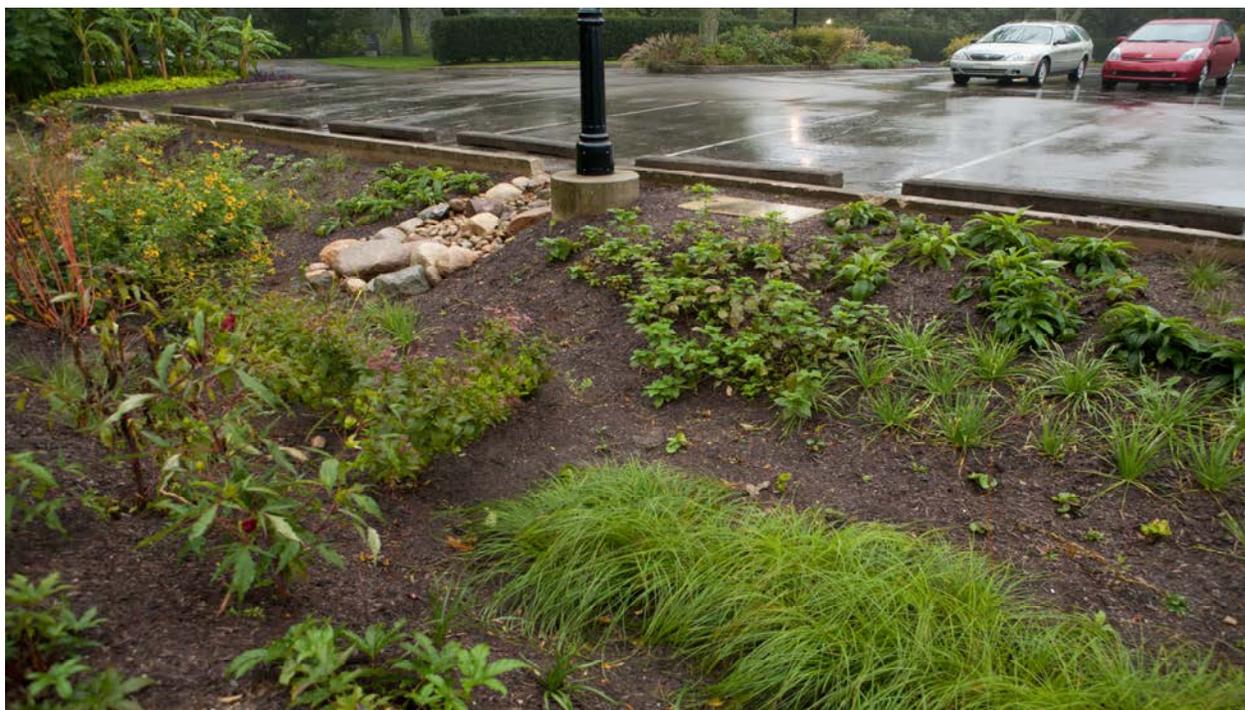


FFY 2016



**OFFICE OF
WATER
QUALITY**

INDIANA NONPOINT SOURCE PROGRAM ANNUAL REPORT



Indiana Department of Environmental Management

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Cover Photos

- Rain garden near the greenhouse on the grounds of the Indianapolis Museum of Art (IDEM)
- Two-Stage Ditch in White County (TNC)

Introduction to the NPS Management Program

Nonpoint source (NPS) water pollution does not originate at single point sources, such as industrial or municipal wastewater discharge pipes, but comes from many diverse sources in the environment. When it rains or snow melts, water runs off streets, parking lots, lawns, and agricultural fields and carries with it pollutants such as motor oil, sediment, fertilizer (nutrients), bacteria and pesticides. These pollutants are then carried, untreated, to the nearest stream or lake through surface water runoff or storm sewers; or they infiltrate into ground water. Nonpoint source pollution remains the largest source of water quality problems in Indiana; and sediment, nutrients, and bacteria are the leading pollutants of concern. The [2016 Indiana Integrated Water Monitoring and Assessment Report](#) states that nonpoint sources impact 16,040 miles of Indiana's streams, and pathogens are the top cause of stream impairments. While some NPS pollution is naturally occurring, most of it is a result of human activities.

The federal Clean Water Act (CWA) was amended in 1987 to establish the Section 319 NPS Management Program to control nonpoint sources of water pollution. Section 319(h) provides the U.S. Environmental Protection Agency (EPA) with the authority to grant federal dollars to states to mitigate and prevent NPS pollution in accordance with the state's approved NPS Management Program. In Indiana, the [Indiana State Nonpoint Source Management Plan](#) (State NPS 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).

Environmental problems, such as NPS pollution, often cut across media and political jurisdictions. Consequently, environmental mitigation and protection require a comprehensive and collaborative approach that works with a multitude of programs, agencies, and concerned citizens. A watershed approach provides a framework for coordinating and integrating these programs and resources. This approach directs the focus on water quality in a geographic area delineated by a watershed. A watershed is an area of land that drains to a particular waterway, such as a stream, lake, river, or wetland. Watersheds are delineated by the U.S. Geological Survey (USGS) using a national standard hierarchical system based on surface hydrologic features, and are classified into hydrologic units identified by a unique Hydrologic Unit Code (HUC). The HUC consists of two to twelve digits based on the level of classification (the longer the HUC code the smaller the watershed level). Indiana has thirty-eight 8-digit HUC watersheds (Figure 1). Each of these may be subdivided into smaller 10-digit and 12-digit HUC watersheds. By examining water quality issues on a watershed basis, problems can be observed in relationship to their sources so causes can be addressed in the most effective manner. 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; and
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; and
- Improving coordination 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.

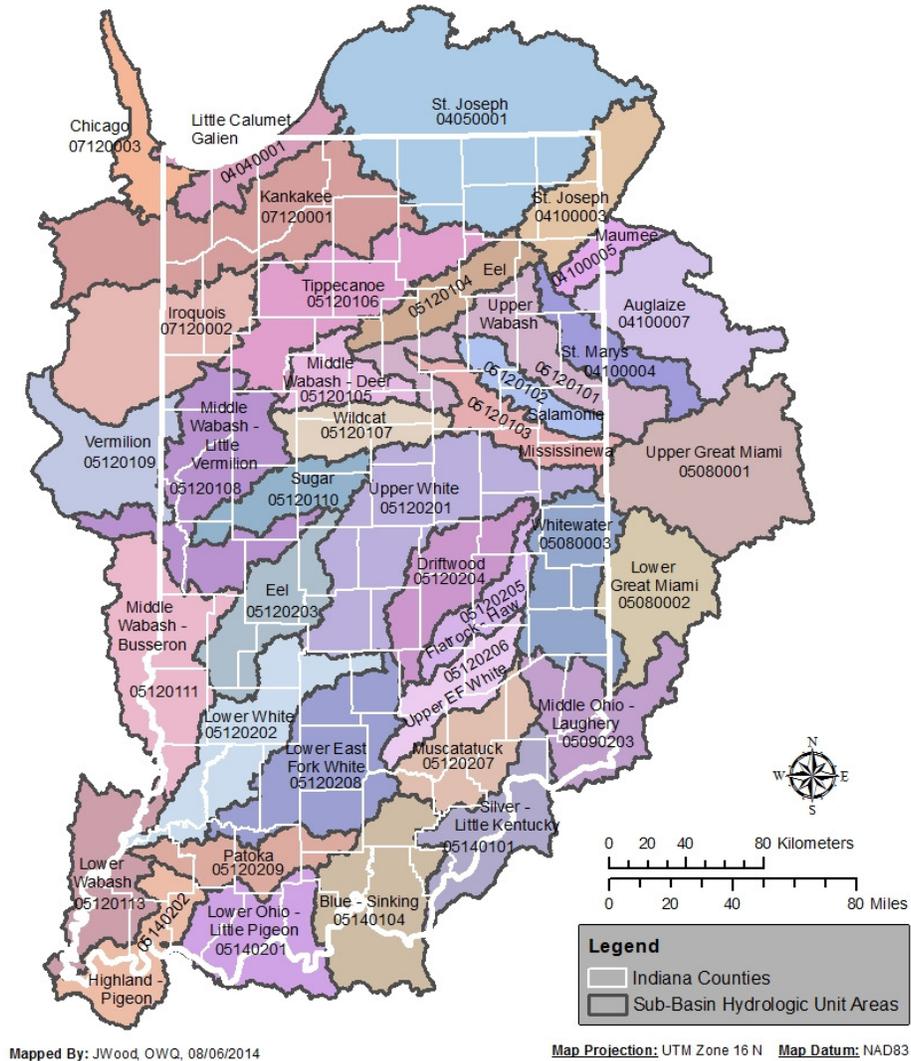


Figure 1 Indiana 8-digit HUC Watersheds

The 2016 Nonpoint Source Program Annual Report describes Indiana’s progress towards meeting the goals, objectives, and milestones of the State NPS Management Plan, as well as the efforts and achievements of the many agencies, groups and individuals working at the state and local level to address NPS pollution in Indiana. It also describes how the \$319 grant funds were utilized to help accomplish these goals.

Indiana's Nonpoint Source Management Plan

Section 319(b) of the CWA requires states to develop a NPS Management Program to control NPS pollution and guide the usage of CWA §319 funds. The NPS Management Program must be approved by EPA before §319 funds may be granted. EPA reiterated in its revised [Nonpoint Source Program and Grants Guidelines for States and Territories](#), issued in 2013, that updating the NPS Management Programs helps states to identify strategic priorities, develop goals and milestones, work more effectively to address water quality problems, and engage partners to address statewide NPS priorities. Therefore, states must review and update their NPS Management Program every five years.

IDEM's approved [Indiana State Nonpoint Source Management Plan](#) (updated in 2014) is a vision and mission-driven strategy to address NPS 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 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 State NPS Management Plan's five goals relate to: utilizing partnerships to define and address NPS issues; monitoring the status of those issues; providing outreach and education to citizens of the state to raise awareness of NPS issues; remediating the causes and sources of NPS pollution; and protecting areas already meeting water quality standards and those areas threatened by NPS pollution. The next revision of this Plan is expected to be completed in FFY 2018.

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 NPS Program's success. Coordinating with these partners increases the funds, staff, physical resources, and political capital available to work on NPS issues. IDEM's NPS Program utilizes multiple partnerships to reach diverse stakeholder groups and further NPS management goals in Indiana. Some of these partners and their achievements this year are highlighted below. A full accounting of progress made this year toward the objectives of Goal 1 in the State NPS Management Plan can be found in Appendix A.

Indiana Conservation Partnership

The [Indiana Conservation Partnership \(ICP\)](#) is comprised of eight Indiana agencies and organizations¹ who share a common goal of promoting 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 philosophy underpins 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 to provide continuous living roots. Meeting the objectives of soil health improvement should be part of an overall approach to management decisions and field operations. To fully implement a conservation cropping system that improves soil health, the ICP helps farmers understand the importance of continually working toward the following objectives:

- increasing organic matter
- increasing aggregate stability
- increasing water infiltration
- increasing water-holding capacity
- improving nutrient use efficiency
- Enhancing and diversifying soil biology

Each ICP initiative has at least an element of it rooted in promoting the soil health philosophy and most have a direct effect on NPS management in Indiana. Some of these initiatives/programs include: the Conservation Cropping Systems Initiative, Infield Advantage, Pathway to Water Quality, the State

¹ 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).

Nutrient Reduction Strategy, the Western Lake Erie Basin Interactive Story Map, and the Leadership Institute.

Many of these agencies also provide funding on a continuing or limited basis to address NPS pollution in Indiana, such as NRCS’s Regional Conservation Partnership Program and ISDA’s Clean Water Indiana (CWI) program. The ICP has committed to report load reductions of sediment, nitrogen, and phosphorus achieved by the practices installed under the agencies’ various funding authorities as a partnership. Agency technicians were trained by IDEM NPS staff to use the U.S. EPA Region V model to calculate load reductions.

2015 Key Highlights include²:

- Indiana landowners supported by the ICP installed nearly 21,000 new conservation practices in 2015. 12,221 of these practices had associated sediment and nutrient load reductions to Indiana waterways reducing:
 - 1,093,763 tons of sediment, enough to fill 10,937 fifty-foot freight cars stretching end to end from Indianapolis to Fort Wayne
 - 2,284,033 lbs. of Nitrogen, enough to fill 11 fifty-foot freight cars
 - 1,144,892 lbs. of Phosphorus, enough to fill 5.5 fifty-foot freight cars
- Indiana landowners increased no-till acres on corn and soybean fields by 466% since 1990
- Indiana landowners increased conservation tillage acres on corn and soybean fields by 311% since 1990
- Indiana landowners increased cover crop acres on corn and soybean fields by 413% since 2011
- Indiana leads the nation in acres planted to cover crops, second only to Texas (which is more than 7 times the size of Indiana!)

2013-15 ICP Conservation Accomplishments Comparison								
	Total Practices Installed	Total Practices with Sediment and Nutrient Load Reductions	Sediment (tons/year)	Phosphorus (lbs./year)	Nitrogen (lbs./year)	Public Conservation Investment	Private Landowner Conservation Investment	Total Investment
CY2013	30,502	15,332	1,661,636	1,469,926	2,780,790	\$42,825,181	\$16,003,304	\$58,828,485
CY2014	21,012	11,365	996,762	1,137,921	2,120,554	\$18,564,015	\$9,570,813	\$28,134,828
CY2015	20,898	12,221	1,093,763	1,144,892	2,284,033	\$27,362,612	\$10,857,905	\$38,220,517

Indiana State Nutrient Reduction Strategy

The development of Indiana’s State Nutrient Reduction Strategy (SNRS) is an ongoing effort of the ICP, with leadership from the Indiana State Department of Agriculture (ISDA) and IDEM, to evaluate nutrient

² Indiana State Department of Agriculture. 2015. Indiana Conservation Partnership 2015 Conservation Accomplishments. Indianapolis (IN): ISDA, Division of Soil Conservation. 2016 April 4.

loading to our watershed, capture present and future activities in Indiana which positively impact the state's waters, and gauge the progress of conservation, water quality improvement, and soil health practice adoption in Indiana.

The SNRS represents Indiana's commitment to reduce nutrient runoff into waters of the state from both point sources and nonpoint sources. The objectives of this strategy include:

- 1.) Acknowledgment of the challenges facing the improvement of Indiana's impaired waters;
- 2.) Involvement and engagement of stakeholders in the state's efforts to reduce nutrient loads;
- 3.) Prioritization of HUC 8 watersheds and first-round HUC 12 watersheds;
- 4.) Discussion of water quality monitoring and regulatory control of point sources;
- 5.) The inventory and utilization of resources to achieve their highest impact on nutrient reduction;
- 6.) Encouragement of voluntary incentive-based conservation through the many state and federal water quality related programs; and
- 7.) To illustrate the means by which the state will provide reports and accountability of assisted conservation practices reported by staff in the Indiana Conservation Partnership.

The SNRS serves as a renewed effort to encourage outreach and education to conservation partnerships and the public regarding stewardship of Indiana's waters. This strategy acknowledges that while the potential to reduce nitrogen and phosphorus entering our waters is great, the achievement of these objectives is dependent upon many factors including: the cooperation of state, federal and local organizations and initiatives; positively changing individuals' behavior via understanding their motivations; targeting and implementing conservation and best management practices on productive agricultural ground and in rural and urban areas to reduce sediment and nutrient runoff.

The SNRS discusses the methods ICP staff will continue to use to promote and advance the use of soil health, nutrient management and conservation cropping systems approaches to farming. These include:

- Indiana's Conservation Partnership Soil Health Philosophy (http://www.in.gov/isda/files/ICP_Soil_Health_Philosophy_final.pdf);
- A System's Approach of Conservation Practices (https://prod.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs144p2_030628.pdf); and
- The utilization of the Nutrient Management and Soil Health Strategy 10-year framework put together by Indiana's agricultural commodity groups with input and dialogue from the USEPA, NRCS, ISDA, IDEM and the Indiana Farm Bureau (<https://inagnutrients-public.sharepoint.com>).

The impact of these actions can be shown through:

- Continuation of the use of the EPA Region 5 Nutrient Load Reduction Model as a means to annually estimate and track sediment, nitrogen and phosphorus load reductions from BMP implementation across Indiana on a watershed-wide scale (<http://www.in.gov/isda/2991.htm>);
- Continuation of the use of the Indiana Tillage Transects and corresponding reports (<http://www.in.gov/isda/2383.htm>);
- An annual preparation of one page load reduction reports for significant waterbodies within Indiana; and

- Performance measure monitoring and trend analysis of instream water quality monitoring data.

In early 2016, a SNRS Workgroup was formed by ISDA and IDEM, including members of the ICP. The next iteration of the SNRS will be submitted to EPA by December 2016. The workgroup will continue to build upon, improve, and strengthen the strategy with action items and further watershed prioritization. The SNRS is a living document and will be updated as needed or every two years. Indiana's SNRS can be viewed at <http://www.in.gov/isda/2991.htm>.

United States Department of Agriculture - Natural Resources Conservation Service

The NRCS mission statement is "Helping People Help the Land." Through financial and technical assistance, NRCS works with private landowners towards productive agriculture and a high-quality environment. The guiding principles of NRCS work are service, partnership, and technical excellence. NRCS' primary customers are people who make decisions about natural resource use and management on non-federal land. This includes governments with a responsibility for natural resource use and management.

NRCS assists landowners in Indiana to develop conservation plans and provides technical assistance for natural resource management, including helping to install conservation practices and systems that meet technical standards and specifications. NRCS also provides financial assistance through incentive programs, easement programs, grants, and stewardship payments. NRCS utilizes targeted initiatives to work with partners on protecting critical natural resources in 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.

For Federal Fiscal Year (FFY) 2015³, NRCS programs in Indiana that support NPS pollution reduction/amelioration efforts included:

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 over \$4 million in CSP funding in FFY 2015. A total of 232 new contracts received funding to treat nearly 195,365 acres of cropland, pasture and forest.

Emergency Watershed Protection

The Emergency Watershed Protection Program (EWP) responds to emergencies created by natural disasters and is designed to help people and conserve natural resources by relieving imminent hazards to life and property caused by floods, fires, windstorms, and other natural occurrences. Three EWP

³ Final program numbers for FFY 2016 are not available until after October.

contracts for approximately \$524,326 were completed in FY15. These three projects protected 0.5 acres of land, stabilized 1,761 streambank feet and saved 0.3 acres of roadway.

Environmental Quality Incentives Program

Indiana received over \$18.3 million in EQIP funding in FY15. A total of 908 contracts were entered into that will address natural resource concerns on 131,213 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 initiatives that provided funding to specific geographic areas and/or resource concerns. These included the On-Farm Energy Initiative, Organic Initiative, and State Specialty Crop.

Agricultural 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 Agricultural Land Easements (ALE) component, NRCS helps Indian tribes, state and local governments and non-governmental organizations protect working agricultural lands and limit non-agricultural uses of the land. Under the Wetlands Reserve Easements (WRE) component, NRCS helps to restore, protect and enhance enrolled wetlands. The Agricultural Conservation Easements Program consolidates three former programs - Wetland Reserve Program, Grassland Reserve Program, and Farm and Ranchland Protection Program. During FFY 2015, NRCS helped Indiana landowners protect and restore 772 acres of wetlands under WRE.

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.

RCPP combines the authorities of four former conservation programs – the Agricultural Water Enhancement Program, the Chesapeake Bay Watershed Program, the Cooperative Conservation Partnership Initiative and the Great Lakes Basin Program. Assistance is delivered in accordance with the rules of EQIP, CSP, ACEP and Healthy Forests Reserve Program; and in certain areas the Watershed Operations and Flood Prevention Program.

For FFY 2015, NRCS funded the following projects that affect Indiana:

1. University of Notre Dame's "Preventing Nutrient Loss from Indiana Farms: Watershed-Scale Pairing of Cover Crops and the Two-Stage Ditch" project – The project will assist with adoption of cover crops on 85 percent of cropland, and two-stage ditches along the majority of channelized ditches, in two targeted 12-digit watersheds – the Shatto Ditch watershed (HUC 051201060401) and Kirkpatrick Ditch (HUC 071200020403). Through water quality monitoring, the project will quantify the soil and water quality/quantity benefits from the implementation of these practices in the watersheds. Based on preliminary research, 40 to 45 percent reductions in nutrient loss are achievable with this approach, which will be monitored at the

watershed scale. A key component of the project is to accurately document the effect of these practices on environmental conditions (water and soil quality) and estimate the full costs and benefits for both public and private interests. In addition, the data will support modeling efforts that will allow for broader conclusions regarding the effectiveness of these conservation practices, regionally and beyond. This project brought in approximately \$101,000 and affected over 564 acres in FFY 2015.

2. Tri-State Western Lake Erie Basin Phosphorus Reduction Initiative – A diverse team of partners will use a targeted approach to identify high-priority sub-watersheds for phosphorus reduction and increase farmer access to public and private technical assistance—including demonstrations of innovative practices that NRCS does not have approved standard for—in Michigan, Ohio, and Indiana. Identified actions are coordinated with the Ohio Phosphorus Task Force Report and will move Lake Erie toward goals developed in the Great Lakes Water Quality Agreement Annex 4 Nutrient Strategies. The partners will gauge success and monitor results using project-wide water quality monitoring and watershed modeling conducted by national experts from multiple scientific entities and institutions. This project brought in approximately \$230,000 and affected over 3,200 acres in FFY 2015.
3. Michigan/Indiana St. Joseph River (Lake Michigan) Conservation Partnership – The partnership strives to find solutions to the increasing ground water withdrawals and sediment and nutrient loading that are economically good for the farmer but also have multiple conservation benefits, including optimizing ground water use, improving infiltration, and reducing nutrients and sediment while also improving wildlife and fisheries habitat. Innovative methods to target high-priority areas and appropriate conservation practices will take an already developed watershed management plan to the next level. Monitoring will be used to adaptively manage this project at various levels, from the field-scale to the entire watershed. Partners have a strong history of working with both NRCS and producers. This project brought in approximately \$1.5 million and affected over 15,200 acres in FFY 2015.

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

Mississippi River Basin Initiative

Through the Mississippi River Basin Healthy Watersheds Initiative (MRBI), NRCS and its partners work with producers and landowners to put in voluntary conservation practices that improve water quality, restore wetlands, enhance wildlife habitat, and sustain agricultural profitability in targeted watersheds in the Mississippi River Basin. Targeted watersheds must be identified on the State's list of 8-digit watershed priorities in the State Nutrient Reduction Strategy. IDEM cross-referenced eligible watersheds with approved watershed management plans and active watershed efforts to provide the Indiana State Technical Committee (ISTC) with a list of candidate watersheds with the capacity to implement the program and demonstrate success. The ISTC utilized that list, alongside information from other partners, to choose five 12-digit watersheds, three of which have IDEM-approved watershed management plans and groups ready to implement those plans: Little Wea Creek (HUC 051201080105), Prairie Creek (HUC 051202010601), and Tobin Ditch (051202010605). Two more watersheds are covered under the Big Pine Creek WMP, which is currently under review by IDEM and U.S. EPA: Big Pine Creek

Ditch (HUC 051201080402) and Little Pine Creek (HUC 051201080403). In FFY 2015, 18 targeted MRBI contracts provided over \$788,000 to landowners and treated 4,259 acres of land.

