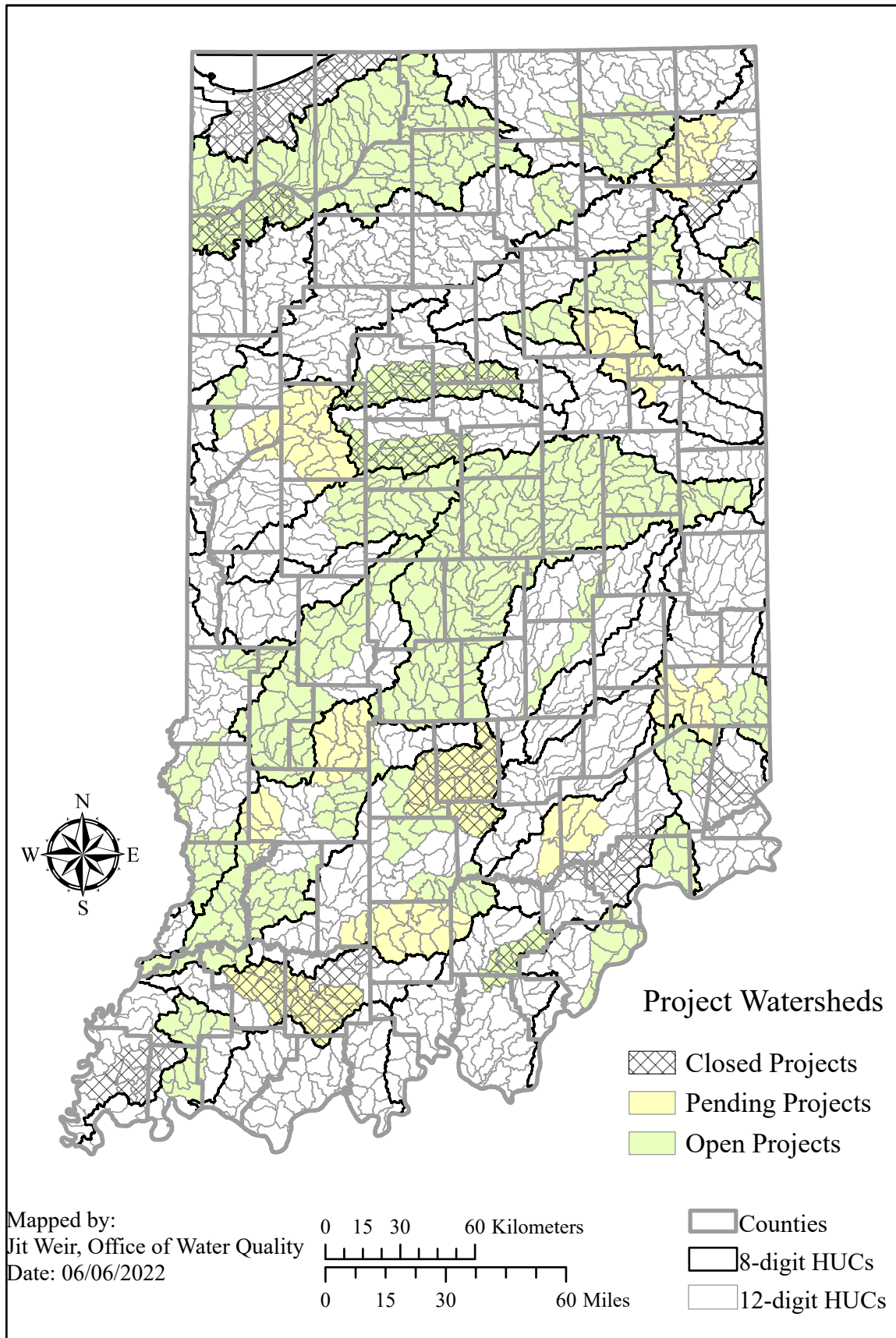
FFY	Contract #	Contractor	Project	Status	Start Date	End Date	Type
2020	49762	Vanderburgh SWCD	Lower Pigeon Watershed Management Planning	Open	2/16/2021	2/15/2023	Program Support
2020		Indiana Department of Natural Resources	On-Site Septic Disposal System, Capacity Enhancement, and Tracking	Pending			Program Support
2020	47519	Sullivan County SWCD	Maria & No Business Creek Watershed Planning and Implementation	Open	12/10/2020	12/9/2024	Combo
2020	49760	Benton County SWCD	Big Pine Creek Watershed Implementation	Open	11/17/2020	11/16/2023	Restoration/Implementation
2021	58548	Shelby County SWCD	Lower Big Blue River Watershed	Open	11/15/2021	11/14/2024	Restoration/Implementation
2021	61096	EcoLogik, Inc.	Hoosier Riverwatch Database & QAPP Tool Maintenance	Open	3/29/2022	3/29/2025	Program Support
2021	58554	Purdue University	Indiana Watershed Leadership Academy	Open	1/1/2022	12/31/2025	Education
2021	58551	Huntington County SWCD	Upper Wabash River Phase III Implementation	Open	11/9/2021	11/8/2024	Restoration/Implementation
2021	60144	Clay County SWCD	Lower Eel River Watershed Implementation	Open	1/1/2021	1/1/2025	Restoration/Implementation
2021	58547	Wabash River Defenders	Treaty Creek-Wabash River Watershed Implementation	Open	11/24/2021	11/23/2024	Restoration/Implementation
2021	58587	Elkhart River Restoration Association, Inc.	Upper Elkhart River Watershed Management Planning	Open	12/3/2021	12/3/2023	Planning
2021	58545	Putnam County SWCD	Big Walnut Watershed Alliance Implementation	Open	11/23/2021	11/22/2024	Restoration/Implementation
2021	58550	Montgomery County SWCD	Upper Sugar Creek Watershed Management Planning	Open	11/18/2021	11/17/2023	Planning