National Water Quality Initiative

The NRCS and the EPA collaborated in FFY 2012 on a national effort to increase agricultural BMPs in critical watersheds. This effort was called the National Water Quality Initiative (NWQI). Five percent of each state's Environmental Quality Incentives Program (EQIP) funds were to be dedicated to priority 12-digit watersheds with a goal of showing water quality improvement. In Indiana, NRCS coordinated with IDEM to choose four watersheds that met the following criteria: watershed is impaired (listed on the 2008 303(d) list) for pollutants associated with agricultural run-off; largely agricultural in land use; identified as critical areas in IDEM-approved watershed management plans; has a currently-active locally-led watershed group; there is a perceived willingness of producers to implement BMPs through EQIP; and there is a strong monitoring program in place to measure change. In addition, the NRCS State Technical Committee added a criterion for "drinking water source." The four 12-digit HUC watersheds chosen were Silver Creek (HUC 051201040501), Ell Creek (HUC 051202090405), Beargrass Creek (HUC 051201040509), and Eagle Creek (HUC 051202011108). In FFY 2015, NRCS contributed \$619,719 under the NWQI to conservation efforts on 16 contracts in Indiana to treat 2,859 acres of land.

Under the national schema for the NWQI, monitoring for change at the stream/watershed level falls to the state water quality agencies. In FFY 2014, IDEM partnered with the USGS, the Marion County Health Department, the Center for Earth and Environmental Science at Indiana University-Purdue University Indianapolis, and farmers to initiate monitoring at multiple scales on School Branch in Eagle Creek watershed (HUC 051202011108). IDEM began monitoring at its fixed station sites on School Branch in April 2014 and continued its monitoring through the 2016 federal fiscal year. More information about monitoring for the NWQI can be found under [Goal 2](#).

In addition, the IDEM NPS program has provided implementation funding for Silver Creek, Beargrass Creek, and Ell Creek watersheds through the \$319 grant program. All of these watersheds are part of larger implementation efforts on a multiple 10-digit scale (Silver Creek and Beargrass – [Middle Eel WMP](#); Ell Creek – [Middle Patoka River Source Water Protection Plan](#)).

Great Lakes Restoration Initiative

America's Great Lakes hold 21 percent of the world's surface fresh water, providing habitat for a variety of fish and wildlife and drinking water for more than 40 million people. Recreational and commercial fishing are one of the region's major industries, and the lakes facilitate transportation and commerce in the eight states that border the lakes. But the lakes suffer from pollution, caused by urban runoff and sprawl, sewage disposal, agriculture, industry and other sources. This pollution damages the aquatic ecosystems and poses risks to human health. In recent time, algal blooms in Lake Erie underscored the importance of continued conservation efforts in the region. Launched in 2010, GLRI helps NRCS accelerate conservation efforts on private lands located in targeted watersheds throughout the region. Through GLRI, NRCS works with farmers and landowners to combat invasive species, protect watersheds and shorelines from nonpoint source pollution, and restore wetlands and other habitat areas. Indiana received over \$668,000 in GLRI funding in FY15. A total of 29 contracts were entered into that will address natural resource concerns on 14,638 acres of land over the life of the contracts.

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.

Indiana's Conservation Cropping Systems Initiative (CCSI) is a collaboration between the ICP organizations, the agriculture industry and Indiana farmers. With oversight from ICP representatives (including IDEM NPS Program staff) and administrative responsibility from the IASWCD, the CCSI promotes a systematic conservation approach to production agriculture through field days, seminars and one-on-one consulting. The systems approach to better soil health coupled with an innovative method for educating farmers, positively and directly improves soil structure, resulting 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. The program has grown to provide high level technical training for ICP staff and farmers so they can help provide technical assistance to others. Soil health measurements and economic case studies are also being conducted. A Director and Communications Manager will be added in 2016 to help grow the program.

Since its inception, CCSI partners have taken over 3800 samples in replicated strip trials with over 148 strips (data collected includes cover crop biomass and nitrogen (N) uptake, plant available soil N, soil moisture, soil temperature, basic soil fertility, corn leaf chlorophyll, stalk nitrate, and results from four soil health tests) and conducted over 200 educational events with audiences totaling over 7,000 farmers and agriculture professionals. In the fall of 2015, a survey was conducted and provided results of over 1.1 million acres of cover crops planted. This was an increase of 10% from the previous year.

Through the Annual Conference of the IASWCD, relevant sessions directly and indirectly address NPS pollution. This year the On the Ground, District Management, and Outreach and Education tracks provide a wide variety of topics. Expert presenters and facilitators shared their expertise and knowledge during this one-and-a-half-day event with designated sessions offering Continuing Education Units (CEUs). IDEM NPS staff participated on the planning committee for the conference and staff presented at one session and moderated two sessions of the 2016 Annual Conference. This annual event provides attendees with the opportunity to connect with other like-minded colleagues and hear inspirational speakers.

The IASWCD provides conference scholarships to qualifying SWCD supervisors. Twelve SWCD supervisor scholarships were awarded for the 2016 Annual Conference; thus, providing opportunities for additional supervisors to learn about the wise use and management of Indiana's natural resources, including NPS pollution prevention, and to bring this information back to their districts.

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, provides a PWQ Coordinator to oversee the project and committee (about \$12,000 total). 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.

The IASWCD *Conservation Update*, a biweekly electronic publication, communicates issues, events and resources in watershed management statewide. The *Conservation Update* 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 Update*, offer additional opportunities to increase public awareness and supports successful nonpoint pollution reduction practices.

The IASWCD Funding Resources web page can be accessed through the [IASWCD web site](#). 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, recently announced that it has awarded grants to two Indiana districts (Hamilton County SWCD and Marion County SWCD) to help boost technical assistance for urban agriculture and conservation awareness and development. The Urban Agriculture Conservation Grants Initiative was established for conservation districts and their partners to be able to provide much needed technical assistance for agricultural conservation where the land is predominately urban or urbanizing. The Hamilton County SWCD will receive a grant that will allow them to hire two part time urban agriculture program associates. One associate will provide on-site technical assistance on how to develop and sustain an urban food plot or community garden. The second associate position will focus on education and developing partnerships within the county to encourage established or developing community gardens, as well as individual gardeners, to donate part of their yield to local food banks. The Marion County SWCD will receive a grant to develop the Urban Growers Exchange, which will be a catalyst for urban farming sustainability based on soil health.

Indiana State Department of Agriculture

The ISDA - Division of Soil Conservation (Division) works along with the State Soil Conservation Board (SSBC) 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 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 Implementation Teams (CIT) 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 programs, and assist with educational events for youth, adults and farmers/landowners.

The Division also employs District Support Specialists (DSSs), through the SSCB Clean Water Indiana Fund, to work directly with the local SWCDs to develop conservation priorities, goals, and plans for their respective territories. The DSSs prepare and conduct trainings for SWCD supervisors and staff, and they are a resource for 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.

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-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. ISDA administers the CREP program on behalf of the State.

The program was first announced in 2005, covering three watersheds in Indiana with an acreage enrollment goal of 7,000 acres. The program expanded in August 2010 to include 11 priority watersheds touching 65 counties with an acreage enrollment goal of 26,250 acres. The expanded CREP area now includes Lower Wabash, Lower White, Lower East Fork White, Upper East Fork White, Middle Wabash-Busseron, Middle Wabash-Little Vermillion, Middle Wabash-Deer, and Upper Wabash Watersheds. Eligible practices through the CREP include permanent native grasses, hardwood tree planting, wildlife habitat, riparian forest buffers, filter strips, wetland restorations, and bottomland timber establishment.

CREP Progress to date includes over 10,050 acres of conservation practices installed utilizing \$3,596,059 state dollars and protecting over 566 miles along Indiana's rivers, lakes, and streams. Enrollment in the CREP Program is over 12,700 acres.

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 which will reduce nonpoint sources of water pollution through education, technical assistance, training, and cost sharing programs. The CWI fund is administered by the Division under 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. The financial assistance supports the implementation of conservation practices which will reduce nonpoint sources of water pollution through education, technical assistance, training, and cost sharing programs. In fiscal years 2015 and 2016, CWI awarded

\$1,020,900 and \$965,500 in competitive grants, respectively. The 2016 grants were awarded to 35 SWCDs and are being used to accomplish:

Cost Share:

- Installing BMPs such as cover crops and filter strips
- Improving pastureland
- Converting equipment
- Promoting urban gardening and backyard conservation

Professional Assistance:

- Conducting soil samples
- Collecting data
- Writing conservation plans
- Evaluating issues

Adult Education:

- Conducting field days
- Planting demonstration plots

CWI also contributes critical state matching funds for Indiana's CREP, and supports the Indiana [Conservation Cropping Systems Initiative \(CCSI\)](#). From 2010-2015, the SSCB allotted CWI funds for the CCSI, along with NRCS. The intent of CCSI is to promote a systematic approach to production agriculture focusing on continuous no-till/strip-till, cover crops, precision farming, nutrient and pest management, and conservation buffers resulting in improved soil quality, water quality, and profitability on Indiana cropland. Through this program, agronomy professionals provide very specific education and technical assistance to agricultural producers and conservation staff directed at production efficiency and nutrient/sediment runoff reduction.

INfield Advantage (previously known as On-Farm Network)

[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. Participating farmers use precision agriculture tools, protocols, and technologies, such as aerial imagery and the corn stalk nitrate test to conduct in-depth nitrogen analysis on their own farms and to determine nitrogen use efficiency in each field that they enroll. This concept is considered adaptive management and generally results in changes that increase profitability of the producer and ultimately has a positive impact on water quality. This program was developed to address key challenges in advancing water quality goals in the state related to production agriculture. The adaptive management process has shown most growers can reduce their nitrogen rates by one-third while maintaining or increasing profitability. Field history information is also collected from every participating farmer – previous crop, manure history, manure applications, commercial N applications (including timing of application, form, and rate) and tillage. This information is combined with analysis of results from the on-farm evaluation plots comparing different management practices (timing, form, application rate, etc.). All data collected through INFA are anonymous; reports can never be linked to a name or specific location. The data are reported back to the participating farmer as his/her individual farm data and as aggregate data results. The aggregate results can be used publically for educational purposes.

The program started in 2010 as a pilot project in Jasper County in northwest Indiana, and included 15 producers, 39 fields and 2,700 acres. It has expanded over the last 6 years to now include many areas of the state. In 2016, there are 34 groups including approximately 440 producers, approximately 1,011 fields, and about 70,000 acres.

Nutrient Load Reduction Modeling and Mapping

In 2013, the ICP began 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 across the state. 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 Section 319 administered by IDEM and the USDA's Farm Bill Programs like EQIP and CRP. The ICP utilizes the end products of this process to establish baselines and measure load reduction trends by watershed for each calendar year, allowing for prioritization of workload and staffing needs, all while serving as a tangible component of the [Indiana Nutrient Reduction Strategy](#). Reports that are generated as a result of this process can be found at <http://www.in.gov/isda/2991.htm>.

Indiana Department of Natural Resources

Lake and River Enhancement Program

The Department's role in Lake and River Enhancement (LARE) is set forth in Indiana Code (IC 6-6-11). The Division of Fish and Wildlife administers the LARE program through financial grants to sponsors to reduce sediment and nutrient inflow to Indiana's lakes and rivers.

Some projects are specifically designed with measures to enhance aquatic habitat for fish and wildlife. Since funding comes from the lake and river enhancement fee annually paid by boat owners when registering their boats with the Bureau of Motor Vehicles, the LARE program strives to insure the continued viability of Indiana's publicly accessible lakes and streams for multiple uses, including recreational opportunities. The IDNR Division of Law Enforcement also receives a portion of the funds to conduct aquatic safety programs and maritime patrols.

Grants have been made available for technical and financial assistance to local and county agencies and non-governmental entities (such as a lake or homeowner association) for qualifying projects since 1989. LARE-funded projects that reduce sedimentation and nutrient runoff include the installation of grass cover, filter strips, and stream bank or shoreline stabilization structures. In March of 2016, nearly \$1,141,000 in 51 grants was awarded to address control of invasive aquatic species, sediment removal from publicly accessible lakes, and logjam removal from rivers. In July of 2016, 33 grants totaling \$1,296,000 were awarded for new biological, diagnostic, design and construction projects on lakes and rivers as well as several new and continuing Watershed Land Treatment (WLT) projects with County Soil and Water Conservation Districts. These latter efforts include a partnering with willing land users working to put in place various measures to address NPS pollution.

Several of the 2016 grants will provide assistance in the removal of lowhead dams, increasing aquatic passages, and enhancing recreational efforts on several rivers. Some new projects will target

streambank stabilization efforts including some in the Western Lake Erie Basin. Many of the most recent projects include active measures to improve aquatic habitat. The end results of these efforts include enhanced opportunities for boating, fishing, and other recreational pursuits, and to increased economic value for businesses, communities, and individuals who live on or use these water bodies.

Indiana Lake Michigan Coastal Program

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 IDNR 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). In the 2014/2015 grant cycle project applications were received and grants awarded to communities, universities, and schools that will result in NPS runoff reduction and water quality improvements consisting of BMPs to prevent sediment and pollutant discharges, riparian area land acquisition, water well testing, septic system education using process animation, Lake Michigan watershed water quality education, and a Smartphone application for monitoring water quality. The Request for Proposals for the 2016 and 2017 LMCP Grant cycles were issued in July of each year.

As part of the Coastal Zone Act Reauthorization Amendments of 1990 (CZARA), Congress created a stand-alone provision, Section 6217, which requires that states and territories with approved coastal zone management programs develop a Coastal NPS Pollution Control Program to address water quality impairment of coastal waters. The purpose of the program is to develop and implement management measures for NPS pollution to restore and protect coastal waters. The DNR LMCP and IDEM §319 Program staff work together to coordinate with other state and federal agencies such as state and local health departments, DNR, NRCS, and local SWCDs 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.

Indiana submitted a work plan and time-line to NOAA in the fall of 2015 for achieving approval from NOAA/EPA for remaining unapproved 6217 management measures which included Pesticide Management, Grazing Management, Operating Septic System Management, Protection of Wetlands, and Enforceable Policies. LMCP worked with the DNR and local conservation organizations on the submittal for Protection of Wetlands (February 2016) which was approved by NOAA/EPA in April 2016. With the assistance of state and local NRCS staff, coastal county SWCDs, Office of the Indiana State Chemist, and Purdue Extension, Indiana's submission for the Pesticide and Grazing Measures (April 2016) was approved in July 2016. IDEM 319 staff developed and submitted the Enforceable Policies and Mechanisms Measure (June 2016), which was also approved by NOAA/EPA in July 2016. Only one measure, Operating Onsite Disposal Systems, remains unapproved.

Coastal county health departments, the Indiana State Department of Health and the NW Indiana Septic System Coordination Work Group provided assistance with the LMCP submission for the Operating Septic System Management Measure (January 2016). In April 2016, NOAA/EPA recommended further work to achieve approval of this measure including continued work with coastal communities to adopt ordinances requiring “point of sale” inspections or routine inspections (every 3 – 5 years) of existing septic systems, and development of an outreach and education strategy to decision makers, realtors, and septic system owners.

In 2015-2016 LMCP continued its partnership with the Indiana State Department of Health (ISDH), IDEM, local health departments, watershed groups, coastal municipal separate storm sewer systems (MS4s), and local agencies and communities to promote the utilization of the state’s online septic system tracking database and the adoption of best practices to support operating and inspection programs in the coastal region. LMCP convenes the NW Indiana Septic System Coordination Work Group, which meets bi-monthly with federal, state, and local governments in addition to interested stakeholders to develop a coordinated approach to eliminating the impacts of poorly maintained and failing septic systems on coastal water quality. In June 2016, IDEM and the LMCP presented to the annual Indiana Water Resources Association Symposium on the partnership efforts and accomplishments of the Septic System Coordination Work Group.

In September 2015 the Septic System Coordination Work Group promoted the annual EPA SepticSmart Week in the coastal region through distribution of SepticSmart education materials, community resolutions, and print and radio/television outreach. Septic system awareness focus groups were conducted by Septic System Coordination Group members in the coastal region to identify what education elements and method of communication will best serve improving operation and maintenance by septic system owners. LMCP is funding a local non-profit organization to develop and implement a community Septic System Outreach and Education Program for the coastal region utilizing the recommendations derived from the focus groups. The ISDH has developed a septic system information presentation for local realtors which will be piloted in NW Indiana as part of the outreach and education program in 2017. Septic System Coordination Work Group partner, LaPorte County Department of Health, developed a Point of Sale Septic System Inspection Ordinance passed by the county commissioners in April 2016 which will serve as a model for other coastal health departments and contribute to meeting the Indiana Coastal Nonpoint Pollution Control Program Operating Septic System Measure.

As part of ongoing Coastal NPS Program implementation, the LMCP partners work with IDEM to oversee the Indiana Clean Marina Program. This voluntary, incentive based program encourages marinas and recreational boaters to implement environmentally sound practices to protect Indiana’s inland and coastal waterways. Since the program’s inception in 2009, five coastal area marinas have been designated officially as Clean Marinas: Hammond Marina, Trail Creek/Sprague Point Marina, Washington Park Marina, Portage Marina, and, most recently, Marina Shores Marina at Dune Harbor in July 2015. In March of 2016, IDEM, with assistance from the LMCP and IDNR, organized the 2nd annual Clean Marina Roundtable for Indiana Clean Marinas and potential new clean marinas. Additionally, in support of the Clean Marina program in 2015-2016 the LMCP distributed Clean Marina and Clean Boater educational materials at marina and boating public events throughout the year.

Healthy Rivers Initiative (HRI)

The Healthy Rivers Initiative, led by the IDNR, 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 IDNR, U.S. Fish & Wildlife Service, NRCS, and The Nature Conservancy of Indiana.

These projects involve the protection, restoration and enhancement of riparian and aquatic habitats and the species that use them, particularly threatened, endangered, 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.

At the conclusion of the first six years of the HRI, in June of 2016, 35,275 acres of land are permanently protected, with 10,029 acres acquired by IDNR in the Wabash River and Sugar Creek Project Areas, 3,325 acres enrolled in the USDA Wetlands Reserve Program (WRP) that are not owned by IDNR to complement the existing 12,723 acres of state-owned land. In the Muscatatuck River Project Area, 4,324 acres were acquired; 2,385 acres were enrolled in the WRP that are not owned by DNR, complementing the existing 2,489 acres of state-owned land. To date, a total of 12,235 acres are now open to the public for hunting, fishing, trapping, boating, and birdwatching.

Indiana State Revolving Fund Loan Program

The Indiana State Revolving Fund (SRF) Loan Program finances projects that abate or prevent NPS pollution of Indiana's waters. The SRF Program has traditionally provided low interest loans to Indiana communities for projects that improve wastewater and drinking water infrastructure. The program has been expanded to fund projects 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 2016 (July 1, 2015 - June 30, 2016), the SRF Program loaned \$16.8 million to three communities on projects to reduce NPS pollution by extending sanitary sewers to areas with septic systems, thereby eliminating this potential source of pollution. Approximately 770 septic systems will be eliminated through this project. Throughout the life of the SRF NPS Program,

\$215 million has been loaned for NPS purposes. Approximately 14,000 septic systems have been removed from service and seven Brownfield sites have been remediated.

The NPS Program has also made a specific effort to coordinate with the Wastewater SRF (WWSRF) Program to link loan applicants with local watershed groups. Each quarter, when the WWSRF'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 WWSRF 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. However, over the last year or so, interest rates have dropped to 2%, which is the floor for the SRF Program. This means that no further interest rate cut is currently being offered for NPS projects. Interest rates are adjusted quarterly on the first of April, July, October and January.

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 NPS pollution problem and gains made in water quality through NPS actions. In order to grasp the extent and impacts of NPS 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 2011-2019*. Assessment of the data obtained through monitoring follows protocols outlined in the *2016 Consolidated Assessment and Listing Methodology*. Highlights of significant progress in monitoring and assessment of Indiana's waters for NPS during FFY 2016 are included below. A full accounting of progress made this year toward the objectives of Goal 2 in the State NPS Management Plan can be found in Appendix A.

IDEM Water Quality Monitoring

The OWQ conducts water quality monitoring and assessments each year to determine statistically the degree to which waters within a given basin support aquatic life, human health, and recreational uses. Water quality monitoring is conducted in a different basin each year using a probabilistic approach. In 2011, IDEM implemented a new water quality monitoring strategy in which monitoring is conducted in one of nine basins each year (Figure 2). This will result in a statistically comprehensive and updated data set for the entire state in 2019.

In 2016, IDEM sampled probabilistically in the Lower Wabash River Basin (HUCs 05120108, 05120109, 05120110, and 05120113). The results of this monitoring effort will be used to:

1. Provide data on which to base statistical 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));
3. Identify impairments for which TMDLs should be created for NPS and point sources; and
4. Provide baseline data for watershed management decisions, where possible.

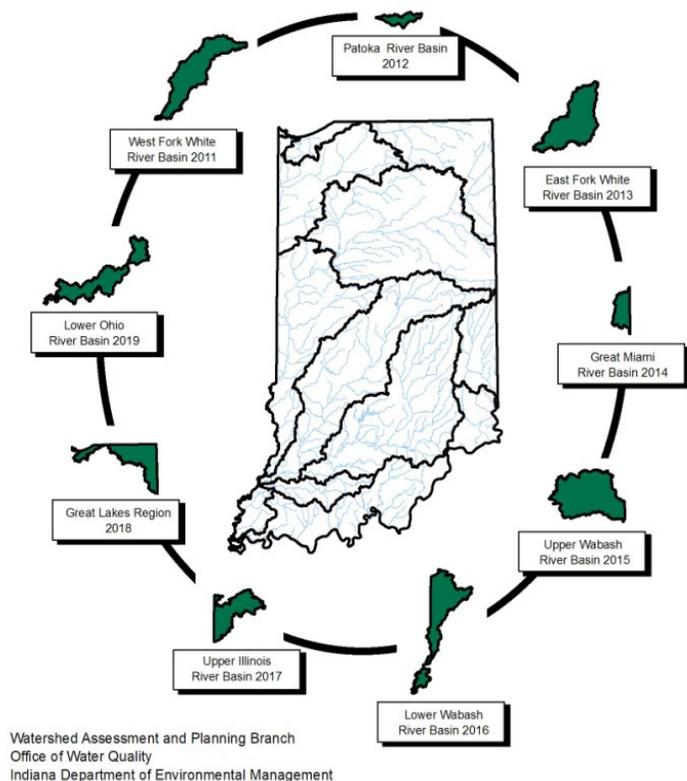


Figure 2 IDEM's 9-Year Rotating Basin Monitoring and Assessment Approach.

IDEM's NPS monitoring also includes two types of targeted monitoring: performance measure monitoring (monitoring for success, measured under the EPA's SP-12 and WQ-10 measures) and baseline watershed characterization monitoring.

Performance Measures/Monitoring for Success (Measure W/SP-12 and Success Stories/WQ-10)

Part of EPA's strategy for showing improvement in NPS pollution impairment is through SP-12 and Success Stories' submissions by the states. In order to show improvement, states must show that:

- 1) One or more of the waterbody/impairment causes identified in 2002 are removed, as reflected in EPA-approved state assessments, for at least 40% of the impaired water bodies or impaired stream miles/lake acres in the watershed; or
- 2) There is a significant watershed-wide improvement, as demonstrated by valid scientific information, in one or more water quality parameters or related indicators associated with impairments.

Targeted monitoring to measure water quality improvement as a result of NPS grant projects was initiated in 2009. Monitoring for success continued this period in the Busseron (HUC 051201115) and Eagle Creek (HUC 0512020111) watersheds. Samples are still being processed and IDEM reserves judgment as to whether any of the sampling in these watersheds demonstrates improvement.

Baseline Monitoring/Watershed Characterization Studies

Two conditions led to the decision by IDEM to conduct baseline watershed characterization studies in a limited number of watersheds each year. First, many watershed groups in Indiana lack the expertise to set up and use equipment to conduct a monitoring program that will provide complete baseline data for their watershed management plans. Secondly, in order to meet the data quality objective of delisting, IDEM needs to have a scientifically-defensible baseline to compare with follow-up monitoring. Monitoring began in 2011 in the Plummer Creek watershed and has continued to the present for additional watersheds. In FFY 2014, it was further decided that all baseline projects would be conducted for the combined purposes of monitoring in order to prepare TMDLs and provide sufficient baseline monitoring to measure change after the preparation and implementation of a watershed management plan. Thus, the name of these studies has been changed to "Watershed Characterization" studies. Parameters sampled in watershed characterization studies from 2013 through 2016 include alkalinity (as CaCO₃), total solids, total suspended solids, total dissolved solids, sulfate, hardness (as CaCO₃), total phosphorus, nitrate+nitrite-nitrogen, ammonia nitrogen, total Kjeldahl nitrogen, water temperature, specific conductance, dissolved oxygen percent saturation, total organic carbon, chemical oxygen demand, turbidity, chloride, dissolved oxygen, pH, stream flow, *E. coli*, fish community, macroinvertebrate community, and habitat-related parameters (e.g. embeddedness, canopy cover).

Following is an update of all ongoing watershed characterization studies and studies closed in FFY 2016.

South Fork Blue River (HUC 0514010406) –During this reporting period twenty-one sites continued to be monitored monthly for water quality parameters following a modified geometric design and targeted site selection as described in the [2015 Sampling and Analysis Workplan for Baseline Monitoring of the South Fork Blue River](#). Data collection began in November 2014 and concluded in October 2015.

Salt Creek (HUC 0512020808) – Water quality monitoring in Salt Creek began this FFY as part of a new watershed characterization/TMDL project. Twenty-eight sites were selected for water quality monitoring following a modified geometric design and targeted site selection. Data collection began in November 2015 and is scheduled to be complete in October 2016.

Ground Water Monitoring

Ground water monitoring continued during the 2016 field season. Three-hundred wells were sampled for over 400 point and NPS parameters, including nitrate and pesticide break-down products. Continued annual sampling will give IDEM an opportunity to explore trend analysis, seasonal variations, and the relationship between sensitivity and hydrogeological setting. Ultimately, this type of sampling can provide the information needed to characterize causes, sources, and magnitude of NPS pollution in ground water.

Additional Water Quality Monitoring

Water quality monitoring is not just conducted by IDEM. Other monitoring activities are being conducted around the state and are also important to the NPS Program. Many §319 projects conduct monitoring as part of their work to reduce NPS 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), a program of IDEM's Watershed Assessment and Planning Branch, is a volunteer water quality monitoring initiative to increase public awareness of water quality issues and concerns by training volunteers to monitor stream water quality. 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 and water quality.
- Train citizens on the basic principles of water quality monitoring.
- Promote opportunities for involvement in water quality issues.
- 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 providing monitoring equipment, supporting workshops to train volunteers, distributing water quality news to volunteers and stakeholders, and managing an online database as a repository of data collected by volunteers. In FFY 2016, HRW supported 15 (14 Basic and 1 Advanced *E. coli*) local workshops and educated and trained 158 water quality monitoring volunteers throughout Indiana. There are currently three more workshops scheduled for this year, one of which is an Advanced *E. coli* workshop. The program has distributed seven equipment packages to a variety of schools, non-profit, and government organizations. There are 35 instructors. The HRW Program maintains 23 loaner trunks throughout the state, which contain all the equipment needed to monitor water quality. These trunks may be borrowed for varying lengths of time.

The [Hoosier Riverwatch Volunteer Stream Monitoring Internet Database](#) was developed when the HRW Program began in the summer of 2000 and was upgraded (using §319 funds to contract with a consultant) in 2016 to make it more comprehensive and user friendly. Indiana volunteer stream monitoring groups enter into this database the data collected from habitat, chemical, and biological sampling. Only volunteers who have completed a HRW training workshop may enter data. Volunteers and the general public can view and download all stream data entered into the database by HRW volunteers. This provides a unique opportunity for volunteers to share data, not only with one another, but also with anyone interested in the quality of Indiana's rivers and streams. Approximately 745 data records were entered into the online database by volunteers this year.

Indiana Clean Lakes Program

The School of Public and Environmental Affairs (SPEA) at Indiana University (IU) has been working with IDEM through §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 March 2015 through January 2019, includes the following components:

- Annual sampling of 80 lakes and reservoirs at one site for a variety of parameters;
- 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 quarterly newsletter, *Water Column*; maintenance of the [Indiana Clean Lakes Program website](#); preparation of brochures and fact sheets; and participation in the annual Indiana Lake Management Conference; and
- 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; and

- 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 Sections 314 and 305(b) assessments and 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 as a whole provided the foundation for the development of IDEM's assessment methodology for lakes and reservoirs. IDEM is currently evaluating Indiana CLP data for the development of its methods to assess drinking water use support for those lakes and reservoirs that serve as a public water supply. This work is ongoing. The Indiana CLP data, collected over more than three decades, have also been analyzed extensively by IDEM for the purposes of developing 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 (see [National Water Quality Initiative](#) discussed previously). 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 will collect and interpret scientific data about water quality and water quantity in the School Branch watershed for the first three 3 years of a 6-year study. The USGS will operate three monitoring stations to continuously measure stream discharge. Real-time water-quality sensors and representative sampling will be used to measure continuous and synoptic concentrations and loads of nitrogen, phosphorus, and suspended sediment in stream water at these stations. Continuous ground water levels and synoptic ground water quality will also be measured. Chemical indicators of water quality and hydrologic data will be used to understand the sources and transport of nitrogen, phosphorus, and sediment in the watershed. Biological inventories will be used as additional indicators of water quality. Data from the study will be communicated by the USGS through internet webpages, presentations, and publications. In addition, IDEM will continue monitoring two fixed station sites on School Branch monthly; an effort that began in April 2014 and continued through FFY2016. 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.

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 began implementation of the External Data Framework (EDF) to provide a systematic, transparent and voluntary process for external organizations to submit their water quality data for consideration in various OWQ programs. The EDF 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 [EDF website](#) is now active and available to the public. The website provides general information on the EDF along with a frequently asked questions (FAQ) page, data solicitation schedules and timelines, and a technical assistance page. OWQ has also developed a number of presentations and other outreach materials to promote participation in the EDF. The website offers two guidance documents: The *General Guidance for the Office of Water Quality External Data Framework*, which provides an overview of the EDF 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 EDF 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 EDF website also includes a page that describes three options for data submittal through OWQ's Secondary Data Portal. All participants in the EDF 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 be 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 EDF at any time for consideration by the OWQ for potential use in its programs. OWQ programs can access data submitted through the EDF 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 EDF. 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.

The OWQ is currently seeking funding from CWA Supplemental 106 to develop an online tool to facilitate the design of water quality monitoring projects and the development of associated quality assurance project plans by participants in the EDF. The content needed for this technical assistance was developed with CWA Supplemental 106 funds in 2013. In addition to the development of technical assistance content, the contractor for the 2013 project provided a matrix to help IDEM choose the best platforms and software to use in delivering content to participants in a cost-effective way. IDEM has determined that this content will be best delivered online through an interactive interface that will benefit both OWQ and EDF participants.

With the proposed system, EDF participants will be able to:

- Fill out OWQ's QAPP template online through a self-paced, guided process through a series of online forms;
- Access learning and other support materials in a variety of formats (video, downloadable documents, links to outside sources, etc.), tailored to their unique needs for a given section of the QAPP;
- Upload additional materials if needed to append to their QAPP; and
- Print their completed QAPP and/or deliver it to an OWQ employee to facilitate review of data they submit through the EDF.

Benefits for OWQ's internal EDF processes include:

- The ability to deliver a large variety of technical assistance, tailored to individual user needs in a very streamlined way;
- The ability to check on the status of any QAPP in the system and to access the QAPP live on their computers to provide direct, real-time support to specific users when needed; and
- The ability to offer highly targeted technical, yet streamlined assistance to individual users via a "Help" section that will allow OWQ staff to embed responses to their questions within the sections of the QAPP to which they pertain.

If funding for this project is approved, OWQ anticipates its completion sometime in 2017.

Current Assessment of Indiana's Surface Waters

After IDEM completes an assessment of the data collected within a given basin, waters that do not fully support one or more of their designated uses are placed on [Indiana's 303\(d\) List of Impaired Waters](#). This list is developed every two years as part of the state's Integrated Water Monitoring and Assessment Report.

As shown in the [Integrated Water Quality Monitoring and Assessment Report](#) that IDEM submitted to EPA on April 1, 2016, Indiana has monitored 60%⁴ of its streams to determine whether they are capable of supporting a well-balanced warm water aquatic community. Of the streams monitored, 68% were supporting their designated aquatic life use, and 32% were found to be impaired. Indiana has monitored 50%⁴ of its streams for recreational uses. Of the streams monitored, 26% were found to support full-body contact recreational uses, while 74% were found to be impaired.

The sources of water pollution in Indiana are location dependent and involve both point and nonpoint sources. Many of the problems caused by point source pollution have been and continue to be addressed through regulatory programs such as the National Pollutant Discharge Elimination System permit program. Reducing NPS pollution requires a multi-faceted approach including education and outreach, watershed planning, and implementation of best management practices to restore waterbodies identified on Indiana's 303(d) List of Impaired Waters.

⁴The percentages reported for waters assessed and use support are calculated based on an approximate total number of stream miles in Indiana that appear in Indiana's High Resolution Reach Index, which is a map of all streams that appear in the 1:24,000-scale national Hydrography Data Set. IDEM is in the process of finalizing the High Resolution Reach Index. Currently the total number of stream miles is 63,130. Percentages reported for waters assessed and use support in IDEM's Integrated Report and the State of the Environmental Report prior to 2012 when our high resolution indexing was still underway, may be higher as a function of the smaller total stream miles indexed at the time. The total number of stream miles for prior reports is available upon request from IDEM's Integrated Report Coordinator.

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

There is a need to provide outreach and education to citizens of the state to raise awareness of NPS issues. Many citizens still do not have the basic knowledge or understanding of NPS pollution, living in a watershed, or behaviors that lead to water quality impairments. Without this understanding they are less likely to change their behavior or support NPS reduction efforts. There is opportunity to work with partners on unified messaging regarding NPS pollution. IDEM realizes that any NPS messaging campaign undertaken by the agency should be consistent with partners across the state.

In the past year, the NPS Program has coordinated with partners on creating statewide educational messages on septic systems, hydromodification, and sediment and nutrient issues in the state, and promoting success stories for work done to remediate NPS pollution. Discussions to date have been with the Indiana State Department of Health (ISDH) and Rural Wastewater Task Force on septic systems; IDNR and the Indiana Silver Jackets on dam removal and floodplain management; Purdue University on how to enroll more County Surveyors into the Indiana Watershed Leadership Academy; IDEM Ground Water Section and the Alliance for Indiana Rural Water on nutrient and sediment concerns in drinking water; and IDNR on the developing Indiana In-Lieu Fee Program for stream and wetland mitigation.

IDEM's NPS Program continues to update its website as a means to educate citizens on NPS pollution; provide grantees with information and guidance to successfully complete their NPS grant projects; share information about NPS grant projects and their successes; and communicate with stakeholders and partners on NPS 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 NPS 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 State NPS Management Plan can be found in Appendix A.

Watershed Specialists

The Watershed Specialists work with 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 FFY 2016 are:

- Assisted approximately 76 active and developing watershed projects, 42 of which were (at some time) Section 319/205j grant funded.
- Participated in the planning and conducting of the 2016 IASWCD Annual Conference, such as moderating and presenting several sessions, including a session on developing a watershed management plan without the use of §319 funds. Planning has begun for the 2017 IASWCD Conference.
- Assisted Purdue University with the Indiana Watershed Leadership Academy by participating in its steering committee, meeting the participants and explaining the Watershed Specialists' role, reviewing 10 participant assignments and providing feedback to

participants, and attending their graduation to evaluate the class projects presented that day.

- Worked with others in the Watershed Assessment and Planning Branch to develop watershed characterization studies and SP-12/WQ-10 targeted monitoring sites.
- Worked with other agencies in the ICP to continue developing a Training and Certification program for partner employees, including training in the design and implementation of best management practices for water quality improvement and a possible watershed coordinator certification program.
- Worked with the IDNR Lake Michigan Coastal Program, NPS Coordinator to gain interim approval on all but one outstanding element of the LMCP's Coastal NPS Management Plan.
- Worked closely with local groups and agency counterparts in Ohio and Michigan to develop watershed management plans for multi-state watersheds that meet checklists for all states.
- Continued to participate in the ICP's Pathway to Water Quality advisory committee to improve this Indiana State Fair exhibit that reaches tens of thousands of Hoosiers each year. Also staffed the exhibit during the State Fair.
- All NPS and TMDL staff participated in coordination meetings for several objectives under the State NPS Management Plan and 303d Vision, including assistance with the development of the new IDNR wetlands mitigation in-lieu fee program, as well as new topics that have surfaced in the past year such as work on an Indiana Master Watershed Stewards program and providing assistance to the committee working on the Domestic Action Plan due under Annex 4 of the Great Lakes Water Quality Agreement.
- Coordinated actions between the baseline/TMDL project staff and the watershed group.
- Provided input on National Fish and Wildlife Foundation applications to the Sustain Our Great Lakes and Chi-Cal Rivers Fund programs.

Indiana Watershed Leadership Academy

IDEM is continuing to partner with Purdue University to conduct the [Indiana Watershed Leadership Program](#) to meet the needs of watershed coordinators, agency staff, and others that 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.

In the past 11 years, 294 people have participated in the Academy, through which they have learned skills in organization and communication, watershed technology, geographic information systems, policy, watershed science, and leadership. Thirty participants attended the IWLA in 2016. Applications are currently being accepted for the 2017 IWLA class.

The IDEM NPS program participates in the IWLA in several ways. The Senior Watershed Planner sits on the steering committee for the Academy. In 2016, the steering committee met once to discuss statewide participation (76% of the counties in the state have had some participation), visibility of the program, and future program funding. Staff from the NPS program reviewed ten student assignments and provided feedback. NPS staff also attended one face-to-face session as a group to introduce IDEM's NPS program (particularly the Watershed Specialists) and network with potential new contacts. Watershed Specialists and the Senior Watershed Planner attended graduation and facilitated a small group activity to discuss how to make Academy projects useful to other watershed leaders in the state.

Indiana Conservation Partnership Training and Certification Program

Since September 2009, IDEM has participated with other members of the ICP in developing a Training and Certification Program (TCP) to meet staff training and certification needs across the Partnership. The ICP TCP operates as a volunteer planning team. In FFY 2016, the ICP TCP scaled back on their activities, but still held the following trainings:

- June 2016 - Pasture Plants ID and Grazing Management Workshop.
- August 2016 – Forest Invasives training.
- Sept 2016 – Urban 101 Workshop for SWCDs.

A partnership-wide survey was conducted in April 2011 to determine training needs across the ICP. This original survey was updated and redistributed in FFY 2016. These surveys will continue to guide the ICP's Training and Certification Program.

Nonpoint Source Reduction Efforts Recognized

Individuals and watershed groups in Indiana work hard to improve water quality in their watersheds and educate others about NPS pollution. It takes the efforts of many people, many of them volunteers, to achieve the goals of the group and their watershed management plan. Most of the time, these efforts go unrecognized. Sometimes, however, an individual or a group will receive recognition for their efforts and achievements. Recognizing these people not only acknowledges the importance of their work and a job well done, it also educates others about NPS and watershed issues and hopefully encourages them to help make a difference in their watershed. This year, a couple of groups were recognized by different organizations for their efforts to reduce NPS pollution and improve water quality. IDEM also recognizes these groups for their work in education/outreach, BMP implementation, and leadership in reducing NPS pollution in their watersheds.

- An initiative led by **Manchester University** aiming to restore the Eel River in northern Indiana has been recognized by the **National Fish Habitat Partnership**. The organization has put the University's project on its 10 "Waters to Watch" list for 2016. The project is being overseen by Manchester's Environmental Studies Program. Its mission is to "design and implement a holistic strategy to restore the ecological integrity of the Eel River basin within the context of human endeavors and to provide ecological research opportunities" for Manchester students. The Eel River is a tributary of the Wabash River. Manchester says, with the help of NFHP funding, it has removed two low-head dams, with a third scheduled for removal this fall. The University says, ecologically, its efforts have made the river safer for humans and research has shown an improvement in stream habitat and fish community structure following the removal of the dams. Manchester University received \$319 funds in 2009 to develop a watershed management plan for the Middle Eel River watershed. Two additional grants were awarded, the most recent one in FFY 2015, to implement that Plan.
- The **Tippecanoe Watershed Foundation (TWF)** was recognized by the [River Network](#) as a **River Network Member of the Month**. TWF was founded in 1997 to protect and improve water quality in the lakes and streams of the Tippecanoe River Watershed and has been a River Network Member since 2008. A couple of its many accomplishments include:

- A Soil Health Initiative that reduces sediment and nutrient runoff. In the past three years alone, this program has prevented over 556 million pounds of weeds and algae from growing in area waters.
 - TWF co-developed the award-winning social marketing campaign [Clear Choices, Clean Water](#) being used throughout Indiana and spreading nationwide. The campaign increases public awareness about the choices we make and the impacts they have on our lakes, streams, and ground water.
- The **Upper and Lower Salamonie watershed groups** were awarded the **ILMS Outstanding Lake Association/Watershed Organization** for their efforts to improve the Salamonie Reservoir. Nutrient issues and subsequent blue-green algae blooms in the Salamonie Reservoir became a high profile issue when two dogs died after swimming in a blue-green algae bloom in 2012. Because the intense blue-green algae blooms impacted recreation in the reservoir, the Huntington County SWCD and the Jay County Commissioners and SWCD worked with the U.S. Army Corps of Engineers and local stakeholders to develop two WMPs for the entire watershed. The WMPs were approved by IDEM and EPA this FFY. The Lower Salamonie watershed group is implementing the Lower Salamonie WMP with a current \$319 grant, and the Upper Salamonie watershed group is implementing the Upper Salamonie WMP with a Clean Water Indiana grant, and will continue implementation with a \$319 grant this coming year. Both watershed groups worked hard to bring together local stakeholders to drive the planning process and continue to do so during implementation.

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 NPS Program is its effort to restore waterbodies impaired by NPS pollution. A primary focus of IDEM’s NPS Program is on-the-ground work to reduce NPS pollution and improve water quality. The Watershed Planning and Restoration Section (WPRS) administers two federal pass-through grant programs aimed at improving water quality in the state: CWA §319(h) and §205(j). Funding from these grants is predominantly used for the development and implementation of comprehensive WMPs that guide efforts to restore water quality on waterways impaired for NPS pollution. This has resulted in measurable improvements, especially in terms of estimated pollutant load reductions and stakeholder involvement. More work remains to fully restore and protect water quality. The WPRS also administers the TMDL program and the new 303(d) Vision, and efforts are underway to revisit and integrate both the NPS 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 this year toward the objectives of Goal 4 in the State NPS Management Plan can be found in Appendix A.

Section 319 Grant Program

The §319 Grant Program is a major resource for reducing NPS pollution in Indiana. This FFY Indiana anticipates receiving \$3,488,000 in §319 funds, which will be used for NPS Program support (technical staff and administration) and nine NPS projects. As a result of our non-federal partnerships discussed under Goal 1, the Maintenance of Effort (MOE) level requirement under §319(h)(9) has been met this year.

Federal Section 319 grant funds require a 40% non-federal match. Match for the NPS projects is provided by the project sponsor and its partners. Match for IDEM’s staffing and program support activities is provided by the Indiana SRF Loan Programs administered by the Indiana Finance Authority. The SRF Loan Programs provide low-interest loans, funded by federal capitalization grants, to Indiana communities for projects that improve wastewater and drinking water infrastructure, including NPS 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 NPS Program. To date, all of the SRF projects used for NPS Program match involve extending sewers to areas with failing and aging septic systems. Removing these septic systems eliminates NPS 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

EPA recently started placing an even stronger emphasis on using §319 funds to restore NPS impaired waters through implementation of watershed-based (i.e., watershed management) plans. States must now use at least 50% of their annual appropriation of §319 funds (called watershed project funds) to implement WMPs in watersheds containing one or more impaired waters. States may use a limited amount of these funds to protect identified unimpaired/high quality waters if doing so is identified as a

priority in the updated State NPS Management Plan. Protecting sensitive, vulnerable, and high quality waters of the state is Goal 5 of Indiana's updated State NPS Management Plan. The other 50% (or less) of the total appropriation may be used for other activities that support the goals of the NPS Management Program including education, watershed planning, and program support.

Each year IDEM solicits applications for projects that will reduce NPS pollution in Indiana's rivers, streams and lakes and meet our NPS Program goals. In an effort to more efficiently meet our goals and focus §319 funds on restoration activities that will make measurable improvements in water quality and protect water quality designated uses (recreation, aquatic life, and public water supply), IDEM established the following four priorities for FFY 2016 funds. Projects focusing on these priorities through planning and implementation activities are considered a priority for funding.