Open and Pending 319 Projects

FFY	Contract #	Contractor	Project	Status	Start Date	End Date	Type
2021	59519	Knox County SWCD	Snapp Creek-Kelso Creek Watershed Management Planning	Open	12/21/2021	12/21/2023	Planning
2021	58589	Marshall County SWCD	Headwaters Yellow River Implementation	Open	11/24/2021	11/23/2024	Restoration/Implementation
2021	58552	Clinton County SWCD	South Fork Wildcat Creek Phase III Implementation	Open	1/15/2022	1/14/2025	Restoration/Implementation
2022		Jennings County SWCD	Vernon Fork Muscatatuck Watershed Planning and Implementation	Pending	1/1/2023	12/31/2026	Combo
2022		Owen County SWCD	Fish Creek Watershed Planning	Pending	1/15/2023	1/15/2025	Planning
2022		Greene County SWCD	Black Creek Watershed Planning and Implementation	Pending	1/15/2023	1/15/2027	Combo
2022		Patoka Lake Regional Water & Sewer District	Patoka Watershed Clean Sweep	Pending	11/1/2022	11/1/2025	Restoration/Implementation
2022		Friends of Lake Monroe	Lake Monroe Watershed Management Plan Implementation	Pending	10/10/2022	4/6/2025	Restoration/Implementation
2022		Orange County SWCD	Lost River Watershed Implementation	Pending	12/19/2022	12/18/2025	Restoration/Implementation
2022		Wabash River Enhancement Corp.	Region of the Great Bend of the Wabash River Implementation	Pending	12/15/2022	12/15/2025	Restoration/Implementation
2022		Trustees of Indiana University	Indiana Clean Lakes Program	Pending	5/1/2023	4/30/2025	Assessment
2022		Decatur County SWCD	Salt-Pipe Creek Watershed Implementation	Pending	2/1/2023	5/1/2026	Restoration/Implementation
2022		Wells County SWCD	Lower Salamonie River Watershed Implementation	Pending	1/1/2022	12/31/2024	Restoration/Implementation

Appendix D

Indiana Nonpoint Source Projects FY 2022



Appendix E

The section summarizes \$319 funded projects that closed in fiscal year 2022 (1 July 2021 – 30 June 2022).

FFY 2019

Lake Monroe Watershed Management Plan (Contract # 37065)

Friends of Lake Monroe (FLM) developed a watershed management plan for Lake Monroe, Indiana. The two-year project studied problems facing the lake including the magnitude and source of the problems and created an action plan to address the problems. The planning process was guided by a steering committee with members from over 20 organizations who are committed to implementing the plan. An education and outreach program included events, public forums, presentations, and a watershed tour. It is estimated that community engagement activities reached an estimated 400 participants in events organized by FLM. Water quality monitoring was conducted by the Indiana University Limnology Lab and by volunteers through two water “sampling blitz” events.