1. Develop a WMP or implement an IDEM approved WMP that contains a 10-digit HUC watershed with a public lake (a lake with public access) identified as having a high blue-green algae count when monitored by IDEM and/or the lake is influenced by waterbodies listed in Category 5A of the Draft 2014 [§303\(d\) List of Impaired Waterbodies](#).
2. Develop a WMP or implement an IDEM approved WMP in a watershed that includes waterbodies listed on the Draft 2014 [§303\(d\) List of Impaired Waterbodies](#) for Impaired Biotic Communities (IBC).
3. Develop a WMP or implement an IDEM approved WMP that includes a 10-digit HUC watershed with a surface water drinking water facility intake and waters identified in Category 5A of the Draft 2014 [§303\(d\) List of Impaired Waterbodies](#)
4. 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 NPS Program's priorities and the quality of the proposal and project. Projects are administered through grant agreements that spell out the tasks, schedule and budget for the project. Projects are normally two to three years long and work to reduce NPS pollution and improve water quality in the watershed through: development of watershed management plans that meet [IDEM's WMP Checklist](#) (and EPA's required nine elements); implementation of approved WMPs via a cost-share program to implement BMPs in critical areas that address the water quality concerns outlined in the WMP; and education and outreach designed to bring about behavioral changes and encourage BMP implementation. IDEM Project Managers 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 touch base with the project, provide guidance and technical assistance as needed, tour the watersheds and see the BMP installations, and work with the grantee on any issues that arise to ensure a successful project close-out.

All of the nine projects funded this year address one or more of the NPS Program priorities. These projects will be developing or implementing WMPs in watersheds with impaired waterbodies. Currently, there are thirty-five open or pending §319 projects, of which twenty-seven are implementing watershed management plans and installing BMPs in critical areas of the watershed. Table 1 (page 44) lists some of these BMPs. These implementation projects are doing "on-the-ground" work in their watersheds that leads to NPS pollutant load reductions (as shown in Table 2, page 45), and improved water quality. A list of all §319 projects open or pending during this fiscal year is located in Appendix B. A map showing the

watersheds throughout Indiana where water quality improvement projects are currently underway, ready to begin, or recently completed (2012-2016) is located in Appendix C.

Project information for all §319 projects is entered and maintained in EPA's Grant Reporting and Tracking System (GRTS) database. SRF or other projects used as match for the NPS Program are also entered here. GRTS enables EPA and states to demonstrate the accomplishments achieved with the use of §319(h) grant funds. The data is also used by 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 D, along with a description of compliance with the Programmatic §319 Grant Conditions.

The NPS Program is continually working to update and improve guidance for grantees to help them as they work towards implementing their NPS grant project. Most information needed can be found on the IDEM web site; much of it in the [NPS Grants Compendium](#), which is comprised of all the guidance, instructions and requirements for Section 319/205(j) grantees. This year the NPS Program worked on drafting a guidance document for groups developing watershed management plans to help them select appropriate critical and protection areas in their watersheds. This guidance document is expected to be finalized in early FFY 2017.

Project Highlights

Three grant projects that closed this year are being highlighted here as examples of successful NPS projects working in different regions of the state to improve water quality through watershed planning, implementation of BMPs, and education/outreach. The information below was taken primarily from the projects' final report and watershed management plan.

Upper Maumee Watershed Management Plan and Implementation

The Upper Maumee River Watershed (UMRW) is an 8-digit HUC (04100005) watershed in northeast Indiana comprised of two 10-digit HUCs, Headwaters Maumee River (0410000501) and Gordon Creek-Maumee River (0410000502), and fourteen 12-digit HUCs. The Maumee River begins in Fort Wayne, IN at the confluence of the St. Joseph and St. Marys Rivers. It then flows northeast through Defiance, OH to Toledo, OH where it empties into Lake Erie. The Upper Maumee River Watershed is located in Allen and DeKalb Counties in IN and Defiance and Paulding Counties in OH and is split almost evenly between the two states, 51% and 49% respectively (Figure 3). The watershed encompasses 247,913 acres (387 sq. miles) of land and the predominant land use, encompassing 78% of the watershed, is agriculture including row crops and pasture/hay land. However, there are several incorporated areas located within the watershed totaling 14% of the watershed, including Fort Wayne, New Haven, and Woodburn Indiana, and Antwerp, Hicksville, Sherwood, Cecil, and the most western edge of Defiance, Ohio.

The Upper Maumee Watershed Management Plan and Implementation project was initiated by the Allen County SWCD in Indiana and the Defiance County SWCD in Ohio on behalf of stakeholders in the watershed because numerous historic water quality and land use studies revealed extensive water quality degradation in the Maumee River and its tributaries associated with land use in the watershed. Known water quality problems included frequent high bacteria counts that make contact with the water unsafe for human health, high turbidity concentrations that stress aquatic organisms, and high nutrient concentrations leading to harmful algal blooms, especially in Lake Erie.

The Allen County SWCD sponsored this 48-month project with the goals of: creating a WMP for the Upper Maumee River Watershed that meets the

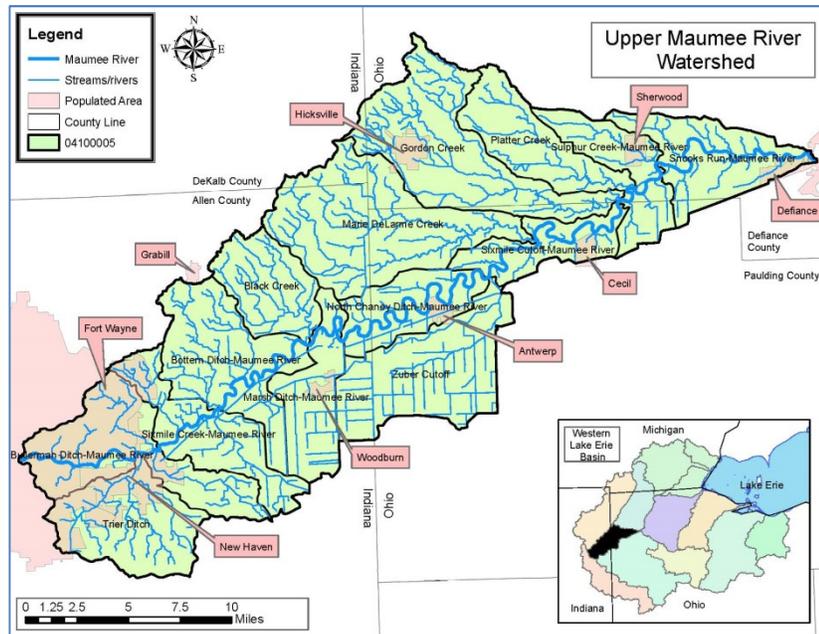


Figure 3 Upper Maumee River Watershed

Watershed that meets the IDEM and Ohio Environmental Protection Agency (OEPA) standards to address water quality impairments in the Maumee River and its tributaries; conducting a water quality monitoring program to help with the development of the WMP; conducting an education and outreach program designed to bring about behavioral changes that lead to reduced nonpoint source pollution in the watershed; developing and promoting a cost-share program to implement best management practices; and implementing the cost-share program.

Accomplishments

A comprehensive analysis of the Upper Maumee River Watershed was conducted with guidance from the steering committee and stakeholders. In addition to a watershed inventory, a water quality monitoring program was conducted to establish a baseline of water quality. The monitoring program included water quality chemistry at eight sites weekly from April through October for the first two years. Macroinvertebrate sampling and habitat analysis was conducted once at the same 8 sites following [Hoosier Riverwatch](#) protocols. In addition to the WMP being approved by IDEM and EPA (December 2014), the OEPA Division of Surface Water and the Ohio Department of Natural Resources Division of Soil & Water Resources notified the project team that they fully endorse the WMP. The WMP can be used by any entity to direct natural resource conservation projects and facilitate the achievement of the project's primary goal: to take a watershed approach to conserve and enhance our natural resources by working across political boundaries to promote awareness, education, and community involvement in the Upper Maumee River Watershed.

Upon completion of the watershed management plan, the details of the \$75,000 cost-share program were developed by the steering committee and project staff and submitted to IDEM for approval. Due to the diversity of the watershed, the cost-share program was designed for agricultural and urban participants. During the nine months of BMP implementation, nineteen people participated in the cost-share program. Nine producers installed cover crops on 1,072 acres; thirteen producers modified equipment and committed 2,141 acres of cropland to reduced tillage, and one participant installed a rain barrel. In addition to the cost-share participants, other producers in the watershed installed 325 acres of cover crops and 503 acres of drainage water management which was counted as match toward the project. Total load reductions from the project are estimated to be:

Sediment	3,064 tons/yr.
Nitrogen	21,588 lbs. /yr.
Phosphorus	4,213 lbs. /yr.

Education and outreach to stakeholders in the watershed was ongoing during the project and included: quarterly press releases and newsletters to educate the public on the project and water quality issues; public meetings to gather stakeholder concerns, discuss the WMP, and promote BMPs; an urban rain garden workshop; three agriculture field days promoting cover crops, strip-till, and other BMPs needed in the watershed; and participation in many community events to educate the public on water quality issues.

Funding and Partnerships

The Upper Maumee project utilized \$292,523 in Section 319 funds and \$231,228 in match was provided. Partnerships in the project included the Defiance County Ohio SWCD and the Upper Maumee Watershed Partnership.

Future Activity

To help gauge the success of the education and outreach program, a follow-up social indicator study will be conducted after five years of implementation and compared to the 2013 study conducted by the Ohio State University College of Food, Agriculture, and Environmental Sciences. Comparing the results of the two studies will help the UMRW project determine if a true impact is being made through the education and outreach program and more producers are aware of their individual impact on water quality or if revisions to the outreach program need to be made to have a greater impact.

Currently, the Allen County SWCD is working with the USDA, NRCS, and ISDA and sponsoring a Section 319 funded project in the Upper Maumee watershed entitled the “Upper Maumee Phosphorus Risk Reduction Pilot Project”. This project is modeled after a phosphorus reduction program developed in Crawford County, OH. The SWCD will work with an advisory committee of project partners to develop, promote, and implement a phosphorus risk reduction pilot program for agricultural BMPs that address the phosphorus water quality concerns outlined in the Upper Maumee River Watershed Management Plan in the watershed’s critical area subwatersheds: Black Creek, Marsh Ditch, Six-Mile Creek, Trier Ditch, and Bottern Ditch. Reimbursement of the BMPs will be based on producers minimizing the risk of phosphorus runoff from their farm field(s) from an existing baseline P-Index score (using the Ohio NRCS Phosphorus-Index Scoring System) of “medium”, “high” or “very high”, to a “low” P-Index score. The three year project runs from January 2016 – January 2019.

More Information

For more information on the Upper Maumee Watershed Management Plan and Implementation project, please visit the Upper Maumee Watershed Partnership website at <http://uppermaumeewatershed.com/index.html>.

Deer Creek-Sugar Creek Watershed Management Plan and Implementation

The Deer Creek-Sugar Creek watershed is a part of the larger 8-digit HUC watershed, the Middle Wabash-Deer watershed (HUC 05120105). The Deer Creek-Sugar Creek watershed covers 375 square miles and includes portions of Carroll, Cass, Howard, Miami, and Tippecanoe counties in north-central Indiana. Within those counties the watershed includes the cities and towns of Delphi, Flora, Camden, Galveston, and Battle Ground, and portions of Kokomo and Lafayette (Figure 4). The Deer Creek-Sugar Creek watershed is composed of three 10-digit HUC watersheds including Deer Creek (0512010505), South Fork of Deer Creek (0512010504), and Sugar Creek-Wabash River (0512010506). Land Use in the watershed is mostly agricultural with nearly 85% of the watershed in agricultural row crop or pasture, 120 active CFOs, and approximately 300 small, unregulated farms throughout the watershed. Urban land uses, including urban open space and low, medium and high intensity developed areas, account for 7% of the watershed land use, with forested lands and wetlands account for 6% of the watershed.

This 45-month project, sponsored by the Carroll County SWCD, laid the foundation for watershed planning and water quality improvement in the Deer Creek-Sugar Creek watershed. The main goals of the project were to: 1) complete a watershed management plan that met IDEM's 2009 checklist; 2)

develop and implement an education and outreach program; 3) develop and implement a water quality monitoring program to establish a baseline and be able show change in water quality following WMP implementation; 4) develop and implement a cost share program, and 5) complete social indicator surveys of rural and urban landowners.

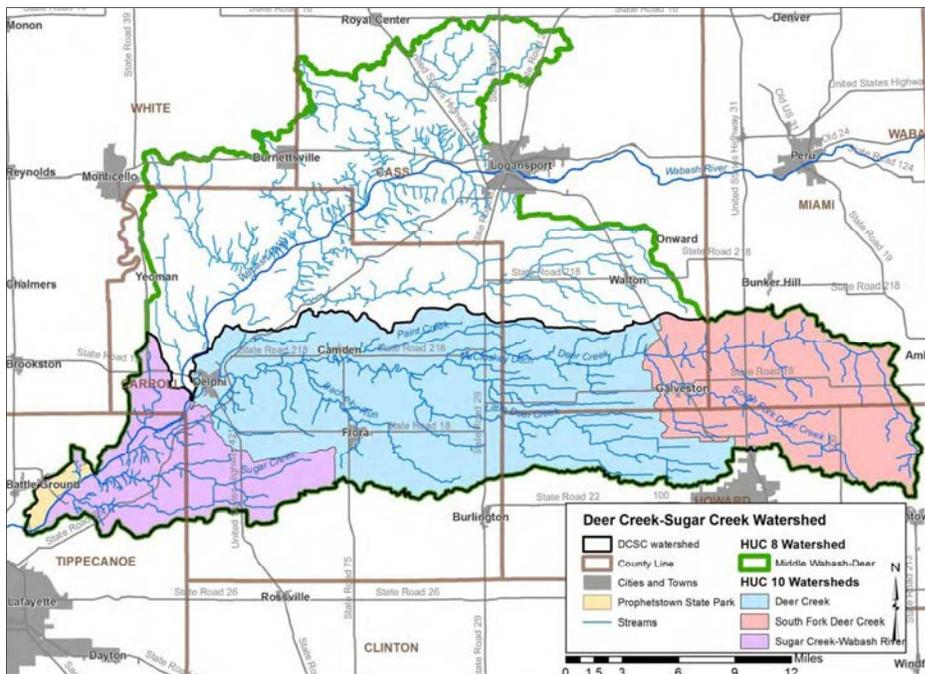


Figure 4 Deer Creek-Sugar Creek Watershed within the Middle Wabash River-Deer Watershed

Accomplishments

The Carroll County SWCD and Wabash River Enhancement Corporation (WREC) led development of the watershed management plan, which was guided by 24 steering committee members representing government, education, community groups, and producers. In addition to a complete watershed inventory, a comprehensive water quality monitoring program was conducted to establish a baseline of water quality. The monitoring program included water quality chemistry at twelve sites bi-weekly for one year, and fish and macroinvertebrate community along with habitat assessment twice at the same twelve sites. The final [Deer Creek – Sugar Creek Watershed Management Plan](#), dated December 10, 2015, was reviewed and approved by IDEM. This WMP was one of the first in Indiana to also receive EPA review and approval in accordance with EPA’s [Nonpoint Source Program and Grants Guidelines for States and Territories](#) (issued April 2013) which state, “In an effort to achieve greater program consistency in the quality of WBPs, beginning in fiscal year 2014 EPA regions will annually review a sample of WBPs from each state in their region and provide feedback and recommendations to help ensure these plans lay a good foundation for efforts to restore and/or protect waters.”

In the final year of the project, a cost-share program to implement BMPs that address the water quality concerns outlined in the WMP was developed using IDEM guidance. Critical areas for each parameter of concern (nutrients, sediment, and *E. coli*) were targeted for implementation of the cost-share program and a ranking protocol was developed. Projects that resulted in higher pollutant load reductions and those located closer to waterbodies were ranked higher than those projects which resulted in lower water quality improvements.

SWCD and NRCS staff met with more than 50 agricultural landowners and producers, identifying nearly 40 potential water quality improvement projects and implementing nearly 30 of those through the cost-share program. Using \$147,679 of Section 319 funds, producers planted 3,542 acres of cover crops; designed and installed one animal mortality facility; installed one heavy use protection area; modified equipment to implement no-till on 649 acres and precision application of manure/fertilizer on 2,700 acres; and completed nutrient management planning for 2,364 acres. These projects resulted in an estimated **5,791 tons less sediment, 33,678 pounds less phosphorus, and 51,931 pounds less nitrogen** entering the Deer Creek-Sugar Creek watershed **annually**.

The Deer Creek-Sugar Creek steering committee provided numerous opportunities for watershed stakeholders to learn about the watershed. Public meetings, workshops, field days, educational materials, press releases, a cover crop bus tour, and producer working groups are just some of the activities used to educate stakeholders. Social indicator surveys were used to determine the knowledge, attitudes, awareness, opinions, and constraints of agricultural producers and landowners within the watershed. These surveys provided baseline information about stakeholder’s knowledge about various best management practices, their understanding of water quality impairments, and their interest in implementing best management practices to improve water quality. This information will be used to target education and outreach efforts and assess changes during the next phase of the project.

Funding and Partnerships

The Deer Creek-Sugar Creek Watershed Management Plan and Implementation Project utilized \$455,081 in Section 319 funds with partners providing \$315,479 in cash or in-kind match. Project partners included each of the counties’ Purdue Extension office, Surveyors, SWCD and NRCS staff, and

Area Plan Commission staff. Many of these entities served on the steering or technical committees and provided volunteers for key activities occurring as part of the effort. These volunteers' time and commitment to improving the Deer Creek-Sugar Creek watershed was invaluable. It is anticipated that each of these partners will help to successfully implement the cost-share and education programs in the future.

Future Activities

The education and outreach program will continue through on-going education efforts within each county. Each county SWCD will host no less than two workshops or field days annually as well as their annual meeting. Additionally, an annual bus tour is planned to highlight on-going on-the-ground implementation efforts. The Carroll County SWCD plans to submit an application for FFY 2017 Section 319 funding to continue implementing the Deer Creek-Sugar Creek WMP. The current waiting list for BMP implementation includes requests for more than \$120,000. The Carroll County SWCD and WREC will continue to meet with individual landowners to lower the barriers for implementation and fund those projects that the steering committee deems the highest impact in terms of water quality improvement and educational opportunities.

More information

More information on the Deer Creek-Sugar Creek Watershed Project can be found on WREC's website at www.wabashriver.net/deer-creek-sugar-creek.

Middle Patoka River Watershed Source Water Protection Plan Implementation

The Patoka (an Indian word meaning "log on bottom") River begins in Orange County, Indiana, and winds its way approximately 138 miles (222 kilometers) to where it enters the Wabash River at Mt. Carmel, Illinois, immediately downstream of the confluence of the Wabash and White Rivers. The Middle Patoka River Watershed (MPRW) covers 236,706 acres in Dubois, Gibson, Pike, and Spencer Counties in southwest Indiana. The MPRW is made up of five 10-digit Hydrologic Unit Code (HUC) watersheds: Stone Coe Creek-Patoka River (0512020906), Flat Creek (0512020905), Alter Creek-Patoka River (0512020904), Hunley Creek (0512020903), and Straight River (0512020902). Landuse in the watershed is somewhat varied, with nearly 40% cropland, 37% forest, 14% pasture, and the rest developed, open water, wetlands, abandoned coal mine land, and other. The watershed includes four larger towns: Ferdinand, Jasper, Huntingburg, and Winslow.

The Patoka River serves as a drinking water source for the Towns of Winslow and Jasper. Huntingburg also has a small reservoir that provides drinking water for the Town of Huntingburg. The Alliance of Indiana Rural Water (Alliance) and its partners decided to develop a Source Water Protection Plan (SWPP) for the portion of the Patoka River watershed that didn't already have a watershed plan. Four public meetings were held in February and March 2011 to introduce the project to the public and gather concerns about the watershed. The overall project goals and objectives were to reduce runoff pollution from reaching the Patoka River and its tributaries (Figure 5). The final Middle Patoka River Watershed Source Water Protection Plan was approved by IDEM in April 2012, and the Alliance applied for and received FFY 2012 Section 319 grant funds to begin implementing the Plan.

The three year implementation project began in January 2013. The goals of the project were to reduce sediment and nutrient loading, *E. coli*, and acid mine drainage (AMD) within the MPRWs critical subwatersheds, and increase NPS pollution awareness, education and community involvement.

Accomplishments

A watershed coordinator was hired to oversee the project, which initially included forming a steering committee and developing a cost-share program to implement BMPs that addressed the water quality concerns outlined in the MPRW SWPP. By the end of 2013, nearly all

of the cost-share dollars had been spent. One unique aspect of the cost-share program was the steering committee decision to allow for no maximum or cap per producer. This could have been the driving force for all of the cost-share dollars to be spent within the first year. However, this also allowed 7 producers to purchase GIS based precision ag equipment that will continue to impact thousands of acres and reduce nitrogen loads for years to come. Replacing the full-time watershed coordinator with a part-time coordinator freed up additional funding that was transferred into cost-share. The end result is that \$206,968.78 was spent on BMP installation during this project, \$67,043.78 over the original budgeted amount.

Nine producers participated in the cost-share program with a total of 813 acres of cover crops planted and over 3,730 acres impacted with GIS precision agriculture equipment for nutrient management. Two “showcase” urban BMPs were also installed: a raingarden at the Huntingburg Lake and permeable concrete at Winslow Town Hall. In addition to the Section 319 grant-funded projects, 2,737 acres of cover crop were planted using Clean Water Indiana funds, and 8 water and sediment control basins and a rain garden were implemented using other funding sources. These projects were counted as match for the project.

The following chart shows the load reduction goals from the MPRW SWPP, the total estimated loads reduced during this project, and progress made in achieving the SWPP goals.

	WMP Load Reduction Goals by 2022	Total Loads Reduced	Total % of Goals Reached
Sediment (tons/yr.)	16,299	20,238	124
Phosphorus (lbs. /yr.)	55,074	21,726	39
Nitrogen (lbs. /yr.)	455,188	92,226	20

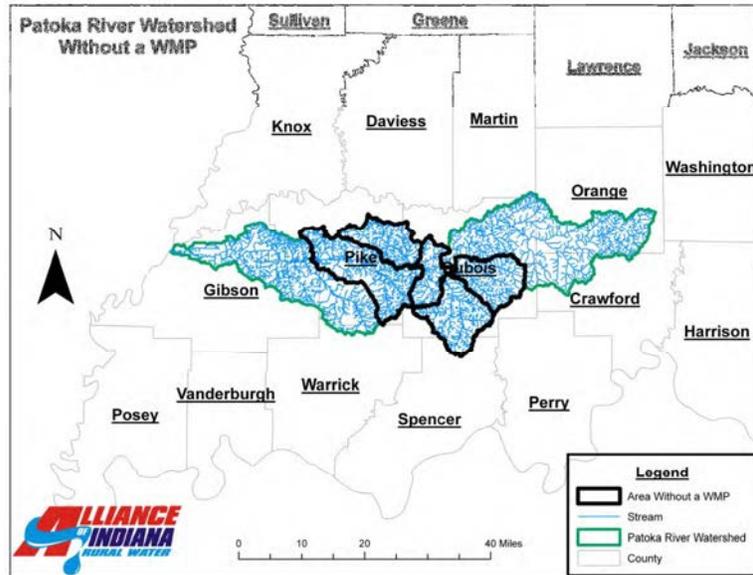


Figure 5 Patoka River Watershed with the Middle Patoka Watershed Outlined

During the three year project the Alliance conducted an education and outreach program to encourage BMP implementation and increase NPS pollution awareness, education and community involvement. Many different types of events were held and publications distributed including: four workshops to promote agricultural and urban BMPs; one stream cleanup; a workshop on septic maintenance; two brochures; signs at two BMP sites; newsletters; information to the media; four water plant tours to promote confidence in and the safety of the local drinking water supply; a website; a project display at numerous public events; and steering committee meetings to guide the development of the cost-share program and education activities.

Funding and Partnerships

This project utilized \$278,703 in Section 319 funds and documented \$221,718 in match. The implementation project was a success due to the cooperation and involvement of many partner agencies and people who saw the work as important including the Pike and Dubois County SWCDs, water department personnel at Huntingburg, Winslow, Reo, Otwell and Patoka Lake Water and Sewer District, Dubois Co Health Department, The Nature Conservancy, Vincennes University Jasper Campus, Pike County Purdue Extension office, and town officials in Huntingburg, Winslow, Ferdinand and Jasper.

Future Activity

The Pike County SWCD has been awarded a FFY 2016 Section 319 grant to continue implementing the MPRW SWPP to address NPS problems in the watershed and work toward achieving the SWPP goals. The project is expected to start in 2017 and run through end of 2019. Through the efforts of a partner, The Nature Conservancy, other grant agreements with Walton Foundation and ALCOA will be addressing NPS pollution in the Middle Patoka River watershed in the interim.

More information

For more information about this project you may contact: Pike County SWCD, 2101 E Main Street, Petersburg, IN, 47567, Phone: 812-354-6120 ext. 3

Best Management Practices and Pollutant Load Reductions

Best management practices are structural, nonstructural and managerial techniques that are recognized to be the most effective and practical means to control NPS pollutants that are compatible with the productive use of the resource to which they are applied. 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 needed BMPs in critical areas to reach the overall WMP goals. If the planning process was successful, landowners will be aware of the water quality problems in the watershed and the ways to reduce the NPS pollution and will be ready to participate in the cost-share program. When applicable and appropriate, IDEM encourages grantees to consider BMPs that will provide positive impacts to 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 Section 6217(g) measures. IDEM is currently modeling this “bigger bang for the buck” concept through its TMDL/NPS 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. During a project’s initial application and/or cost-share program

development, IDEM encourages the project to work with landowners and prioritize cost-share recipients that implement a conservation cropping system (such as a nutrient management conservation system or a conservation cropping system for soil health and water quality) rather than a single BMP.

This FFY watershed groups continued working to implement WMPs and utilized approximately 1.4 million dollars to install BMPs in critical areas of Indiana’s watersheds. Table 1 lists some of the BMPs implemented this FFY compared with the last two fiscal years based on data from IDEM’s Access database. The number of acres of cover crops has continued to rise since FFY 2011, due in part to IDEM changing the cover crop policy to reduce the five year maintenance commitment to one year, as well as increased focus on this BMP within the agricultural community.

Table 1 BMPs Implemented in Indiana FFY 2014 - 2016

BMP	Approximate Number FFY 2014	Approximate Number FFY 2015	Approximate Number FFY 2016
Cover Crop (acres)	17,617	17,851	29,175
Fence (feet)	32,787	32,221	41,006
Grassed Waterway (feet)	46,974	18.9*	0
Heavy Use Area Protection (sq. feet)	100,387	159,042	53,140
Nutrient Management (acres)	4,042	6,794	515
Pasture and Hay Planting (acres)	753	374	465
Residue Management, No-Till (acres)	1,169	2,575	2,472
Streambank/Shoreline Protection (feet)	814	1,430	2,035
Tree and Shrub Establishment (acres)	87	91	352
Two Stage Ditch (feet)	10,240	0	6,968
Watering Facility (each)	8	21	13
Wetland Enhancement/Restoration (acres)	12	0	0
Porous Pavement (sq. feet)	7,140	0.25*	80
Rain Barrels (each)	28	4	11
Rain Gardens (sq. feet)	4,133	26,573	20,305
Septic System Removal (each)**	467	0	250

*Reported in acres

**Septic systems eliminated as a result of SRF project(s) used as match for the NPS Program.

Additional BMPs implemented this year include access road, conservation cover, forage and biomass planting, prescribed grazing, riparian herbaceous cover, roof runoff structure, stream crossing, water and sediment control basin, waste storage facility, and watering facility. Comprehensive Nutrient Management Plans were written to cover 239 acres. The number of BMPs implemented in a given year varies depending on many factors including the weather, the focus of current NPS projects’ implementation efforts based on their watershed management plan, the change in focus and availability of other federal and state program grant funds, and changes in BMP promotion and recommendations in the agricultural community.

One important indicator of NPS program and project success is the quantity of pollutants that were prevented from entering waterbodies as a result of BMPs implemented. Pollutant load reductions, in most cases, are estimated using the [Region 5 Load Estimation Model](#). This simple Excel model provides

a general estimate of pollutant reductions (sediment, phosphorus, and nitrogen) at the source level 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. 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 as a result of the project (including BMPs not funded with §319 funds and used as match) is submitted by the project sponsor with their invoice and entered by the IDEM Project Manager into an Access database at IDEM and the 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.

Reported estimated load reductions for BMPs implemented this FFY compared with the last two years are shown in Table 2. All load reduction data were obtained from IDEM’s Access database. Estimated load reductions for sediment, nitrogen and phosphorus continue to improve each year as more projects are implementing WMPs and putting more BMPs on the ground. However, total phosphorus reductions this year are lower than last year’s exceptionally high number which was a result of a couple of large nutrient management practices focused on phosphorus reduction implemented last year.

Table 2 Reported Estimated Load Reductions for BMPs Implemented FFY 2014-2016

Nonpoint Source Pollutant	Estimated Reduction FFY 2014	Estimated Reduction FFY 2015	Estimated Reduction FFY 2016
Sediment (tons/yr.)	56,938	79,100	94,151
Phosphorus (lbs. /yr.)	65,398	188,590	118,781
Nitrogen (lbs. /yr.)	175,956	191,588	220,453
Biological Oxygen Demand (lbs. /yr.)	38,819	273	8,788
Chemical Oxygen Demand (lbs. /yr.)	64	1,555	701
Ammonia (lbs. /yr.)*	3,731	0	1,878
Suspended Solids (lbs. /yr.)	40,000	82,633	30,151
Pathogens/Coliform (CFU)*	1.55E+10	0	7.79E+09
Lead (lbs. /yr.)	0	2	1
Zinc (lbs. /yr.)	0	4	1
Copper (lbs. /yr.)	0	0	0
TKN (lbs. / yr.)	-	256,197	0

*Estimated using a modified STEPL model and the OH Septic Load Reduction Spreadsheet

Cumulative total estimated load reductions reported in Indiana from \$319 projects since FFY 2000 are shown in Table 3.

Table 3 Cumulative Total Estimated Load Reductions in Indiana

Nonpoint Source Pollutant	Total Estimated Reduction
Sediment (tons/yr.)	664,547
Phosphorus (lbs. /yr.)	1,063,687
Nitrogen (lbs. /yr.)	1,813,662

BMPs and Load Reductions in FFY 2016 by Major Basins

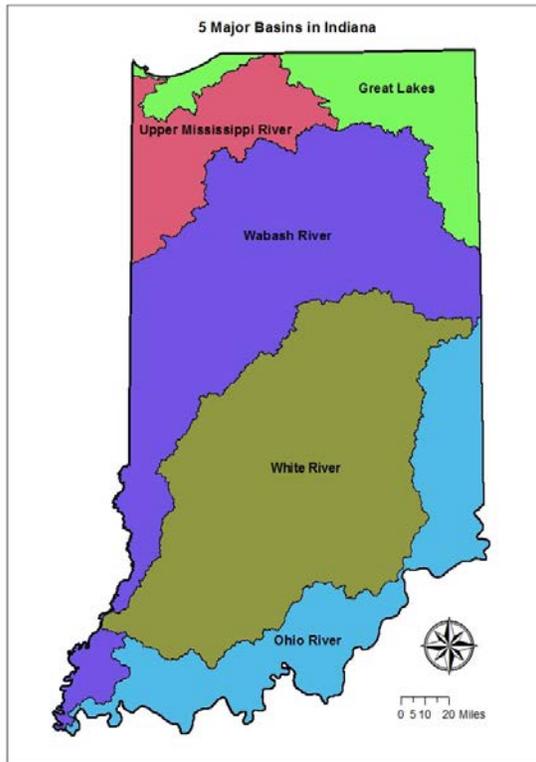


Figure 6 Major Indiana Basins

This map is intended to serve as an aid in graphic representation only. This information is not warranted for accuracy or other purposes. Data Source: Indiana Geographic Information Office Library. Map Projection: UTM Zone 16 N Map Datum: NAD83. Mapped By: J Wood, Office of Water Quality. Date: 08/006/2015

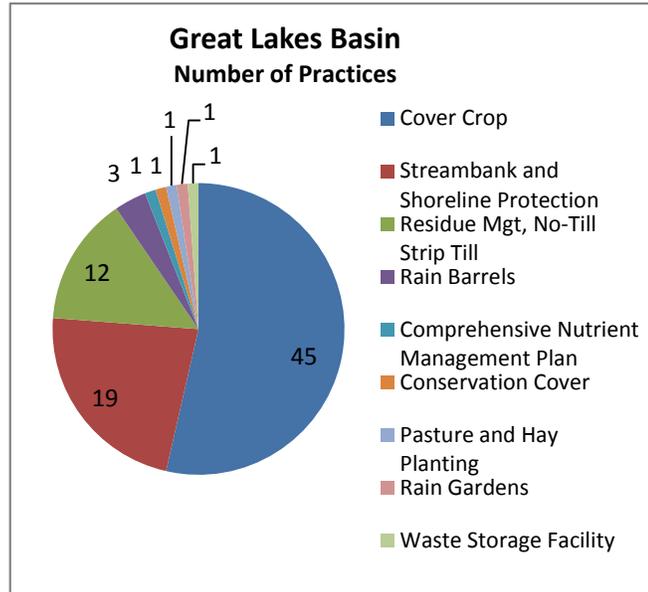
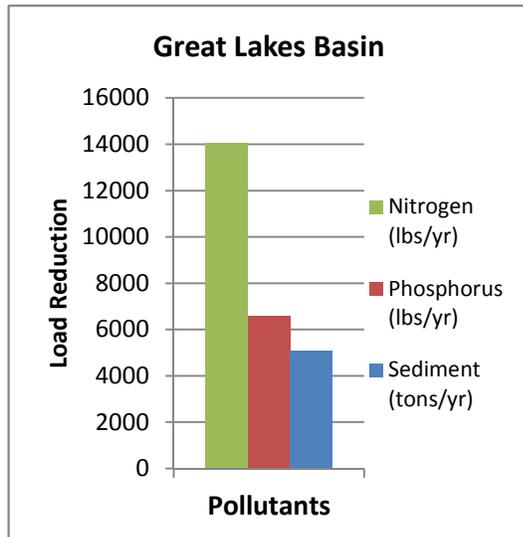
In an effort to show the work that is being done in the different basins of the state and help target future resources, the load reductions achieved and the types of BMPs implemented have been broken down and shown within the following five major basins: Great Lakes, Upper Mississippi River, Wabash River, White River, and Ohio River (Figure 6). Almost 82 percent of Indiana (including the Wabash River and the White River basins) drains to the Ohio River and ultimately to the Mississippi River and Gulf of Mexico. Approximately 10 percent of Indiana drains to the Great Lakes (Lake Michigan and Lake Erie), and 8 percent drains (through Illinois) to the Upper Mississippi River.

The charts on the following pages show the number of best management practices installed and the load reductions achieved in FFY 2016 in each of the five basins.

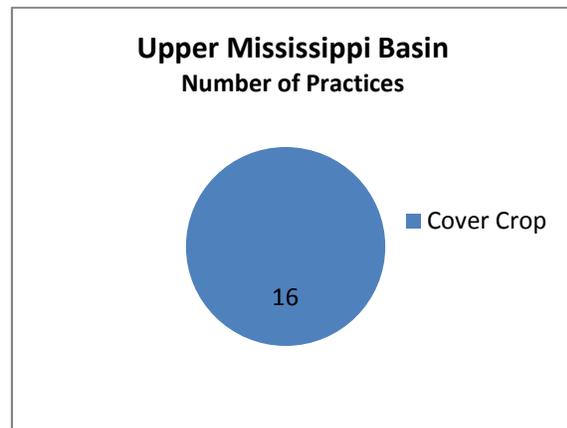
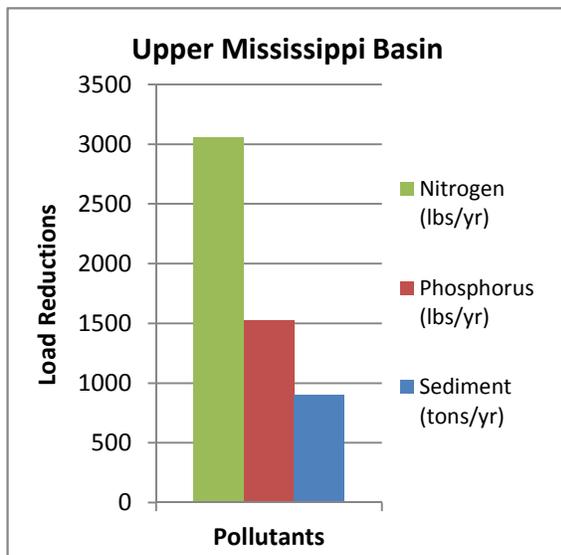
The BMPs implemented and load reductions achieved in the Great Lakes basin are the result of four projects working there this fiscal year; two projects working in watersheds draining to Lake Michigan and two in watersheds draining to Lake Erie. As seen from the charts below, many different BMPs implemented in this basin did a good job of reducing nutrient runoff, especially nitrogen. The estimated load reductions this year are substantially higher than last year due to the increase of BMPs (74 - primarily cover crops and no-till) implemented in these watersheds.

Any nutrient reduction to the Great Lakes is important because excess nutrients can result in algal blooms. Because of the recent problems resulting from large algal blooms in Lake Erie, phosphorus reduction to the lake has become a focus at the state and national level. Many efforts are currently underway to target harmful algal blooms and reduce the amount of phosphorus entering Lake Erie. To that end, U.S. EPA Region 5 awarded \$336,391 of FFY 2014 §319 funds to IDEM to initiate a Phosphorus Risk Reduction Pilot Project in the Upper Maumee River watershed in Indiana. IDEM awarded the money to the Allen County Soil and Water Conservation District to implement the project, which is modeled after a portion of Ohio EPA's FFY 2011 GLRI project "Lake Erie Nutrient Reduction Demonstration Watershed", based on a modified Ohio NRCS Phosphorus Index scoring system. The

project started in early 2016 and will work for three years to reduce phosphorus runoff from an estimated 3,500 acres of agricultural land within five 12-digit HUC watersheds in the Upper Maumee watershed. Best management practices are expected to include filter strips, riparian forested buffer, pasture/hay planting, constructed wetland, grassed waterway, nutrient management, residue management and drainage water management.

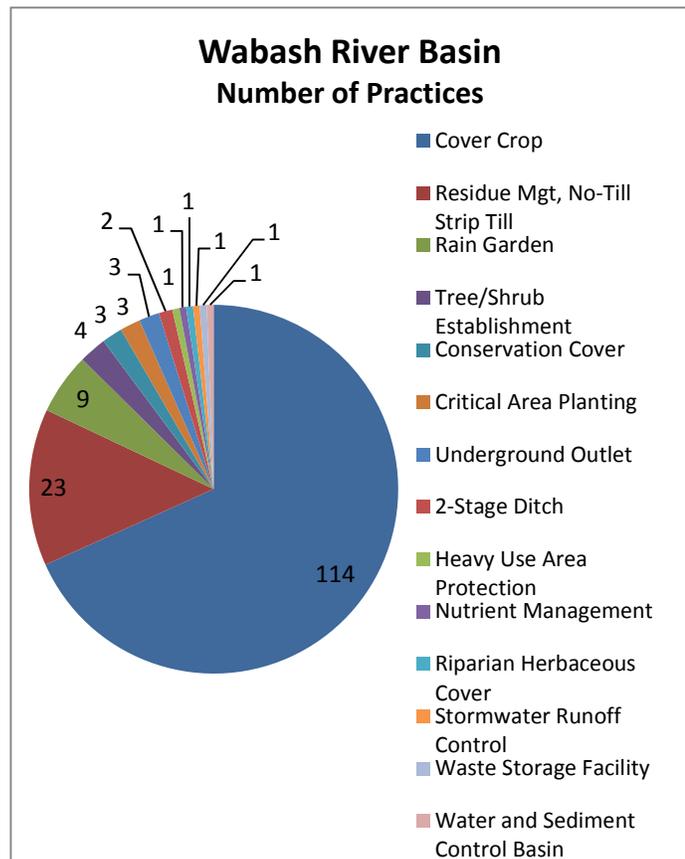
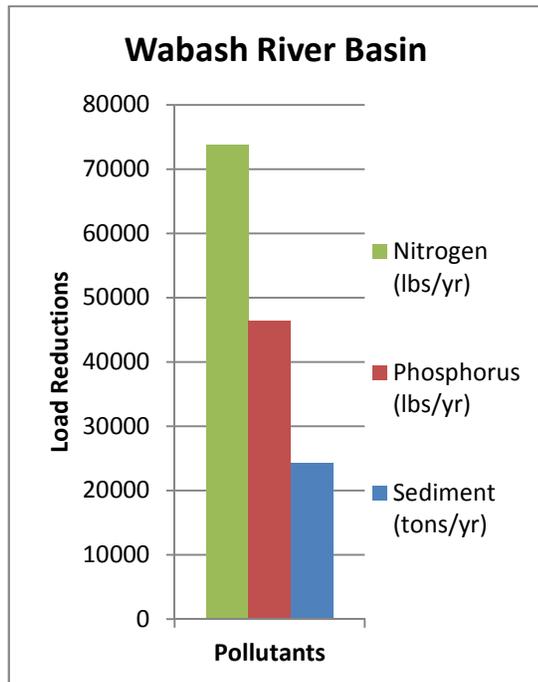


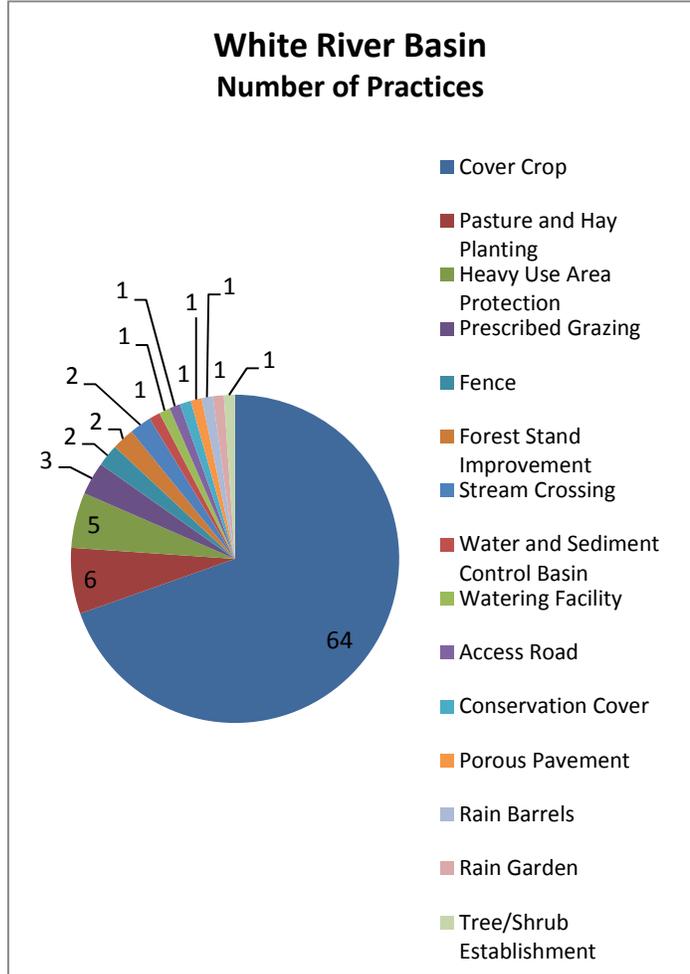
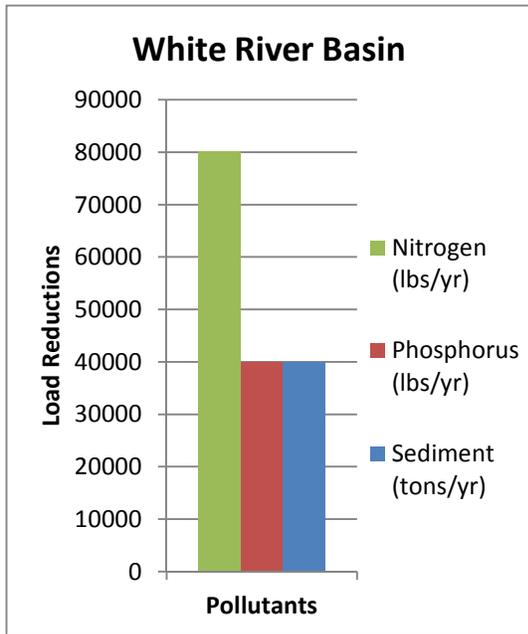
One project worked in the smaller Upper Mississippi River Basin this year. The estimated load reductions achieved in this basin were all due to cover crops. The number of BMPs implemented and the estimated load reductions in this basin also increased from last year even with one less active project.