FFY 2018

Big Creek Implementation (Contract # 30631)

Posey County Soil & Water Conservation District (SWCD) implemented a cost-share program to promote the use of best management practices (BMPs) in the Big Creek watershed. They prioritized BMP projects that included a conservation planning approach to address a variety of resource concerns including excessive sediment loading and soil loss, pathogens, and excessive nutrient loading. The project was guided by a steering committee that met quarterly. The Watershed Coordinator met with landowners to provide technical assistance with landowners and worked with Natural Resource Conservation Service (NRCS) staff to promote conservation cropping systems. BMPs were implemented in critical areas of the watershed. An education and outreach program targeted 50% of landowners in the watershed with mailing campaigns to inform landowners about the cost-share program. The Watershed Coordinator organized and hosted educational workshops on septic system issues. Roadside signs were created to advertise cover crops, water and sediment control basins, and heavy use protection areas.

Lower St. Joe River Water Quality Improvement & Education Program (Contract # 32071)

The St. Joseph River Watershed Initiative executed a project with the goals of introducing the concept of urban pollution to people who live, work, and play in the watershed. The education project taught citizens about problems in the watershed and how they can prevent pollution runoff from their properties using backyard conservation and large-scale green infrastructure projects. The group implemented a cost-share program to assist with the installation of best management practices (BMPs) in the watershed. A reduction of *E. coli* entering waterways was achieved through the installation of dog and horse waste receptacles and signage. Urban BMPs were implemented by at least 41 people in the watershed in the form of rain barrels, rain gardens, native tree plantings, dog and horse waste receptacles, bioswales, and vegetated swales. Several tours and workshops were provided to citizens of

the county which included topics such as rain and gardens, urban BMPs, septic system maintenance, conservation, and watershed curricula.

FFY 2017

On-Site Septic System Outreach and Education/Targeted Source Tracking Project (Contract # 26374)

The Indiana Lake Michigan Coastal Program (LMCP) lead this project to satisfy nonpoint source pollution requirements set by the US Environmental Protection Agency under the Coastal Zone Act Reauthorization Amendments (CZARA). The project determined areas of dense use of septic systems to identify priority areas for implementation of education and outreach efforts. The project conducted water quality sampling in 2021 at sites upstream, downstream, and in neighborhoods with primary septic system use. The samples were analyzed for *E. coli* concentrations. The results showed that 86% of samples exceeded state water quality criteria for *E. coli* (>235 MPN/100mL) and 75% of samples had detectable levels of human fecal DNA markers, suggesting that failing septic systems are contributing to the problem. To educate the public on these issues, the project developed the Neighborhood Ambassador campaign which targeted twenty neighborhoods. The LMCP partnered with Save the Dunes to host 5 training events that trained 20 ambassadors. A total of 41 local community events were then organized by the ambassadors. “We’re Pumped” yard signs were distributed at community events to advertise failing septic system issues. Other outreach activities included the distribution of brochures and outreach kits to local agencies and eight septic system coordination work group meetings.

Hogan Creek Watershed Management Plan (Contract # 23710)

Dearborn County Soil & Water Conservation District implemented an approved cost-share program the funded 16 landowners in the watershed. Best management practices funded with the cost-share program included 30ft of access roads, 11,264 ft of fencing, 59,786 sq ft of heavy use protection areas, 75.7 acres of pasture/hay planting, 1 stream crossing, 29.4 acres of cover crops, 0.5 acres of critical area planting, 905 ft of animal walkways, 4,640 ft of pipeline, and 12 watering facility tanks. Dearborn County SWCD hosted several events for landowners and citizens including two Conservation Tillage Breakfast events, three No-Till Breakfast events, and a Pollinator Field Day with a combined attendance of 634 participants. The project distributed cost-share program brochures, newsletters, press releases, flyers, and articles to residents in the watershed. Local citizens were engaged through a septic system workshop and three river clean-up events.

South Fork Wildcat Creek Watershed Phase II Stewardship Initiative (Contract # 24998)

Clinton County Soil & Water Conservation District (SWCD) carried out phase II of its watershed management plan by revising its cost-share program to offer technical and financial assistance to landowners in critical areas of the watershed. A total of 27 projects were implemented with a total estimated load reduction of 7,027 tons/yr. sediment, 9,614 lbs./yr. phosphorus, and 19,042 lbs./yr. nitrogen. Most projects involved cover crops and included one water facility, one heavy use protection area, one grassed waterway, and one equipment modification to seed cover crops. The education and outreach events included field days, workshops, and stewardship events. A survey of workshop participants suggested that local producers did see value in the education and outreach programs offered by Clinton County SWCD. Monitoring was conducted in local waterways of the South Fork Wildcat Creek watershed and showed that 70% of sites exceeded the state standards for *E. coli*.