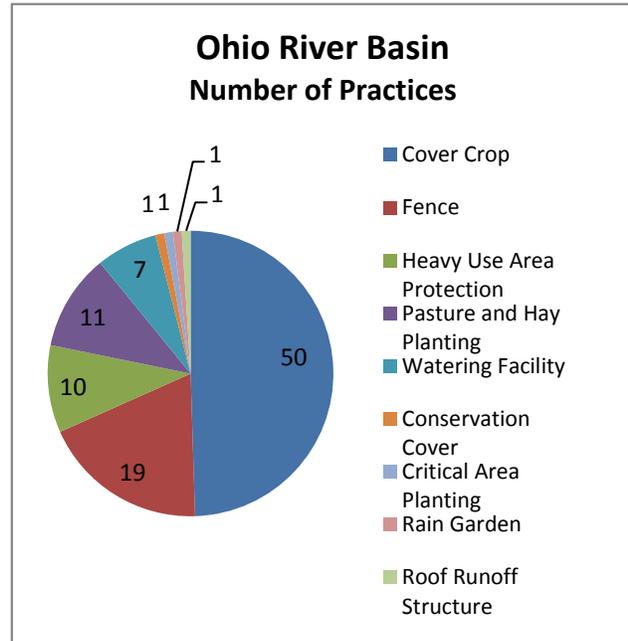
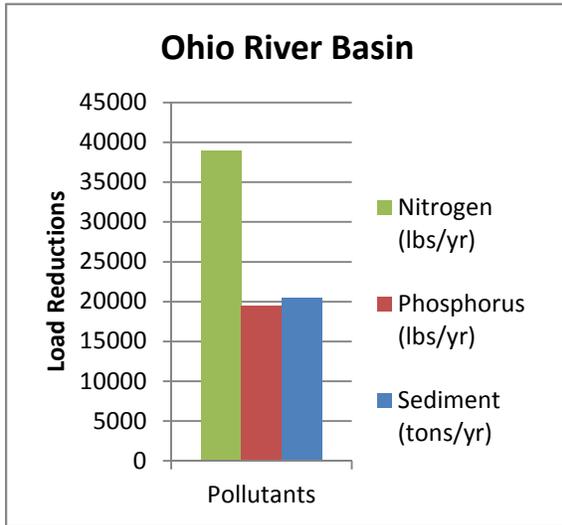
As part of the Mississippi River watershed, Indiana is involved in the Mississippi River/Gulf of Mexico Hypoxia Task Force and the strategy for eliminating the annual dead zone (or hypoxia zone) in the Gulf of Mexico. Nutrient loads from the Mississippi/Atchafalaya River Basin are contributing to eutrophication and harmful algal blooms in the Gulf. The development of [Indiana's State Nutrient Reduction Strategy](#) will benefit not only our state's local water resources, but ultimately the Gulf of Mexico and the Great Lakes.

Seven projects working in the Wabash River Basin this year reduced nutrient loads to the river as shown below. Again, the number of BMPs implemented and the estimated load reductions achieved have increased significantly from last year.





Four projects in the White River Basin worked to reduce nitrogen, phosphorus and sediment in the watershed. Most of the load reductions in this basin were due to the implementation of cover crops. The number of BMPs implemented and the estimated load reductions are similar to last year, even though there were two fewer projects active in the basin this year.



Four projects worked in the Ohio River Basin to reduce nitrogen, phosphorus and sediment; one less than last year. These reductions came primarily from implementation of cover crops and livestock-related BMPs.

Section 319 projects in Indiana continue to work to reduce nutrients, sediment, and other nonpoint source pollutant runoff into waters of the state, and ultimately into our larger national fresh and salt water resources. Each BMP installed by each project in each basin adds up to nonpoint source pollution reduction and improved water quality. The efforts of these projects help create nonpoint source success stories in Indiana each year. Following is the NPS Success Story for this year.

Nonpoint Source Success Story

Section 319 NPS Success Stories are stories about NPS-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.

In 2014, IDEM delisted the Devils Backbone-Indian Creek (AUID INN0452_05) for dissolved oxygen and *E. coli*. In 2015, IDEM submitted improvements in the Devils Backbone-Indian Creek watershed (HUC 051401040502) to EPA to fulfill both measures SP-12 and WQ-10. EPA has accepted four segments of the Devils Backbone for WQ-10 and has posted this Success Story online at <https://www.epa.gov/polluted-runoff-nonpoint-source-pollution/nonpoint-source-success-stories> (also summarized and shown below).

Watershed Restoration Work Improved a Section of Indian Creek

Nonpoint source pollution from agricultural and residential sources caused increased bacteria and decreased dissolved oxygen (DO) levels in the Devils Backbone section of Indian Creek. As a result, IDEM added this waterbody to its 2002 CWA Section 303(d) List of Impaired Waters for pathogens and low DO. Implementing a variety of BMPs in the greater Indian Creek watershed from 1996 to 2010 improved

bacteria and DO levels in Devils Backbone. As a result, Indiana removed four segments of the Devils Backbone section of Indian Creek from its 2014 CWA Section 303(d) impaired waters list.

Problem

The Devils Backbone section of Indian Creek is a 17.02-mile reach in Harrison County, Indiana (adjusted to 21 miles in 2012, see results section), just upstream of Indian Creek's confluence with the Ohio River (Figure 5). The stream is in the Indian Creek 12-digit watershed (HUC 051401040502). Although the impaired segment's 12-digit watershed is largely forested (represented by hash marks in the lower left of Figure 7), upstream of this watershed the creek is highly influenced by agriculture (particularly livestock agriculture, but some row crops as well) and the cities of Corydon and Galena.

Indiana's water quality standards for pathogens state that 30-day geometric means for *Escherichia coli* must be less than or equal to 125 most probable number (MPN) per 100 milliliters (mL), with maximum concentrations less than 235 MPN/100 mL. Standards for DO require daily averages of at least 5 milligrams per liter (mg/L), and minimum concentrations of 4 mg/L. Additionally, if one or more samples are less than 4 mg/L, no more than 10 percent of those samples may be less than 5 mg/L.

Water quality data collected by IDEM in 2000 indicated that these standards were not being met. The 30-day geometric mean of weekly *E. coli* samples collected from 7/12/2000 to 8/9/2000 was 163 MPN/100mL, with three of the five samples above the single sample maximum of 235 MPN/100mL. For DO monitored six times between 5/16/2000 and 8/9/2000, four out of the six samples fell below the water quality standard of 5 mg/L, and three of the samples fell below 4 mg/L. Due to these *E. coli* and DO levels, IDEM added the 17-mile Devils Backbone section of Indian Creek (INN04A3 _ 00) to the CWA section 303(d) List of Impaired Waters in 2002 for failing to attain aquatic life use (because of low DO) and recreational use (because of excess pathogens).

Project Highlights

From 1996 to 2006 The Nature Conservancy (TNC) reforested 4.4 miles of the Indian Creek riparian corridor under its statewide conservation strategy. TNC also conserved 61 acres of land as an addition to

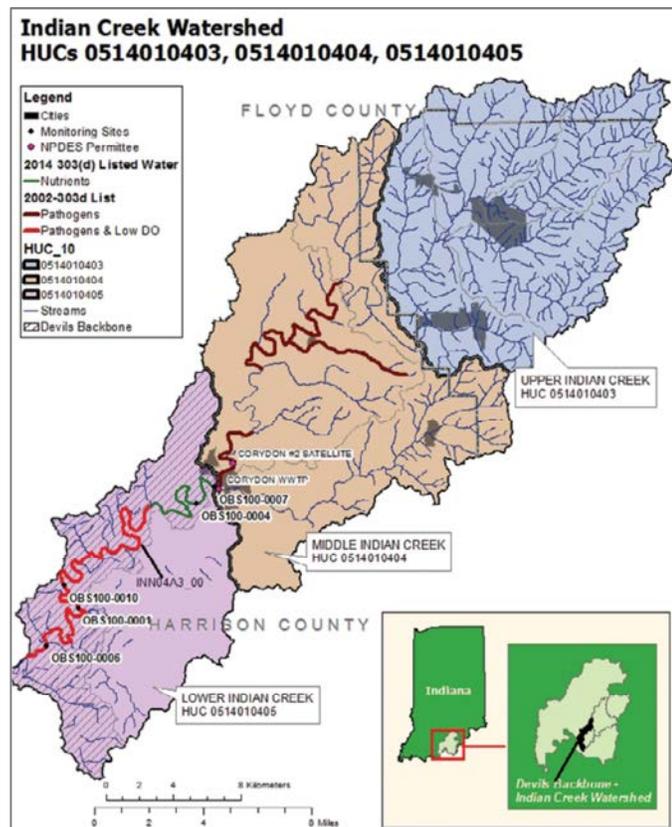


Figure 7 Devils Backbone in the Lower Indian Creek Watershed

Harrison–Crawford State Forest, which protected 0.6 miles of riparian corridor. TNC also worked with the Harrison County Regional Sewer District (HCRSD), local water utilities and Harrison County Health Department to mail a septic system maintenance reminder to Harrison County residents, including those in the Indian Creek watershed.

The Harrison County Commissioners tasked the HCRSD with developing a watershed management plan for Indian Creek. This WMP, developed from 2006 to 2008, helped to inform the location and type of subsequently implemented BMPs.

Project partners in the Indian Creek watershed used USDA NRCS financial and technical assistance (through EQIP) to implement numerous conservation practices between 2003 and 2010. A few of the practices installed with EQIP funding included 591.9 acres of cover crops, 2.5 acres of critical area planting, 145,100 feet of fencing, 1,111.6 acres in no-till farming, 2,177 acres of prescribed grazing, 1,363.9 acres covered under a nutrient management plan, and 3,155.1 acres of pasture/hay planting. Additional practices installed from 2003 to 2010 using USDA FSA CRP funds included 160.2 acres of permanent introduced grass and legumes, 116.6 acres of tree plantings (stream habitat improvement and management or riparian buffer), 46.6 acres of filter strips and 101.91 acres of riparian buffers.

Additionally, Harrison County allocated \$950,000 between 2002 and 2010 toward agricultural BMPs in the county, including 121 livestock watering facilities and 6,780 acres of cover crops. Harrison County also received funding from the Clean Water Indiana state fund and installed 67 acres of pasture/hay planting in the Indian Creek watershed.

Results

IDEM monitored *E. coli* weekly from May 17, 2010 through June 14, 2010. Results indicated that water quality standards had been met, with a geometric mean of 29.24 MPN/100 mL, and no samples exceeding the single sample maximum of 235 MPN/100 ml. IDEM measured DO in the watershed five times from May–July 2010. At no time did the DO fall below the minimum criterion of 5 mg/L.

On the basis of these data, IDEM removed four segments totaling over 21 miles (INN0452_04, INN0452_05, INN0452_06 and INN0452_07) of the Devils Backbone section of Indian Creek from the 2014 CWA section 303(d) impaired water list for DO and pathogen impairment. The removal of these impairments for four segments rather than the one originally listed segment was due to the resegmenting of the waterbody in 2012. (Note: The total length of these 2014 segments is longer than the originally listed 17 miles because the 2012 resegmentation was performed using higher resolution data from the National Hydrography Dataset.)

Partners and Funding

The restoration of Devils Backbone was supported by numerous state and federal partners. IDEM provided \$99,930 in CWA section 205(j) grant funding to the HCRSD to create the WMP. The NRCS provided \$687,567 in financial and technical assistance for conservation practice implementation with EQIP funding. The FSA provided \$55,094 in CRP funding. TNC provided \$210,000 in funding for stream restoration and outreach. Lastly, the Harrison County Soil and Water Conservation District provided \$950,000 through the county-funded cost-share program for agricultural BMPs.

Section 205(j) Grant Program

The Section 205(j) Grant Program is dedicated to water quality management planning. Funds are used to determine the nature, extent, and causes of point and NPS pollution problems and to develop plans to resolve these problems. There is no match required for these funds. This year IDEM anticipates receiving \$196,000 in FFY 2016 funds. These funds will be used for two watershed management plan development projects: Lower Patoka and Big Blue River. A list of all 205(j) projects open or pending during this fiscal year is in Appendix E of this report.

Integrating the NPS 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 Section 303(d). This framework is known as the Long-Term Vision for Assessment, Restoration, and Protection under the Clean Water Act Section 303(d) Program. In FFY 2015, IDEM NPS worked with the TMDL program to identify priorities according to the TMDL visioning process that would complement NPS program efforts. In FFY 2016, 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.

The NPS 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 Deep River, Southern Whitewater, Mississinewa, and South Fork Blue River). The TMDL program is currently revising its TMDL template so that the TMDL documents can be directly implemented with §319 funding.

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 NPS Program emphasized the restoration of impaired waters, while the issue of protecting sensitive, threatened, or high-quality waters was largely unrecognized. With the passage and EPA approval of state antidegradation rules (327 IAC 2-1.3) in 2012 protection as an objective became a consideration. For the purposes of this goal, the NPS 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.

The WPRS first attempted to address protection issues under this State NPS Management Plan starting in FFY 2014. In November 2013, IDEM embarked on a watershed characterization study in the Southern Whitewater watershed (HUCs 0508000205, 0508000306, 0508000308), an OSRW. The purpose of this study was to provide the data to complete a TMDL (for *E. coli*, total nitrogen, total phosphorus, and sediment) that would then be passed on to the local watershed group (a §319 planning grant recipient) for additional public involvement and BMP decision-making for a portion of the watershed. This TMDL includes two sections of river with Indiana endangered species (the variegate darter, *Etheostoma variatum*, Family: Percidae and the cobblestone tiger beetle, *Cicindela marginipennis*, Family: Cicindelidae, which is also globally imperiled). These species are sensitive to sedimentation, a primary result of nonpoint source pollution. A 9-Element watershed management plan is currently being written to address the pollutant loads in the Southern Whitewater River and protect the endangered species.

The South Fork Blue River TMDL and WMP project is another example of NPS work being done on vulnerable landscapes. This watershed is in the karst region of southern Indiana – an area rife with sinkholes, springs, caves, and disappearing streams. In this type of geologic system, ground water and surface water are often directly connected, allowing pollutants to bypass the filtering capacity of the soil. A TMDL project is currently underway for this watershed, as is a WMP. The TMDL and WMP will include protection elements for the South Fork Blue River which empties into the Blue River, the last-remaining Indiana refuge of the state-endangered eastern hellbender (*Cryptobranchus alleganiensis*).

Adaptive Management

The State NPS Management Plan states that IDEM will work with EPA to correct any deficiencies that might become apparent in the program through the NPS Annual Report. Since the completion of the State NPS Management Plan, several errors, omissions, or the need for simple changes have come to light. Table 4 Revisions to Reportable Activities for 2016 (updates in bold) outlines changes (in bold) that should be made to four objectives of the State NPS Management Plan, with justification.

Table 4 Revisions to Reportable Activities for 2016 (updates in bold)

Obj. #	MM	Objective	FFY Start	FFY End	Rationale for Change
1.3	b	Restore and protect water quality in critical areas of coastal WMPs: <i>Deep River</i>	2016	2017	The project is behind schedule in developing the WMP due to the time it took Purdue Calumet to work on the modeling efforts. Therefore, work on the restoration projects has not yet started.
2.10	a	Complete Hoosier Riverwatch External Data Quality Documentation template	2014	2015 2018	Development of this template has been abandoned in favor of developing online technical assistance. Some components of the draft that were developed earlier for this task will be incorporated into the online tool.
3.3	c	Work with partners on consistent messaging surrounding sediment and nutrients.	2015	2015 2018	This work will be a long-term coordination versus a one-time event, as originally conceived. IDEM would like to propose work on this topic will continue through 2018.
4.10	a	Investigate and adopt a standard method to estimate E. coli reductions.	2014	2018	Indiana continues to struggle with this objective and has asked for assistance from Region V. The last word on this has been that Region V is working to update the STEP-L and Region V models to include <i>E. coli</i> . Until further assistance is received from Region V, Indiana will likely not be able to move forward on this issue.

Appendix A

Reportable Activities for 2016*

*Items grouped together by color, denoting sub-objectives of the same parent objective

Goal 1: Utilize partnerships to leverage resources available for NPS 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 all outstanding measures on the LMCP CNPC plan. Progress: NPS reviewed and signed off on the draft work plan of interim timelines and benchmarks for full approval of the LMCP CNPCP. IDEM provided DNR information on fixed station pesticide sampling in the coastal zone for work on the pesticide management measure. IDEM reviewed DNR draft submissions for the inspection and maintenance of operating OSDS and for wetland protection management measures, pesticide measures, and grazing measures. IDEM drafted a memo outlining enforcement mechanisms and linkages with DNR that was submitted on 6/7/16. Received word that enforceable policies and mechanisms and grazing and pesticides measures are conditionally approved (7/15/16).	2014	2018	ongoing	ongoing – significant progress
1.1	a.	NPS NW WSS will assist the LMCP with on-site disposal systems measures as needed/requested. Progress: The NW WSS attended quarterly on-site disposal systems work group meetings in 2015 and 2016. NW WSS co-presented on the work of the work group at the Indiana Water Resources Association summer symposium (6/10/16).	2014	2018	ongoing	ongoing – some progress
1.2	a.	Complete ongoing TMDLs and WMPs in the Coastal Zone: <i>East Branch Little Calumet River</i> . (Note: there is no TMDL for EBLC – mistake in compiling table – correctly noted in Action Register). Progress: This plan was complete and approved by IDEM and EPA on 10/26/15. Save the Dunes did not apply to IDEM for FFY 2016 Section 319 funds to implement the WMP, but they are actively working on many objectives identified and are seeking alternative funding sources.	2012	2014 2016	ongoing	complete
1.2	c.	Complete ongoing TMDLs and WMPs in the Coastal Zone: <i>Salt Creek</i> . Progress: The TMDL was complete and approved 09/07/12 and has been posted on IDEM’s website. Completion of the WMP was turned over to U.S. EPA. A final WMP was complete 6/2/16. This WMP does not meet IDEM’s 2009 checklist and will not be eligible for 319 implementation funding. The NWIN WSS has monitored this project and has coordinated work with the stakeholder group, U.S. EPA and its contractor.	2010	2018	ongoing	complete
1.3	a.	Restore and protect water quality in critical areas of coastal WMPs: <i>Trail Creek</i> . Progress: The Trail Creek Section 319 implementation grant number A-305-3-47 closed out on 5/6/16. BMPs	2013	2016	ongoing	complete

Goal 1: Utilize partnerships to leverage resources available for NPS management.						
Obj. #	MM	Objective	FFY Start	FFY End	Frequency	Complete
		installed through this grant were 850.5 acres comprehensive nutrient management, a 4200 sq. ft. waste storage facility, 4580 sq. ft. of rain gardens and 108 acres of cover crops and total load reductions of 80 tons/yr. of sediment, 343 lbs./yr. phosphorus, and 1565 lbs./yr. of nitrogen.				
1.3	b.	Restore and protect water quality in critical areas of coastal WMPs: <i>Deep River</i> . Progress: The project is behind schedule in developing the WMP due to the time it took Purdue Calumet to work on the modeling efforts. Therefore, work on the restoration projects has not yet begun.	2015	2017	ongoing	delayed
1.4		Support the Conservation Reserve Enhancement Program (CREP), Mississippi River Basin Initiative (MRBI), 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 by:	2014	2018	ongoing	ongoing – significant progress
1.4	a.	Forwarding solicitation or information as it becomes available. Progress: The WSS share funding opportunities with groups and stakeholders in their regions as notices become available. Examples of funding that have been passed on include the Great Lakes Regional Habitat Restoration Partnership grants from NOAA, the Regional Conservation Partnership Program from the Natural Resources Conservation Service, and LARE watershed land treatment and diagnostic studies funding.	2014	2018	ongoing	ongoing – significant progress
1.4	b.	Participating 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: IDEM management attended ICP leadership meetings on 10/20/15, 12/15/15, 2/16/16, 4/19/16, 9/13/16. IDEM management is also highly involved in the development of the State Nutrient Reduction Strategy. A new IDNR program has come online – the Indiana Stream and Wetlands Mitigation Program’s In-lieu Fee program. Staff from NPS and DNR met on 5/6/16 to discuss how to integrate WMPs with this ILF program. Extensive follow-up to this meeting was provided by the NPS program. NE WSS is very involved in developing the Annex 4 Domestic Action Plan. DAP meetings/conference calls held 4/20/16, 6/21/16, and 7/8/16. NW WSS involved in choosing proposals for Sustain Our Great Lakes (National Fish and Wildlife Foundation) funding.	2014	2018	ongoing	ongoing – significant progress
1.4	c.	By promoting the programs through the watershed specialists (WSS) and work with watershed groups to identify/recommend projects that would fit well under the priorities for each funding source. Progress: As opportunities become available, the WSS work with local groups to match funding priorities to local project needs (examples include Region of the Great Bend (2015 LARE and MRBI funding) and Deep River (applied to LARE for dam removal feasibility study). DNR ILF staff will be traveling with WSS to meet with watershed groups soon.	2014	2018	ongoing	ongoing – significant progress

Goal 1: Utilize partnerships to leverage resources available for NPS management.						
Obj. #	MM	Objective	FFY Start	FFY End	Frequency	Complete
1.4	d.	By including them in relevant TMDLs as methods for implementation. Progress: Included in Section 9 of Southern Whitewater (submitted FFY 2015) and will be included in the Upper Mississinewa (to be submitted by the end of FFY 2016).	2014	2018	ongoing	ongoing – significant progress
1.5		Utilize the ICP as an advisory group for priority state NPS policies and updates by participating in bimonthly leadership meetings. Progress: IDEM management attended ICP leadership meetings on 10/20/15, 12/15/15, 2/16/16, 4/19/16, 9/13/16.	2014	2018	ongoing	ongoing – significant progress
1.6		Continue to provide technical assistance to local watershed groups through the WSS or project manager as documented through quarterly site visit reports and the Section 319 Annual Report. Progress: WSS provided technical assistance to at least 76 distinct groups in FFY 2016. Site visit reports are on-file with related project documents.	2014	2018	ongoing	ongoing – significant progress
1.7		Utilize the TMDL-WMP template for 2014 TMDLs and beyond. Progress: The TMDL template is in the process of being updated to reduce redundancies and to align it more closely with U.S. EPA’s 9 Elements of a Watershed-Based Plan. The TMDLs currently being written are using a revised version of the 2009 template. U.S. EPA Region 5 NPS and TMDL staff reviewed the Deep River TMDL document against EPA’s 9-Elements checklist and provided feedback in order to assist IDEM in discovering which TMDL template sections needed additional language to meet the 9 elements.	2014	2018	ongoing	ongoing – significant 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 priority. Progress: Monitoring for NWQI continues on School Branch in Eagle Creek watershed, with monitoring at multiple levels by various partnership agencies (IUPUI - edge-of-field monitoring at Starkey property; IDEM - fixed station monitoring above and below Starkey; and USGS - sentry gage for watershed monitoring). New in FFY 2016: IDEM NPS funding USGS to install a sentry gage, 2 additional streamflow gages, 4 monitoring wells and provide additional monitoring and laboratory analysis through a Section 319 joint funding agreement (EDS# A305-6-5).	2014	2018	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 (annually). Progress: IDEM attended meetings and/or conference calls with NRCS on 11/19/15, 2/4/16, 4/21/16, 5/23/16, 7/14/16.	2014	2018	annually	complete for 2016
1.8	c.	Fund Silver Creek (051201040501) implementation as a critical area of the larger Middle Eel watershed through their section 319 grant (ARN 3-4). Progress: The Middle Eel Section 319 implementation grant number A-305-3-4 closed out on 3/3/16. BMPs installed through this grant were 1,433 acres cover crops, 535 acres conservation tillage, 313 acres nutrient management, 1 waste storage area, and 1 acre grassed waterway. Estimated load reductions from these BMPs: 2,129.2 tons/yr. total suspended solids, 12,896.4 lbs./yr. nitrogen, and	2012	2016	ongoing	complete