Indiana Watershed Leadership Academy (Contract # 23109)

The Indiana Watershed Leadership Academy (IWLA) was developed by Purdue University and conservation partners to respond to build watershed management capacity in Indiana. Participants of the program have learned skills in organization and communication, watershed technology, GIS, policy, watershed science, and leadership. A total of 417 graduates have completed the program. A survey revealed that the Academy supported participants' work by allowing them to network with others, form new collaborations, find agency contacts, share resources, and even gain employment. Another survey of Academy alumni revealed a 75% satisfaction rate among participants for their current watershed position. Important benefits to the job learned in the Academy and reported by alumni participants include confidence in engaging new stakeholders and government officials and applying for grants. A steering committee met to discuss the future of the Academy and IDEM decided to continue \$319 grant support for the Academy with FFY 2022 funds.

Upper Maumee River Implementation (Contract # 47496)

Allen County Soil & Water Conservation District (SWCD) implemented best management practices (BMPs) in the Upper Maumee River Watershed as a part of the Great Lakes Restoration Initiative Projects. The Upper Maumee River Watershed flows into Lake Erie in the Northeast corner of Indiana. Large algal blooms and nutrient pollution in Lake Erie makes this a critical area for nonpoint source pollution mitigation. BMP activities included a total of 1,215 acres of cover crops, 1,982 acres of no-till, and 433 acres of pasture/hay planting. This resulted in phosphorus load reductions of 5,869 lbs./yr. Education and outreach activities included 2 conservation field days, 3 field trips to the OSU Stone Lab, 2 septic maintenance workshops, public events attendance, and the distribution of media.

Central Muscatatuck Watershed Implementation Phase II (Contract # 23633)

Historic Hoosier Hills Resource, Conservation, & Development joined Jefferson County Soil & Water Conservation District and the Friends of the Muscatatuck River Society to create a watershed management plan for the Central Muscatatuck Watershed in 2005. They implemented a cost-share program beginning in 2014 and had great success with a waiting list of producers still seeking cost share funding to implement best management practices (BMPs) on their land. This project was the third round of funding for the group to implement phase II of the cost share program. This project contributed to an estimated reduction of 17,981 tons of sediment/year, 18,201 lbs./yr. of phosphorus, and 36,405 lbs./yr. of nitrogen. Cost-share funded BMPs included roof runoff systems, cover crops, prescribed grazing, hayland/pasture reseeding, heavy use protection areas, and alternative watering systems. Outreach efforts included workshops to educate the public on *E. coli* and failing septic systems, temperature and forested buffers along streambanks, and trash clean up events.

South Fork Blue River Implementation (Contract # 22502)

The Washington County Soil & Water Conservation District implemented a cost-share program and provided technical assistance to 38 producers/landowners during the grant period to facilitate best management practices (BMPs) via farm visits, conservation planning, and BMP inspection. BMPs

implemented during this grant phase included 7,642 acres of cover crops, 104.9 acres of pasture/hay planting, 4,434 feet of fencing, 22,506 sq ft of heavy-use protection area, and 2,266 sq ft of mulching. These practices reduced an estimated 143,820 lbs. of nitrogen, 71,899 lbs. of phosphorus, and 75,554 tons of sediment. Water monitoring was conducted as a part of the education and outreach program. A class from East Washington Middle School conducted water monitoring in Pekin, IN. In addition to the volunteer monitoring program, the SWCD distributed several newsletters titled “The Watershed Chronicles”, press releases, and social media posts to promote activities of the group and the cost-share program.

Hoosier Riverwatch Database Maintenance (Contract # 22590)

The Hoosier Riverwatch Database is maintained by Ecologik, Inc. through \$319 grant funds. This database houses the water quality data collected across the state by volunteers in the Hoosier Riverwatch program. Improvements were made to the user experience in data upload functionality and searching and graphing capabilities. Automatic assignment of county and watershed information resulted in fewer user errors in the dataset. Ecologik, Inc. also provided customer support to IDEM staff throughout the grant period and worked with staff to test for errors as updates were implemented. Overall, updates made with support from the grant make this system more user-friendly and a successful tool for housing volunteer water monitoring data.

Deer Creek-Sugar Creek Implementation (Contract # 25136)

Carroll County Soil & Water Conservation District implemented a cost-share program, developed a volunteer water-monitoring program, and executed an education and outreach campaign to target water quality improvements in the Deer Creek-Sugar Creek watershed. Producers in the watershed implemented best management practices including 4,988 acres of cover crops, two grade stabilization structures, 0.8 acres of conservation cover, 1 acre of critical area planting, 2.2 acres of mulching, one stream crossing, one waste facility closure, 1,875 feet of grassed waterway, 2,247 acres of strip or reduced till, 130 acres of pest management, and 285 acres of conservation planning. These projects resulted in an estimated reduction of 16,063 tons of sediment, 182,279 lbs. of phosphorus, and 328,881 lbs. of nitrogen from entering the watershed annually. The education and outreach campaign included several hands-on activities including soil health field days, cover crop field days, forest/woodland management workshop, a conservation breakfast, breakfast with a forester, and cover crop workshops. They displayed efforts and successes to advertise the program at 4-H fairs annually and distributed 14 press releases to widely promote the cost-share program.

FFY 2016

St. Mary’s Initiative (Contract # 19146)

The Purdue University Agronomy Department used measures of soil health to assess the effectiveness of conservation practices in the St. Mary’s River watershed. The project assessed soil health parameters in relation to the use or lack of best management practices within study area. The results of the study found no significant differences in measures of carbon in the soil of fields that used conservation practices compared to those that did not, though carbon trended higher in fields with conservation practices. Biological functions in the soil contribute to nutrient turnover and activity of microbial communities suggest high nutrient availability in soils. To measure the biological activity, the study

assessed respiration, phospholipid-phosphate concentration (i.e., microbial biomass), and enzymatic activity. Respiration measures, microbial biomass, and enzymatic activity were all statistically higher in fields with more conservation practices, suggesting a highly active microbial population present in the soil. Though not statistically significant, the ability of soils to hold water (i.e., more drought tolerant) was increased in fields with conservation practices. Overall, the project found evidence that fields with conservation practices had better soil health for the benefit of agricultural production and the reduction of nonpoint source pollution.

Middle Patoka River Implementation Phase II (Contract # 20403)

The Pike County Soil & Water Conservation District (SWCD) promoted a cost-share program in partnership with the Indiana Conservation Partnership and The Nature Conservancy. Over 16,700 acres were impacted with projects that had a total estimated reduction of 90,000 tons of sediment, 81,000 lbs. of phosphorus, and 258,000 lbs. of nitrogen through the project period. The education and outreach program included stream clean up days where volunteers collected over 9,600 lbs. of trash. Workshops included education of pollinators, soil health, controlled burns, and soil sampling. The cost-share program was advertised at several events and with road-side signage posted at the site of a grassed waterway project.

Appendix F

205(j) Contracts Open and Pending							
FFY	Contract #	strContractorLookup	Project	Status	Start Date	End Date	Type
2019	38652	Ohio River Valley Water Sanitation Commission	Operation of Two Continuous Monitors	Open	7/1/2020	6/30/2021	Assessment
2019	38657	Allen County SWCD	Flatrock-Auglaize River WMP	Open	11/26/2019	5/25/2022	Planning
2019	38879	U. S. Geological Survey	Kankakee Gage at Shelby	Open	5/18/2020	5/17/2022	Assessment
2020	47412	Ohio River Valley Water Sanitation Commission	Continuous Monitors on the Ohio River II	Open	7/1/2021	6/30/2022	Assessment
2020	48449	Delaware Co. SWCD	Upper White WMP	Open	12/2/2020	12/1/2023	Planning
2020	47451	Lawrence County SWCD	Lower Salt Creek WMP	Open	12/2/2020	12/1/2022	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		Fort Wayne City Utilities	Cedar Creek Watershed Management Plan	Pending	1/1/2023	12/31/2025	Planning
2022		Shelby County SWCD	Little Blue River Watershed Management Plan	Pending	11/1/2022	10/31/2024	Planning
2022		Ohio River Valley Water Sanitation Commission	Operation of Two Continuous Monitors on the Ohio	Pending	7/1/2023	6/30/2024	Assessment