Goal 1: Utilize partnerships to leverage resources available for NPS management.						
Obj. #	MM	Objective	FFY Start	FFY End	Frequency	Complete
		3,277.2 lbs./yr. phosphorus.				
1.8	d.	Provide implementation funding for the Middle Patoka River watershed, thereby indirectly providing outreach and education to Ell Creek (051202090405), which, though not a critical area as defined in the Middle Patoka WMP, will receive benefits from the 319 grant (ARN 3-31). Progress: Ell Creek remained a NWQI watershed in FFY 2016 and the Section 319 grant closed in February 2016. Section 319 funds provided cost-share for a 0.025-acre rain garden in Ell Creek. Estimated load reductions from this BMP: 0.074 tons/yr. sediment, 3.6 lbs./yr. nitrogen, 4.5 lb./yr. phosphorus.	2013	2016	ongoing	complete
1.9		Support implementation of the State Nutrient Reduction Strategy (SNRS) once approved. Progress: A revised version of the strategy was submitted to U.S. EPA in October 2015. In the meantime, IDEM NPS has aligned solicitation priorities with draft priorities outlined in the SNRS.	2014	2018	ongoing	ongoing – some progress
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: In FFY 2013, \$455,550 in funding was allocated to the Deep River project within the coastal zone. This commitment has been met through 2017.	2014	until full approval	ongoing	complete
1.11		Coordinate with CWSRF to link loan applicants and local watershed groups. Progress: It has come to the attention of IDEM NPS that the CWSRF loan rates for most communities are at basement interest rates and that the addition of a NPS project will not lower the rate further, providing little incentive for communities to add a NPS project to their CWSRF loan.	2014	2018	ongoing	ongoing – no additional progress to date
1.11	a.	IDEM NPS will cross-reference the monthly SRF 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 SRF funding. Progress: IDEM continues to keep tabs on communities that have applied for CWSRF funding. However, given that the addition of a NPS project will not lower interest rates further, no communities have been approached this federal fiscal year to add a NPS project to their loan.	2014	2018	ongoing	ongoing – no additional progress to date
1.11	b.	Annually, the NPS program will notify the CWSRF and DWSRF program of the 319 projects that are approved for funding, upon notice from EPA. Progress: As of the writing of this report, IDEM has not yet received the grant award, including approved projects, from U.S. EPA for 2016. IDEM NPS will communicate awarded projects to CWSRF and DWSRF upon receipt of the FFY 2016 grant award.	2014	2018	annually	pending U.S. EPA award

Goal 1: Utilize partnerships to leverage resources available for NPS management.						
Obj. #	MM	Objective	FFY Start	FFY End	Frequency	Complete
1.11	c.	Where there are potential projects, the appropriate NPS staff participates with the CWSRF staff in the community orientation or planning meeting. A fact sheet describing the potential NPS project(s) opportunity is included in the SRF packet to the community, and the NPS staff promotes the potential project(s), provides contacts for technical assistance, and provides information on other funding sources active in the watershed (such as NRCS, Clean Water Indiana, 319, 205(j) etc.). Progress: The CWSRF loan program always promotes NPS projects to its applicants. Since no potential projects were identified this fiscal year, no additional contacts/fact sheets were provided to CWSRF applicants.	2014	2018	ongoing	ongoing – no additional progress to date
1.11	d.	The CWSRF program communicates to the NPS program those NPS project BMPs funded through CWSRF that were identified in the approved 319 WMPs. NPS staff ensures that this information is input into 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.	2016	2018	annually	complete for 2016
1.12		Work with partners to model, assess, and prioritize critical watersheds in the state. Progress: Reported as complete in FFY 2015.	2015	2018	ongoing	complete
1.13		Utilize IDEM WSS to assist partners with NPS planning and implementation activities. Progress: As a whole, the IDEM WSS provided watershed planning and implementation assistance to at least 76 distinct groups in FFY 2016. In addition, the NWIN WSS has provided assistance (grant review, coordination with other statewide stakeholders) to a group of constituents in NW IN who wish to pilot a Master Watershed Stewards program in Indiana. Also, NEIN WSS heavily involved in the creation of the Domestic Action Plan for the Western Lake Erie basin and sampling on School Branch for the National Water Quality Initiative.	2014	2018	ongoing	ongoing – progress made

Goal 2: Monitor and assess Indiana waters for NPS impairments and improvements.						
Obj. #	MM	Objective	FFY Start	FFY End	Frequency	Complete
2.1		Require the use of the Environmental Monitoring for Watershed Groups 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 2016 included the core parameters outlined in the Handbook.	2014	2018	annually	complete for 2016

Goal 2: Monitor and assess Indiana waters for NPS impairments and improvements.						
Obj. #	MM	Objective	FFY Start	FFY End	Frequency	Complete
2.3		Import 319 grantee data meeting appropriate data quality criteria into NPS-AIMS or the Hoosier Riverwatch Database to be uploaded into STORET on a routine basis. Progress: Eight datasets have been sent through WQX (presumably then uploaded to STORET): Headwater Yellow River- approximately 1900 data results. St Mary Implementation- approximately 5,000 data results. Little Calumet E Branch – approximately 1300 data results. Deer Creek Sugar Creek- about 1000 data results. Upper Salamonie – approximately 800 results. Trail Creek- approximately 11,000 results. Upper Tippecanoe River-Grassy Creek-approximately 2,100 results. Upper Iroquois River Implementation- approximately 300 results.	2014	2018	ongoing	ongoing – significant progress made
2.4		Invite the participation of local project leaders when conducting 305(b) CWA assessments on baseline monitoring data. Progress: South Fork Blue River assessment took place on 4/21/16 and included participation by the local watershed coordinator.	2014	2018	ongoing	complete for 2016
2.5		Evaluate results of the monitoring program and make adaptive management decisions on an annual basis. Progress: A monitoring program assessment meeting took place on 01/27/16. At this meeting it was determined that IDEM would no longer be measuring discharge for baseline projects, but would have local watershed groups use the drainage area ratio method of calculating discharge, as our TMDL program does.	2014	2018	annual	complete for 2016
2.7		Continue to fund the Clean Lakes Program (volunteer and professional) data collection for use in Clean Water Act 305(b) and 314 assessments and 303(d) listings. Progress: Indiana University continues to sample for the Clean Lakes Program under a FFY 2014 \$319 grant. This grant will fund the program through the 2018 sampling season. In the 2016 sampling season, 80 lakes are scheduled to be sampled for assessment.	2014	2018	ongoing	ongoing – annual progress made
2.8		Direct IDEM resources to perform baseline characterization monitoring of at least one watershed annually to support TMDL and watershed planning efforts. Progress: Monthly sampling for the South Fork Blue River TMDL and WMP began on 11/12/14 and ended on 10/6/2015. Monthly sampling for the Salt Creek watershed TMDL and WMP began on 11/16/15 and is scheduled to end in October 2016.	2013	2018	annually	complete for 2016
2.9		Utilize IDEM resources to monitor waterbodies identified as targets of the National Water Quality Monitoring 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 monitoring program. IDEM has also contracted with USGS (using FFY	2015	2018	ongoing	complete for 2016

Goal 2: Monitor and assess Indiana waters for NPS impairments and improvements.						
Obj. #	MM	Objective	FFY Start	FFY End	Frequency	Complete
		2016 §319 funds) to bolster its discreet and continuous monitoring of School Branch. All of the data collected (including IDEM data) will be evaluated at regular intervals during the study.				
2.10	a.	Complete Hoosier Riverwatch QAPP template. Progress: Development of this template has been abandoned in favor of developing online technical assistance. Some components of the draft that were developed earlier for this task will be incorporated into the online tool.	2014	2014 2015	one-time	abandoned
2.10	b.	Provide support for 20 Hoosier Riverwatch workshops (volunteer trainings) and maintain current loaner/teaching trunks. Progress: In FFY 2016, Hoosier Riverwatch has supported 15 (14 Basic and 1 Advanced <i>E. coli</i>) local workshops, educating and training 158 water quality monitoring volunteers, with 3 more workshops scheduled for this season, 1 of which is an Advanced <i>E. coli</i> workshop. The program has distributed 7 equipment packages to a variety of schools, non-profit, and government organizations. There are 35 instructors. The Riverwatch program maintains 23 loaner trunk locations around the State, with a couple of locations loaning out two trunks at a time.	2014	2018	annually	complete for 2016
2.10	c.	Provide support for maintenance and upgrades of the Hoosier Riverwatch water quality monitoring database and associated websites. Progress: Support for Hoosier Riverwatch database upgrades was accomplished through EDS#305-4-212, which was open 4/27/15-3/21/16. The water monitoring database was made compatible with other IDEM databases and site structure. The website has also been upgraded with a robust search feature.	2014	2018	ongoing	complete for 2016
2.11	b.	Complete the development of technical assistance materials for the EDF and web site development to support its implementation. Progress: OWQ is currently seeking funding from CWA Supplemental 106 funds to develop an online tool to facilitate the design of water quality monitoring projects and the development of associated quality assurance project plans by participants in the EDF. The content needed for this technical assistance was developed with CWA Supplemental 106 funds in 2013. In addition to the development of technical assistance content, the contractor for the 2013 project provided a matrix to help IDEM choose the best platforms and software to use in delivering content to participants in a cost-effective way. IDEM has determined that this content will be best delivered online through an interactive interface that will benefit both OWQ and EDF participants.	2014	2014 2015	one-time	ongoing - delayed
2.11	c.	Accept, review and rank water quality data provided by external organizations and, if appropriate, using the data to make 305(b)/303(d) water quality assessment and listing decisions. Progress: External organizations can submit their data to IDEM through IDEM's External Data Portal or by contacting the External Data Coordinator.	2014	2018	annually	ongoing -
2.12	a.	Evaluate water quality data submitted through the EDF process, as well as grantee monitoring,	2014	2018	annually	complete

Goal 2: Monitor and assess Indiana waters for NPS impairments and improvements.						
Obj. #	MM	Objective	FFY Start	FFY End	Frequency	Complete
		to identify watersheds that should be surveyed for possible NPS water quality improvements. Progress: Datasets collected by NPS grantees for the Flowers Creek was evaluated prior to IDEM's sampling for improvement in the watershed. NPS data from the Ell Creek watershed was also evaluated for trends of improvement – IDEM intends to sample for improvement in this watershed in 2017.				for FFY 2016
2.12	b.	Use additional resources (e.g., staff, funds, and technical support) to monitor water quality in watersheds where NPS restoration activities have occurred. The monitoring data will be compared to baseline information, if available, to gauge the efficacy of the work. Progress: Flowers Creek and Indian Creek were monitored for macro improvements on 10/13-10/14 and 10/21/15. Busseron and Eagle Creek were monitored during the 2016 field season for improvements in aquatic life and recreational uses.	2014	2018	annually	ongoing for 2016 field season
2.13		Continue the Ground water Monitoring Network (GWMN). Progress: Approximately 300 wells were monitored through the GWMN in 2016.	2013	2018	ongoing	ongoing for the 2016 field season

Goal 3: Develop and conduct a strategic outreach and education program						
Obj. #	MM	Objective	FFY Start	FFY End	Frequency	Complete
3.1	d.	Publicize septic system care/repair/replacement water-quality success stories through multiple media applications. Progress: No major success stories have come to light in FFY 2016, therefore, no stories have been publicized.	2014	2018	ongoing	ongoing – no additional progress to date
3.1	e.	Support technical events (such as IEHA annual conference), to exchange information between government partners, watershed groups, and citizens. Progress: The NWIN WSS has been working with the NWIN septic system work group to develop a presentation for the IEHA annual conference to take place in Michigan City in September 2016.	2014	2018	ongoing	ongoing – some progress
3.1	f.	Assist in providing outreach on septic systems in the Lake Michigan Coastal Zone. Progress: IDEM provided information on SepticSmart Week through Twitter, Facebook, and a press release. IDEM NWIN WSS participates in quarterly meetings of the NWIN Septic System Workgroup.	2014	2018	ongoing	ongoing – some progress
3.1	f.iii.	Promote the use of the Revolving Loan Fund for Septic upgrades and repairs. Progress: WSS promote the SRF for these types of BMPs whenever possible.	2014	2018	annually	complete for 2016

Goal 3: Develop and conduct a strategic outreach and education program						
Obj. #	MM	Objective	FFY Start	FFY End	Frequency	Complete
3.2	c.	Work with partners to develop a consistent message surrounding hydromodification. Progress: The Senior Watershed Planner continues to communicate with the Lowhead Dams Subcommittee of the Indiana Silver Jackets regarding messaging and safety.	2016	2016	ongoing	ongoing – some progress
3.2	d.	Publicize hydromodification/stream restoration success stories through multiple media applications. Progress: The Middle Eel River Watershed Partnership was recognized by the National Fish Habitat Partnership as one of “10 Waters to Watch” for their work on lowhead dam removals. This success is highlighted in this report.	2014	2018	ongoing	ongoing – some progress
3.2	e.	Continue outreach to the community of County Surveyors to become involved in water quality improvement through the IWLA, the Indiana Association of County Surveyors, local watershed groups, and county contacts. Progress: Two County Surveyors participated in the Indiana Watershed Leadership Academy in 2016: Noble and Blackford County Surveyors.	2014	2018	ongoing	ongoing – some progress
3.3	c.	Work with partners on consistent messaging surrounding sediment and nutrients. Progress: IDEM continues to be active in the development of the State Nutrient Reduction Strategy, the formulation of a Domestic Action Plan under Annex 4 of the Great Lakes Water Quality Agreement, and the Soil Health initiative supported by the Indiana Conservation Partnership. IDEM NPS-supported projects include partners working on 4R Certification and a phosphorus-risk reduction pilot.	2015	2015	ongoing	ongoing – some progress
3.3	d.	Publicize success stories through multiple media applications. Progress: Emma Creek and Devils Backbone were added to the NPS website as success stories. IDEM NPS highlighted Emma Creek as a success story on a field trip during the 2016 Indiana Water Resources Association summer symposium. Information was provided to Miami Co SWCD regarding the Flowers Creek Success Story, which they intend to write up as a press release/newsletter article.	2014	2018	ongoing	ongoing – some progress
3.3	e.	Work with other ICP organizations to strategize about outreach to absentee landowners. Progress: Multiple initiatives/projects unknown at the writing of this plan have been added as a requirement for the program or have taken longer than expected to complete. As a result, this objective has been delayed.	2015	2015	ongoing	delayed
3.4		At least annually review print and electronic materials for updates and republish as needed. Progress: Materials have been reviewed. No materials were republished this fiscal year, however, the program is currently discussing the revision of display materials to suit the current direction of the program.	2014	2018	annually	complete for 2016
3.5		Continue to provide citizen monitoring training through Hoosier Riverwatch and the Clean Lakes Program. Progress: In FFY 2016, Hoosier Riverwatch has supported 15 (14 Basic and 1 Advanced E. coli) local workshops, educated and trained 158 water quality monitoring volunteers throughout Indiana. There are currently 3 more workshops scheduled for this	2014	2018	ongoing	ongoing – progress made

Goal 3: Develop and conduct a strategic outreach and education program						
Obj. #	MM	Objective	FFY Start	FFY End	Frequency	Complete
		season, 1 of which is an Advanced E. coli workshop. The program has distributed 7 equipment packages to a variety of schools, non-profit, and government organizations. There are 35 instructors. The Riverwatch program maintains 23 loaner trunk locations around the State, with a couple of locations loaning out two trunks at a time. The Clean Lakes Program continued its Volunteer Lake Monitoring Program with approximately 84 volunteers collecting water transparency data using a Secchi disk and 54 of those volunteers also collecting Chlorophyll-a and total phosphorus water samples. New volunteers are trained for the program as they are recruited. Eight have been trained so far this year. At least 2 workshops are held each year to train volunteers to identify and monitor aquatic macrophytes and aquatic invasive species.				
3.6	a.	Produce 5 "Success Stories" (EPA WQ-10 Strategic Measure) by 2017 and publicize widely within Indiana. Progress: The Devils Backbone Success Story (counted toward FFY2015 results) was posted on EPA's Success Story website on 9/22/15. Flowers Creek SS was submitted to U.S. EPA on 7/22/16.	2014	2017	N/A	complete for 2016
3.6	b.	Publicize any awards given to watershed groups related to their water quality efforts in Indiana. Progress: Several watershed groups received awards this year, including the Lower and Upper Salamonie groups (recognized by the Indiana Lakes Management Society for their work to clean up the Salamonie Reservoir by working to address NPS in the watershed) and the Middle Eel River Watershed Partnership (recognized by the River Network as one of 10 "Waters to Watch" for their work removing lowhead dams and restoring fish communities.)	2014	2018	ongoing	ongoing – minimal progress made
3.7	a.	Utilize social media to provide up-to-the minute information to followers of IDEM's social media outlets. Progress: Reduction in public information officer staff has thwarted this objective in FFY 2016. IDEM tweeted about Septic Smart week for 2015, but no other Facebook/Twitter posts have gone out.	2014	2018	ongoing	ongoing – minimal progress made
3.7	b.	Continue to participate in the Pathway to Water Quality at the Indiana State Fairgrounds. Progress: IDEM NPS funded a grant request to upgrade the exhibit with the assistance of Ball State University students. SE WSS attended PWQ SC meetings/calls on 12/2/15, 1/6/16, 2/3/16, 3/2/16, 3/22/16, 4/13/16, 5/11/16, 6/1/16, 7/6/16, 7/27/16. Various NPS staff worked the exhibit during the state fair August 5 – 21.	2014	2018	ongoing	ongoing – significant progress made
3.8	b.	Initiate meetings with partners to discuss IDEM's goal of strategic messaging for the state on hydromodification. Progress: Discussions were initiated with the new IDNR wetland mitigation In-Lieu Fee program to consider how we talk about hydromodifications and mitigation with watershed groups. IDEM participated in a panel at the Indiana Water Monitoring Council's lowhead dam symposium (12/17/15). IDEM continues to participate in the Silver Jackets'	2014	2016	ongoing	ongoing-some progress made

Goal 3: Develop and conduct a strategic outreach and education program						
Obj. #	MM	Objective	FFY Start	FFY End	Frequency	Complete
Lowhead Dam subcommittee.						
3.9	a.	Continue to provide technical assistance to Purdue University's Indiana Watershed Leadership Academy. Progress: The Senior Watershed Planner attended an IWLA steering committee meeting on 11/9/15. All WSS attended and presented at 1st face-to-face meeting in Spencer on 1/21/16. All WSS plus Senior Watershed Planner attended graduation on 5/25/16 and facilitated a small group discussion.	2014	2018	ongoing	ongoing – significant progress made
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: NPS staff continue to sit on the advisory team for this group and attended team conference calls on 1/19/16, 3/16/16. Updates to individual development inventories for IDEM staff went out on 12/17/15.	2014	2018	ongoing	ongoing – significant progress made

Goal 4: Improve Indiana's water quality, including surface and ground water, by reducing NPS 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 in 2014 and beyond so that they are implementable using 319 funds. Progress: All TMDLs are written using the template. The Mississinewa River TMDL is in-progress and is being written on the template. The South Fork Blue River is in-progress and is being written on the template. Work has also begun on the Salt Creek (HUC 0512020808). U.S. EPA Region 5 NPS and TMDL staff reviewed the Deep River TMDL document against EPA's 9-Elements checklist and provided feedback in order to assist IDEM in discovering which TMDL template sections needed additional language to meet the 9 elements. Revisions to the 2009 template are currently being made, but the template as it stands does not result in documents that meet the 9-Elements, and therefore, are not implementable using 319 funds.	2014	2018	ongoing	ongoing – significant progress made
4.1	c.	Link TMDLs with baseline water monitoring projects for Section 319 watershed management planning applications. Progress: The following TMDLs are currently being prepared for submission to U.S. EPA.: Upper Mississinewa River, South Fork Blue River, and Salt Creek. Each of these watersheds also has a local watershed group that is working on a WMP. The local watershed groups are using the data and loads in their WMPs.	2014	2018	ongoing	ongoing – complete for 2016
4.2		Develop guidance for updating watershed management plans. Progress: Reported as complete in FFY 2015.	2014	2016	one-time	complete
4.3		Promote integration of WMPs with local comprehensive plans. Progress: Integration of WMPs	2014	2018	ongoing	ongoing –

Goal 4: Improve Indiana's water quality, including surface and ground water, by reducing NPS 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
		with local comprehensive plans is being promoted where and when there is opportunity.				some progress made
4.4	a.	Integrate disparate NPS program databases into one centralized integrated Watershed database to assist with tracking and reporting. Develop scope of work for the integrated databases project. Progress: Reported as complete in FFY 2015.	2014	2015	ongoing	complete
4.4	b.	Hire contractor to work on the project. Progress: This objective has been delayed as funding has been sought to develop the database.	2016	2016	one-time	delayed
4.4	c.	Develop database. Progress: As no funding has been obligated to this objective, work to develop the database has not yet begun.	2016	2018	ongoing	delayed
4.5		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 2016, there were thirty-three open 319 projects exceeding \$9 million to implement WMPs or to create a WMP, then implement it. As of the writing of this report, Indiana's FFY 2016 \$319 grant has not been awarded. The above reported projects are all funded through monies awarded prior to FFY 2016. Seven implementation projects were chosen to receive FFY 2016 funding and were proposed to U.S. EPA, including Lost River, Whitewater River, Middle Patoka, Mill Creek-Blue River, Big Pine Creek, Great Bend of the Wabash River, and Upper Salamonie River.	2014	2018	ongoing	ongoing – progress made
4.6		Repair previously-installed BMPs with the caveats outlined in the program policy. Progress: No BMPs required repair during FFY 2016.	2014	2018	ongoing	ongoing – no need for this FFY
4.7		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 NPS projects. The following watersheds with Section 319 staff contacts or funding history were awarded LARE funds for implementation in 2016: Blue River (Washington Co), Cedar Creek (DeKalb Co), Deep River (Lake Co), Eagle Creek (Boone Co), Eel River (Wabash Co), Iroquois River and Carpenter Creek (Jasper Co), Mississinewa River (Delaware and Randolph Co), Spy Run Creek (Allen Co), Trail Creek (LaPorte Co), Turtle Creek (Sullivan), Upper Tippecanoe River (Kosciusko Co), and Upper Tippecanoe River (Whitley).	2014	2018	ongoing	ongoing – significant progress made
4.8		Develop guidance for the identification of critical areas. Progress: This guidance is in progress. IDEM continues to work with U.S. EPA to clarify critical areas in ongoing individual watershed	2014	2014	one-time	ongoing – significant

Goal 4: Improve Indiana's water quality, including surface and ground water, by reducing NPS 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
		management plans. IDEM has created a new draft critical area guidance and has received comments from U.S. EPA.				progress made
4.9		Show partial or total restoration in at least 5 12-digit watersheds (at least 5 SP12 and 5 WQ-10; watersheds identified may count for both measures) in the five-year cycle 2013-2017. Progress: In FFY 2014, IDEM submitted the Little Elkhart River for its Success Story and Measure W watershed. The Little Elkhart River watershed Measure W and Success Story were approved by Region V on 1/14/15 and 6/8/15, respectively. The Little Elkhart Success Story was posted to the EPA Success Stories website on 7/16/15. In 2015, IDEM NPS submitted the Devils Backbone of Indian Creek as a Measure W (SP-12) and a Success Story (WQ-10). U.S. EPA HQ approved the watershed as a Success Story on 8/20/15 and as a Measure W (SP-12) on 3/11/16. In FFY 2016, IDEM NPS submitted the Flowers Creek watershed as a Success Story. No Measure W watersheds submitted for 2016 – though several watersheds with impairments on the 2002 303(d) list were monitored for improvement, no watershed meeting the Measure W criteria were found. Indiana continues to have difficulty with the 2002 baseline for Measure W and urges U.S. EPA to consider an alternative to this measure.	2013	2017	ongoing	ongoing – progress made
4.10	a.	Investigate and adopt a standard method to estimate <i>E. coli</i> reductions. Progress: Indiana continues to struggle with this objective. Indiana has continued to ask for assistance from Region V. IDEM's understanding is that Region V is working to update the STEP-L and Region V models to include <i>E. coli</i>. Until further assistance is received from Region V, Indiana will likely not be able to move forward on this issue.	2014	2014 2018	one-time	ongoing - delayed
4.11		Geolocate all BMPs installed through the Section 319 grant program in order to enhance the BMP GIS layer located in the NPS program. Progress: BMPs are being mapped on a continual basis.	2014	2018	ongoing	ongoing – significant progress made
4.12		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 2017 solicitation went out on April 1, 2016, with NOIs due June 1, 2016, and final applications due Sept 1, 2016.	2014	2018	annually	complete for 2016
4.12	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 Section 319 funding during FFY 2016 is available in Table 1 and on pages 48-51 of this report.	2014	2018	annually	complete for 2016
4.12	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 Section 319 funding during	2014	2018	annually	complete for 2016

Goal 4: Improve Indiana's water quality, including surface and ground water, by reducing NPS 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
		FFY 2016 is available in Table 1 and on pages 48-51 of this report.				
4.12	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 Section 319 funding during FFY 2016 is available in Table 1 and on pages 48-51 of this report.	2014	2018	annually	complete for 2016
4.12	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 Section 319 funding during FFY 2016 is available in Table 1 and on pages 48-51 of this report.	2014	2018	annually	complete for 2016
4.12	e.	Provide financial and technical support to install hydrological and aquatic habitat BMPs in critical areas identified in the plan. Progress: A list of the BMPs installed using Section 319 funding during FFY 2016 is available in Table 1 and on pages 48-51 of this report. Branch chief provided information on funding availability for low-head dam removal at a statewide water symposium on 12/17/15.	2014	2018	annually	complete for 2016

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		Encourage watershed planning activities in watersheds with Category 1 waters (including those waters identified in Table 15 and in subsequent Integrated Reports). Progress: In 2016, IDEM prioritized work in 98 HUC10 watersheds impacting outstanding state resource waters and/or waters with endangered, threatened, or rare species including the following watersheds with Category 1 waters: Salt Creek (HUC 0508000305), Hayes Branch-Laughery Creek (HUC 0509020306), South Fork Wildcat Creek (HUC 0512010703), and Dry Branch-Lost River (HUC 0512020808). The WSS are available to discuss watershed planning with all watershed groups, including those with Category 1 waters.	2015	2018	ongoing	ongoing – progress made
5.3		Participate as requested in Phase II wellhead protection planning. Progress: No request was made for NPS assistance in this endeavor.	2014	2018	ongoing	complete for 2016
5.4		Develop priorities for plans and implementation in watersheds that impact Outstanding State Resource Waters (OSRWs) and waters important for aquatic habitat. Progress: In 2016, IDEM prioritized work in 98 HUC10 watersheds impacting outstanding state resource waters and/or waters with endangered, threatened, or rare species.	2015	2018	annually	complete for 2016
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	2015	2018	annually	complete for 2016

		applications rank high enough for funding. Progress: No protection strategies were funded in 2016.				
5.6		Work with IDEM's Ground Water section and watershed groups, as well as CWSRF and Drinking Water SRF, to identify wells in need of proper decommission. Progress: Staff turnover has delayed this objective for FFY 2016.	2015	2018	ongoing	ongoing-delayed

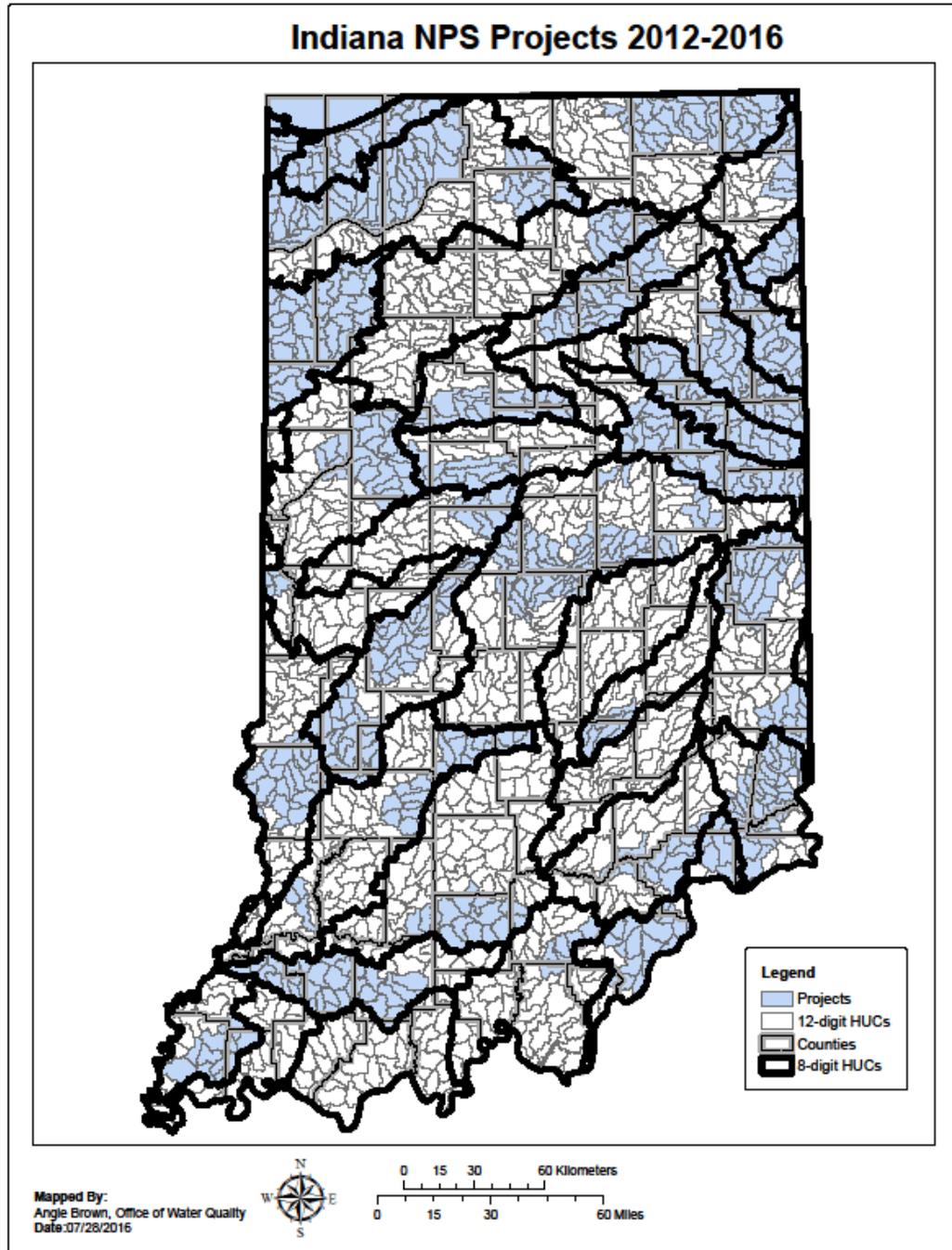
Appendix B

Open 319 Projects 9/1/15 - 8/31/16

FFY	ARN	Contractor	Project	Status	Start	End	Type
2011							
	2-16	St. Joseph River Watershed Initiative	Upper St. Joe Watershed Project	Closed	2/14/2012	1/31/2016	Combo
	2-21	Allen County SWCD	Upper Maumee WMP & Implementation	Closed	2/14/2012	1/31/2016	Combo
	2-22	Carroll County SWCD	Deer Creek-Sugar Creek WMP & Implementation	Closed	4/13/2012	1/31/2016	Combo
	2-25	Indiana University	Indiana Clean Lakes Program	Closed	1/5/2012	1/4/2016	Assessment
	3-60	Historic Hoosier Hills	Indian Creek Watershed Project	Closed	5/14/2013	1/31/2016	Restoration/Impl
2012							
	3-119	Dearborn County SWCD	Whitewater River WMP	Open	12/9/2013	1/31/2017	Planning
	3-18	Clinton County SWCD	South Fork Wildcat Creek Stewardship Initiative	Closed	12/21/2012	12/20/2015	Restoration/Impl
	3-31	Alliance of Indiana Rural Water	Middle Patoka River Implementation	Closed	1/18/2013	1/17/2016	Restoration/Impl
	3-4	Manchester University	Middle Eel Watershed Initiative Implementation	Closed	1/3/2013	1/2/2016	Restoration/Impl
	3-47	LaPorte County SWCD	Trail Creek Cost-Share Program	Closed	2/12/2013	2/11/2016	Restoration/Impl
	3-77	Sullivan County SWCD	Turtle Creek-Turman Creek-Kelly Bayou WMP	Open	8/23/2013	1/31/2017	Combo
	3-8	Steuben County SWCD	Pigeon Creek WMP Revision and Implementation	Open	1/17/2013	1/16/2017	Combo
	3-9	Huntington County SWCD	Lower Salamonie River WMP and Implementation	Open	1/18/2013	1/17/2017	Combo
2013							
	3-118	Clark County SWCD	Fourteen Mile Creek/Goose Creek-OH River Watershed	Closed	10/30/2013	1/29/2016	Planning
	3-120	Washington County SWCD	Mill Creek-Blue River Watershed Implementation	Open	10/10/2013	11/9/2016	Restoration/Impl
	3-122	Jay County Commissioners	Upper Salamonie WMP	Closed	11/19/2013	11/18/2015	Planning
	3-125	Northwestern Indiana Regional	Deep River-Portage Burns Waterway Watershed Initia	Open	1/1/2014	12/31/2017	Combo
	4-159	Gibson County SWCD	Lower Patoka Implementation	Open	12/9/2013	3/8/2017	Restoration/Impl
	4-162	Orange County SWCD	Lost River Watershed Implementation	Open	12/19/2013	12/18/2016	Restoration/Impl
	4-163	Wabash River Enhancement Corp.	Region of the Great Bend of the Wabash River Impl.	Open	12/9/2013	12/8/2016	Restoration/Impl
	5-9	Marshall County SWCD	Headwaters Yellow River WMP	Open	1/1/2015	12/31/2017	Planning
2014							
	4-212	EcoLogik, Inc.	Hoosier Riverwatch Database Upgrades	Closed	7/28/2014	1/27/2016	ProgramSupport
	4-215	Jasper County SWCD	Upper Iroquios Implementation	Open	11/8/2014	11/7/2018	Restoration/Impl
	4-216	Indiana University	Indiana Clean Lakes Program	Open	3/1/2015	1/31/2019	Assessment

	5-10	Upper Wabash River Basin	Upper Wabash River Implementation	Open	1/15/2015	1/14/2018	Restoration/Impl
	5-194	Purdue University	IWLA 2015	Closed	2/1/2015	10/31/2015	ProgramSupport
	5-3	Dearborn County SWCD	Hogan Creek Implementation	Open	11/16/2014	2/15/2018	Restoration/Impl
	5-5	Wayne County SWCD	Whitewater River Initiative	Open	10/2/2014	10/1/2017	Restoration/Impl
	5-6	Historic Hoosier Hills	Central Muscatatuck Implementation	Open	9/24/2014	9/23/2017	Restoration/Impl
	6-9	Allen County SWCD	P-Risk Reduction Pilot Upper Maumee	Open	1/20/2016	1/19/2019	Restoration/Impl
2015							
	6-1	Historic Hoosier Hills	Indian-Kentuck Implementation	Open	1/11/2016	10/10/2019	Restoration/Impl
	6-183	Clay County SWCD	Lower Eel WMP Implementation	Open	1/12/2016	7/11/2018	Restoration/Impl
	6-184	Indiana Association of Soil and	Pathway to Water Quality	Open	1/11/2016	4/10/2018	Education
	6-224	Sullivan County SWCD	TTK Implementation	Open	4/21/2016	4/20/2019	Restoration/Impl
	6-226	Greene County SWCD	Plummer Creek Implementation	Open	5/19/2016	5/18/2019	Restoration/Impl
	6-4	Manchester University	Middle Eel-Beargrass Creek Implementation	Open	1/11/2016	1/10/2019	Restoration/Impl
	6-5	U. S. Geological Survey	School Branch NWQI study	Open	1/11/2016	1/10/2019	Assessment
	6-7	Tippecanoe Watershed Foundation	Upper Tippi-Walnut Creek WMP	Open	1/1/2016	9/30/2018	Planning
	6-8	Posey County	Big Creek WMP Implementation	Open	1/15/2016	4/14/2019	Restoration/Impl
2016							
	6-239	Benton County SWCD	Big Pine Creek Watershed Implementation	Pending			Restoration/Impl
	6-240	Dearborn County SWCD	Whitewater River WMP Implementation	Pending			Restoration/Impl
	6-241	Jay County Commissioners	Upper Salamonie River WMP Implementation	Pending			Restoration/Impl
	6-242	Orange County SWCD	Lost River Watershed Implementation	Pending			Restoration/Impl
	6-243	Ouabache Land Conservancy	Otter Creek WMP	Pending			Planning
	6-244	Pike County SWCD	Middle Patoka River SWPP Implementation	Pending			Restoration/Impl
	6-245	Economic Development Group of	Treaty Creek-Wabash River Planning Project	Pending			Planning
	6-246	Wabash River Enhancement Corp.	Great Bend of Wabash River Implementation	Pending			Restoration/Impl
	6-247	Washington County SWCD	Mill Creek-Blue River WMP Implementation	Pending			Restoration/Impl

Appendix C



Map Projection: UTM Zone 16 N; Datum: NAD83. Data obtained from the State of Indiana Geographical Information Office Library and the IDEM's Nonpoint Source Program. This map is intended to serve as an aid in graphic representation only. This information is not warranted for accuracy or other purposes.

Appendix D

Project Summaries for Closed Section 319 Projects

FFY 2011

Upper St. Joseph River Watershed Project (EDS# A305-2-16) - The St. Joseph River Watershed Initiative (SJRWI) produced a watershed management plan (WMP) for the Upper St. Joseph watershed, Hydrologic Unit Codes (HUC) 0410000301, 0410000302, 0410000303 and 0410000304. The Initiative conducted a water quality monitoring program to help determine critical areas and nonpoint pollution sources. When the WMP was complete, the Initiative developed, promoted, and implemented a cost-share program for best management practices (BMPs) that addressed the water quality concerns outlined in the Upper St. Joseph WMP. The Initiative also conducted an education and outreach program designed to bring about behavioral changes that will lead to reduced nonpoint source pollution in the watershed, including a webpage on the SJRWI website (<http://www.sjrwi.org/>) to keep the public up to date on the project and its activities.

Upper Maumee WMP and Implementation (EDS# A305-2-21) – The Allen County SWCD produced a WMP for the entire Upper Maumee watershed, HUC 04100005. The District conducted a monitoring program to help with the development of the WMP. When the WMP was complete, the District developed, promoted and implemented a cost-share program to landowners within the Indiana portion of the watershed to implement BMPs that addressed the water quality concerns outlined in the Upper Maumee WMP. The District also conducted an education and outreach program designed to bring about behavioral changes that will lead to reduced nonpoint source pollution in the watershed including an Upper Maumee River Watershed Project webpage housed on the Upper Maumee Watershed Partnership's website at <http://www.uppermaumeewatershed.com/>.

Deer Creek-Sugar Creek WMP & Implementation (EDS# A305-2-22) - The Carroll County SWCD developed a WMP for the Deer Creek – Sugar Creek watershed, HUCs 0512010504, 0512010505, and 0512010506. The District conducted a monitoring program to establish a baseline of water quality for the development of the WMP. When the WMP was complete, the District developed, promoted, and implemented a cost-share program to implement BMPs that addressed the water quality concerns outlined in the Deer Creek – Sugar Creek WMP. An education and outreach program designed to bring about behavioral changes that will lead to reduced nonpoint source pollution in the watershed was also implemented.

Indiana Clean Lakes Program (EDS# A305-2-25)- Indiana University conducted an assessment of 246 Indiana lakes and reservoirs to determine water quality and track trends in lake eutrophication levels, train and support a corps of volunteer lake monitors, and conduct education and outreach on lake and watershed nonpoint source pollution issues. Education/outreach efforts included publishing and distributing the quarterly *Water Column* newsletter and maintaining and updating the Indiana Clean Lakes Program web site at <http://www.indiana.edu/~clp/>.

Indian Creek Watershed Project (EDS# A305-3-60) – The Historic Hoosier Hills RC&D (HHH) developed, promoted and implemented a cost-share program for BMPs that address the water quality concerns

outlined in the Indian Creek Watershed Management Plan (WMP). Water quality monitoring was conducted for educational purposes. The HHH also conducted education and outreach activities to encourage BMP implementation and reduce nonpoint source pollution.

FFY 2012

South Fork Wildcat Creek Stewardship Initiative (EDS# A305-3-18) - The Clinton County SWCD developed and implemented a cost-share program for BMPs that addressed the water quality concerns outlined in the South Fork Wildcat Watershed Management Plan. The District implemented one agricultural and one urban BMP as a demonstration project to educate the public on improving water quality through BMPs. This District also conducted outreach/education activities to promote BMPs and encourage water quality awareness and public involvement in the project.

Middle Patoka River Implementation (EDS# A305-3-31) - The Alliance of Indiana Rural Water developed and implemented a cost-share program for BMPs that addressed the water quality concerns outlined in the Middle Patoka River Watershed Source Water Protection Watershed Management Plan. The Alliance conducted a volunteer chemical, macroinvertebrate, and habitat monitoring program in critical areas in the watershed as documented in the WMP to show general trends in water quality, educate the public on water quality, and offer a way for them to get involved in the watershed. The Alliance also conducted an education and outreach program to promote the project and cost share program and update stakeholders on the project.

Middle Eel Watershed Initiative (EDS# A305-3-4) - Manchester University developed and implemented a cost-share program for BMPs that addressed the water quality concerns outlined in the Middle Eel River Watershed Management Plan. The University conducted a monitoring program to assess long term water quality trends and determine success of BMP implementation. They also conducted an education and outreach program to educate landowners on BMPs and encourage stakeholder participation in the project.

Trail Creek Cost-Share Program (EDS# A305-3-47) - The LaPorte County SWCD developed and implemented a cost-share program for BMPs that address the water quality concerns outlined in the Trail Creek Watershed Management Plan. The District also conducted an education and outreach program to educate watershed residents on nonpoint source pollution and water quality and encourage participation in the project.

FFY 2013

Fourteen Mile Creek/Goose Creek-OH River Watershed (EDS# A305-3-118) - The Clark County SWCD produced a WMP for the Fourteen Mile Creek/Goose Creek-OH River watershed, HUCs 0514010104 and 0514010106 (Indiana portion only). The SWCD conducted a monitoring program to obtain baseline data for the watershed to assist with the development of the WMP. The SWCD also conducted an education and outreach program to educate stakeholders on nonpoint source pollution and encourage project participation.

Upper Salamonie WMP (EDS# A305-3-122) - The Jay County Commissioners produced a WMP for the Upper Salamonie River watershed, HUCs 0512010201 and 0512010202. The Commissioners conducted a monitoring program to assist in determining critical areas in the watershed. The Commissioners also

conducted an education and outreach program to inform the public about water quality issues and get input on the watershed plan and educate stakeholders about water quality.

FFY 2014

Hoosier Riverwatch Database Upgrades (EDS# A305-4-212) – EcoLogik, Inc. upgraded the Hoosier Riverwatch Volunteer Stream Monitoring Internet Database (<http://www.hoosieriverwatch.com/>) so that it has infrastructure based on PHP (Hypertext Preprocessor) instead of ASP (Active Server Page); allows more flexibility for users to enter data easily on tablets or cell phones; allows the general public an easier time gathering information from the website; and allows users' data to be uploaded to IDEM's Assessment Information Management System (AIMS).

Indiana Watershed Leadership Academy 2015 (EDS# A305-5-194) – Purdue University completed the 2015 Indiana Watershed Leadership Academy that began under the previous grant (EDS# A305-2-72), including developing and coordinating the session programs for the remaining two face-to-face workshops; managing the distance education component; managing an interactive web site; holding at least four interactive online meetings to enhance community and discuss learning; holding a graduation ceremony; and providing a Professional Certificates of Watershed Management to those that complete the Academy.

Programmatic Section 319 Grant Conditions Met

- √ Progress reports and the Final Report entered in GRTS for all projects
- √ All mandated elements entered in GRTS for all projects
- √ QAPPs completed and approved prior to reimbursement for all projects collecting data
- All water quality monitoring data collected will be entered into STORET. Progress on this condition may be found in Appendix A, Goal 2, Objective 2.3

Appendix E

Open 205(j) Projects 9/1/15 - 8/31/16

FFY	ARN	Contractor	Project	Status	Start	End	Type
2013							
	4-179	Delaware Co. SWCD	Mississinewa River WMP	Open	1/30/2014	1/29/2017	Planning
	5-188	Georgia College and State University	Diatom Identification and Enumeration	Closed	10/29/2014	4/28/2016	ProgramSupport
	5-189	enfoTech and Consulting, Inc.	AIMS II Expansion, Enhancements and	Open	8/11/2015	8/10/2017	ProgramSupport
2014							
	5-1	Clinton County SWCD	Browns Wonder-Sugar Creek Watershed	Open	9/2/2014	5/1/2017	Planning
	5-180	Washington County SWCD	S.F. Blue River Watershed Project	Open	11/7/2014	3/6/2017	Planning
2015							
	5-240	U. S. Geological Survey	Kankakee Continuous Water Quality Monitoring	Open	11/20/2015	11/19/2018	Assessment
	6-3	Kosciusko County SWCD	Upper Middle Eel River WMP	Open	1/2/2016	6/30/2018	Planning
2016							
	N02	Gibson County SWCD	Lower Patoka WMP Rewrite	Pending			Planning
	N16-1	Shelby County SWCD	Big Blue River Watershed	Pending			Planning